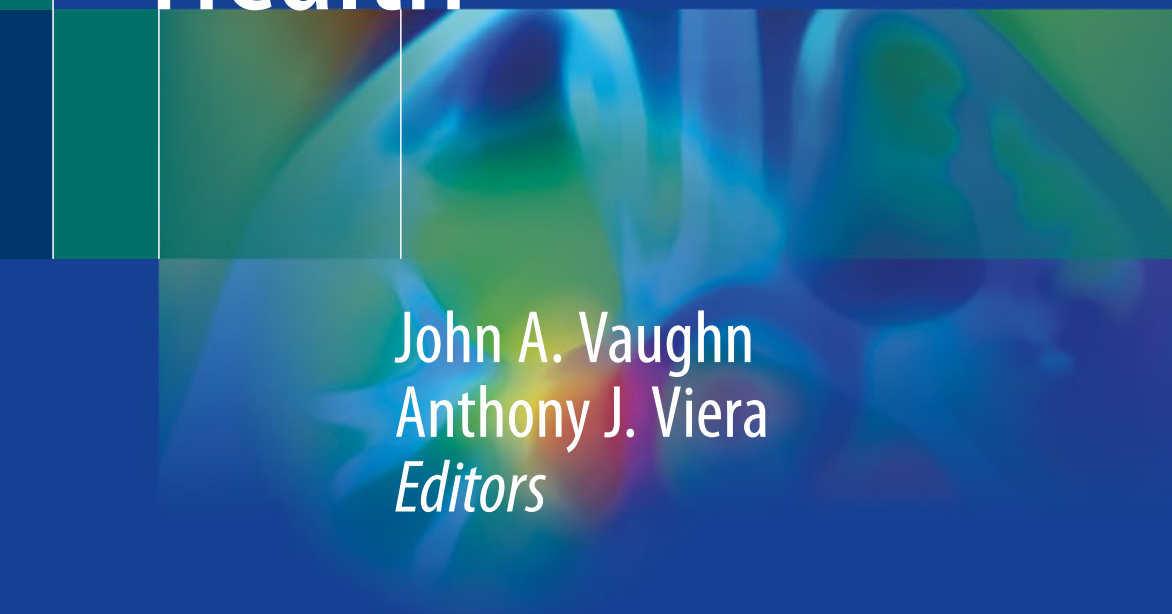
Principles and Practice of College Health



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Editors

Springer

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Foreword

I'd be remiss if I didn't thank Drs. Vaughn and Viera for the kind invitation to provide this foreword. It's my sincerest pleasure, and I believe this book is an important contribution to our field, and especially impactful as it coincides with the 100 years of the formation of the American College Health Association in 1920.

Dr. Edward Hitchcock Jr's model of physical education in the late 1800s forms the basis for what we know as modern-day college health and well-being. Through the ensuing century-and-a-half, some issues have remained the same, some are just a new face on an old problem, some are only now being recognized, and others are completely novel.

As Drs. Bernitz, McNeil, and Casani highlight in Chap. 14, preventing and preparing for outbreaks of vaccine-preventable illnesses on a college campus is as much of a challenge today as it was in the 1800s. In Chaps. 8 and 9, Drs. Moreno and Johnson describe the current state of practice for the management of what once was known as "social hygiene" through their detailed discussion of how our approach to sexual health and contraception has evolved with a greater focus on prevention and safer contraception, testing, and treatment options. While alcohol and tobacco on college campuses are certainly not new, Drs. Czachowki and Tims detail in Chap. 18 the new and increasingly complex state of substance abuse management that college health professionals must navigate today—from vaping and changing norms around marijuana use to the abuse of prescription medications. And finally, while some measure of anxiety and depression have always been a part of the college student experience, the stigma around mental health kept them from being recognized as the serious health conditions that they are. Chapter 4 discusses the advances in diagnosis and treatment in this area that are helping our students flourish and succeed today.

While we have come a long way from our humble beginnings as a field, our future is one that will continue to evolve. With rapidly growing advances in fields as diverse as wearable digital technology, clinical care delivery and support systems, and diagnostic testing, there is no doubt that we will continue to see significant changes in our field in the near future.

Implicit in every word in this book is the amazing spirit of service that each of our college health and well-being professionals possesses. Their dedication and passion is truly inspiring as they work tirelessly to make a difference in the lives of our nation's 19 million college students. The field of college health and well-being has been built on the shoulders of great leaders who believed they could make a difference.

I believe that this book will be an invaluable resource to current college health professionals and leaders. I hope it inspires them to get more involved in the broader conversation going on in our national organization, and I hope that it will ignite the fire within others to join our amazing field. We need the next generation of giants to lead us into the future—I invite you to join us.

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Preface

In 1861, Amherst College created the first physician faculty position dedicated to student health. Today, college health has its own national organization, academic journal, and clinical standards. In a very real sense, college health is its own "subspecialty" within primary care. As a defined patient population, college, graduate, and professional students have unique and complex health issues. The practice of college health draws on multiple disciplines including primary care, sports medicine, infectious disease, travel medicine, epidemiology, prevention, mental health, and substance use, among others. We developed this book because we saw the need for a resource that recognizes the many and varied unique challenges faced by college health professionals.

For the practicing college health clinician, this book provides tailored information that cannot be found in any other resource. For example, one can access great information on concussion management in many sources including the primary care and sports medicine literature, but none of those resources will address how to manage patients through the return-to-learn guidelines when they are in the midst of an intense professional program. Similarly, there are several authoritative resources on the medical management of ADHD, but very few that address the complexities of managing that condition in an environment with a transient patient population and elevated concerns for diversion.

For university administrators, this book examines and explains the medical considerations that inform many of the most pressing issues in higher education today. From an analysis of the distinct healthcare needs of special populations to how HIPAA and FERPA affect communication between a college health center and the rest of the university, to clinical implications for disability accommodations and medical leave policies, this book is an invaluable primer on how healthcare considerations intersect with the academic success of their students.

This book is also published during an unprecedented time in our lives, and the importance of college health has been seen in the country's college campus responses to the COVID-19 pandemic. Mental health issues, already highly prevalent among

college students, continue to surface for our students, as do the effects of systemic racism and historical injustices. The need for robust college health services that provide high-quality clinical care in the context of campus life has never been more clear.

Durham, NC, USA

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Part I
Common Clinical Problems in College Health

Chapter 1
Campus Travel Health Services

Julie Richards and Gail Rosselot

Introduction

One's destination is never a place, but a new way of seeing things. – Henry Miller

International student travel is on the increase. According to the US State Department, 325,339 US students studied abroad for academic credit in 2015–2016, an increase of 4% over the previous year [1]. Additionally, tens of thousands of college-age students travel yearly overseas for leisure, volunteerism, visits to family and friends, and employment. At the same time, as reported by International SOS in 2018, "student travel is becoming more adventurous, with students expanding their interest beyond traditional destinations in Europe to Latin America, Africa, and the Asia-Pacific countries. In these countries, they are exposed to new and unfamiliar environments that may pose unique physical and mental health challenges" [2].

In response to more student travel and mounting requests for travel health services, colleges and universities are choosing to initiate or expand student travel health programs. These can be configured in several different ways:

- Comprehensive pre- and post-travel services that include assessments, the provision of yellow fever vaccine, customized essential education, and post-trip illness evaluation and diagnostic testing
- Delivery of pre-travel care only that includes assessment and the provision of customized essential education plus all necessary vaccinations or only a partial menu of travel immunizations
- Pre-travel assessment and essential education with referral to community resource for all vaccinations

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- Referral service for community travel health services
- Clinics that also serve faculty, administration, family members, and the larger community

Colleges making the decision to provide travel health services will want to address certain issues as part of the planning process, including staffing levels and training, budget, and coordination with campus stakeholders and community resources [3].

This chapter is divided into two sections that will describe the delivery of comprehensive pre- and post-travel services in a campus health setting.

Part I: Pre-travel Health Services

Preparing the Student to Travel Internationally

The value of the pre-travel consultation offered by campus health is the provision of a student-centered appointment that includes an individualized health and safety risk assessment, professional interpretation of itinerary risks with a focus on recognized hazards for students, and a customized plan for risk reduction. Students can expect to receive comprehensive care and guidance with regard to the many prevention options available to them whether they seek pre-travel care on their own or as a school administration requirement. It is not uncommon for students to seek pre-travel care in conjunction with another health visit: "By the way, I am spending Spring Break in Cancun. Do I need anything?" Students bring many different travel concerns and questions to a pre-travel consultation including: "Do I need all the vaccines CDC suggests?" "Will I be at risk for malaria if I just make a day trip there?" "Should I purchase my medications abroad?" "What can I do if I get sick?" "Can I catch something and then give it to my partner or roommate?" "Is there anything you can do if I am leaving tomorrow?"

Campus health should be prepared for last-minute travelers, an inundation of appointment requests preceding school breaks, and frequent conversations about service charges, payment options, and students' lack of funds.

Prepare Campus Health Reception for Student Travel Health Inquiries

Taking calls about travel health services and making travel health appointments requires special "front desk" skills. Travelers frequently ask administrative staff questions about vaccines, destinations, vaccine charges, insurance coverage, and much more. Prepare clinic staff for the types of questions they can expect and suggest ways they can respond that are efficient, courteous, and accurate. Discourage

the sharing of specific information about a given destination (e.g., "Yes, you will need to take malaria pills if you go to Ethiopia."). Rather, instruct reception to make appointments according to site protocol and direct callers with general destination inquiries to the US Centers for Disease Control and Prevention (CDC) travel health website [3, 4].

The Pre-travel Consultation Visit

Fortunately, most travelers experience few serious health or safety problems on their journeys. Certain risk factors, however, do increase the possibility of problems for students "on the road." The purpose of the pre-travel consultation is to identify travel health risks and eliminate or reduce them whenever possible.

The pre-travel visit consists of four steps or phases:

1. Assessment of the traveler
2. Assessment of the trip
3. Itinerary research for destination risks and risk-reduction strategies
4. Implementation of an individualized care plan

Documenting the Pre-travel Consultation

Campus health will want to design and revise, as needed, a pre-travel consultation record pertinent to their student population. This record can be used by clinicians to ensure consistency, efficiency, and completeness. Many schools utilize commercial electronic medical record (EMR) systems specifically designed for campus health (e.g., Point and Click), and these can include pre-travel assessment forms that students complete electronically in advance of their appointments. Some universities will not arrange a pre-travel visit until a completed student assessment form is received by campus health (see Appendix 1.1).

Step 1: Assessment of the Student Traveler

The clinician will collect pertinent information about the student that will help in the identification of potential travel risks for this trip:

- Demographic information (e.g., age, place of birth, gender, class year)
- Health history: Medical, dental, mental health, including recreational substance use
- Immunization history: Vaccinations, vaccine-preventable diseases, possible titers
- Allergies (vaccine and vaccine additives, medications, environmental, food; need for epinephrine auto-injectors)
- Medications (over-the-counter [OTC], prescription [RX], herbal, non-US)

- Pregnancy status, if applicable (last menstrual period [LMP], risk for pregnancy, contraception, fertility treatments, breastfeeding)
- Health and travel medical assistance insurance
- Any trip assessment or approval forms that need clinician completion
- Any specific requirements for a study abroad or volunteer program (e.g., vaccine titers, tuberculosis [TB] testing, glucose-6-phosphate dehydrogenase [G6PD] test)
- Hobbies, interests, dietary concerns, recreational interests that might impact risk
- "Red flags" that might contribute to increased health or safety risks during travel. These include acute or unstable health conditions, contraindications to vaccines or travel medications, and increased needs for medical care abroad. Health conditions such as seizures, diabetes, cardiovascular disease, asthma and other respiratory problems, and bleeding disorders are examples of potential "red flags."
- Students with special considerations may warrant additional assessment, including study abroad, healthcare elective, foreign-born, pregnancy, physical disabilities, psychological health issues, LGBTI students, and students working in agriculture or wildlife programs
- Student's concerns about this trip

Note that physical examination is not routinely included or warranted in most pre-travel consultations; some colleges, however, will record vital signs and student weights. A health history with an unclear pregnancy status warrants pregnancy testing. The presence of a "red flag" does not necessarily mean that a trip should be cancelled, postponed, or altered; the clinician may be able to continue with the pre-travel consultation, but appropriate follow-up for a "red flag" will be part of the customized pre-travel care plan.

Once the traveler assessment is complete, the clinician proceeds to the next step and asks the student about the planned trip.

Step 2: Assessment of the Trip

Many itinerary factors contribute to the health and safety risks of international student travel. The clinician will want to document the following:

- Destination(s): Exact itinerary, in order of travel including any layovers and airport refueling stops; specific regions and locations within all countries; are the destinations urban, rural, or a combination? Rural travel, multiple destinations, and poorly resourced countries increase the risk for health and safety problems. Students will often have largely undefined "vagabond" itineraries that challenge the clinician.
- Departure date: How far off? 4–6 weeks? Short-notice? Tomorrow? 4–6 weeks allows for more preparation time, but many students engage in last-minute travel, leaving in 2 weeks or less.
- Duration of travel: Trip length (e.g., less than 3 weeks? long-stay? overnight only? unknown?); any possible trip extensions? Risks increase with journey length, especially 3 months or more, and undefined itineraries.

- Trip purpose: Reason for travel, including leisure, study abroad, humanitarian, VFR (visiting friends and relatives), healthcare elective or volunteer, athletic competition, research project, some combination, or others?
- Elevation: Highest altitude at destination? If more than 2500 meters, altitude illness can be an added risk.
- Planned activities: Visiting or volunteering in schools, orphanages, health clinics, research labs, or construction projects? High-risk sports such as bungee jumping, motorcycle use, scuba, or mountain climbing?
- Level of accommodation: 5 star, 3 star, or no star hotels, hostels, cruise ship, staying with locals, camping, couch-surfing, safari, long-stay apartment?
- Contacts: Local populations, young children, animals, sick persons, sex workers?
- Traveling companions: Classmates, family, friends, young children, traveling alone? If part of a group, beware that a student may receive competing prevention messages from other group members, different clinicians or Internet searches.
- Cultural and language differences at destination.

Step 3: Itinerary Search for Destination Risks and Risk-Reduction Strategies

Once the assessment information has been gathered about the traveler and the trip, the clinician is ready to research the trip destination(s) for health and safety risks. The free CDC travel health website can be used, but most colleges serving sizeable numbers of travelers find it efficacious to utilize one of several subscription itinerary search services [4]. Clinicians new to travel health often find it useful to research itineraries in advance of a student's visit to anticipate destination risks, potential counseling topics, and the need to stock certain vaccines.

Itinerary search engines all provide similar information: suggestions for recommended and required vaccinations, risks for non-vaccine-preventable diseases including food and water safety, malaria and other vector-borne illnesses, security alerts and safety risks; information about climate, outbreaks, altitude, and disease maps (e.g., yellow fever, malaria); and information about medical services and US embassies and consulates. Paid subscription services can create reports for itineraries with multiple destinations as well as customized campus health contact information and messages.

Step 4: Implementation of the Care Plan for Risk Mitigation

With the assessment and itinerary research completed, the clinician can identify relevant health and safety risks for this traveler and trip and suggest a plan of care that may include:

- Immunizations: Routine per US vaccination standards, recommended for the itinerary or required for border crossings
- Travel medications and items for a personalized travel medical kit

- Health counseling on a prioritized number of health and safety topics
- Consultations and referrals for services either on campus, in the community, or at destination
- Suggestions for post-trip care
- Additional print, Internet, or smartphone resources for further student learning

Before finalizing the plan, clinicians may need to consult with providers within the university or community for students with special considerations. Campus health should anticipate this need and have policies and protocols in place with various campus stakeholders (e.g., psychological services, study abroad office, athletic department).

Every travel risk cannot be known, or addressed, at the pre-travel visit. It is necessary for the clinician to prioritize risk-reduction efforts and proceed to implement a customized and realistic plan with the agreement of the traveler. The GeoSentinel surveillance network reports that student itineraries are frequently "constrained by financial limitations and alcohol binge drinking and experimentation with recreational drugs are often a feature of student travel abroad…"; this "can lead to sexual risk-taking, traumatic accidents and negative encounters with local law enforcement officials" [5].

Most travel health consultations can be completed in a single visit, which minimizes the need for additional visits for busy students. The pre-travel care plan will consist of both pharmacological (immunizations and medications) and non-pharmacological (student health education counseling and referrals) interventions.

Pharmacological Risk-Reduction Strategies: Immunizations and Medications

Immunizations

Campus health will offer three types of vaccines to protect the student traveler: routine, required, and recommended. Itinerary search engines will provide a list of suggested vaccines for each destination (see Chap. 15 "Immunization Compliance Management").

- Routine immunizations: Ensure that every traveler is up to date with the current Advisory Committee on Immunization Practice (ACIP) routine vaccine schedule. International travelers are at increased risk for vaccine-preventable infections at many global destinations. Yearly influenza immunizations are essential. Be sure to confirm the immunizations of foreign-born students. Routine vaccinations differ significantly between countries, and no comprehensive list for country-specific vaccination schedules currently exists.
- Required (or regulated) immunizations: Yellow fever (YF) is the only "required" vaccine—a term that can be confusing to the student traveler. Under the World Health Organization's (WHO) International Health Regulations, a yellow fever vaccination certificate (i.e., International Certificate of Vaccination or Prophylaxis, ICVP) may be required to enter certain countries. In general, yel-

low fever requirements are in place to prevent the importation and transmission of yellow fever virus within the local population. Protection of the traveler may not be of paramount concern. Some countries may have the *Aedes* insect vector that transmits yellow fever but no mandate for YF immunization. The clinician will confirm if yellow fever is required for the itinerary or recommended for the protection of the traveler. Countries at risk for yellow fever lie in the so-called yellow fever belt—two regions in Amazonia and sub-Sahara Africa [6]. Clinics must apply to their state for designation as a yellow fever center and to receive their ICVP yellow fever stamp.

Note that meningitis ACYW135 vaccine is an exception to this rule and is required by visitors to Saudi Arabia during the time of the Hajj or pilgrimage to Mecca. A polio booster also may be required for students exiting certain countries after extended stays. Itinerary search engines will alert the campus health clinician to these special requirements (and others if they arise).

- Recommended immunizations: These are immunizations to protect the traveler from vaccine-preventable health hazards at their destination. Typhoid fever, Japanese encephalitis, rabies pre-exposure series, and cholera are examples of vaccines warranted for select destinations only. Itinerary search engines will alert the clinician to the need for these immunizations on a country-by-country basis.

Travel Vaccine Informed Decision-Making

Clinicians who order or administer travel vaccines need to take a standard immunization history and learn from the student: departure date, availability for a multiple vaccine dose schedule (hepatitis B, Japanese encephalitis, rabies pre-exposure series), finances for vaccine charges (remember that many routine vaccines are covered by the Affordable Care Act or parental insurance policies), and acceptance for multiple injections at one visit. The clinician then presents the student with vaccine recommendations for discussion/consideration/acceptance, utilizing the appropriate Vaccine Information Statements (VIS). Some travel vaccines are very costly; students may question or refuse recommended immunizations as they often underestimate travel risks or lack sufficient funds [7]. Students who exhibit vaccine refusal or vaccine hesitancy provide campus health clinicians with an opportunity for immunization education as it applies to global versus US disease risks.

Maximize the Initial Travel Health Visit

Clinicians will want to administer as many vaccines as the student is willing to receive at one visit. Students get busy and may not return to complete their immunizations before departure. It is not uncommon for travelers to have questions about the safety of receiving multiple vaccinations simultaneously. To allay such concerns, the CDC has a useful website “Multiple Vaccines and the Immune System”

to ensure that travelers receive maximum vaccine protection; clinicians will want to avoid missed opportunities to vaccinate due to misunderstandings about vaccine precautions [8].

Avoidance of Vaccination Errors

Student travelers often place time demands on clinicians providing pre-travel services. Despite those pressures, travel health clinics will need to comply with all applicable vaccine administration rules including the same-day rule, minimum interval, unnecessary repeat vaccine dosing, adherence to the strict rabies pre-exposure schedule, screening for precautions and contraindications, applicable regulations for immunization documentation, including the WHO ICVP card, proper management of averse and serious adverse events, and federal Vaccine Adverse Event Reporting System (VAERS).

Provide Every Student with an Immunization Record

Students should leave the pre-travel consultation with a portable record of all vaccinations received. Many campus health centers use the WHO ICVP card for this purpose, even if yellow fever vaccine is not administered. Others use cards available through the Immunization Action Coalition. The student should be encouraged to retain the card and make copies and/or smartphone photos for long-term storage in the cloud.

Travel Medications and the Travel Medical Kit

In addition to vaccines, recommendations for OTC and prescriptive medications to prevent or self-treat travel health problems (e.g., traveler's diarrhea, malaria, altitude illness, respiratory infections, allergies, motion sickness, leptospirosis) should be provided per clinic protocol and in accordance with state regulations and professional dispensing and prescriptive guidelines. Students should be reminded that medications should never go in checked luggage and inhalers and epinephrine autoinjectors should be accessible at all times during travel. Students may need to carry a clinician signed letter on campus health letterhead if they are carrying certain medications (e.g., psychoactive, narcotic, injectable, large quantities). Translation of that letter may be helpful or necessary.

Internationally, countries have different regulations regarding the importation of medications. Some prescription drugs that are legal in the United States are illegal in other countries. The clinician can assist the traveler to determine if a student's medications can be legally transported into another country, if a drug is available at destination, or if a substitute medication should be considered for the trip.

At the pre-travel visit, the clinician will also recommend items to include in a travel medical kit to assist the student with self-care during the journey. Every student should bring an oversupply of any prescriptive medications. Additional items will include repellent, sunscreen, first aid supplies, a thermometer, and other items as needed. CDC provides a more comprehensive list of travel medical kit items [9].

Non-pharmacological Risk-Reduction Strategies

Providing Health Counseling and Referrals in the College Travel Health Setting

The majority of health risks during travel are non-vaccine preventable. Health education is a critical component of every clinic visit. As travelers, students are naturally curious, often have a low perception of travel risks, and are subject to peer pressure to ignore prevention messages and engage in at-risk behaviors. During the initial assessment phases of the consultation, the campus health clinician identifies potential health counseling topics as well as the need for any local or international referrals.

Health Counseling

Health counseling is the "cornerstone" of a quality pre-travel visit. The CDC has stated that immunizations alone are inadequate preparation for international travel [6]. Pre-travel counseling uses epidemiological data to educate the student about trip risks and risk-reduction methods. Clinicians utilize adult principles of learning with visual and auditory reinforcements (handouts, compact disks, podcasts, apps, etc.) as supplements, not substitutes, for individualized counseling. Consultation counseling should be fully documented. Post-travel outcome evaluations such as email surveys or phone calls to returning students can be utilized to improve pre-travel counseling.

It is important to remember that "student travelers are a diverse group whose individual risks need to be considered above their student status when offering pre-travel health education and counseling" [10]. Destination printouts produced during itinerary searches provide excellent overviews to help customize and prioritize educational messages. CDC resources, standard travel medicine textbooks, and national nonprofit organizations (e.g., ACOG, ADA, AHA) offer guidance for counseling special travel populations.

No traveler can hear *every* prevention message. Students can become easily overwhelmed—even disheartened—by too much risk information about their journey. To maximize student comprehension within the time constraints of a busy practice, select essential prevention messages and deliver them in a focused, positive, and

health-promoting manner. Keep the messages short, simple, and personalized. As warranted, direct the traveler to the CDC website for further learning.

Group counseling can be an efficient method for educating student travel groups. Campus health may want to utilize this modality as a requirement for students participating in school-sponsored trips or study abroad programs. In addition, many colleges provide pre-travel educational content on their websites as supplemental or mandatory reading, and newer, novel travel education approaches are under development at many colleges. It must be emphasized, however, that professionals have the responsibility for pre-travel health counseling. At no time should untrained student peer counselors (including students from destination countries serving as trip guides) provide health counseling.

Counseling topics to consider with student travelers:

- *Self-Care for Acute or Chronic Health Conditions*: Any student with a chronic disease, severe allergy, a new or unstable health problem, or compromised immunity should receive guidance on health maintenance during the trip. As needed, referrals to health resources on or off campus and at destination may be appropriate (e.g., diabetes educator, allergist). If needed, this specialized counseling may require an additional travel clinic visit.
- *Vaccine Education*: By federal law, all travelers must receive education regarding the routine, recommended, or required vaccinations for the trip. VIS forms are used in conjunction with this teaching. Yellow fever and the recommended travel vaccines will be new to most students (for more information on immunizations, see Chap. 15 "Immunization Compliance Management").
- *Preventing Unintentional Injuries*: Motorvehicle accidents, recreational accidents, and drowning are important causes of young adult morbidity and mortality abroad. Alcohol use is often associated with these injuries and deaths. Prevention measures should be emphasized with students (e.g., avoid motorcycle use). Encourage students to carefully research adventure and extreme sports vendors and local safety regulations in advance using online forums, hotels or hosts, and tourism groups. Students should confirm that their supplemental travel insurance covers all planned activities [11].
- *Food- and Waterborne Illness*: Food- and waterborne illnessis the most common risk for international travel, and younger travelers are at higher risk. *Escherichia coli*, *Salmonella*, *Shigella*, Norwalk virus, typhoid, and other bacteria, viruses, and parasites can contaminate food and beverages on a trip resulting in bouts of mild to serious traveler's diarrhea. Careful food and beverage selection and self-treatment with hydration, loperamide, and antibiotics should be discussed.
- *Insect Vectors*: Mosquitoes, mites, ticks, and flies can transmit illness during travel. Dengue, chikungunya, Zika, and Japanese encephalitis are just a few of the diseases transmitted by mosquitoes. Students may be at higher risk for bed bug bites, scabies, or lice depending on the quality of their accommodations. Students need to practice personal protective measures (PPM) to reduce their risks for insect bites. Selection and proper, consistent application of insect repellant, use of appropriate barrier clothing, and use of nighttime barrier methods for sleeping are essential messages delivered during the pre-travel visit.

- *Malaria*: Malaria is a potentially fatal illness that is a risk in more than 100 countries. Travelers at risk for malaria will need careful, specific counseling on this topic. Clinicians should emphasize PPM, the proper selection and use of chemoprophylactic medications, and rapid evaluation for fever within 3 months post-travel. Students should be encouraged to read CDC content on this life-threatening illness [6].
- *Rabies*: Rabies is a serious threat in many world regions, and dogs are most likely to transmit the virus in their saliva. Rabies has a variable incubation period. Left untreated before symptoms first appear, the disease is invariably fatal. A vaccine is available for pre-exposure immunization and post-exposure treatment. It is critical to teach students animal avoidance and early intervention for any exposure. Students should be encouraged to read CDC content on this life-threatening infection [6].
- *Blood-borne Pathogens*: The rates of hepatitis B and human immunodeficiency virus (HIV) are significantly higher for many travel destinations. Longer-stay travelers and students who engage in certain activities, including unprotected sex, intravenous (IV) drug use, medical or dental care abroad, tattooing, body piercing, or acupuncture, are at risk.
- *Sexually Transmitted Infections (STIs):* Sexually transmitted infections are a risk if students participate in unprotected sex, sex with paid sex workers, and multiple partners. Sexual risk-taking is significantly associated with male sex, heavy drinking, drug use and >1-month duration of travel [12]. Students should bring a supply of condoms purchased at home and make wise choices about sexual activity during travel. A discussion of STI risk should be included in *every* student pre-travel visit (see Chap. 9 "Sexual Health").
- *Itinerary-Specific Environmental Risks*: Environmental risks include air pollution hazards, altitude illness (AMS or acute mountain sickness) when traveling above 2500 meters, and problems of hot and cold climates. Students need to understand the signs and symptoms of altitude illness and ways to prevent and treat this problem including the use of acetazolamide. Climbers need to understand the life-threatening risks and emergency measures for HACE (high-altitude cerebral edema) and HAPE (high-altitude pulmonary edema). Anyone traveling to hot and humid tropical environments should learn how to reduce their risk for dehydration, sunburn, heat exhaustion, heat stroke, and fungal infections. Travelers to cold regions need to understand the concept of layering garments and early recognition and intervention for frostbite.
- *Itinerary-Specific Safety and Security*: Safety and security are on the minds of most travelers. Students should be educated to use CDC Travel Health Notices to learn about outbreaks and changing health conditions at their destination. The US State Department Travel Advisories can alert students to unstable political environments. Travelers should be encouraged to enroll in STEP (The Smart Traveler Enrollment Program), which provides safety and emergency notifications to travelers and to understand the role of the American Citizen Service units at US embassies and consulates [13]. Clinicians will want to address sexual assault prevention as well as any current student concerns (e.g., pickpocketing, ATM scams, adulterated alcohol).

- *Self-Treatment for Routine Problems and Healthcare Access Overseas*: Students need to know how to self-treat uncomplicated health problems and access routine and emergency medical and dental care abroad. Encourage the creation of customized travel medical kits.
- *Medical Evacuation/Travel Assistance Insurance*: Students should understand the benefits and limitations of travel medical assistance insurance. Policies provide travelers with assistance for illness or injury during a trip and include 24/7 medical consultation access, referrals to medical services at the destination, and support for medical evacuation, if needed. Students with special health needs may want to also purchase trip cancellation policies.
- *Psychological Health Issues*: Travel to countries with different cultures, languages, and security regulations can be stressful. Students can be at risk for anxiety, loneliness, depressed moods, and alcohol and drug abuse. Clinicians will want to address the mental health impact of international travel and determine if a student may warrant an appropriate referral (see Chaps. 3 "Eating Disorders in College Health", 4 "Depression and Anxiety in College Students", 17 "Sleep on College and University Campuses", and 18 "Substance Use and Abuse: Alcohol, Tobacco, and Other Drugs").
- *Post-trip Concerns*: Post-trip concerns should be addressed at the pre-travel visit. Any need for post-trip health evaluation or diagnostic testing should be discussed. Any student symptomatic upon return should seek campus health evaluation. Asymptomatic longer-stay travelers, adventure travelers, students with chronic diseases, and those working, interning, or volunteering in healthcare settings may benefit from a post-trip evaluation at 6–8 weeks. All students returning from a malaria zone must know to seek care quickly in the event of a fever.
- *Personal Concerns*: Students research the Internet and talk with family and friends about proposed travel. Always inquire about any personal concerns not previously addressed.
- *Outbreaks*: Outbreaks can occur at any time. Every student traveler should be advised how they can best respond to these unanticipated events. Authoritative resources should be discussed so students can access up-to-date information that is free of bias and consistent with the US standards of care. These resources can provide disease updates, guidance for travel planning, and recommendations for primary and secondary illness prevention. The coronavirus outbreak can be utilized as an example of how travel risks can change and how resources can be best utilized during times of uncertainty.

Counseling students with special considerations:

- *Study Abroad*: Campus health will want to have a detailed protocol for preparing and counseling these students that is developed in collaboration with the study abroad office and other relevant campus stakeholders.
- *Pregnancy*: Depending on their estimated due date and status, pregnant students will likely require adjustments to immunizations, medications, the travel medical kit, and their itinerary. It is advisable that only clinicians experienced in care of the pregnant traveler should provide this consultation.

- *Students with HIV and AIDS*: Travel health risks depend on the immune status of the student. CD4 counts will determine if certain vaccinations are contraindicated, and low counts may necessitate altering an itinerary. HIV-infected students are at increased risk for more severe and chronic travel-related infections (e.g., traveler's diarrhea, malaria, STIs) as well as the acquisition of opportunistic ones (e.g., *Cryptosporidium*, *Cyclospora*, leishmaniasis) [14]. These travelers need clear instructions for carrying medications. Country-specific border requirements for HIV+ travelers change over time and should be checked prior to departure. Students will benefit if seen pre-travel by clinicians knowledgeable about the myriad aspects of international travel for persons with HIV and acquired immunodeficiency syndrome (AIDS) (e.g., medical, social, legal, and psychological) (see Chap. 10 "Special Populations").
- *Healthcare Students*: Additional pertinent topics for these travelers include universal precautions, the college's HIV postexposure prophylaxis policy and drug regimen, and any required post-travel evaluations. Johnson et al. suggest a helpful checklist for preparing healthcare students when traveling to low-resource countries [15] (see Chap. 12 "Health Science Students").
- *Students with Disabilities*: If students require assistive devices, service animals, or special accommodations (e.g., wheelchairs, portable machines, batteries, respirators, oxygen), the clinician can interpret regulations and help ensure availability on airlines, ships, and at destinations. Students may need referrals to specialist services at destination (see Chap. 25 "Students with Disabilities").
- *LGBTI Students*: According to the US State Department, "Lesbian, gay, bisexual, transgender, and intersex (LGBTI) travelers can face unique challenges when traveling abroad. Laws and attitudes in some countries may affect safety and ease of travel. Legal protections vary from country to country" [16]. Students may need to update their passports (photo, sex, name) and carry additional legal documents. They should research LGBTI laws at destinations and be aware of police "entrapment campaigns." Connect a student to helpful LGBTI travel websites and organizations for further preparation (see Chap. 10 "Special Populations").
- *International Students:*These students may be at greater risk for the hazards of VFR travel, psychological health issues related to cultural effects, and political-legal concerns of temporary US residency. Mahadevan and Strehlow report that international students frequently have less acceptance of pre-travel guidance for food safety, condom and insect repellent use [17]. Language and cultural barriers can pose counseling challenges with this travel population.

Referrals at Home and at Destination

Clinicians will want to assist students needing medical or dental referrals prior to departure, as well as other specialized referrals. Is the traveler afraid to fly, needs guidance with a vegan diet, or is fearful about a severe food allergy abroad? Knowledge of campus and community referrals can help in this effort. Any student, but especially those with chronic health problems, trips >3 months, or incomplete

immunizations, should receive help identifying healthcare services at destination. Resources for locating international referrals include travel medical evacuation insurance organizations, US embassies and consulates at destination, the International Society of Travel Medicine, and International Association for Medical Assistance to Travellers (IAMAT).

Part II: Travel Health

Illness in the Post-travel Patient

When seeing an acutely ill student, are you asking the question that could save her life? Likely not. Despite the large number of college students traveling abroad (approximately 1 out of every 10 students) [18], most campus health centers are still not routinely asking patients about travel. Asking *all* our patients about travel is important because some conditions are life-threatening, and there is a short window period to act (e.g., *Plasmodium falciparum* malaria, rabies). Other exposures can result in long-term sequelae that are often preventable (e.g., Chagas disease, schistosomiasis, mucocutaneous leishmaniasis). Many also have public health implications that can adversely affect other patients, your health center colleagues, and the broader community (e.g., SARS-CoV-2, Zika, Middle East respiratory syndrome, viral hemorrhagic fevers). Thankfully, most travel-related diseases are not serious, but they are quite common, with gastrointestinal problems, including diarrhea, being the most common. A recent literature review of all studies revealed that while 6–87% of travelers became ill, the rate of illness in those traveling to developing countries was between 43% and 79% [19]. Sometimes, the illnesses can be quite serious. In 1995, the International Society of Travel Medicine partnered with the Centers for Disease Control to form the GeoSentinel Surveillance Network, which now has 54 clinics in 24 countries collecting data on travelers and immigrants. Among travelers with fever, GeoSentinel found that malaria was the most common specific diagnosis and occurred in 29% of febrile travelers, disproportionately in those returning from Africa [20].

While research on student travelers is still limited, GeoSentinel published a study in 2018 that included 432 US students from 2007 to 2017. There were 581 confirmed diagnoses among them. Almost half the diagnoses were gastrointestinal with acute diarrhea comprising 43% of those cases. Seven percent of the students had vector-borne diseases including malaria (14 students) and dengue (11 students). Nine students received animal bites and five received rabies postexposure prophylaxis at a GeoSentinel site. Five students were diagnosed with sexually transmitted infections including two cases of HIV [21]. More research is needed on student travelers and the risk factors that may set them apart from other travelers.

As it stands currently, most primary care clinicians do not know how to appropriately manage the post-travel patient. Unless clinicians make travel heath a regular

part of their practice, it is almost impossible to remain current regarding the epidemiology and management of travel-acquired problems. The differential can be huge and daunting. Many serious travel illnesses initially look quite similar and mimic more benign or common illnesses such as influenza. For example, potentially fatal malaria, which should always be a major consideration, has "no typical clinical features" and presents without fever and with unexpected symptoms such as diarrhea, sore throat, or lower respiratory symptoms [22]. In addition, the nature of the accommodations (i.e., window screens and air-conditioning versus camping or staying with a host family), the type of activity (i.e., research in nontraditional destinations, freshwater exposure, spelunking, mass gatherings), the time of year (i.e., cold weather, monsoons), etc., can all play a role. To further complicate things, any febrile post-travel patient should have a same-day evaluation—waiting can lead to a catastrophic outcome.

Although dealing with these issues can seem overwhelming to the noninfectious disease provider, any primary care clinician or staff member of a campus health center can effectively participate in a systematic approach in triaging and caring for an ill post-travel patient. Moreover, the steps are not resource dependent, so any campus health center, despite fiscal limitations, can make these changes to improve the quality of care they provide and mitigate risk. The challenge lies in convincing staff to change their behavior.

The perspectiveis twofold:

1. Focus on what's common.
2. Identify what is uncommon *but possibly catastrophic* especially in the short term.

Questions to always ask yourself include:

- Is this a risk for me?
- Is this a public health risk?
- Malaria—yes or no?
- How much time do I have?
- How sick is this patient?

Six Steps to Up Your Game

Get a Plan in Place

A key first step is to identify important stakeholders to assist:

- Collaborate with the risk management team and any programs sending students abroad.
- Reach out to your local health department(s) and have phone numbers ready for all clinical staff to access in case of any suspected public health emergency. Your agency should have a pandemic plan already in place for any large-scale concern such as the novel coronavirus (COVID-19).

- Try to prearrange for one or more local infectious disease (ID) specialists to whom you can refer on the same day or at least collaborate with via cell or video conferencing. Ideally you want to develop a working relationship with an ID specialist who is still involved with tropical medicine; some ID specialists stick to very specific areas such nosocomial infections or HIV.
- Finally, reach out to your emergency department (ED) and assess where it is regarding training on this issue. Do not assume you can simply refer a patient to the ED. Unfortunately, many post-travel patients still "fall through the cracks" in these settings with critical illnesses such as malaria being misdiagnosed as "flu." These illnesses are simply not on the radar. Since certain varieties of malaria, such as *Plasmodium falciparum* or *Plasmodium knowlesi*, can result in death in as little as 72 hours because of their short reproductive cycles, any delays in accurate diagnosis and treatment are unacceptable. ED clinicians don't really have to know the nuances of malaria; they just need to know when it is a possibility and do the testing. The best thing to do is to call the ED in advance of sending any patient and inform the care team about the patient's travel history. Explain that malaria is a possibility, especially in anyone returning from sub-Saharan Africa. Include any other relevant history regarding exposures and a copy of the clinic notes with the patient.

Ask About Travel

This step is the most critical, as well as the easiest piece, yet many campus health centers are simply not doing it. It's wonderful if you have a clinician on staff interested in travel health who can be the lead and serve as a resource in this arena. Encourage additional training as plenty of good courses exist in both the United States and Canada. Also encourage membership in professional organizations, which can provide resources and support, including the International Society of Travel Medicine, the American Travel Health Nurses Association, and the Infectious Diseases Society of America. At least one staff-wide training is essential—receptionists, triage nurses, pharmacy, and psychological and counseling staff all play a critical role. *Febrile post-travel patients should always have same-day evaluations—period*. To make that happen, clerical staff should be asking about travel when a student wants to schedule a visit. Counseling staff should inquire about travel when a student is in a therapy session and reports a fever—and then immediately refer the student to medical services for evaluation. If you have peer health educators who serve as your "eyes and ears" on campus, integrate some travel health into their training as well, and have them ask any ill students they encounter about travel.

An electronic medical record is ideal for questioning students about travel when they schedule an online visit, as this allows for advanced planning *before they get to the clinic*. If you adopt only one change after reading this chapter, make it this one: Add the question "Have you done any international travel in the last 3 months?" to every provider and nurse encounter form.

Many campus health centers already have experience in dealing with contagious illnesses on campus such as measles or chicken pox and are comfortable managing those. They may not be prepared for the potentially large numbers of returning ill travelers with novel coronavirus. In addition, Middle Eastern Respiratory Syndrome or avian influenza, although rare, can certainly affect travelers. Viral hemorrhagic fevers such as Ebola virus disease (EVD) are the most concerning because of their high mortality rates and ease of transmission. The 2014–2016 outbreak in West Africa demonstrated how ill prepared we were to appropriately triage and manage ill travelers with potential exposures. Campus health centers can post signs outside the clinic that include a phone number for students to call before entering if they have been to any of the affected countries or have a close contact who is ill. Staff seeing post-travel patients should check their schedules in advance and contact students via email to get additional information regarding their itinerary, activities, type of accommodations, etc., to help identify any potential serious concerns. Every attempt should be made to avoid unnecessary exposures to staff, patients, and the broader community.

Personal Protective Equipment

Masks are your friend. Unfortunately, some staff are hesitant to use them or provide them to patients. They should be in waiting areas, and staff should request that any coughing patient wear one. Staff should wear one when seeing patients with a cough or vomiting. Influenza is common in travelers and non-travelers, yet it sometimes gets transmitted to staff and other patients because of failure to utilize the most basic of personal protective equipment (PPE). Respirators, masks, gloves, gowns, and protective eyewear can go a long way in protecting patients, staff, and the broader community from most transmissible illnesses. Embrace what you already know and what you have available.

Anyone with fever and rash, vomiting, or potentially very serious infections should be isolated. The CDC has guidelines on PPE recommendations for potentially more severe transmissible infections, and the campus health center should have a plan in place for triaging illnesses that mandate more enhanced infection control measures [23].

Risk Assessment: What Do I Need to Do Today?

History

When it comes time to assess the patient, several key elements need to be addressed. Most travel health-related problems present in the first few weeks after a trip; however, it may take longer for malaria to present—in some cases up to a year later. Essential components include:

- A complete itinerary of every country and areas visited in the last 3 months and dates the patient entered and left each area.
- The purpose of the trip (i.e., business travel, research in the Amazon, providing health services, etc.).
- Accommodations (i.e., window screens/air-conditioning present, camping, homestay with family).
- Specific exposures (e.g., animal bites or bird markets, freshwater exposure, new sex partners, medical or dental care abroad, etc.). Do keep in mind that travelers, especially with any history of medical or dental care abroad, may be harboring bacteria resistant to many antibiotics.
- Pregnancy status (pregnant or planning a pregnancy) is important, especially considering severe problems associated with Zika and malaria for both the pregnant patient and fetus.
- Finally, you'll want to determine if any pre-travel preparation, including travel vaccines or malaria prophylaxis among other things, was done. An initial post-travel assessment is included at the end of this chapter (see Appendix 1.2). A complete discussion on a detailed travel history is beyond the scope of this text, but the *CDC Yellow Book: Health Information for International Travel* (2020) [24] and *Approach to Fever in the Returning Traveler* [25] are excellent resources.

History of Fever Versus No Fever

Any traveler who reports recent fever (including subjective fever) needs a same-day evaluation. All symptoms are important, but fever is the most critical as it significantly expands the differential and includes some potentially very serious entities such as malaria, enteric fever, or severe dengue. This is true even if the person reports diarrhea and may have simple traveler's diarrhea, which is quite common. Malaria and typhoid fever patients may also have diarrhea so further evaluation is warranted.

If patients report diarrhea with no fever, they usually can be treated per current CDC guidelines *without additional testing* starting with antimotility drugs, such as loperamide. It is not usually necessary to waste money doing testing to identify a particular agent. If antibiotics are needed, azithromycin is preferred at 1000 mg in a divided dose to avoid GI upset [26].

On a side note, do not recommend nonsteroidal anti-inflammatory drugs (NSAIDs) or other salicylates to any febrile traveler returning from dengue areas because of the increased risk of bleeding [27]. As most campus health center staff are not necessarily aware of where dengue is present, a simple approach is to recommend acetaminophen initially to travelers as appropriate.

Patients with dermatological concerns and no fever may also have a travel-related condition. Again, it's always important to ask about travel. Cutaneous larva migrans, insect bites, abscesses, dog bites, leishmaniasis, and myiasis are all common in

travelers [28]. Dermatology consultation may be indicated, especially in cases of leishmaniasis because identification of the specific type is essential for appropriate treatment.

As a reminder, *asymptomatic* travelers may also need follow-up screening for problems such as tuberculosis, schistosomiasis, Chagas disease, and strongyloides depending on exposures.

Public Health Risk

Basedon the history, itinerary, and exposures, determine if there is an immediate public health risk such as the novel coronavirus and the more rare but not to be missed MERS (usually the Arabian Peninsula), a viral hemorrhagic fever (most recently Africa), or avian influenza (usually China and other parts of Asia with bird exposure). Unfortunately, because of poor vaccine coverage in many countries, measles or chicken pox is also a concern.

Malaria: Yes or No?

Once you determine where the traveler went, you must determine if any are malaria areas, certainly in the last 3 months and ideally in the last year. The varieties usually responsible for severe malaria, *P. falciparum* and *P. knowlesi*, usually present in the first 3 months, but other common varieties, such as *P. vivax* or *P. ovale*, can present up to a year later.

- Check the maps. Do not rely on the patient. It is essential to check the *CDC Yellow Book* malaria maps or maps from a subscription service such as Travax, especially if the traveler didn't get an appropriate pre-travel consultation. A common error that clinicians make is to rely on the patient for this information. Unfortunately, in many instances, patients are often uninformed or misinformed, even when this applies to their own country of origin. Most patients from malaria areas do not realize that any immunity to malaria wanes over time once they leave their home country.
- Do not be dismissive: "…we believe that the most critical diagnostic step in the clinic is the clinician's appreciation of the high prevalence of malaria in travelers returning from malaria endemic areas" [29].
  - Clinicians are often falsely reassured if the patient doesn't have a fever when evaluated or if the patient didn't check with a thermometer when fever was present. *Subjective fever* is the important piece of the history here.
  - Don't be reassured if the patient doesn't seem particularly ill. A patient with *P. falciparum* can look fine 1 day and intubated the next because of the rapid reproductive cycle of the parasite, which quickly overwhelms the body.

- Malaria can mimic many other illnesses including common respiratory viruses and traveler's diarrhea. *If the patient has been in a malaria area and reports a history of fever, malaria must be ruled out*.
- Coinfection with other illnesses including influenza can and do happen. A patient can also be infected with more than one type of malaria.

How Much Time Do I Have?

Certain issues, such as ruling in or ruling out malaria, an HIV exposure, or rabies exposure, need to be addressed immediately. The clinician should follow the CDC recommendations as appropriate.

Blood smear microscopy is still the most important method to diagnose malaria as it can provide species identification and parasitemia levels, which are essential for appropriate treatment. The CDC has a malaria hotline for diagnosis and treatment management: 9 A.M. to 5 P.M. Eastern, M–F: 770-488-7788 or toll-free at 855-856-4713. For emergency consultation after hours/weekends/holidays: 770-488-7100, ask for a Malaria Branch clinician. Labs performing smears should report results in a few hours. It is unacceptable to wait to report results the next day. Clinicians need to track down any results and initiate appropriate treatment the same day.

Rabies is usually transmitted by dogs but can be transmitted by any mammal. Even a minor bite or scratch can represent an exposure. Clinicians are often not aware that while there is a low risk of rabies in the United States, other countries have much higher rates per the WHO [30]. Potential exposures must be taken seriously and expert advice for management sought the same day. Depending on vaccine status, the patient may need rabies immune globulin and/or vaccine.

HIV risk also varies by region and nature of exposure. Timely initiation of post-exposure prophylaxis (PEP) is vital.

How Sick Is This Patient?

Serious conditions such as confusion, hypoxemia, bleeding, severe pain, or hypotension should be evaluated without delay and expert evaluation sought immediately. For post-travel patients, a full exam is indicated since it can provide many clues. Rashes can be subtle and not present everywhere (e.g., a rash on the trunk of a typhoid patient). Eschars on the lower legs or scalp can be easily missed and might be an indication of a rickettsia infection requiring immediate treatment with tetracyclines before test results are available.

Do the Tests!

Campus health center staff usually do not include infectious disease specialists, but having a defined order set for "fever in the returning traveler" can go a long way in preventing an unnecessary travel-related death. Getting a few basic tests is a solid, first step even if you don't know the first thing about infectious disease or travel medicine. Have a low threshold for ordering these, as no one will fault you for erring on the side of caution. Many clinicians either don't do tests because travel isn't on their radar or they unwisely talk themselves out of doing any testing because they falsely assume the "risk is low" when in some instances it may not be. Even when risk is low, outcomes can be catastrophic, and an incorrect diagnosis or delay in diagnosis can result in an unnecessary tragedy.

Even these few tests can provide important clues that specialists can use later to provide further evaluation if needed:

- Complete blood count and differential
- Comprehensive metabolic panel
- Blood cultures × 2
- Malaria smears and rapid diagnostic testing if available every 12–24 hours × 3
- Influenza/COVID-19 screens
- Urinalysis, chest X-ray, dengue serology/PCR, AND HIV as indicated

The complete blood count and differential can help distinguish among malaria versus dengue fever versus enteric fever. Elevated transaminases may provide an early indication of enteric fever before blood cultures confirm a diagnosis [31, 32]. Very high transaminases can be an indication of hepatitis or yellow fever. An elevated white blood count with elevated bilirubin and kidney dysfunction point to leptospirosis. Low platelets are suggestive of dengue or malaria. Do note that to rule out malaria, the standard of care requires a total of three smears—do not stop at one or two.

Follow-Up and Then Follow-Up

It's critical to track down malaria results on the *same day* and provide appropriate care or referral on the same day. You may need to contact the CDC hotline as above, if no tropical medicine specialists are available. If a patient is sent to the emergency department, it is best to call the ED in advance and let them know the patient has been traveling and that malaria smears must be done if the itinerary included malaria areas—regardless of whether the patient took malaria prophylaxis.

Conclusion

As more students seek experiences abroad, campus health centers will continue to be the point of first contact for pre-travel consultations as well as ill returning travelers. Administrators should have a plan in place involving all the relevant stakeholders including local health departments, emergency departments, infectious disease specialists, and all campus health center staff. Establishing requirements to inquire about travel at every encounter and having clinical guidelines in place regarding even a basic history and evaluation can dramatically improve the quality of care and avoid unnecessary deaths.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Determine your model of travel healthcare, including insurance coverage options for pre-travel services.	Get the necessary initial training in travel health and participate in regular continuing education activities.
Staff training is critical—not just for clinicians but for all staff interacting with travelers.	Always include appropriate immunizations and medications, but focus the pre-travel consultation on counseling about the more frequent non-vaccine-preventable risks specific to student travel (e.g., low perception of risk, subject to peer pressure, traveler's diarrhea, unintentional injuries, STIs, alcohol and drug abuse).
Look for ways to gather data regarding travelers on your campus.	Utilize only US standards of care as described in the CDC *Health Information for International Travel*.
Identify and coordinate with stakeholders.	Ask every patient about travel. Add a checkbox to every nurse and clinician encounter form asking about international travel in the last 3 months. Devise a robust system for ensuring same-day triage of post-travelers with history of *subjective* fever or animal exposures. Develop an order set for the febrile returning traveler.

Appendices

Appendix 1.1: The Pre-travel Assessment Form

Clinic Name/address

Pre-Travel Health Consultation and History Form for Students

This document should be used along with any clinic immunization records and ideally sent to patients for completion in advance of their visit.

Personal Information: Please complete this section **Date:** _____

Traveler's Name: _____ Preferred Name (if different): _____

Date of Birth: _____ ☐ Male ☐ Female ☐ Other Preferred pronouns: _____

Address: _____

_____

_____

Telephone: (*cell*) _____ (*home*) _____ E-mail: _____

Country of Birth: _____ Citizenship: _____

Trip Information:

Date of Departure: _____ Return date/length of trip: _____

Have you traveled internationally in the past? ☐ Yes ☐ No Where? _____

Do you intend to travel frequently in the future? ☐ Yes ☐ No ☐ Maybe

Itinerary: Please give ALL countries to be visited, including stopovers, in the order (if possible) to be visited:

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

Destination (check all that apply): ☐ Urban ☐ Rural ☐ Remote ☐ At High Altitude ☐ Beach

Is this a fixed itinerary? ☐ Yes ☐ No ☐ Unsure

Purpose of trip (check all that apply):

☐ Vacation ☐ Medical care ☐ Business ☐ Pilgrimage ☐ Study Abroad ☐ Adoption

☐ Volunteer/Humanitarian ☐ Visiting Friends and/or Relatives ☐ Long-stay traveler ☐ Other

Organized tour or school sponsored trip? ☐ Yes ☐ No If yes, who arranged this tour: _____

Sponsor Contact Email: _____ Sponsor Contact phone number: _____

Accommodations (check all that apply):

☐ Hotel ☐ Hostel ☐ Staying with locals/family/friends ☐ Dorm ☐ Rented House/Apt ☐ Camping ☐ Cruise Ship/Boat

Will you be travelling alone? ☐ Yes ☐ No

If no, please describe your travel group: _____ _____

_____

Planned Activities (check all that apply):

☐ Air Travel ☐ Biking ☐ Hiking ☐ Snorkeling ☐ Swimming ☐ Rafting ☐ Boating ☐ Scuba

☐ Climbing/trekking ☐ Attending classes ☐ Working with animals ☐ Cave/spelunking

☐ Public transport (bus, train, etc) ☐ Visiting schools, hospitals or orphanages ☐ Medical or dental work

☐ Other, please explain: _____

Do you plan to rent a car? ☐ Yes ☐ No Have you obtained travel medical assistance insurance? ☐ Yes ☐ No

Primary Health Care Provider: _____ Telephone: _____

Health History:

Address: _____

Do you have any chronic health problems for which you take medication on a regular basis or see a health care provider? ☐ Yes ☐ No

If yes, please explain: _____

_____

_____

Are you currently under the care of a clinician for any health problem: ☐ Yes ☐ No

Do you have any chronic health problems requiring special equipment (i.e. oxygen. wheelchair, syringes, CPAP): ☐ Yes ☐ No

If yes, please explain: _____

When was your last dental visit? _____

Do you currently have or have you a past history of:

Any vaccinations in the past 30 days?	☐ Yes ☐ No
Antidepressant or psychiatric medication use	☐ Yes ☐ No
Depression, anxiety, panic attacks	☐ Yes ☐ No
Diabetes	☐ Yes ☐ No
Psoriasis (skin disease)	☐ Yes ☐ No
Seizures or convulsions	☐ Yes ☐ No
Cardiac conduction defect, irregular pulse, have a pacemaker	☐ Yes ☐ No
Heart disease or cardiac surgery	☐ Yes ☐ No
Respiratory (lung) disease	☐ Yes ☐ No
Muscle or bone problems	☐ Yes ☐ No
Intestinal problems including heartburn or reflux, Crohn's, Colitis	☐ Yes ☐ No
Immune disorder (cancer, HIV, bone marrow or organ transplant, rheumatoid arthritis treatment, inflammatory bowel disease)	☐ Yes ☐ No
In the last 3 months have you taken any medications that affect your immune system? (chemotherapy, prednisone, steroids, TNF blockers, other biologics?)	☐ Yes ☐ No ☐ Don't Know
Live/work closely with any one with an immune disorder	☐ Yes ☐ No
Thymus gland surgery or disorder (myasthenia gravis, DiGeorge syndrome)	☐ Yes ☐ No
History of altitude illness	☐ Yes ☐ No
Surgery or hospitalization in past 3 years	☐ Yes ☐ No
Have you had any transfusions or blood products in the past 1 year?	☐ Yes ☐ No
Have you ever been diagnosed with Hepatitis (liver infection)?	☐ Yes ☐ No
Has your spleen been removed?	☐ Yes ☐ No
Do you drink alcohol regularly?	☐ Yes ☐ No
Do you smoke/vape/use marijuana?	☐ Yes ☐ No
Have you ever had a TB test?	☐ Yes ☐ No
History of tendonitis / Achilles' heel rupture	
Any other medical problems	☐ Yes ☐ No

Please explain any "yes" answers:

_____

_____

_____

_____

_____

_____

_____

_____

Health History, cont'd:

Allergies:

Medication(s)	☐ Yes	☐ No	If yes, list: _____
Reaction to vaccine	☐ Yes	☐ No	If yes, list: _____
Latex	☐ Yes	☐ No	If yes, list: _____
Egg	☐ Yes	☐ No	If yes, list: _____
Other food allergies	☐ Yes	☐ No	If yes, list: _____
Environmental (pollens, dust, hay fever, etc.) ..	☐ Yes	☐ No	If yes, list: _____
Animals	☐ Yes	☐ No	If yes, list: _____
Bee stings	☐ Yes	☐ No	If yes, list: _____

Have you ever experienced an aphylaxis (severe allergic reaction)? ☐ Yes ☐ No

If yes, do you carry an epinephrine auto-injector? ☐ Yes ☐ No

Medications:

Please list all prescribed and over-the-counter medications and supplements you use.

Medication or supplement:		Reason for use:
1. _____	/	_____
2. _____	/	_____
3. _____	/	_____
4. _____	/	_____
5. _____	/	_____
6. _____	/	_____
7. _____	/	_____

If Applicable (for men, women and others)

Do you have a partner planning to become pregnant in the next 3 months?	☐ Yes	☐ No	
When was your last menstrual period? _____ Was it normal?	☐ Yes	☐ No	☐ N/A
Are you currently pregnant, trying to get pregnant or planning a pregnancy in the near future?	☐ Yes	☐ No	☐ N/A
Any risk of an unplanned pregnancy?	☐ Yes	☐ No	☐ N/A
Are you breastfeeding?	☐ Yes	☐ No	☐ N/A

What form of contraception do you use? _____

Please tell us any additional information that you believe is important for us to know as you prepare for your current trip including any questions, concerns or fears:

_____

_____

_____

_____

_____

_____

_____

_____

I have answered this questionnaire fully and to the best of my ability.

Student's Name: _____

Student's Signature: _____ Date:_____

Reviewed by: _____ RN / NP / PA / MD / Pharmacist

Appendix 1.2: The Post-travel Assessment Form

Initial Post-Travel Assessment in the College Health Setting

This document should be used along with any clinic immunization records and ideally sent to patients for completion in advance of their visit.

Critical priorities include malaria and any illnesses requiring quarantine. The latter requires some epidemiological knowledge of Ebola and other viral hemorrhagic fevers, Middle East respiratory syndrome and other novel coronaviruses such as severe acute respiratory syndrome coronavirus 2, avian influenza, varicella, measles, etc.

Check to see if patient had a pre-travel clinic assessment in our clinic, if yes pull the chart or review the electronic medical record notes.

Vitals

Problem List/History: _____

_____

_____

_____

SUBJECTIVE

History of Present Illness

Date of departure from U.S.: _____ Date of return to U.S.: _____ Duration of trip: _____

Countries visited *in order* and dates of entry and departure: _____

_____

_____

Symptoms:

☐ fever, chills, night sweats, rigors ☐ intestinal symptoms ☐ skin changes, lesions, or rash ☐ red eyes

☐ respiratory symptoms ☐ neurological symptoms ☐ urologic/genital symptoms ☐ mental health issues

☐ other Please explain: _____

_____

Have you visited a Travel Clinic? ☐ Yes ☐ No Where?_____ When?_____

Possibility of pregnancy? ☐ Yes ☐ No

Sexually active during travel? ☐ Yes ☐ No If yes, new partner? ☐ Yes ☐ No

Medications:

Please list all prescribed and over-the-counter medications and supplements you use.

Medication or supplement:		Reason for use:
1. _____	/	_____
2. _____	/	_____
3. _____	/	_____
4. _____	/	_____
5. _____	/	_____
6. _____	/	_____
7. _____	/	_____

Allergies:

Medication(s)	☐ Yes	☐ No	If yes, list: _____
Reaction to vaccine	☐ Yes	☐ No	If yes, list: _____
Latex	☐ Yes	☐ No	If yes, list: _____
Egg	☐ Yes	☐ No	If yes, list: _____
Other food allergies	☐ Yes	☐ No	If yes, list: _____
Environmental (pollens, dust, hay fever, etc.) ..	☐ Yes	☐ No	If yes, list: _____
Animals	☐ Yes	☐ No	If yes, list: _____
Bee stings	☐ Yes	☐ No	If yes, list: _____

Have you ever experienced anaphylaxis (severe allergic reaction)? ☐ Yes ☐ No

If yes, do you carry an epinephrine auto-injector? ☐ Yes ☐ No

Purpose of trip (check all that apply):

☐ Vacation ☐ Medical care ☐ Business ☐ Pilgrimage ☐ Study Abroad ☐ Adoption
☐ Volunteer/Humanitarian ☐ Visiting Friends and/or Relatives ☐ Long-stay traveler ☐ Other

Organized tour or school sponsored trip? ☐ Yes ☐ No If yes, who arranged this tour: _____

Sponsors Contact Email: _____ Sponsors Contact phone number: _____

Accommodations (check all that apply):

☐ Hotel ☐ Hostel Staying with locals/family/friends ☐ Dorm ☐ Rented House/Apt ☐ Camping ☐ Cruise Ship/Boat

Did you travel alone? ☐ Yes ☐ No

If no, please describe your travel group: _____

_____

Did your accommodations have screens on all the windows/air conditioning? ☐ Yes ☐ No If no, explain (e.g. camping, homes/dorms/hostels without screens etc.): _____

_____

Environment:

☐ Freshwater contact or walking barefoot in damp or muddy areas
☐ Rural ☐ Caves ☐ Game parks
☐ Poultry farms or exposure to live chickens in markets ☐ Insect Bites (e.g. mosquitoes, ticks, tsetse files, sandfiles, etc.)
☐ Animal bites/licks/other animal contact ***(Must address any possible rabies exposure immediately)***

Food intake habits:

☐ Exposure to raw meat ot fish/bush meat ☐ Unpasteurized dairy products ☐ Tap water (including brushing teeth or ice)
☐ Sushi or reef fish such as barracuda, grouper, moray eel, or red snapper

Malaria Protection:

Type of anti-malaria drug(s) and dosage: _____
Duration/dates of use: _____
Physical protection (e.g. insect repellant, bed nets, impregnated clothing): _____
_____

Blood-borne risks:

☐ Health care worker ☐ Shaves, tattoos, piercings ☐ Illness during travel
☐ Hospitalizations/dental care (consider resistant bacteria)

OBJECTIVE

Physical Exam *(have patient put on a gown and do full exam so as not to miss rose spot rash of typhoid or eschars on lower legs that patients may be unaware of)*

Insert Diagram/Photo (include photos of all rashes/bites/eschars)

Procedures: _____
_____
_____

ASSESSMENT

Diagnoses: _____
_____
_____

PLAN

Order sets: malaria smear repeat every 12-24 hours x 2 if negative, CBC with differential, CMP, Blood cultures x 2

Consider HIV, influenza, u/a with possible culture, chest x-ray, GI PCR, serum for later serology, dengue serology AND PCR, and COVID19 PCR

Appropriate referrals (travel/tropical medicine specialist, ED) *always send a copy of assessment with the patient*

Notification of public health officials

Follow-up!! ***Must track down malaria screens same day***

Julie Richards leads travel health at the Vaden Health Center at Stanford University. She is a charter fellow and past president of the American Travel Health Nurses Association (ATHNA) and is the chair of the Leadership Council for the Student Travel Abroad Interest Group of the International Society of Travel Medicine. She consults regarding travel health issues and conducts regular training for medical professionals and lay audiences nationally and internationally. She is a licensed nurse practitioner, board certified in family practice and women's health, and holds a certificate in travel health from the International Society of Travel Medicine.

Gail Rosselot is a licensed adult nurse practitioner, board certified in adult health and occupational health with a certificate in travel health from the International Society of Travel Medicine. She has maintained a private travel health clinical practice in New York since 1992 and directs The Westchester Course which has trained more than 5000 health professionals in travel health fundamentals since 2001. Ms. Rosselot is a founder, charter fellow and immediate past president of the American Travel Health Nurses Association (ATHNA) a fellow of the International Society of Travel Medicine (ISTM), past chair of the Nurses Professional Group of the International Society of Travel Medicine (ISTM), and a member of its Student Travel Abroad Special Interest Group and Professional Education and Continuous Professional Development Committees. She is a fellow of the Faculty of Travel Medicine, Royal College of Physicians and Surgeons of Glasgow and a fellow of the American Academy of Nurse Practitioners. Ms. Rosselot has contributed to chapters in the CDC "Yellow Book" Health Information for International Travel, Keystone's Travel Medicine, and Jong's Travel and Tropical Medicine Manual and regularly consults with universities, corporations, and government agencies.

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Chapter 2
Tuberculosis

Kent W. Bullis

Introduction

Tuberculosis (TB) is a bacterial infection that most commonly infects the lungs but may infect many other organs. Nearly one quarter of the world's population is infected with TB, and it is among the global top 10 causes of death [1]. In 2017, TB caused 1.6 million deaths worldwide [2, 3] and 515 deaths in the United States [4]. Fortunately, the incidence of TB in the United States is relatively low at 2.8 cases/100,000 persons in 2017. It is 15 times as high among those born outside of the United States as those born domestically [5].

Description

TB disease of the lungs is usually accompanied by a cough lasting more than 3 weeks that is productive of thick phlegm often mixed with blood and accompanied by chest pain. TB disease in any location can cause fatigue, weakness, loss of appetite, weight loss, fever, chills, and night sweats. TB disease can occur in the spinal cord (meningitis), lymph nodes, skin, bones, joints, intestinal tract, and kidneys.

Many individuals who are infected do not become ill and are not contagious. These individuals are said to have "latent TB infection" (LTBI). Those who become ill are said to have "TB disease" or "active TB" and often are contagious [6].

The bacterium *Mycobacterium tuberculosis* is relatively fragile and easily killed by ultraviolet light. It requires a relatively large number of bacteria (inoculum) to cause infection. For these reasons, it is most commonly transmitted in

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circumstances of prolonged indoor contact, such as that which occurs with roommates, intimate partners, lab partners, and tutors.

In 2017, 1.9 million individuals came to the United States from other countries to study on F1, F2, M1, and M2 visas [7]. No federal health requirements must be met to qualify for these visas. Many states have regulatory requirements related to TB screening of matriculating college students. A listing of these requirements is beyond the scope of this book but can be found by consulting with your state TB control office. Contact information for these offices may be found at https://www.cdc.gov/tb/links/tboffices.htm.

The American College Health Association recommends screening all matriculating students for risk factors by questionnaire prior to arrival on campus as part of the pre-matriculation verification of immunization compliance (Table 2.1) [8]. TB testing of those identified as high risk should take place no sooner than 6 months prior to matriculation and before registration for the successive academic term [8].

Diagnosis

The diagnosis of TB remains a clinical one, and individual treatment decisions as well as public health decisions should be made with the benefit of the student history, epidemiological data, and institutional values. Decisions should not be based on test results alone. A negative laboratory test does not exclude the diagnosis of LTBI or TB disease.

There are two methods used to detect tuberculosis infection: the Mantoux tuberculin skin test (TST) and interferon-gamma release assays (IGRA).

The TST employs the injection of a small amount of protein into the skin of the forearm, followed by examination 48–72 h later looking for induration around the injection site. Depending on the context, greater than 5, 10, or 15 mm of induration may be considered positive. The IGRA is performed on blood drawn from the individual. The TST requires two visits within a specific time frame, uses inexpensive supplies, relies upon the skill of the personnel performing the test, and commonly yields false-positive results when performed on individuals who have received the

Table 2.1 Groups for whom tuberculosis (TB) testing is recommended

Groups for whom TB testing is recommended
People living with or in close contact with those known or suspected to have TB disease
Students born in or living in countries with a high incidence of TB. A current list of countries with a high incidence can be found at stoptb.org/countries/tbdata.asp
Students returning from a prolonged visit to a country with a high prevalence
Residents and employees of high-risk congregate settings such as correctional facilities and homeless shelters
Health-care workers who serve populations at increased risk of TB disease
Groups identified by the local health department as having an increased risk of TB
Infants, children, and adolescents exposed to adults who are in an increased risk group

Bacille Calmette-Guerin (BCG) vaccination—a common vaccination against TB used in high-incidence countries. The IGRA requires only one visit, is not susceptible to false-positive results due to BCG administration, is less dependent on the skill of college health personnel to administer and read than the TST, and has a greater cost for supplies and processing. It is not available in all geographic areas of the United States due to limitations on travel and storage of specimens.

The US Centers for Disease Control and Prevention (CDC) advises that the IGRA may be used instead of (but not in addition to) a TST in any circumstance where the CDC recommends a TST as an aid in diagnosing TB infection [9].

TB testing should be reserved for high-risk individuals in order to preserve resources for the most effective possible TB identification strategy and to decrease the number of false positives and subsequent unnecessary treatment. Most high-risk students at US colleges are from high-incidence countries and have received BCG vaccine as children. The incidence of false-positive TSTs in this population is increased, and the use of IGRA, if available, is the best approach [10].

Student Take

Hye Lee is newly arrived on campus from China. She visited with her personal clinician before leaving for school and received guidance that she was likely to be required to have a TB skin test upon arrival at college, which would be positive because of her BCG vaccine as a child, and lead to a recommendation to take Western medicine for TB. She was encouraged to refuse the medication. When Hye Lee arrives on campus, she is tested by IGRA. Her initial reaction to learning of her positive results is to resist further care or evaluation because of the advice she was given and her lack of awareness of the distinction between a TST and IGRA.

Students who screen as high risk and test positive with a TST or IGRA should be seen promptly for a careful history and physical exam and a posteroanterior (PA) chest X-ray, with a goal of identifying active TB and seeking opportunities to treat latent TB. The medical interview (history) should address symptoms of TB disease, risk factors for TB infection, previous personal infection, coexisting medical conditions, particularly those that may compromise the immune system, current living arrangements, and potential exposures. Often, the interview is taking place in a language that is not the first language of the patient, at a time when the student has limited proficiency in English. The risk for missing or misunderstood information in this context is high. The medical clinician should be alert to the student's language proficiency and when helpful ensure a medical translator is available in person or remotely in order to eliminate errors introduced by a translator without medical experience or bias by one who has a personal relationship with the student.

Confirmation or suspicion of active TB infection must be reported to local health officials within 24 h, and the infected individual immediately placed in isolation.

Lessons for Campus Health

The impact of isolation on a newly matriculated international student learning a new culture and new medical system cannot be overstated. It is imperative that student affairs and health professionals provide consistent and timely culturally competent personal and social contact, as well as support for remote class participation in order to control the risk to the student's ability to thrive.

Latent Tuberculosis Infection

Diagnosis of latent TB should be followed by a consultation about treatment, as well as human immunodeficiency virus (HIV) counseling and an offer of antibody testing. The risk of progression from latent to active TB is based on empiric data and modeling. The World Health Organization (WHO) states the lifetime risk for active TB as 5–10%—50% of those within the first 2 years following infection. However, the positive predictive value of IGRA testing may be as great as 13% in some populations [11–14].

The first interaction between many matriculating college students and the health service of their institution is related to administration of health requirements, including TB screening. This interaction can easily become adversarial in nature. Many students belonging to high-risk groups come from communities where there is little value placed upon TB screening and prevention. Once students begin classes, it is more difficult for them to find time to engage in screening activities. There is an opportunity to improve receptiveness to treatment for LTBI by seeking to complete screening before classes begin and ensuring culture competency among the staff supporting this work.

Treatment of Latent Tuberculosis Infection

The identification of latent TB is an opportunity to prevent illness and interrupt transmission. Isoniazid was first studied for the prevention of TB disease in the mid-1950s. Effectiveness was studied using placebo-controlled studies among those with inactive pulmonary lesions, contacts of those with active disease, and high-incidence communities, as well as some with LTBI identified by testing. Effectiveness of prevention during treatment was as high as 94%. Effectiveness during posttreatment follow-up varied a great deal [15]. A study of 28,000 subjects followed for 5 years demonstrated a 65% reduction of active TB with 6 months and a 75% reduction with 12 months of isoniazid [16].

Treatment regimens for latent TB are summarized in Table 2.2. The choice of regimen is informed by susceptibility of the source case (if known), coexisting medical conditions, potential for interactions with other drugs, travel plans of the infected individual, and available resources. For those with an especially high risk of progression to TB disease, consideration should be given to directly observed therapy (DOT), the administration of each dose under the observation of a member of the health-care team. DOT is specifically recommended for children, adolescents, and those with HIV. Individuals enrolled in college span a wide spectrum of social and emotional maturity and citizenship. There is a high risk of failure to complete therapy in this context. Newer, shorter treatment regimens may bring substantial advantage related to increased completion rates. During treatment, individuals should be in contact at least once monthly to screen for compliance and side effects. This contact may be accomplished by a face-to-face or remote visit.

Table 2.2 Latent tuberculosis (TB) infection treatment regimens

Name	9-month INH	6-month INH	3-month INH Rifapentine	4-month Rifampin
Description	270 doses within 12 months	180 doses within 9 months	12 weekly doses	120 doses within 6 months
Advantages	Highly effective Drug acquisition cost lowest	Less protective than 9-month INH Easier to obtain consent and compliance with shorter course	Quickest regimen, greatest potential to complete within a single academic term Efficacy equivalent to 9-month INH	Useful for those who cannot tolerate INH or have been exposed to INH-resistant TB
Disadvantages	Completion rates low due to duration of therapy for asymptomatic disease	Contraindicated for children, immunosuppressed persons, or those with evidence of previous TB	DOT is favored Contraindicated for HIV-infected patients taking anti-retroviral treatments (ART), pregnant women, or those expecting to become pregnant	Contraindicated for HIV-infected persons taking certain combinations of ART. Rifabutin may be substituted in these cases
Acquisition cost of full course of therapy for an adult, October 2019	$84	$56	$102	$117 ($2880 for rifabutin)

INH isoniazid, *DOT* directly observed therapy, *HIV* human immunodeficiency virus

A 3-month regimen of 12 once-weekly administration of isoniazid and rifapentine is equally effective to a 9-month course of isoniazid and can often be completed during a single academic term.

The concomitant use of alcohol with isoniazid increases the risk of hepatitis, and caution is recommended for those who use alcohol daily or heavily. The CDC recommends against baseline and follow-up screening of liver function laboratory tests for patients without an elevated risk of hepatitis, but such testing is indicated for those who are unwilling or unable to decrease alcohol use to clearly safe levels during treatment. A regimen that does not include isoniazid is another alternative in these individuals.

Those who cannot tolerate isoniazid or are thought to have been exposed to isoniazid-resistant TB may be treated with a 4-month regimen of rifampin, defined as 120 doses administered within 6 months. Rifampin should not be given with certain treatment regimens for HIV. Rifabutin is an alternative for these persons [17].

These recommendations for treatment of LTBI are made in the context of higher education settings in low-incidence countries such as the United States. The benefits

of infection control by treatment of LTBI increase with the decreasing incidence of disease [18]. The benefits for individuals in high-incidence countries are much different. If a student identified with LTBI will be residing in the United States for a short period of time, and then be returning to reside in a high-incidence country, the benefits of treatment for LTBI are diminished, and a discussion of decision-making in this context is more complex.

TB Disease

Tuberculosis is uncommon in the United States. Many clinicians have never seen a case, and often the diagnosis is not considered upon initial presentation. Delay in diagnosis can result in increased morbidity and a prolonged period of infectiousness. The health of the community relies upon the college health clinician remaining alert to the possibility of active TB.

Some individuals with TB disease have no symptoms, hence the importance of an organized screening program. Most have symptoms that lead them to seek care. A medical evaluation for TB disease includes a medical history, physical exam, test for TB infection, chest X-ray, and bacteriologic examination of clinical specimens.

The history should gather information about the presence and duration of symptoms of TB disease, exposure, past diagnosis of TB, details of any past treatment for TB, risk factors for exposure to TB, and risk factors for progression of latent TB to active TB. TB most commonly causes pulmonary symptoms, but the presence of extrapulmonary disease must be considered.

Given that pulmonary disease is the most common manifestation of TB, the chest X-ray is often very helpful in reaching a diagnosis. The chest X-ray is not itself diagnostic but often demonstrates findings strongly supportive of a diagnosis.

All individuals suspected of having TB disease should have sputum specimens collected for bacteriologic exam, regardless of symptoms. Secretions from the nose and throat are not adequate for diagnosis, and specimen collection should be coached and supervised by a health-care worker wearing appropriate personal protective equipment. Sputum should be collected on at least three occasions at 8- to 24-h intervals, and at least one should be an early morning specimen. Alternative medical procedures such as sputum induction, bronchoscopy, and gastric washing can be used to collect a specimen if clinically warranted.

Clinical specimens can be evaluated in three different ways: microscopic examination, nucleic acid amplification (NAA), or culture. Culture remains the gold standard for diagnosing TB disease but takes up to 14 days to complete. Examination by microscopy after staining with specific dyes can be done quickly and easily, and results should be available within 24 h. The presence of large numbers of bacilli on exam signifies a high risk of infectiousness. The absence of bacilli indicates the patient is unlikely to be infectious but does not reliably rule out TB disease. NAA provides additional information to guide clinical decisions; results are typically available within 24 h and should be done routinely, but a single negative NAA should not be used to exclude the possibility of TB.

Laboratories should report positive microscopic studies, NAAs, and cultures to the local health department and ordering clinician within 24 h by telephone or fax. In addition, clinicians should report all clinical cases of TB disease to the local health department within 24 h of making the diagnosis. Prompt reporting is essential to enlist public health resources to ensure a complete course of appropriate treatment and complete a contact investigation. Even in a relatively closed community such as a college campus, institutional health services personnel do not have the authority to ensure a complete contact investigation.

All initial positive TB cultures should be tested for sensitivity to first-line anti-TB drugs, and the results used to guide the treatment regimen. Follow-up cultures should be obtained monthly until two consecutive specimens are negative. Susceptibility testing to second-line drugs should be requested from a reference laboratory in the following circumstances:

- Prior treatment of TB disease
- Contact with a patient with known TB drug resistance
- Resistance on testing to first-line drugs
- Positive cultures after 3 or more months of treatment

Successful treatment of TB requires simultaneous administration of four drugs to which the organism is susceptible. Failure to do so increases the risk of treatment failure and the development of resistance to anti-TB drugs. Susceptible strains are treated using isoniazid, rifampin, ethambutol, and pyrazinamide. Treatment regimens have an intensive phase of 2 months, followed by a continuation phase of either 4 or 7 months [17]. Drug-resistant TB is resistant to one first-line drug. Multidrug-resistant TB (MDR TB) and extensively drug-resistant TB (XDR TB) are resistant to multiple anti-TB drugs. All forms of drug-resistant TB should be managed by or in close consultation with an expert in treating the disease [19].

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Many states provide regulatory guidance for the screening of TB in the college student population	Latent TB is asymptomatic, not contagious, and presents a 5–10% lifetime risk for illness and contagion
All institutions should have a TB screening and control plan in place to protect the public health of the campus community	An effective TB screening and control program identifies individuals with risk factors for further consultation and testing in a cost-effective way
The nexus of global travel and close social contact creates an increased risk for TB disease in the college student population	Immediate notification by telephone of the local health department about newly identified cases of active TB disease must take place
There are advantages to completing screening prior to the beginning of classes	Treatment of LTBI reduces the lifetime risk of active TB by about 65%

The Future

BCG vaccine provides some protection against particularly severe TB consequences for infants and children when administered to neonates but is poorly protective for adolescents and adults against pulmonary TB and thus minimally effective at preventing transmission of TB. In 2018, an investigational vaccine, M72/AS01E, demonstrated 54% efficacy in preventing TB disease over a 2-year period. This outcome is without precedence in several decades of TB vaccine research and may signal a clinical breakthrough in TB prevention.

Conclusion

Tuberculosis is a leading cause of illness and death worldwide. The incidence in the United States is low, but the combination of global travel and close living conditions presents a risk for college students. University administrators and health service personnel must have policies and procedures to address this risk in a cost-effective manner.

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Recommended Reading

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Chapter 3
Eating Disorders in College Health

Melanie Trost

Introduction

It is imperative for student health centers to be familiar with the complex set of diagnoses known as eating disorders as they most commonly affect adolescents and young adults. While some students may have been treated in high school and be directly referred to college health, many students develop disordered eating within the challenging environment of college and the associated challenges of emerging adulthood. The college setting—which typically already has in place a scaffolding of integrated housing, dining, recreational centers, and an enriching academic environment—can create an environment for students with eating disorders to recover and flourish when augmented with appropriate treatment resources. Thus, creating an environment in which health-care providers can be attentive to potential signs and symptoms can help identify and treat or refer patients suffering from these complex illnesses. Eating disorders are multidimensional illnesses requiring a multidisciplinary approach, which minimally includes a primary care clinician, a therapist, and a nutritionist [1, 2]. This team, combined with the rich resources of the college environment, has the potential to provide comprehensive and effective treatments for patients with eating disorders within certain bounds of severity.

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Categories of Eating Disorders

The Diagnostic and Statistical Manual of Mental Disorders fifth edition (DSM-5) categorizes disorders of feeding and eating into seven main groups. This chapter will briefly elaborate on four main categories of eating disorder (ED) likely to be encountered in the college health setting: anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), and avoidant and restrictive food intake disorder (ARFID). Full diagnostic criteria for this group of conditions are outlined in Chap. 18 of the DSM-5: Feeding and Eating Disorders [3]. The additional categories of other specified feeding and eating disorder (OSFED) or unspecified feeding and eating disorder (UFED) may be important in the college health setting for students who display disordered eating behaviors but do not meet other diagnostic criteria. Remaining alert to the at-risk student and providing support early may lead to better outcomes. The multifocal assessment of any student with disordered eating should include at a minimum psychological status, medical status, and nutritional status, with attention to those comorbidities or complications most associated with the prominent behaviors of the student.

Anorexia Nervosa

Anorexia nervosa is characterized by restriction in food intake leading to a significantly low weight, ongoing fear of weight gain, behaviors that prevent weight gain despite their low weight, and disturbance in the way the body is experienced, such as misperception of low weight or the failure to appreciate the medical implications of low weight [3]. The DSM-5 further categorizes those with anorexia nervosa into restrictive or binge-purge subtypes. Categories of severity are based on body mass index (BMI) but may also take into account level of psychosocial disruption or need for support [3].

Assessment and Medical Complications

Evaluation of a patient with suspected AN should include a psychological interview to elucidate features consistent with the diagnosis and also to explore other potential diagnoses that may explain recent weight loss or comorbid psychiatric diagnoses that may complicate treatment (e.g., substance use disorder). Assessing nutritional status and specific food behaviors should occur, preferably through a structured interview with a registered dietician.

The weight loss and malnourishment of AN affects every organ system in the body [4, 5]. A medical assessment should include an extensive review of systems, physical exam, laboratory assessment, electrocardiogram, and possibly a bone scan [6]. Care should be taken to not inadvertently reinforce faulty beliefs about the lack

of seriousness of the disorder if labs return normal while malnourished, as the lack of energy that constitutes malnourishment interrupts several physiologic processes. The medical clinic is also a setting where patient education regarding the expected physical challenges of recovery will support the overall team approach to care. Patients who understand that autonomic dysfunction, gastroparesis, functional bowel changes, and skin changes can be related to AN and may be a part of the renourishment process can be guided more effectively through the process [4, 5].

Indications for hospitalization for complications of malnutrition or purging are based on the presenting complications. While the Society of Adolescent Health and Medicine, the American Pediatric Society, and the American Psychiatric Association have put forth some guidelines for adolescents (Table 3.1), there is a lack of consensus for adult patients [1, 7, 8].

Treatment

Renourishment combined with psychotherapy is the standard of treatment for anorexia nervosa. Inpatient psychiatric treatment generally does not provide any better outcome compared to outpatient care [9]. Psychiatric diagnoses made within the context of disordered eating, particularly of those with AN, may not be reliable or durable and may not respond to treatment approaches designed outside of the eating disorder setting. Therefore, the eating behaviors themselves must be addressed directly to a point of renourishment and practice of normalized eating [10]. Family-based treatment has a reasonable evidence base to support its use in the

Table 3.1 Indications supporting hospitalization in an adolescent with an eating disorder. (Reprinted with permission from Golden et al. [8])

One or more of the following justify hospitalization:
1. 75% median body mass index for age and sex
2. Dehydration
3. Electrolyte disturbance (hypokalemia, hyponatremia, hypophosphatemia)
4. EKG abnormalities (e.g., prolonged QTc or severe bradycardia)
5. Physiological instability[a]
6. Arrested growth and development
7. Failure of outpatient treatment
8. Acute food refusal
9. Uncontrollable bingeing and purging
10. Acute medical complications of malnutrition (e.g., syncope, seizures, cardiac failure, pancreatitis, and so forth)
11. Comorbid psychiatric or medical condition that prohibits or limits appropriate outpatient treatment (e.g., severe depression, suicidal ideation, obsessive-compulsive disorder, type 1 diabetes mellitus)

Hypotension (<90/45 mm Hg), hypothermia (body temperature <96F, 35.6 ° C), orthostatic increase in pulse (>20 beats/min), or decrease in blood pressure (>20 mm Hg systolic or >10 mm Hg diastolic)

EKG electrocardiogram, *QTc* corrected QT interval

[a]Severe bradycardia (heart rate <50 beats/min daytime; <45 beats/min at night)

adolescent setting, particularly for short duration of behaviors [8]. Because it can be difficult to effectively incorporate family-based treatment in the university setting, adolescent targeted therapy that focuses more on individuation and self-efficacy or cognitive behavioral therapy (CBT) may be more useful [7]. Notwithstanding, technological advances such as video chat for meal support or text message reminders permit more active involvement of parents at a distance than previously accomplishable. It can be a challenge to get all parties to embrace that the student's developmental age (the age of achieving developmental tasks) does not match the chronological age, and thus increased parental support is appropriate. All of these therapeutic approaches require the availability of a therapist for frequent visits over several months' time. Nutritional counseling directly establishes an expected meal plan and can help provide accountability and dispel myths regarding metabolism and rate of weight gain. There is minimal evidence to support the use of psychiatric medications in the setting of AN with exception of the atypical antipsychotic olanzapine, which may modestly enhance weight gain but should be reserved for severe or initially unresponsive patients [2].

Bulimia Nervosa

Bulimia nervosa is a pattern of disordered eating that includes discrete episodes of excessive food consumption accompanied by a sense of feeling out of control followed by compensatory mechanisms to prevent weight gain. These behaviors must occur weekly for at least 3 months to meet diagnostic criteria. The affected individual's self-image is unduly influenced by weight or appearance. Frequency of compensatory behavior can be used to further categorize level of severity [3]. Bulimia nervosa is a relatively more common disorder but may be overlooked because the individual's external appearance may offer no clues in contrast to patients with AN. The behaviors of BN typically arise following a period of excessive dieting behaviors that eventually lead to binge episodes followed by compensatory purging [7].

Assessment and Medical Complications

Assessment should again include investigation of psychiatric, medical, and nutritional status. The secondary symptoms and complications for BN stem from the behaviors of binging and purging and typically relate to fluid and electrolyte shifts and the physiologic and physical manifestations of the purging methods employed [4, 5]. As BN behaviors are often covert, incidental findings such as knuckle abrasions, poor dentition, hypokalemia, near-syncope, salivary gland enlargement, or functional bowel complaints should always prompt a student health clinician to query regarding potential bulimic behaviors.

Treatment

The mainstay of treatment for bulimia is cognitive behavioral therapy. There are some developing versions of enhanced CBT and self-guided CBT that show promise [6, 7]. Treatment for BN must directly target the eating behaviors and practice of normalized eating. Nutritional counseling also plays a similar role of providing external accountability and a direct logistical approach to establishing a meal plan and providing education about metabolism. Antidepressants such as selective serotonin reuptake inhibitors (SSRI) and serotonin norepinephrine reuptake inhibitors (SNRI) may be provided as augmentation to CBT as the combination is more effective than either treatment alone. Antiepileptics (e.g., topiramate) may also provide benefit in some patients [11].

Binge Eating Disorder

Binge eating disorder also includes discrete episodes of excessive food consumption accompanied by a sense of feeling out of control. While these episodes are followed by physical and psychological distress including embarrassment, shame, disgust, or guilt, they are not followed by compensatory mechanisms to prevent weight gain. These behaviors must occur weekly for at least 3 months to meet diagnostic criteria and also occur with a spectrum of severity marked by the frequency of behaviors [3].

Assessment and Medical Complications

Binge eating disorder is the most prevalent of the feeding and eating disorders, and most patients report that BED negatively affects their psychosocial functioning [12]. Assessment of those suspected of having BED should include psychiatric, medical, and nutritional status. Students with BED have a very high prevalence of comorbid psychological disorders; those presenting with BED should be assessed particularly for depression, phobias including social phobia, and post-traumatic stress disorder [12]. It is recommended to include investigation into eating behaviors when evaluating any patient presenting with a psychological complaint. BED in adolescents may precede BN or transition from BN or AN, so it is important to continue to query students about changing eating behaviors as the diagnostic stability of BED is poor in adolescents [13]. Clinicians in a medical clinic should remain observant that functional bowel complaints often accompany binge episodes while the binges may not be readily disclosed. Other medical complications of BED are often related to overweight, and students should be evaluated for those associated conditions.

Treatment

It is important to distinguish treatment for BED from treatment for obesity in patients who have both, as treatment goals may vary. Psychotherapy with CBT has the broadest evidence base, but dialectical behavioral therapy also may be useful, especially in those with comorbid personality disorders or substance use [1, 11, 14]. Therapists should strive to incorporate evidence-based treatments for any psychological comorbidities. Pharmacotherapy for BED with second-generation antidepressants (SSRI, SNRI), lisdexamfetamine, or topiramate may also augment care [7, 14].

Avoidant/Restrictive Food Intake Disorder

ARFID diagnostic criteria include food restrictions or avoidance, which may result in weight loss and nutritional deficiencies and interfere with psychosocial functioning, but this disorder is not driven by body image or weight loss concerns [3]. ARFID more commonly develops in childhood; however, there may be a significant delay to clinical presentation. In comparison with the home environment, the drastic change in food availability, preparation, and sociocultural milieu surrounding food on a college campus may be the driving force behind clinical presentation to a college health center. Inability to integrate into the food environment of a college may significantly affect the social functioning of a student. Students presenting with possible ARFID also should be assessed for common comorbid conditions of anxiety, attention-deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and obsessive-compulsive disorders. In the setting of comorbid conditions, ARFID should be diagnosed if the eating disturbance requires specific treatment.

Assessment and Medical Complications

While ARFID is associated with food restrictions for other than weight-driven body image issues, the main complications are due to malnourishment and underweight, and a student with ARFID should be evaluated much like one with AN.

Treatment

ARFID is generally treated with individualized behavioral plans and may include exposure therapies and therapies directed at distress tolerance. Targeting the executive functioning deficits that may accompany comorbid conditions (ADHD, ASD, anxiety) should also be beneficial.

Planning for Eating Disorder Care in the Student Health Setting

Screening for Eating Disorders

Having a screening tool for possible disordered eating built into a standard annual exam structure can help provide earlier intervention for struggling students. Clinicians must remain vigilant and open that there are populations in which there is a high prevalence overlap of ED with other medical and psychological conditions such as polycystic ovarian syndrome (PCOS) [15], post-traumatic stress disorder (PTSD), bipolar and other mood disorders [12, 16], and ADHD [17] and also with particular subsets of student identity such as LGBTQI students [18] and athletes [19]. Standard screening of these populations may be beneficial. Two simple and validated screening tools are the SCOFF and Eating disorder Screen for Primary care (ESP) (Table 3.2a) [20–22]. As these are screening tools, it is important to supplement them with further interview and questioning if they return with cause for potential concern. The complete PRIME-MD Patient Health Questionnaire (PHQ) includes directly asked questions about loss of control eating, binging, and compensatory mechanisms and is validated to screen for those at risk for BN and BED; note that the DSM-5 now uses once weekly behaviors as diagnostic criteria (Table 3.2b) [23, 24].

Establishing a Multidisciplinary Team

In the student health setting, it is important for the school to take stock of the resources that are available to the community. While many universities may have a counseling center and a primary care clinic with dieticians that could integrate management of treatment into their system, building a network of community referral options may be

Table 3.2a Example tools for screening for eating disorders. Eating disorder Screen for Primary care (ESP)

ESP
Are you satisfied with your eating patterns?
Have any members of your family suffered with an eating disorder?
Do you ever eat in secret?
Does your weight affect the way you feel about yourself?
Do you currently suffer with or have you ever suffered in the past with an eating disorder?
Score: “no” to the first question or “yes” to the remaining four questions is an abnormal response indicating potential concern

Reprinted with permission from Cotton et al. [20, 21]

Table 3.2b Example tools for screening for eating disorders. PRIME-MD Patient Health Questionnaire (PHQ)

PRIME-MD PHQ
1. Questions about eating
(a) Do you often feel that you can't control what or how much you eat? NO/YES
(b) Do you often eat, within any 2-hour period, what most people would regard as an unusually large amount of food? NO/YES
(c) Has this been as often, on average, as twice a week for the last 3 months? NO/YES
2. In the last 3 months, have you often done any of the following in order to avoid gaining weight?
(a) Made yourself vomit? NO/YES
(b) Took more than twice the recommended dose of laxatives? NO/YES
(c) Fasted—not eaten anything at all for at least 24 hours? NO/YES
(d) Exercised for more than an hour specifically to avoid gaining weight after binge eating? NO/YES
3. If you checked "YES" to any of these ways of avoiding gaining weight, were any as often, on average, as twice a week? NO/YES
For office coding: Bul Ner if #6a,b, and-c and #8 are all "YES"; Bin Eat Dis the same but #8 either "NO" or left blank

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best for the student and the college in settings where resources are limited. Case management provided by the school can be essential in navigating these resources with a needful student. Creating a contract of care that allows team members to collaborate and establishes circumstances that may require advancing level of care, engagement with parents or other supports, or proceeding to medical leave of absence (MLOA) is best done early—shortly after an assessment phase if possible. This contract allows for better management in that, if things do not go well, the student does not interpret an alternate care strategy as a failure or punitive measure.

College Health Perspectives

Due to the relatively small and close community of most colleges, the student's eating behaviors may come to the attention of various university staff members or other students to alert that there is cause for concern. A college or university can be creative in supplying mechanisms to allow community members with concern for a student to assist the student in seeking help. Depending on resources, this may be in the form of a phone or Web site hotline, anonymous reporting systems for students or staff, or targeted education and guidance for those in departments where students may feel more comfortable reporting concerns such as identity centers or athletic training departments.

High-Risk Populations Within the Student Community

Students with Learning Differences

Psychological or learning differences may become apparent within the rigors of a new academic environment. Undiagnosed attention-deficit disorder, learning differences, or autism spectrum disorder can cause distress, and students will use tools at their disposal, which are often food and substances, to attempt to regulate the distress. Students with obesity or ADHD have an increased incidence of ED, particularly BED or BN. Thus, these students should be asked about eating behaviors. Conversely, clinician attention to learning and behavior patterns in a student presenting for eating or body image concerns can facilitate neuro-psycho-educational assessment, diagnosis, and effective treatments for these diagnoses, thereby dampening disordered eating behaviors and substance use [17, 25–27].

LGBTQ+ Community

The interpersonal theory of eating disorders approaches the role of interpersonal factors in the onset and maintenance of ED, and sexual minority and gender diverse students may have an increased sense of perceived stigma and decreased self-compassion [28]. Transgender youth in particular display increased weight manipulation and behaviors in pursuit of gender affirmation [29, 30]. Emerging research suggests including ED screening in the care of those presenting for care of sex or gender identity issues and to include gender and sexual identity in the social history interview of those presenting for ED care [18, 30].

Athletes

There is evidence to suggest that sports or physical exercise participation can be an effective component of ED treatment. Exercise endeavors should be approached with graded advancement from mild to increased intensity, should be monitored, and included in the care contract of students with ED [31]. In the college environment, there is significant evidence that low energy availability or relative energy deficiency in sport (RED-S), historically referred to as the female athlete triad, but occurring in significant prevalence in male athletes as well, increases risk for bone stress injury and decreases sports recovery and performance [19, 32]. Collaboration between athletics departments including trainers and coaches to work with their health team including clinicians and dieticians to screen for RED-S would assist in identifying those at risk for injury and therefore also target treatment and interventions to improve long-term outcomes as well as near-term sporting performance.

Study Abroad

Study abroad may pose unique challenges to students with eating disorders. Cultural differences in food preparation and content or eating patterns and even food availability will affect the student's disordered eating patterns. Cultural exchange is challenging to all students studying abroad. While diversity in experience and cultural approach are thought to be generally enriching experiences, a student without effective psychological coping strategies or ability to care for self may need a plan of support to succeed. Some care in assessing whether a student has eating issues prior to their study abroad program allows for assessment of readiness to travel and planning for the student's success if possible. This assessment and planning should fall to both the treatment team and, if possible, be asked of the student in study abroad intake forms not as criteria for admission to the program but rather afterward in preparation for their program and assessing for appropriate supports.

Administrative Considerations

Disruption to Community

There are times when a student will decline to participate in treatment or their illness makes them unable to participate. They may be medically unstable or "just stable enough" to continue participation in academics despite their ED. In these situations, the disruption to community may be the primary concern of the campus and administrative team. Disruption may come in the form of behaviors displayed in common living areas or classroom, team, or club environments. Many campuses have mechanisms to report students of concern, which can be a good way to document the level of disruption a student is causing. Ethical consideration of the greater good over student autonomy may need to be discussed within the administrative sphere. In a residential college this may mean that the student can be invited to continue his or her studies from an off-campus apartment. The level of disruption acceptable within a classroom or team environment may vary. Severe and enduring anorexia nervosa may be approached through a palliative care model and as such may be handled through a civil rights or social model of disability framework [33].

Case Management

Care should be taken when possible to present the case management team and contract of care as a student support early in an assessment or care plan and not deployed as a punitive strategy at a later date. Case managers can be invaluable in ensuring that a student coordinates the appointments of their multidisciplinary team while on campus and can hold knowledge of community resources if a student needs to access a higher level of care than the campus services can provide. Relationships

with major campus departments such as academic deans, athletic coaches and trainers, study abroad offices, and women's centers can be invaluable in facilitating care for a struggling student. It is important to give some consideration to consent and release of information for case management services if that staff member exists within the Family Educational Rights and Privacy Act (FERPA) framework rather than the Health Insurance Portability and Accountability Act (HIPAA) framework [34–36].

Medical Leave of Absence (MLOA)

Return to school from MLOA requirements can ensure that students return to school only when they have achieved a state of recovery in which the treatment team expects stability and success within the academic environment. However, return policies must not hold a standard that is discriminatory by failing to take into account the variable course of recovery from psychiatric conditions or the potential for relapse.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Support clinicians in establishing a multidisciplinary team and allocating time to collaborate in providing care to these high-risk patients	Establishing a multidisciplinary team can allow for effective collaboration and support of the clinicians doing this difficult work. Access to care for these disorders is often limited, and case managers or referral coordinators may help facilitate care
Eating disordered students require a relative higher administrative burden in coordination of care; therefore, case managers when available can be invaluable in this role	Effective treatment for AN relies on renourishment and medical monitoring. There is no pharmacotherapy that is routinely effective, and medical monitoring may not change the outcomes of mild to moderate cases but simply alert as to the need for higher level of intervention
Effective communication between the health center and departments where students may have more comfort presenting concern such as identity centers, athletics, and religious centers can assist in helping students access appropriate care	The most effective treatment for bulimia nervosa includes a combination of antidepressant and CBT

Administration	Clinical
Consider at your institution how to balance honoring patient autonomy and the right to refuse care with the concepts of adolescent development and the disruption to community that can surround a student with disordered eating	Binge eating disorder may respond to a combination of CBT, SSRI, and stimulants
Medical leave policies should be collaborated upon between the academic deans, dean of students, and student health teams so that they are not punitive but rather supportive of time taken for a wholistic health approach. Policies should allow return to campus with an understanding that recovery from eating disorders is a typically long process	Many students with disordered eating will have other comorbid conditions. Effectively evaluating for conditions such as ADHD, trauma, learning differences, or difficulty in identity formation can assist in finding effective support for these conditions, which may therefore facilitate adolescent neurodevelopment and dampen distressing and disruptive disordered eating behaviors

Conclusion

Eating disorders are complex medical and psychosocial illnesses that require multidisciplinary support. All clinicians providing care to young adults and adolescents in a college health setting should have familiarity with these diagnoses and remain vigilant to screening for and open to indicators of students struggling with disordered eating behaviors. Treatment of students with disordered eating is an effortful endeavor, and care should be taken to provide space for providers to collaborate effectively. College settings where the environment is intentionally structured to advance adolescent development and identity formation can be a robust environment for nurturing recovery in students with disordered eating.

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Recommended Readings and Resources (i.e., books, periodicals, video links, Web resources, etc.)

https://www.adolescenthealth.org/Resources/Clinical-Care-Resources/Eating-Disorders.aspx
https://www.aedweb.org/resources/publications/medical-care-standards
www.nationaleatingdisorders.org
Hilbert A, Hoek HW, Schmidt R. Evidence-based clinical guidelines for eating disorders: international comparison. Curr Opin Psychiatry. 2017;30(6):423–37.

Chapter 4
Depression and Anxiety in College Students

Ayesha K. Chaudhary

Introduction

Mental health symptoms pose a significant burden of illness on college student populations, with significant risks including functional impairment, incompletion of academic program, or death [1, 2].

As the numbers of students in higher education grows, topping 20 million in 2019 [1, 2], the demands for health care on college campuses parallel this growth. Further, the growing levels of economic and cultural diversity on college campuses provide opportunities to seek health and mental health services for students who might otherwise have had barriers [3].

Students continue to become more forthcoming about their mental health needs in general and are willing to name their emotional difficulties, as one 2015 study showed nearly 25% identifying moderate to extremely severe levels of stress, depression, and anxiety (Fig. 4.1) [4].

Despite mental health conditions posing a significant fatality risk [5, 6], many students are reluctant to seek care, in the context of historical stigma or trivialization of depressive or anxiety disorders. Students may not want to be considered "soft" or "weak" or may be dissuaded by familial or personal fears of the mental health-care system. With increasing diversity of economic, nationality, cultural, and gender identity compositions of student bodies, the desire to seek mental health care is similarly diverse. Even among students with positive attitudes in seeking mental health care, those with active mental health symptoms may be unwilling to seek care from a mental health provider [7].

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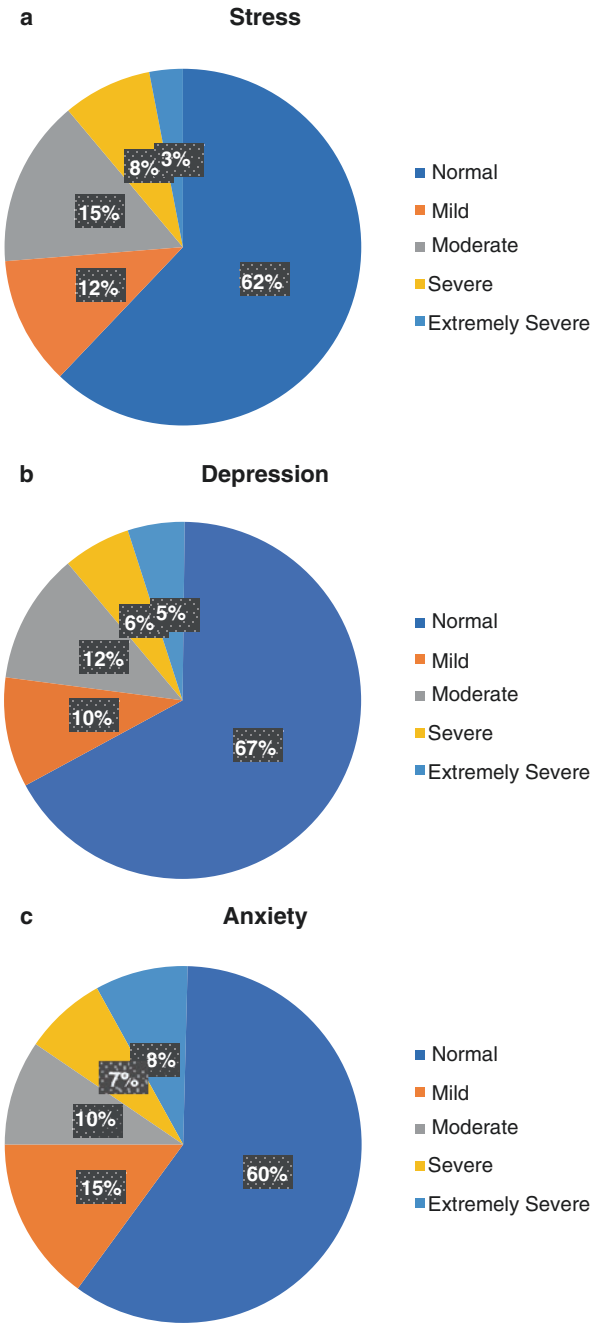

Fig. 4.1 The percentages of students in 2015 who indicated a normal, mild, moderate, severe, or extremely severe amount of (**a**) stress, (**b**) anxiety, (**c**) and depression. (Adapted from [4])

Suicide risk is high in the university-age ranges, and risk identification coupled with risk minimization is the underlying goal for all clinical contacts with students in mental distress.

According to the Center for Collegiate Mental Health's 2017 Annual Report, 52.7% of students attended counseling for mental health concerns; 34.2% took a medication for mental health concerns; 9.8% were hospitalized for a mental health concern; 27% purposely injured themselves without suicidal intent; 34.2% seriously considered attempting suicide, with 10% making a suicide attempt. Some data suggest that mental health issues may be the most common cause of death in college students, if we consider the role of alcohol in vehicular accidents, combined with suicides [5].

The late adolescent and early adult years of life are fraught with impulsive behaviors along with rich periods of development [8, 9] of core individual traits of identity, values, sexuality, and close interpersonal relationships with underpinnings in the brain developmental phase of rapid neuroanatomical pathway activation and maturational transformations of neurofunctional signaling [10].

It is well established that early adulthood is also a time when the onset of serious chronic mental health conditions emerges, superimposed on a predisposition toward high-risk-taking behaviors with up to 75% of all mental disorders emerging between ages 11 and 24 [11, 12]. And it is a developmentally emergent period where psychosocial stressors take on new meaning, with the focus shifting toward academics, success, postgraduate planning, and finances rising to the forefront of concerns above relationship-related stress (Fig. 4.2) [4].

For college health primary care providers seeing young adults presenting in primary care settings, often with underlying mental health difficulties, data show that these providers are seeing at least half as many psychiatric conditions as seen by specialists/psychiatrists [13]. Thus, college health provides an opportunity to identify new-onset longer-term mental health conditions (primary mood disorders, psychosis) as well as high vulnerability conditions such as substance use disorders, traumatic assaults, eating disorders, and gender dysphoria.

Embedded in this challenge is the imperative for providers to operate with awareness of diversity among college student populations in an increasingly globalized climate of higher education and fulfill the ethical obligation to provide socioculturally competent care, in the face an unfortunate wealth of health-care disparities data [14–17]. There is also risk of potential exacerbation of psychiatric conditions by premature initiation of medications absent conscious efforts to rule out bipolar conditions or potentially malignant latent substance use disorders. Yet, for all these challenges, college health systems and providers are entrusted with the responsibility to provide an introduction of gentle and collaborative mental health care, keeping in mind that a positive initial experience of behavioral health services may determine lifelong and generational attitudes regarding treatment for mental conditions.

Furthermore, there is hope that with early detection, diagnostic precision, and delicate use of therapeutic/pharmacologic modalities, comes the potential for

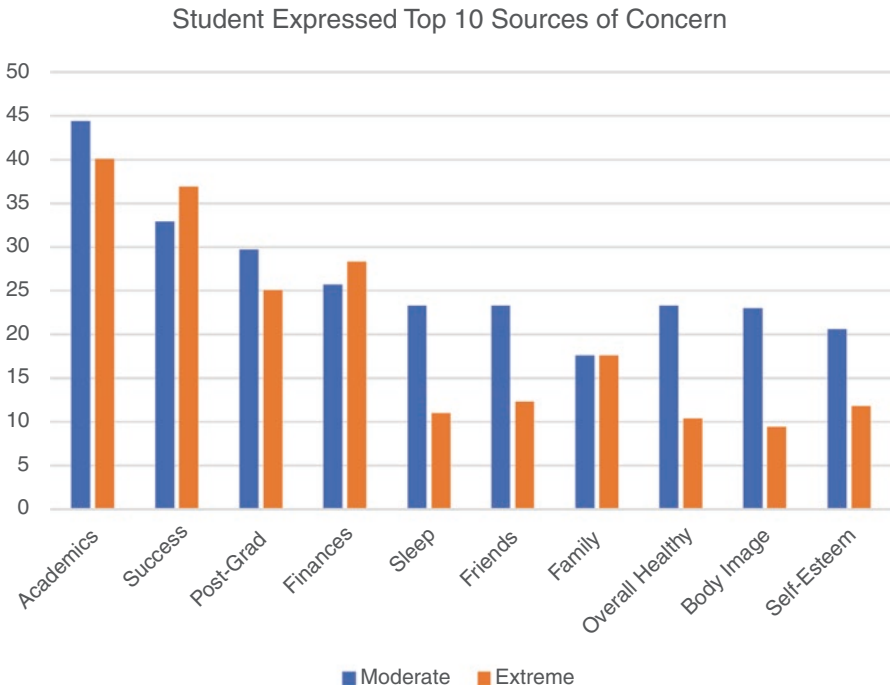

Fig. 4.2 The top 10 sources of concern based on percentage of participants answering "moderately" or "extremely" to each question related to stress, depression, and anxiety in a 2015 study. (Adapted from [4])

optimizing outcomes, and thereby possibly protecting against longer-term mental health-related sequelae and debilitation.

Assessment and Diagnosis

The general approach to evaluation of young adults presenting with mental health symptoms is important, as it sets the tone for the therapeutic relationship, and thus establishes the foundation from which collaborative care planning can emerge. Patients with mental health symptoms often present initially with physical concerns. The astute diagnostician will rule out obvious medical underlying causes while maintaining a reasonable index of suspicion for possible psychiatric etiologies in each case as indicated by the history and differential diagnosis.

In a busy clinical care setting, it may be helpful to employ a semi-structured systematic approach for conducting an accurate, efficient assessment. Based on the author's decades-long experience in college mental health settings, one suggested system implementing five key elements in obtaining a history and conducting a mental status examination is described as "The Big Five" (Table 4.1).

Table 4.1 Key elements in diagnosis: the big five

	History	Observation
Symptom mapping	Features, onset, quality, progression	Grooming and hygiene, motor slowing or agitation, eye contact
	Functional impairment	Affect
	Neurovegetative symptoms	Incongruence
	Cultural or identity factors	Cognitive organization
	Developmentally related precipitants	Thought content Minimizing or underreporting of symptoms
Seek bipolarity or prodrome	Decreased need for sleep, racing thoughts, disorganization, impulsivity, excessive efforts toward productivity	Disorientation
	Hypersexuality	Distractibility
	Delusional beliefs (ideas of reference, paranoia, grandiosity)	Guardedness
	Odd perceptual experiences, thought disorganization	Exuberance Excessive or absent clothing Unusual groomingSunglasses indoors Headphones to block out voices
Quantify substances	Caffeine	Jitteriness, panic, inability to concentrate, insomnia, racing thoughts
	Marijuana	Loss of motivation, cognitive slowing, panic, memory changes, concentration problems
	Alcohol	Memory loss, cognitive dulling, disorganization, blackouts, refractory anxiety, paranoia
	Prescription stimulants	Activation similar to caffeine, hypertension, palpitations, paranoia, hallucinations
	Hallucinogens	Transient or prolonged psychotic states, dissociation, thought disorganization, “flashbacks”
	Cocaine	Disorganization, jitteriness, concentration problems, insomnia, craving, tactile hallucinations, “crash” in withdrawal
	Prescription opioids	Low pain threshold, sedation, disorganization, doctor shopping, complaints of pain, constipation
Modifiable risk factors	Acute anxiety	Panic episodes
	Severe symptoms	Listlessness, disengagement
	Mania	Psychomotor agitation
	Psychosis	Delusional content, disorganized thought pattern, hallucinations
	Loss/humiliation	Expressing shame, withdrawal from supports
	Insomnia	Exhaustion, cognitive impairment
	Isolation	Disengagement, guardedness
	Hopelessness	Loss of perspective, irrational guilt
	Pain	Seeking relief, substances
	Intoxication	Disorganized, labile, affective incongruence

(continued)

Table 4.1 (continued)

	History	Observation
Underlying conditions	Thyroid	Appetite, sleep, weight, energy changes
	Anemia	Persistent fatigue, reduced activity tolerance
	Autoimmune	Multisystem presentation
	Diabetes	Changes in weight, appetite, third, energy
	Pregnancy	Missing cycle, absence of contraception, weight gain, lethargy

Mapping Symptoms

Precise identification of clinical psychopathology is the imperative to distinguish nonpathological, developmentally based emotional experiences from acute or chronic symptomatology. Developmental symptoms are important growth experiences for young adults, contributing to the formative nature of college and young adulthood, and may benefit from supportive counseling. The latter are functionally impairing, possibly life-threatening, requiring formal treatment interventions, and ongoing monitoring. Providers may engage students' natural curiosity in the diagnostic process or be prepared to gently and reassuringly reinforce their role as clinicians when students present with an Internet-assisted self-diagnosis after "Googling" their symptoms and refuting the provider's diagnosis. For example, a student with generalized anxiety disorder may research the symptom of "racing thoughts" and erroneously arrive at the conclusion of being "manic-depressive." Conversely, students also present with accurate insights into their mental health symptoms, and it is wise to invest time for accuracy in history. As Sir William Osler once advised, "Just listen to your patient, he is telling you the diagnosis" [18].

Once the clinical presence of a psychopathological state is identified, the next step is screening for critical elements of bipolar or psychotic features, substances, risk assessment, and possible underlying medical conditions. And while diagnostic evaluations may be supported and quantified by the use of standardized clinical rating scales, these instruments do not stand alone as diagnostics absent a carefully conducted clinical evaluation. Providers are cautioned against administration of a "battery" of rating scales without first clinically identifying which rating measures would be applicable for the clinical presentation. Several such self-report scales are available at no/low cost [19]. Commonly used scales include GAD-7 General Anxiety Disorders Scale (GAD-7), Hamilton Anxiety Rating Scale (HAM-A), and Patient Health Questionnaire (PHQ-9), among others.

Search for Bipolarity or Prodrome

Of paramount concern is the risk of misdiagnosis of bipolar or mixed bipolar [20, 21] traits when there is a significant symptom overlay of anxiety, depressive disorders, or substance use disorders. A general rule of thumb would be to keep a high index of suspicion and to seek consultation or refer to a psychiatric provider in

patients for whom there are three or more hypomanic/manic symptoms that coexist with a primary depressive, anxiety, or substance use disorder.

When assessing for bipolarity or psychosis, it is useful to supplement the clinical evaluation with standardized rating instruments. These serve the dual purpose of quantifying presenting levels of symptom severity in addition to supporting diagnostic accuracy.

Specifically to patients presenting with depression combined with manic/hypomanic symptoms, the use of the Mood Disorder Questionnaire (MDQ) [22] for screening bipolar disorder is recommended. Patients with a positive MDQ warrant detailed history including a life-long time-line for accurate symptom mapping.

Scanning for psychotic or prodromal features is recommended, because young adulthood is most often the first onset of lifelong serious psychiatric conditions, such as schizophrenia. Asking about "strange things happening" or "mind playing tricks on you" or "sometimes feeling you have special powers" is a relevant screener. These may present in early stages without the clarity of full-blown syndromal features. Patients with indicators of manic or psychotic features (e.g., delusions) must be carefully monitored, as these "prodromal symptoms" may fluctuate or evolve into something more prognostically sinister. Validated early psychosis rating scales such as the Prime Screen or the Prodromal Questionnaire-Brief [23] to detail the extent of these symptoms would be appropriate for initial evaluation and ongoing monitoring.

Quantify Substance Use

Another key variable the college health provider has to identify in patients presenting with psychiatric symptoms is the degree of substance use or misuse. With the recent emergence of legalized marijuana in some states, societal trending toward normalizing use with marginal scientific support or regard for adverse brain effects, students often brush aside marijuana as a harmless coping mechanism [24]. Other common substances used on college campuses are alcohol, prescription stimulants, and synthetic hallucinogens (e.g., Molly) that can also mask or exacerbate symptoms. Herbal teas marketed as "calming" may contain kratom, which has opioid properties, and mainstream "sports enhancement supplements" contain varying doses of possibly harmful compounds. Even when substances are not the primary etiology, substances remain important attenuating agents affecting symptom severity and functional impairments and may present as barriers to efficacy of therapeutic interventions [24, 25]. As such, it is incumbent upon the college health provider to engage in calm, nonjudgmental, fact-based dialogue with patients around their use of substances.

Risk Assessment

Assessment of risk could be considered the single most important part of the evaluation in situations where patients present in acute distress. While an entire chapter could be written on risk assessment itself, for the purposes of this material, it would

be important to distinguish non-modifiable risk factors (e.g., demographic profile including transgender identity, family history, past history of dangerous behaviors) from modifiable risk factors. The latter provide opportunities for clinical intervention and thus reduction of risk. Modifiable risk factors include symptom severity, social isolation or supports, substance use, acute intoxication, engagement with treatment, medication adherence, insomnia, acute loss or humiliation, acute anxiety, disorientation, psychosis, hopelessness, access to lethal means, or presence of chronic pain. Identifying and targeting modifiable variables are valuable guides for care planning. In situations where these variables cannot be quickly targeted, it would be appropriate to consider inpatient care for safety and allow time for mobilization of other resources. Thankfully, most often these can be addressed acutely on an outpatient basis, and the wise clinician will engage in developing a collaborative safety plan if harmful thoughts worsen, with close monitoring.

Rule Out Underlying Conditions

In the primary care setting, most patients will receive assessment labs and include complete blood count, thyroid function tests, blood chemistries, and renal/hepatic function tests. Consider measuring serum vitamin D and possibly autoimmune globulins in patients with known vulnerabilities. It is also important to obtain beta-HCG levels in sexually active biological females.

Once there is a clearly identified psychiatric condition, providers will do well to remember the importance of communicating a psychiatric diagnosis to patients framed in a validating, compassionate, and tactful manner. Many college students are very frightened of psychiatric illness, but also are quite curious about their own mental state, which allows for an educational and collaborative approach to these conversations.

Depressive Disorders

Untreated depressive disorders, even if uncomplicated and absent comorbidity, are among the highest suicide risk factors, and suicide has for decades remained the leading cause of death in college populations, excluding accidental causes [5]. Other sequelae of untreated depression include detrimental impact on quality of life, difficulty maintaining relationships, poor academic performance, decreased graduation rates, risk of substance abuse, and, in the longer term, impaired economic success. Among college students, academic performance is often the last functional area that suffers, and students may defer seeking assistance until their grades and performance academically decline.

While a “depressed mood” is a common emotional state, intermittent depressed moods alone may or may not be of clinical concern. The college health clinician will strive to clarify and distinguish this common mood state from a clinical depressive

disorder. A history of a predominant, frequent, sustained, unremitting apathy or anhedonia is the most common clinical indicator warranting detailed diagnostic evaluation.

The presence of functional impairment and neurovegetative changes in energy, sleep, appetite, or concentration are additional indicators underscoring the necessity for treatment interventions. Screening routines routinely for "mixed features" in depressive disorders are is recommended, with the clinician remaining alert for agitation, insomnia, irritability, racing thoughts, or impulsive behaviors [20].

Culturally, students in underrepresented groups tend to minimize symptoms of depressive disorders, and the savvy clinician will inquire in detail about somatic and neurovegetative symptoms. Many students, of all cultural backgrounds, overlook insomnia as "normal" for high achieving students and misguidedly equate "pulling an all-nighter" with dedication to scholarship. Alternatively, others mask insomnia by "self-management" with marijuana or alcohol, which can themselves lead to substance-induced mood disorders. In academic settings, depressive symptoms may manifest subtly: missing assignments, nonattendance, avoiding peers, dropping clubs or extracurricular activities, diurnal shifts, or escalating substance use.

Patients may hint at or divulge history of abrupt precedent life events (bereavement, sexual assault, natural disaster/accidental injury, financial stress, or family/romantic/peer relational difficulties), but absence of such factors does not preclude a diagnosis of depressive mood disorders. Symptom progression can inform underlying causes or identify comorbid conditions (e.g., post-traumatic stress disorder [PTSD], eating disorders, substance use disorder, untreated attention-deficit/hyperactivity disorder [ADHD]) and illuminate the presence of possible mixed/bipolar features, guiding pharmacotherapy selection and overall treatment planning.

Important past psychiatric history to elicit includes past diagnoses, medications or therapy, prior suicide attempts, psychiatric hospitalizations, and duration and outcomes of treatment. Regarding previous medication trials, identifying medications that were/were not effective and tolerated informs treatment planning. Family history of psychiatric conditions in first-degree relatives, including medication trials, tolerability, and response to medications, offers insight into medication selection.

Importantly, while many students do meet full criteria for major depressive episodes or disorders, it is not uncommon for students to present with depressive

Table 4.2 Lifetime prevalence rates for DSM-5 depressive disorders, all and by sex

Depressive spectrum disorder	All (%)	Males (%)	Females (%)
PDD with persistent MDE	15	10	20
PDD with intermittent MDE	0.4	0.3	0.4
PDD with pure dysthymic syndrome	3	2	3
Any MDD	28	22	34
MDD recurrent	11	7	14
MDD single episode	17	15	20
Any other specified depressive disorder (OSDD)	9	8	10
Any persistent depressive disorder	18	13	21

PDD persistent depressive disorder, *MDE* major depressive episode

disorders that fall outside these parameters (Table 4.2) [23]. In such cases, the impact of the depressive symptoms on functional capacity, underlying or comorbid conditions, and suicide risk may support treatment of these conditions as aggressively as full criteria major depressive disorders.

To accurately assess baseline symptoms, it is recommended to use a standardized rating scale, such as the PHQ 9. This approach allows the clinician to identify possibly underreported symptoms, communicate with students about their severity in a measurable way, and track progress over time with therapeutic trials.

Again, screen for any mixed/bipolar features, as presence of these indicates a completely different course for pharmacologic management. The recommended screening tool, which can be administered in clinical settings, is the Mood Disorder Questionnaire [22]. This instrument is quick, self-reported, and easily scored. In patients for whom this questionnaire is positive, it is important to take a detailed history of previously undetected hypomanic episodes, or antidepressant-refractory prior depressive episodes, and to elicit any present mixed features. If mixed or bipolar features are present, it would be appropriate to refer to psychiatric care or to consider treatment with a mood stabilizer rather than an antidepressant [24, 25].

Anxiety Disorders

While anxiety disorders are the most common of the psychiatric conditions, with a lifetime prevalence of 30% or more, it is often during the college years when young adults will first seek treatment. Critical shifts in day-to-day routines, dorm life, financial responsibilities, friend group changes, culture shock, racial/demographic profiling, and demanding academic curricula are amplifiers to preexisting anxiety conditions and precipitants of novel symptoms. Often the absence of familiar home life and privacy will unmask previously undiagnosed social anxiety.

Upon entering higher education, many students (with and without attentional deficits) find their study habits cannot keep up with the abrupt leap in volume of academic material. If unable to adjust their work routines to keep up, falling behind deadlines triggers the "avoidance-anxiety" cycle: They are so anxious about turning work in late that they avoid the work further, which means it becomes more late, and so on.

University and college environments provide fresh and uncharted social territory, under whose guise threats to safety exist: racial/religious bullying, xenophobia, sexual assault, and hazing, to name a few. Gentle inquiry may allow students to disclose information about bullying, emotional trauma, or verbal abuse. Financial expenses related to the college emerge as a new source of performance-related pressure.

Anxiety disorders often begin early in life, are often dynamic, and may emerge in varying forms over the life span (Table 4.3) [26, 27]. For example, the same individual who showed symptoms of school anxiety as a preschooler becomes obsessive about sports or a hobby or collection in elementary school, experiences social or performance anxiety in middle school, and emerges as generalized anxiety in college, eventually manifesting with obsessive/compulsive features in adulthood.

Table 4.3 Prevalence of anxiety disorders in epidemiological surveys [27]

	NCS-R survey		ESEMed survey	
Disorder	Over 12 months (%)	Over lifetime (%)	Over 12 months (%)	Over lifetime (%)
All anxiety disorders	21	34	8	15
Panic disorder	3	5	0.7	2
Generalized anxiety disorder	3	6	1	3
Agoraphobia	2	3	0.3	0.8
Social anxiety	8	13	2	3
Specific phobia	10	14	8	15

NCS-R National Comorbidity Survey Replication (NCS-R) is a survey of the prevalence and correlates of mental disorders in the USA; *ESEMeD* European Study of the Epidemiology of Mental Disorders shows prevalence of mental disorders in Europe

Often comorbid with depressive disorders, anxiety disorders are sometimes overshadowed by the intensity of the mood disorder, and can easily go unrecognized in active substance use disorders. Anxiety symptoms are sometimes sufficiently chronic to be accepted as a normal baseline condition, but a careful history will elicit the presence of functional impairments or maladaptive coping techniques. In some cases, it is not until depression emerges that anxiety begins to show impact on cognitive functioning [28]. Clinicians must remain aware that acute anxiety states are independent risk factors for suicide, and as such careful risk assessment and risk reduction are, in addition to distress reduction, primary treatment goals. Fortunately, appropriate and timely treatment with cognitive and pharmacological interventions can reduce this risk.

Care Planning and Interventions

Students generally engage positively with providers who approach care and management of mental health conditions in a collaborative, informative, realistically optimistic manner. While young adults (or their parents) might hold certain strong preferences for treatment modalities, they are also inquisitive and open to accurate psychoeducation. Independence is important developmentally for young adults, so it helps to respectfully engage the student's desire for autonomous decision-making while clearly communicating professional treatment recommendations [29]. Cultural and familial stigma about treatment, particularly medications, can subtly influence patient preferences, and the insightful clinician will elicit fears or beliefs early on in the discussion of treatment options.

Some researchers have proposed the idea of "staging" psychiatric symptoms, identifying the naturalistic progression of untreated symptoms, highlighting the importance of early intervention, and identifying key treatment decision points as early intervention may prevent progression into intractability [30]. For patients with *mild* symptoms, there is evidence that many interventions—psychotherapy, coaching, group therapy, antidepressants, and even telephone therapy [31, 32]—can lead to symptom reduction

[33–35]. However, in patients with moderate to severe symptoms (PHQ-9 score > 10; GAD-7 score > 11), there are sufficient risks associated with functional impairment and suicide that treatment is warranted. In patients with all ranges of symptom severity, evidence shows that pharmacotherapy combined with cognitive behavioral therapies is superior to nonpharmacologic treatments alone, and that maintenance of remission rates is superior for patients who engage in combined treatment [33].

For patients expressing reluctance to begin pharmacological interventions as first steps, absent precluding severe symptoms or high-risk factors, a multimodal nonpharmacologic regimen may be prescribed for a few weeks with a scheduled return to clinic for reassessment. Effective nonpharmacologic interventions including behavioral activation [35], restoration of biosocial rhythms with sleep hygiene (which may become disrupted in college [36, 37]), avoiding substance use [38–41], mindfulness meditation [42], and regular exercise [33, 43–45] are important considerations, in addition to counseling or psychotherapy. Patient education in optimizing caffeine dosing, by enhancing performance while reducing the overall dose of caffeine, has been a recently described strategy [46].

Functional impairment combined with a predominant state of persisting anxiety and/or mood changes would identify a pathological condition necessitating treatment. Pharmacological management must be directed toward target symptoms and be considered in the presence of functional impairment keeping in mind the high likelihood of comorbid underlying conditions [12].

General Pharmacological Principles

Start Low, Go Slow, Allow Time for Response Before Dose Increases

In general, the "sweet spot" between symptom control and drug tolerability is optimally within the lower dose ranges of medications, especially as college students often are at initial presentation and thus treatment naïve [47]. The pharmacological treatment of depression and anxiety overlaps in that the most commonly prescribed and often best-tolerated medications are serotonin reuptake inhibiters. However, medications cannot be used interchangeably, as several antidepressants have unique features. Developing familiarity with a varied cross section of psychotropic medications is recommended. For example, while bupropion is an efficacious and well-tolerated antidepressant, prescribing this in patients with comorbid anxiety does not demonstrate anxiety and suicide risk reduction [48].

Pharmacotherapy of Unipolar Depression

Studies suggest that 30–60% of depressed patients will respond to the point of remission (defined as 50% symptom reduction) following an initial antidepressant trial but seem to be setting-dependent. For example, data on quality of outcomes in

the primary care setting as compared with specialty care for general adult populations are conflicting [49, 50]. In college populations, there is some suggestion that those students receiving depression treatment under specialist care show better adherence and outcomes [51], possibly underscoring the importance of close monitoring, concurrent psychotherapy, and necessary "course corrections" early in treatment. Unsurprisingly, data show that patients with higher symptom severity demonstrate higher response rates to medications [52]. It is important to educate patients that it may take up to 12 weeks after dose titration [53] to achieve symptom remission. Even among those patients without full remission, up to 50% may experience significant symptom reduction [54]. If residual symptoms are present despite dose optimization, augmentation strategies with low doses of alternate receptor targeting medications may deliver remission sooner than switching to another antidepressant.

For patients with predominantly melancholic initial or residual symptoms, low doses of intermediate-acting bupropion (e.g., 100–150-mg qam) or ultralow doses of tricyclics or low-dose serotonin-norepinephrine reuptake inhibitors (SNRIs, e.g., amitriptyline 5–25 mg at bedtime or venlafaxine 37.5–75-mg daily) would be appropriate to consider [55].

Patients who demonstrate laboratory evidence of borderline or subclinical hypothyroidism may benefit from augmentation strategies with thyroid hormone supplementation (T3) or lithium [56], but in general the risk/benefit ratio from using lithium supports reserving this agent for augmentation only under conditions of high suicide risk [57].

Close Monitoring for Mixed Features or Treatment Emergent Bipolarity

Early identification of treatment emergent or close observation of initial mixed or bipolar features *during antidepressant initiation* is essential. If these worsen or emerge, it would be appropriate to discontinue the antidepressant and fast-track a psychiatric referral. However, if psychiatric access is limited, an appropriate first line would be to cross-taper by addition of relatively well-tolerated mood stabilizers such as low doses of lamotrigine (50–200 mg daily, while monitoring for a rash), titrating up slowly starting at 25mg daily for two weeks and then as per protocol over 4 weeks [58] while removing the antidepressant, which may be the culprit in triggering rapidity in cycling. Alternatively, it would be appropriate to cross-taper off the antidepressant by adding second-generation antipsychotics (SGAs) at low doses (e.g., aripiprazole 1–2 mg qam or quetiapine 50–100 mg qhs). In situations where there is a fulminating and rapidly emerging hypomanic or manic state, often patients will not respond to benzodiazepines for insomnia but will benefit from bedtime dosing of quetiapine, olanzapine, or risperidone.

Pharmacotherapy for Anxiety Disorders

Acute anxiety that is intractable or causing functional impairment to the point of increasing risk factors for suicide (insomnia, panic, agitation) needs rapid intervention. Benzodiazepines are contraindicated as long-term agents in managing anxiety, yet anecdotally there may be some benefit in using (for pharmacologically naïve and substance abuse low-risk patients) a short "pulse" of standing doses of benzodiazepines, which can be an important tool to help "reset" acute insomnia or panic symptoms in the context of acute trauma.

However, it is important to combine this pulse with a maintenance regimen of another longer-term medication to avoid patients becoming dependent on the relief provided from the medication as well as the direct effect of benzodiazepines. Keep in mind these key principles in benzodiazepine selection: longer half-life, standing doses, and tapering off before 4–6 weeks are all features that minimize risk of psychological dependence. The prescription of benzodiazepines can often be effective as a taper over 3–4 weeks, while the longer-term medication (often an SSRI) begins to take effect.

It is important to educate patients about the potentially lethal drug-drug interaction between benzodiazepines and alcohol and to avoid prescribing these in patients who are unable to commit to discontinuing alcohol for the duration of the benzodiazepine taper.

When discussing the use of antidepressants to target anxiety symptoms, it helps to explicitly state that this medication is from the class of "antidepressants" but despite that designation there is evidence that it is efficacious for the treatment of anxiety conditions. For many patients (and perhaps clinicians), there is a desire for the prescription to be "a very small dose" as one way to mitigate the stigma or anxiety around taking medications. It is important to educate patients that expecting drug efficacy without achieving minimal therapeutic dose levels can be a setup for disappointment, where patients might end up feeling that "nothing will help me."

It is important to begin at half minimal therapeutic doses initially, titrating upward after allowing time for hepatic enzyme induction to avoid excessive buildup of serum drug levels and possibly abrupt adverse effects. It is equally important to titrate the dose to minimal therapeutic range after the first 5 to 7 days, rather than maintain subtherapeutic dose ranges, unless the patient demonstrates intolerance. Educate young adults that, during this first week window, it is rare but possible for patients to experience akathisia, and this has very rarely been associated with suicidal thinking and behavior. In the rare instance that this emerges, patients should be instructed to discontinue the medication immediately and seek medical care that same day.

In general, the SSRI class of medications (e.g., fluoxetine, sertraline, citalopram, escitalopram, fluvoxamine) show broad-spectrum efficacy against anxiety spectrum conditions and are generally well tolerated. However, they often take 3 to 8 weeks before significant subjective relief is felt. Serotonin-norepinephrine reuptake inhibitors (SNRIs, e.g., venlafaxine, desvenlafaxine, duloxetine) have demonstrated superior efficacy to SSRIs in management of neuropathic pain and fibromyalgia [59], and some patients will have a stronger antidepressant or antianxiety response to

these medications as a result of norepinephrine receptor activity at the higher dose ranges. Selection among antidepressants is primarily based on a past history of response or adverse events or a family history of first-degree relatives in those areas. There is some evidence to show that newer antidepressants such as vilazodone, vortioxetine, levomilnacipran, and desvenlafaxine [60] are better tolerated with shorter onset of efficacy.

If such information is not available, then selection to "match" the patient's symptoms to known medication effects is a recommended method to guide medication selection. For example, consider a patient with recurrence of unipolar depression who previously responded to an SSRI but discontinued due to sexual side effects. He now presents with symptom recurrence, accompanied by weight and appetite loss, and has comorbid anxiety with severe insomnia. In his case, mirtazapine might be preferred as it has efficacy as an antidepressant, targets insomnia, improves appetite and weight, and does not cause sexual side effects.

Pharmacogenetic testing is not widely used at this time to aid in drug selection. Limitations in consistency across tests for the enzymes and drugs tested, costs, and duration have been barriers. Additionally, such testing has limited utility in the presence of personal and family pharmacological history.

For patients who fail more than two medication trials, or who experience significant difficulty tolerating adverse effects, it is appropriate to refer for psychiatric consultation. Under specialist care, recent interventions include the use of ketamine and esketamine. Other somatic therapies such as reverse-transcranial magnetic stimulation or electroconvulsive therapy (ECT) may be considered for patients with high-risk, severe, refractory symptoms.

Nonpharmacologic Interventions

Psychotherapy is an effective tool in achieving remission for mild symptoms of depression and mild to moderate symptoms of anxiety disorders [61]. Cognitive behavioral interventions are most widely recognized in the literature as being efficacious, but unstructured counseling often subjectively feels helpful to students. The "goodness of fit" with the therapist is a key measure of positive outcomes, and there is significant research to demonstrate the efficacy of group therapy interventions [62].

Interventions in biorhythm therapy are easily overlooked by patients, and will often benefit from the clinician encouraging the importance of regular meals, regular sleep routines, careful titration of caffeine use, limiting substance use, and prioritizing regular exercise, all of which are low hanging fruit. Yoga, mindfulness, and meditation exercises, when practiced regularly, show benefits for both depressive and anxiety disorders [34, 63, 64].

Regulating sleep rhythms by 30 min of morning daylight exposure is another low-cost, high-yield intervention, as is phototherapy with a 10,000 LUX full-spectrum light box [65, 66]. The latter also has demonstrated efficacy in the treatment of seasonal affective disorder [67, 68].

Conclusion

College health systems are often the first point of contact for young adults who experience emerging developmental mental and emotional distress. When such distress causes functional impairment, it rises to the level of symptoms requiring treatment to prevent short- and long-term negative consequences and ensure educational success. Because so many chronic and lifelong mental conditions present during young adulthood, and because the college and university years present as times of both great opportunity and vulnerability, college psychiatric systems can be insufficient to meet the demand. For students reluctant to seek care from mental health providers because of attitudes toward mental conditions, college primary care providers are entrusted with the role of introduction of students to mental health care. As such, cultivating skills for providing compassionate, reassuring, and competent mental health care is vital for ensuring healthy, successful students.

College Health Perspectives

Administration	Clinical
What are key points for administrators managing college health?	*What are key points for clinicians in college health?*
The mental health of students is intimately connected to their academic success, lifelong quality of life, and financial success. Prioritizing mental health funding is not just the right thing to do for students, it also supports the strength and growth of institutions.	Distinguish distress from functional impairment, and distinguish pathological symptom complexes from developmental states. Rule out bipolarity, substance use, psychosis prodrome, and underlying conditions.
Young adults who are not diagnosed accurately nor treated effectively early on have a greater relapse rate and lifelong risk of mental health conditions.	Avoid the temptation to trivialize substance misuse, as early detection and intervention can change the course of a student's life.
Universities are advised to prioritize psychiatric care as part of a comprehensive campus health system. This serves direct patient care needs and provides consultation for the primary care and psychotherapy services. Primary care systems are not designed for management of complex psychiatric conditions such as bipolar or mixed features, early stages of psychosis, and early-stage substance use disorders.	Conduct an initial comprehensive risk assessment and periodic reassessments for risk over the treatment course. Know modifiable risk factors and formulate treatment plans designed for risk reduction. Engage the student as a person: Be curious about their identity, values, and preferences. Establish a strong therapeutic alliance by listening before offering an opinion and engaging in collaborative treatment planning.

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Chapter 5
Attention-Deficit/Hyperactivity Disorder and College Students

Cara M. Lusby and Scott H. Kollins

History and Prevalence

Attention-deficit/hyperactivity disorder (ADHD) is a chronic, brain-based disorder that is characterized by inattention, hyperactivity, and/or impulsivity at a level that exceeds developmental expectations. References to attention disorders have been described for centuries, with early descriptions dating as far back as the 1700s [1]. Since then, our understanding and characterization of what is now known as ADHD has continued to be refined. In the 1930s, this disorder was referred to as minimal brain dysfunction, and the second edition of the Diagnostic and Statistical Manual of Mental Disorder (DSM) referred to hyperkinetic disorder, reflecting the emphasis on overt hyperactivity. Based in large part on seminal work by Virginia Douglas [2], the DSM included attention for the first time in the definition and diagnostic criteria for the disorder in 1980 [3]. Over the last 40 years, the conceptualization of the disorder from a diagnostic perspective has remained relatively stable.

Current estimates of the prevalence of ADHD are approximately 5% for children and adolescents [4] and 2.5% for adults [5]. Overall, these rates appear to represent an increase in the prevalence of diagnosis of ADHD in children, across all sociodemographic groups studied, over the past several decades [6, 7]. However, further evidence has suggested that any variability in estimates of the prevalence of ADHD

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is actually related to the method by which ADHD was measured [8] rather than a true increase. From those individuals who are diagnosed in childhood, many will continue to exhibit symptoms and impairments into adolescence and adulthood [9]. To this point, results from a meta-analysis of prospective longitudinal studies suggested that two-thirds of those diagnosed with ADHD in childhood or adolescence will continue to demonstrate impairing ADHD symptoms in adulthood, though not necessarily meeting full criteria [10].

When considering a college-age population specifically, it is important to note that, in a clinical sample, the vast majority (86.5%) of children with ADHD continued to meet the DSM fifth edition (DSM-5) criteria for ADHD in late adolescence [11]. The exact prevalence of ADHD in the college student population, however, is unknown [12], though estimates suggest that approximately 25% of college students who receive disability accommodations do so for ADHD [13]. Regardless, there is support for the idea that ADHD is particularly impactful in college students. Not only do college students with ADHD tend to struggle academically, but there are also findings of difficulties in other domains, including poorer romantic relationship quality [14] and higher psychiatric comorbid symptoms such as depression and anxiety than their peers without ADHD [15, 16].

Etiology

ADHD has several known etiological factors, including genetic, neurobiological, and environmental, with none being singularly known to cause ADHD [17, 18]. Rather, there appear to be multiple possible pathways by which one develops ADHD, with the presentation of symptoms likely representing a complex interplay between risk factors [17].

Genetics

There are a number of different methods by which the genetic contribution of ADHD has been studied, including family studies examining the rates of ADHD in successive generations and extended families, twin studies comparing rates in monozygotic versus dizygotic twins, and adoption studies comparing rates in biological versus adoptive family members. Overall, results from these studies have yielded consistent support for ADHD being a highly heritable disorder, though no single gene has yet been identified [19]. For example, most studies suggest a two to eight times increased risk for ADHD in family members, including parents and siblings, of children with ADHD [20]. In twin studies, the mean heritability across

studies of ADHD, inattentiveness, or hyperactivity was 74% [19]. Adoption studies found higher rates of ADHD and associated disorders in the biological parents of nonadopted children with ADHD as compared to the rates in adoptive parents of adopted children with ADHD. The latter group had a rate more consistent with parents of children without ADHD, suggesting a strong genetic versus environmental component to ADHD [21].

Neurobiology

Neurobiological risk factors for ADHD include differences in both brain structure and chemicals. There are several ways that neurobiology can be studied, including functional magnetic resonance imaging (fMRI), structural MRI, positron emission tomography (PET) scans, and others. With regard to differences in brain structure measured using MRI, a recent large cross-sectional mega-analysis investigated possible structural differences in children and adults with ADHD as compared to those without [22]. Results suggested that the volumes of the bilateral amygdala, accumbens, and hippocampus were smaller in individuals with ADHD compared to controls and that there was also a delay in brain maturation in subcortical structures in individuals with ADHD [23, 24]. Further, neuroanatomic differences include a slower rate of cortical thinning in prefrontal regions in children and adolescents with greater hyperactive/impulsive symptoms [25]. In addition, dysregulation of dopamine and norepinephrine circuits in the frontal cortex has been implicated in ADHD [23, 24, 26].

Environmental

A review of studies showed that environmental risk factors have been found to include pre- and perinatal maternal factors, environmental toxins, dietary factors, and psychosocial adversity. In particular, preterm birth and low birth weight have consistently been found to be risk factors for the development of ADHD, particularly when the individual also has minor neurodevelopmental impairments [27]. Further, there is some evidence for maternal smoking during pregnancy increasing risk for ADHD in offspring [28], though the exact relationship between these variables is difficult to determine given overlapping genetic and environmental factors [29]. Importantly, results have shown only correlations between risk factors and ADHD rather than causal relationships [18]. Overall, gene and environment interactions seem to yield the most promise for understanding the etiology of ADHD.

Diagnosis

As with many other psychological disorders, there is no specific test that is used to diagnose ADHD. Rather, a comprehensive evaluation for ADHD requires a multimethod approach, including the use of clinical interviews, standardized rating scales, and evaluation of comorbid disorders in order to determine whether an individual meets the criteria put forth by the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5). The "gold standard" of diagnosis is a comprehensive clinical interview, which includes the report of clinical symptoms by individuals and other informants [30]. In addition to symptoms of ADHD, providers should assess age of onset, duration, and pervasiveness across contexts of symptoms as well as functional impairment caused by symptoms [31]. Further, other coexisting conditions should be thoroughly assessed and ruled out as being a better explanation for attentional symptoms. Standardized behavior rating scales can also be helpful for providing additional information in establishing a diagnosis. With children, this often includes rating scales completed by parents/caregivers and teachers. With adults, in addition to current and childhood self-report rating scales, collateral information is collected from other informants (e.g., spouse, sibling, parent) on the individual's current symptoms as well as from others (e.g., parent/caregiver) to assess childhood behavior [32]. For adults, it is essential for clinicians to establish a childhood history of ADHD [32].

In college-age students, evaluation and diagnosis of ADHD can be challenging. For one, there can be strong motivation, including in the pursuit of medication, to obtain an ADHD diagnosis. In one study aiming to address how well these individuals are able to feign ADHD, results suggested that malingerers were able to generate profiles consistent with ADHD on symptom checklists [33]. Further, in the case of young adults with a lifetime history of ADHD, these individuals tended to differ from other informants in their report of current symptoms, with the latter group reporting more symptoms and higher impairment than young adult self-reports [34]. This finding highlights the importance of obtaining informant report as part of a young adult evaluation process, which can be made more challenging in the case of college students who are away from home.

Treatment/Management of Symptoms

Best practice in treatment for ADHD for children/adolescents ages 4–18 as well as adults generally includes a combination of stimulant medication and/or behavior therapy [35, 36]. One of the largest studies to examine ADHD treatment in children was a multisite clinical trial called the Multimodal Treatment of Attention-Deficit/Hyperactivity Disorder (MTA) study. Results of this study suggested that combination treatment (medication + behavioral treatment) and medication management alone were both significantly more effective as compared to intensive behavioral

treatment alone and to routine community care in reducing ADHD symptoms in children [37, 38]. However, when looking long term, early ADHD symptom trajectory, rather than the type of treatment the child received in this study, significantly predicted functioning 6–8 years later [39]. Stated differently, this study indicated that the clinical picture of functioning in childhood, including ADHD symptom severity, conduct problems, cognitive functioning, and social advantage, predicted adolescent outcomes more so than the type of treatment received [39].

Pharmacological Intervention

Pharmacological treatment for ADHD can include both stimulant and nonstimulant medications. Within the stimulant category, both methylphenidate- and amphetamine-based medications have support from randomized and controlled clinical trials as being effective treatment options for ADHD [40]. Nonstimulant options are also available, though are generally found to be less effective in ADHD treatment.

An important consideration in the use of medication for college-age students with ADHD is the potential for misuse, abuse, and diversion, particularly for methylphenidate- and amphetamine-based products [41]. Misuse and diversion of ADHD medications occurs in a substantial minority of college students. For example, among a large sample of nearly 5000 college students, rates of prescription stimulant misuse, abuse, or diversion were 8.3% lifetime and 5.9% in the past year. The most commonly reported motivations for use included helping with concentration and studying and to improve alertness, although getting high was also reported in nearly one-third of those reported users [42]. The challenges of managing prescription stimulants among college students are not trivial, and many providers report that they feel inadequately trained on how best to reduce the risk of misuse, abuse, and diversion [43]. To address this important challenge, a recent study has shown promise in reducing risk of stimulant diversion among providers caring for college students with ADHD [44]. The intervention included three main components, including patient education and counseling, enhancing diversion prevention strategies, and effective medication monitoring. These content areas were augmented with video vignettes modeling effective provider: patient interactions.

Non-pharmacological Intervention

For adults, cognitive behavioral therapy (CBT) (including time management, organization, and planning strategies) has been found to be more effective than supportive therapy [45] or relaxation with educational support [46].

When thinking about treatment options in a college student population, there are several important considerations. For one, individuals with ADHD are suggested to

have higher rates of stimulant misuse as compared to those without ADHD [47]. Results of a recent meta-analysis suggested that, in the college student population, the rate of stimulant medication misuse was 17% [48]. Further, in some studies of college students with ADHD, findings suggest that less than half had been offered adequate accommodations and many others fail to use those that are offered [49], which is largely problematic given the extent to which they may struggle academically [50]. Though there has been very little treatment research in college student populations, there is initial support for a treatment protocol that combines group CBT and individual mentoring, targeting educational, psychological, social, and executive functioning needs in this population [51].

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Recognize that ADHD is likely to affect a substantial minority of students and work with clinical providers and other student resources (i.e., disability services) to optimize management of these learners.	College students with ADHD are at heightened risk for a range of adverse outcomes, and effectively managing treatment is critical.
Administrators should provide clinicians the necessary resources to reduce risk of stimulant misuse, abuse, and diversion among college students with and without ADHD.	Effective treatment options for college students with ADHD include both pharmacological and non-pharmacological options.
Provide continuing medical education opportunities for medical providers in order for them to maintain knowledge of ADHD assessment and treatment advances.	Clinicians should be aware that ADHD is more often than not associated with other comorbid conditions that can impact functioning (i.e., depression, substance use problems).
The frontline pharmacological treatments for ADHD—stimulants—carry risks for misuse, abuse, and diversion, and clinicians should take steps to minimize this risk.	

Conclusion

In summary, ADHD is a commonly diagnosed psychiatric condition in children, adolescents, and adults. The presentation of ADHD in college students presents unique clinical challenges with respect to both assessment and treatment. Consideration of the unique impairments associated with ADHD in college students, as well as risks and benefits of various treatment modalities, is important in order to optimize management of this population.

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Chapter 6
Athletic Medicine

Jessica Higgs

Introduction

Athletic medicine encompasses many students on campus, from scholarship athletes to so-called weekend warriors. The focus of this chapter will be the role of a team physician of school-sponsored sports, but its principles are also applicable to other students. Team physicians are responsible for the medical care of college athletes, including pre-participation physicals, sideline preparedness, and injury management. Their core competencies should include assessment of cardiac risk, treatment of concussion, and management of chronic medical conditions in athletes such as asthma, diabetes, inflammatory bowel disease, and seizures. Knowledge and skill in managing mental health issues, such as depression and anxiety in athletes, are also important as is sport-specific knowledge. Team physicians also can have administrative duties such as preparing emergency action plans and developing the structure of the sports medicine team.

Responsibilities of Team Physicians

The team physician should be an integral part of the medical team. He or she should work closely with the athletic trainers for medical management of athletes as well as with other members of the team including strength and conditioning coaches, orthopedic surgeons, and counselors. The team physician may have a working relationship with the coaches, but it is imperative that team physicians have professional autonomy to guide medical care decisions regarding individual athletes [1].

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Medical Supervision of Athletes

The team physician is responsible for the medical supervision of the athlete from the pre-participation physical to the end of their eligibility or retirement from the team [2]. Communication is a vital component of providing medical supervision of team athletes. Weekly communication with the athletic trainer in the off-season to daily communication during competition season may be necessary. Responsibilities to the athlete include protecting the athlete from injury, reinjury, or permanent disability and educating the injured athlete on the nature of their injury and available treatment options. The physician should recognize other issues that affect athletic performance, including strength and conditioning, nutrition, ergogenic aids, substance abuse, and psychological response to injury. The care team should also understand the interplay between exercise and sports participation on chronic medical conditions. The physician is also responsible for ensuring confidentiality of the health issues of the student athlete whenever possible. While it is important for athletic trainers and coaches to have information regarding any medical condition that may affect the athlete's ability to train and compete, student athletes may seek out advice or counsel on medical issues that do not have immediate impact on their ability to play their sport and wish to keep confidential. Discussing with the athlete what will and will not be shared is important in order to maintain the physician-patient relationship.

Administrative Duties

Team physicians should be aware of, or involved in, the development and review of the emergency action plan (EAP). They should ensure that an emergency action plan is current and available at every home venue. The team physician should be aware of, or involved in, the development of the reporting structure of the sports medicine team. This structure should involve a general system of care for the team, a chain of command, and guidelines for consultation.

Pre-participation Physicals

The main objectives of pre-participation physicals are to screen for conditions that may be life-threatening or disabling or that may predispose the athlete to injury or illness [3]. Secondarily, it is used to determine general health and provide opportunity for the physician to initiate discussion on health-related topics. College athletes generally complete a comprehensive physical exam when entering school. Each year, the athlete should then complete a shorter exam that focuses on any injuries and/or medical issues that may have occurred during the previous season. Ideally, each of these exams is completed at least 6 weeks prior to the athlete's season to allow time for any follow-up that is required.

A team physician and/or the institution has it within their legal rights to restrict an athlete as long as the decision is individualized, reasonably made, and based on competent medical evidence. Each institution may evaluate the risk differently, but legal precedent has been set that this decision is individualized and under local control.

Sideline Preparedness

Most team physicians will provide some sideline coverage. They should be familiar with the EAP for the venue(s) in which they most frequently work in and be aware of where they can evaluate athletes. They should be aware of what equipment and resources will be available at the event. They should discuss potential problems in advance with the team athletic trainer, if applicable. They should be aware of weather considerations such as wet bulb temperature or incoming storms. Meeting with other medical personnel at the event such as emergency medical technicians (EMTs) and the opposing team's athletic trainer is recommended. The home team physician is generally considered responsible for any issues involving officials and other neutral attendees. They may also be responsible for the spectators if there is no other plan of care.

General Core Competencies

Concussion

Management of concussion is covered in its own chapter in this book, but it is an essential skill of an athletic medicine clinician to be able to evaluate and manage concussions. Full return to learn should always occur before full return to play. Athletic medicine clinicians should be prepared to deal with the more complicated concussion patients: those with prolonged symptoms, history of anxiety and depression, and history of multiple concussions, to name a few. Refer to Chap. 7 for more information.

Cardiac Clearance

Cardiovascular risk screening is one of the most important issues that faces a team physician when clearing an athlete for his or her sport. Cardiovascular disease is the leading cause of death in young athletes. Problems can range from structural, such as hypertrophic cardiomyopathy and myocarditis; electrical, such as long QT syndrome or Wolff-Parkinson-White syndrome; to outside factors, such as drug use or

commotio cordis. Family history is very important in the screening process, and it should be noted if the athlete has a family member who died without explanation and died before the age of 50 years due to cardiac problems, near or unexplained drownings, and unexplained seizures or has specific knowledge of family members with conditions such Marfan syndrome. Each of these issues requires a further workup. Physical symptoms that are also concerning include syncope during exercise, unexplained seizures, fatigue out of proportion to the activity, and palpitations. Physical exam should focus on blood pressure, listening for heart murmurs, and looking for physical signs of Marfan syndrome. The use of electrocardiogram (EKG) as part of a routine pre-participation screening remains controversial. The feasibility of providing the test and the ability to have it read using International criteria for athletes should be considered. Additional testing such as an echocardiogram or cardiac magnetic resonance imaging (MRI) should be done on a case-by-case basis and in consultation with a cardiologist when appropriate.

Heat Illness Assessment and Management

Understanding the factors that go into heat illness is key to helping prevent this condition as well as early recognition of symptoms in a student athlete. The responsibility for the team physician is therefore twofold. First, the team physician must work closely with the sports medicine team to establish a protocol for heat during practices and games. Second, the team physician should be able to quickly assess an athlete who is experiencing symptoms of heat illness and treat appropriately.

Risk factors include not only hot, humid weather and overexertion but also dehydration, poor aerobic fitness (potentially early in the season), inadequate heat acclimatization (traveling to warm climates when living in colder climates), equipment that inhibits heat loss, excess body fat or large body size, or febrile conditions. The use of medications such as diuretics, antihistamines, or caffeine or other stimulants can also play a role. Also, athletes with a history of heat illness may be at risk for recurrent heat illness.

Wet bulb globe temperatures (WBGT) should be known prior to practices or events in hot conditions. Preparation for heat during an event should include proper hydration, including additional water breaks in games and practice, rectal thermometer for proper assessment, and cold tubs for rapid cooling of affected athletes. Coordination with athletic trainers, event managers, team physicians, and paramedics is essential.

Recognizing signs and symptoms of heat illness, ranging from edema and cramps in mild conditions to syncope, mental status changes, and core temperatures greater than 104 °F, is important to providing prompt and appropriate treatment.

Chronic Conditions in Athletes

The physical demands as well as the time constraints associated with participating in college athletics can have significant effects on athletes who suffer from chronic medical conditions. While every chronic medical condition may affect an athlete in some way, a few common conditions take special consideration:

- **Asthma**: Athletes with a history of asthma are likely to have flares with exercise. Monitoring these athletes to make sure symptoms are adequately controlled during all phases of their season is important. Athletes who begin complaining of respiratory issues should be evaluated for previous history of asthma when they were younger as well as other conditions that can mimic exercise-induced asthma such as vocal cord dysfunction and exercise-induced laryngeal prolapse.
- **Diabetes**: It is important for the team physician, the athletic trainer, and the athlete to understand the student athlete's management strategy. New technology can allow you to track a diabetic athlete continuously throughout the game. However, if that is not available, knowing how to manage pregame glucose and postgame glucose is critical. A glucometer, glucose tabs, ketone strips, and glucagon should all be available for the athlete in a location that is easily accessible.
- **Seizure**: Some sports, such as swimming and rock climbing, may have restrictions based on this diagnosis. However, most allow full participation. Athletic trainers and coaches need to be aware of the condition and how to manage if a seizure occurs.
- **Allergies**: It is important that athletic trainers are aware of all allergies that athletes may have. Food allergies, such as sunflower seeds, can become important in dugouts. Severe peanut allergies may come into play on travel trips. Outdoor athletes who are allergic to stinging insects are also important to note. Knowledge of how to manage the allergic reaction and where and how to use an EpiPen® is important for both the athlete and the athletic trainer.

Musculoskeletal

It is important for the team physician to have extensive knowledge of musculoskeletal injuries and be confident with examination skills. A fundamental knowledge of inspection, palpation, range of motion, strength, neurovascular testing, and special tests for each area of the body is important. While it is outside the scope of this book to go into great detail on this topic, Table 6.1 provides a list of common examination skills and diagnoses.

Table 6.1 Common musculoskeletal injures among athletes

Body part	Special tests	Diagnoses
Shoulder	Hawkins, Neer's, Speed's, Yergason's, Jobe's relocation test, O'Brien's, sulcus sign, cross arm abduction	Anterior and/or posterior instability, biceps tendonitis, biceps rupture, labral injuries including SLAP lesions, rotator cuff impingement or tear, AC or SC joint injuries, clavicle fracture, brachial plexus injury, scapular dyskinesia
Elbow	Milking maneuver, Tinel's	Distal biceps rupture, median nerve entrapment, triceps tendonitis or rupture, olecranon bursitis, medial epicondylitis, UCL sprain, ulnar nerve compression, lateral epicondylitis, radial tunnel syndrome, radial head fracture
Hand and wrist	Watson's, Finkelstein's	Subungual hematoma, mallet finger, jersey finger, DIP and PIP dislocations, metacarpal fractures including boxer fracture, scaphoid fracture, scapholunate dissociation, TFCC injury, de Quervain's tenosynovitis, intersection syndrome
Back	Straight leg raise, FABER, stork sign	Disk herniation, spinal stenosis, spondylolysis, spondylolisthesis, Scheuermann's disease, scoliosis, ankylosing spondylitis, facet syndrome, sacroiliac dysfunction, sacral stress fractures
Pelvis, hip, and thigh	Log roll, FADIR, FABER, Ober, Trendelenburg	Trochanteric bursitis, sports hernia (rectus abdominis strain), adductor longus strain, aponeurosis, IT band, piriformis syndrome, snapping hip, osteitis pubis, labral tears, femoral neck stress fractures, femoroacetabular impingement, quadriceps contusion, hamstring strain
Knee	Varus and valgus stress testing, dial test, Lachman, pivot shift, anterior and posterior drawer, Macmurray's, Apley compression, patella apprehension test	LCL injury, ACL injury, MCL injury, PCL injury, meniscus tears, patella dislocation, patellofemoral syndrome, patellar tendonitis, synovial plica, Osgood-Schlatter, bursitis, OCD lesions, posterior lateral corner injury, IT band syndrome
Ankle and lower leg	Anterior drawer, talar tilt, Thompson test	Tibial stress fracture, syndesmotic injuries, exertional compartment syndrome, medial tibial stress reaction (shin splints), Achilles injury, ankle sprain, posterior tibial tendonitis, peroneal tendon injury
Foot	Calcaneal compression, "too many toes" sign	Plantar fasciitis, turf toe, Lisfranc, navicular fracture, metacarpal stress fracture including Jones fracture, tarsal tunnel syndrome, Morton's neuroma

Abbreviations: *SLAP* superior labral tear from anterior to posterior, *AC* acromioclavicular, *SC* sternoclavicular, *UCL* ulnar collateral ligament, *DIP* distal interphalangeal, *PIP* proximal interphalangeal, *TFCC* triangular fibrocartilage complex, *FABER* flexion, abduction, external rotation, *FADIR* flexion, adduction, internal rotation, *IT* iliotibial, *LCL* lateral collateral ligament, *ACL* anterior cruciate ligament, *MCL* medial collateral ligament, *PCL* posterior cruciate ligament, *OCD* osteochondritis dissecans

Stress Fractures

Stress fractures are common injuries seen in college-age students. A stress fracture is an overuse injury ranging from a constellation of small microfractures to complete structural failure. Certain sports, such as running and gymnastics, are more likely to cause stress fractures. The tibia is the most common bone affected, followed by the tarsals, metatarsals, femur, fibula, pelvis, sesamoids, and spine. Factors that can contribute to stress fractures include reduced muscle strength, endocrine issues affecting menstrual cycles, inadequate nutrition, high training intensity, and improper biomechanics. A high degree of clinical suspicion is needed as radiographs are often unremarkable. More expensive imaging such as bone scan, MRI, computed tomography (CT), or single-photon emission computed tomography (SPECT) scan can confirm the diagnosis but often does not change the treatment strategy. Table 6.2 lists common stress fracture and the sports with which they are typically associated, along with common treatment plans.

Fracture Management

While extensive discussion of fracture management is outside the scope of this publication, a team physician should have skills for basic splinting and casting techniques and appropriate triage for fracture care.

Rehabilitation

Once the diagnosis of the musculoskeletal injury has been made, it is important for the clinician to work though the rehabilitation program with patient. Physical therapists and athletic trainers can be invaluable in this regard but may not be accessible in all circumstances. Having a basic understanding of limiting immobilization if possible, restoring dynamic stability, proprioception, neuromuscular control, and muscle strength is vital to the recovery of the patient. Discussing with the patient the expected time frame and a gradual return to functional activities is important.

Mental Health, Substance Use, Nutrition, Sleep, and Performance

All of these topics will be discussed in other chapters of this book. However, care for athletes with these issues has several nuances. Especially for higher level athletes, some of their identity may be tied to their sport. If they are struggling for playing time, injured, or preparing for retirement, their mental health may be

Table 6.2 Stress fractures in athletes

Bone	Sport	Treatment
Ulna and humerus	Baseball and softball pitchers, overhead throwing athletes, gymnasts, volleyball players	Rest, correction of biomechanics, resume gradual activity when pain-free, usual duration 4–8 weeks
Spine (pars interarticularis)	Gymnasts, cheerleaders, divers, weightlifters, football linemen	SPECT scan is gold standard (Scotty dog sign); initially modify activity and avoid hyperextension of back; bracing is controversial; healing can take 3–6 months
Sacrum	Runners	Positive FABER and one foot hopping test, cessation of running initially, healing from 6 weeks to 8 months
Femoral neck	Runners, dancers, military	Severe complications if untreated such as avascular necrosis, non-weight-bearing for 6–8 weeks, and clear fracture line may require surgery
Femur	Runners, mainly females	Non-weight-bearing to modified activity initially, can begin modified weight-bearing activity (cycling, swimming) at 2 weeks, RTP time frame 8–16 weeks
Tibia	Runners, military, basketball	Differentiate between compression and tension, RTP in 2–12 weeks depending on symptoms; tension "dreaded black line" may require surgery
Calcaneus	Military and runners	Positive heel squeeze test, relative rest based on symptoms, RTP in 3–4 weeks
Navicular	Runners, soccer, basketball, track	Concern for nonunion, MRI for confirmation, non-weight-bearing for 6–8 weeks; ORIF may be necessary
Metatarsals	Basketball, football, runners, military, ballet	Rest, stiff-soled shoes, RTP in 6–8 weeks

Abbreviations: *SPECT* single-photon emission computed tomography, *FABER* flexion, abduction, external rotation, *RTP* return to play, *MRI* magnetic resonance imaging, *ORIF* open reduction internal fixation

affected. In addition, some illnesses, such as eating disorders, may be more prevalent in the athletic population. Some medications, such as those used for attention-deficit hyperactivity disorder (ADHD), may be prohibited in certain sports. When it comes to substance use, team physicians may be asked to provide education, participate in drug testing of the athletes, or provide medical exemptions for therapeutic use of medication as appropriate. Nutrition is vitally important to an athlete's performance. Nutrition includes maintaining a healthy weight but also includes what they are eating and when they are eating it. Sleep is important both mentally and physically, and poor sleep can affect athletic performance as well as academics. Being aware of what is tied to their scholarship—such as food, housing, tutors, etc.—is also important to consider when planning how best to treat the athlete.

Sports-Specific Knowledge

It is important for team physicians to have some basic working knowledge of the sport they are covering. Understanding the sport can help in understanding the mechanism of injury and guide the rehabilitation process. It also adds to the relationship with the student athlete if they feel that you understand or are interested in what is clearly important to them.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Have a working relationship with the athletic director and the director of campus recreation	While student athletes are students first and face the same issues that all college student face, their motivation for recovery or the cause of the issue may be vastly different
Athletic departments often have a different sense of urgency when it comes to their student athletes and receiving care	All principles discussed in this chapter can be applied to all athletes—from the weekend warrior to the starting quarterback

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Chapter 7
Concussion

Peter Duquette and P. Hunter Spotts

Introduction

Concussion awareness has greatly increased in recent years with particular attention given to sports-related concussions and return-to-play (RtP) guidelines [1–4]. Though the incidence of concussion among college varsity athletes has been quantified, there is limited data on the incidence of concussion with recreational activities [5, 6]. Additionally, many college students sustain concussions due to accidents unrelated to athletic participation. RtP guidelines are not applicable to the majority of students who sustain concussions. Their primary concern is their ability to meet impending academic obligations and how their symptoms might adversely affect their academic performance. College students consult with their student health centers not only for evaluation and management of their concussion but also to seek guidance on returning to academics. Unfortunately, most return-to-learn (RtL) guidelines are written for the grade-school population and are based on expert consensus [7]. College students have a very different educational experience so that the grade-school RtL guidelines have limited usefulness [2]. The purpose of this chapter is to outline an evaluation and management plan for students for whom RtP is not the primary consideration and propose RtL guidelines that are useful to both students and faculty in the college setting.

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Definition, Mechanism of Injury, and Pathophysiology

A concussion is caused by a direct blow to the head or any transmitted force that results in sudden acceleration, deceleration, or rotation of the head with a clear temporal relationship to the onset of symptoms [8–10]. These mechanisms cause disruption of neural cell walls that allow for potassium efflux into the extracellular space [8, 10, 11]. The movement of potassium from inside to outside the neural cells triggers the release of glutamate, an excitatory amino acid neurotransmitter, which causes further depolarization of the neural cells leading to additional release of potassium as well as influx of calcium and sodium [8–11]. This abnormal neurometabolic cascade results in depression of neuronal activity [8–11]. Sodium-potassium pumps upregulate to restore homeostasis but at the cost of increased adenosine triphosphate metabolism and utilization of glucose [4, 9, 11]. Combined with reduced regional cerebral blood flow caused by the injury, a severe energy deficit is created that likely leads to the common signs and symptoms of concussion [4, 11]. Since concussion is due to a functional brain injury rather than a structural brain injury, there is no laboratory or imaging study that can aid in diagnosis; thus, diagnosis is strictly clinical [3, 11, 12].

Signs and Symptoms

Concussion signs and symptoms typically occur immediately after an injury but in some cases may be delayed for up to several hours [10, 12, 13]. A concussion can have a range of signs and symptoms that are often nonspecific and may overlap with preexisting conditions such as migraine headaches, mood disorders, attention-deficit/hyperactivity disorder (ADHD), sleep disorders, and learning disabilities [5, 8, 10, 12, 13]. To diagnose concussion, signs and symptoms cannot be explained by drugs, alcohol, medications, heat-related illness, or other injuries [5, 10]. The signs and symptoms of concussion can be classified into four categories: physical (somatic, vestibular, oculomotor), cognitive, emotional, and sleep (Table 7.1 [4, 12, 14]) [8, 12, 13, 15].

The most common initial symptoms are headache, dizziness, confusion, and impaired concentration. During the recovery process, sleep disturbance, fatigue, frustration, and forgetfulness may develop [8, 10, 12, 16]. Loss of consciousness and amnesia are not required for the diagnosis of concussion [3, 10, 15].

Recovery Time

Most of the data addressing recovery time from concussion is derived from the sports medicine literature. A majority of patients with concussion completely recover in about 2 weeks [13]. However, patients with more severe initial

Table 7.1 Signs and symptoms of concussion. (Adapted from [4, 12, 14])

Physical	
Signs	Symptoms
Loss of consciousness	Headache
Seizure	Nausea/Vomiting
Dazed appearance	Dizziness/lightheadedness
Balance problems	Light/noise sensitivity
Eye movement problems	Blurred vision
	Ringing in the ears
Cognitive	
Signs	Symptoms
Confusion	Feels "like in a fog"
Memory impairment	Feels slowed down
Disorientation	Impaired concentration
Delayed cognition	Impaired ability to focus
Slowed speech	
Emotional	
Signs	Symptoms
Emotional lability	Depressed mood
Irritability	Anxiety/nervousness
Sleep	
Signs	Symptoms
Drowsiness	Hypersomnolence
Excessive fatigue	Insomnia

symptoms, severe initial headaches, history of multiple prior concussions, vestibular-ocular symptoms (such as nausea, vertigo, and visual disturbances), or history of mood disorders often have prolonged recovery lasting greater than 1 month [5, 10, 17–20]. Genotypic females may have higher risk for prolonged recovery [19, 20]. Loss of consciousness, amnesia, history of attention-deficit/hyperactivity disorder (ADHD), and history of learning disorders do not portend a prolonged recovery [10, 19]. Recognition of risks for prolonged recovery aids in anticipating which students may be in most need of academic assistance and accommodations.

Initial Evaluation

When students present for their first student heath medical evaluation, they may or may not have already been evaluated in an emergency department or urgent care. In either case, it is prudent to do a thorough assessment to rule out a more severe head or neck injury that would necessitate immediate transport to an emergency department [10, 13]. Symptoms that raise concern for a more severe head injury include a loss of consciousness for more than 30 min, two or more episodes of vomiting, greater than 24 h of amnesia after the injury, worsening headache, or mental status changes [4, 5, 10]. Nursing triage should include orthostatic vital signs to evaluate

for autonomic dysfunction and postural tachycardia [12]. Initial clinician evaluation should document the mechanism of injury, timing of injury, and symptom progression as well as a thorough physical examination [5, 12].

Though the student may have walked into the clinic under their own power, a thorough neck examination should be performed to rule out the possibility of a significant cervical spine injury. The examination should begin with palpation of the cervical spine for tenderness or asymmetric spasm [10, 12]. Strength and active range of motion of the neck should then be assessed for any limitations [10, 12]. The presence of limb weakness or paresthesias indicates that a significant neck injury is likely present [10, 21].

The head should be thoroughly examined by inspection and palpation for signs of depressed skull fracture. Basal skull fracture should be suspected if there is cerebrospinal leakage from the ears or nose, hemotympanum, Battle's sign (bruising over the mastoid processes), or periorbital ecchymosis ("raccoon eyes" or "panda eyes") [12, 21]. A thorough neurologic examination including assessment of the cranial nerves and mental status should be performed [12]. Any significant abnormal findings on the head and cranial nerve exams warrant transport to an emergency department for further evaluation and consideration of imaging.

After a severe injury has been ruled out, the assessment should proceed with a symptom checklist such as the Post-concussion Symptom Scale (PCSS) [22]. Checklists allow for a standardized approach to patient self-reporting of their symptoms and level of severity [10, 13, 22]. These checklists can be administered again on subsequent visits to monitor recovery and aid in determination of return to activities [10, 13, 22]. A checklist should not be used as the only means to make a concussion diagnosis [13].

There are several accessible and validated assessment tools that require no formal neuropsychological training to administer. The Standardized Assessment of Concussion (SAC) allows for objective assessment of mental status after concussion [14]. It has been shown to have high sensitivity to detecting deficits in orientation, concentration, and memory immediately after concussion. More recently, the Sport Concussion Assessment Tool-5 (SCAT-5) was updated and uses 30 items of neurocognitive testing from the SAC. It has both five and ten word lists conducted over three trials. The longer word list has been shown to reduce the ceiling effect, which occurs when the high score on a test is too easily reached, thereby decreasing the meaningfulness of the intended measurement. This may be particularly relevant for college students [23]. The US Centers for Disease Control and Prevention (CDC) has also developed the Acute Concussion Evaluation (ACE) that helps guide clinicians in the initial assessment of injury details, symptoms, and risk factors for prolonged recovery. The ACE provides a symptom checklist and follow-up action plan [24]. Finally, there are tools that can be used to assess postural stability and other sensorimotor signs following concussion, such as the Balance Error Scoring System (BESS) [25]. Each of these tools can assist the treating clinician in detecting the aftereffects of concussion on mental status, tracking resolution of post-concussive symptoms, and making informed decisions for their return to classroom activities in college.

Ongoing Assessment and Management

Because there is no single presentation for how post-concussive symptoms wax and wane, the use of serial symptom checklists can help clinicians monitor progress and guide students toward the next phase of treatment. Most clinicians schedule follow-up visits in the first 7 days post-injury and weekly after that because of the natural course of recovery, with >90% achieving full symptom resolution within 3 to 4 weeks. The repeated use of assessment tools such as the SAC or SCAT5 also provides some utility, but their sensitivity for detecting cognitive impairments tends to decline within the first few days after a concussion [26].

Students with protracted symptoms or preexisting factors raising the likelihood of slower recovery may require a referral for neuropsychological testing. Clinical neuropsychologists have specialized training in brain-behavior relationships and are well suited to describe the functional impact of concussion given a student's particular set of pre-injury characteristics and current life stressors. In fact, some studies in pediatric populations have suggested that the differential diagnostic process and psychoeducation provided in a neuropsychological evaluation can aid in reduction of concussion-related symptoms [27].

There is utility in developing a network of like-minded concussion team members on college campuses, whether housed in the same physical location or not. For example, students who sustain a concussion may require referrals to counseling and psychological services, as the injury may exacerbate underlying life stressors that were present prior to the concussion. Physical therapists also can be valuable members of a campus-based concussion team to address poor balance and vestibular dysfunction in the weeks post-injury. Finally, it is beneficial to establish close working relationships with academic advisors and disability services coordinators on campus to facilitate more efficient implementation of accommodations or other adjustments when students are returning to the classroom after concussion.

Return to Learn After Concussion

Much like an RtP protocol for student-athletes, there are stepwise and individualized methods for returning students to classroom activities. The foundations of an RtL program assume that cognitive activities require brain activity, which have been directly affected by a concussion. Like RtP, it is difficult to provide absolute recommendations for RtL because students may have no discernable physical impairment but remain unable to perform at their expected baseline after a concussion.

Post-concussive symptoms have broad implications for academic performance, including disruption to learning caused by headaches, fatigue, and decreased attention during class lectures; slower efficiency of homework completion; trouble understanding new material; and struggles with eye strain when reading or looking at screens [28]. The idea of "dosing school activities" has become more commonplace, especially among high school and college students who tend to struggle

keeping pace with the amount and complexity of work more than elementary and middle school students [28]. Although a handful of jurisdictions in the United States have specific RtL policies in place for public school students, few colleges or universities have a formal process documented.

Table 7.2 outlines a hypothetical set of action steps that college campuses could consider implementing in an RtL framework.

After an initial period of rest (24–48 h), students should attempt to return to class with maximum adjustments and limited participation with symptom-specific supports in place. Table 7.3 outlines suggested symptom-specific supports [29].

As symptoms improve, students can move into a minimal accommodations phase in which class attendance is regular though modifications to assignments or tests may still be necessary. For students following a typical recovery trajectory after concussion, they will eventually move into a phase of full return to classes without any academic adjustments.

Table 7.2 Return-to-learn guidelines for college students following concussion

Step 1: Rest/no class	If unable to tolerate 30 min of light cognitive activity, the student should remain at home or in the residence hall
Step 2: Maximum adjustments	Once able to tolerate 30–45 min of cognitive activity without return of symptoms, the student should return to the classroom in a stepwise manner. Such return should include no more than 30–45 min of cognitive activity at one time, followed by at least 15 min of rest. If possible, exams and paper deadlines should be rescheduled
Step 3: Minimum adjustments	Full class schedule with exams and papers. May still require extra time, modifications of assignments, or support services
Step 4: Full return	Full return to classes with no adjustments or in-class accommodations

Table 7.3 Symptom-specific supports. (Adapted from [29])

Physical
Rest breaks Wear hat/sunglasses during class Sit away from sunlight Avoid noisy/crowded hallways or cafeteria
Cognitive
Lighter assignment load Note-taking assistance Tutoring on study skills Extended time on exams Flexible due dates or extensions for makeup work
Emotional
Reassurance Workload reduction Encourage socialization
Sleep
Adjust class schedule (late start, alternate days, shortened day) Rest breaks during class or exams

Special consideration needs to be given for circumstances for college students that are not often encountered at the elementary, middle, or high school level. The greater flexibility in class scheduling may allow students to consider attending classes only on alternating days or switching to a class with a later start time if fatigue is a substantial factor in the early recovery stages. There may also be some benefit to auditing a class or dropping a course altogether if there are concerns about the effect of the concussion on GPA. The timing of a concussion in the semester also could be problematic, as midterms, final exams, or group projects could be challenging to make up in a timely manner. Taking a medical leave of absence may be the best course of action for a student after concussion when recovery is long enough to disrupt an entire semester or more.

Students often question whether consumption of alcohol will hinder their recovery from concussion. It appears that use of alcohol does not impede recovery [30]. However, given the confounding symptoms it may cause, it is wise to caution students to refrain from alcohol use during the early stages of concussion recovery and to consume alcohol only sparingly during the remaining stages of recovery.

Finally, there are no standardized recommendations to guide driving behaviors following concussion. A recent survey of college student-athletes showed that less than half refrained from driving after a concussion, with the most only doing so for 24–48 h and because a health care provider advised this restriction [31]. Collegiate athletic trainers do not routinely recommend driving restrictions to all students with concussion, but when they do, students are most commonly told to refrain from driving until symptoms have resolved [32]. Student health clinicians are best suited to discuss the potential need for temporary driving restrictions after a concussion with a college student. Clinicians should base any driving restrictions on clinical assessment and may need to schedule follow-up sooner if driving is a critical need of the student.

College Health Perspectives

Administration	Clinical
Consider longer appointment time slots for initial concussion visits	Perform initial and follow-up outpatient concussion assessments for student
	Diagnosis of concussion is strictly clinical. There is no laboratory or imaging test that can aid in the diagnosis of concussion
Consult with key academic support personnel to ensure that return-to-learn guidelines are understandable and useful	Provide student with return-to-learn guidelines that student can share with teaching faculty
Provide referral coordination to ensure students have timely access to specialty care	For prolonged symptoms, refer student to specialty clinical services such as rehabilitation, neurology, and neuropsychology
Foster open line of communication between student health and university support services to ensure mutual understanding of the scope services each can provide	Refer student to university support services such as case management and disability as needed

Conclusion

Concussions represent a major public health issue, and special considerations are needed in managing post-concussive symptoms in college students who are not directly connected with an athletic program. Clinicians in college health settings are well positioned to serve as an entry point with expertise to evaluate, triage, and manage students' needs following a concussion. Because academics are the primary daily focus for these students, creating campus-wide collaboration through a concussion care team and advocating for established RtL policies are logical next steps as the science continues to support an active rehabilitation process following concussion.

Student Take Narrative

While walking to a late afternoon class with friends, an 18-year-old male freshman slips on ice, falls backward, and hits the back of his head on the sidewalk. He does not appear to lose consciousness, and his friends help him to his feet. He initially tells his friends he feels fine, but shortly after the fall, he begins to complain that he has a headache and feels nauseous. During class, the ambient light hurts his eyes, and he has difficulty concentrating on the lecture. His friends note that he appears and acts "foggy." He accepts his friends' invitation to take him to a local emergency room.

In the emergency department, his neck is cleared by examination. No imaging is performed because he did not experience loss of consciousness and does not have any neurological deficits and his symptoms are not progressive. He is released from the emergency department with a diagnosis of concussion and instructions to follow up at the university student health center the next day. That evening in the dorm, he continues to experience nausea and headache. He finds minimal use of his laptop computer very bothersome and continues to have difficulties with concentration. He has difficulty sleeping that night, and his symptoms are unchanged the next morning.

He schedules a same-day appointment with the university student health center. The clinician administers a symptom checklist, neurologic screen, and cognitive assessment that support the diagnosis of concussion. Of particular concern to the student is that he has midterm exams in the upcoming week as well as one paper to complete. The clinician reviews return-to-learn guidelines with the student and provides the student with printed return-to-learn guidelines that he can share with his professors. He is also referred to university support services.

Over the next week, the student progressively feels better. After an initial 24-h period of cognitive rest following his student health visit, the student returns to class wearing sunglasses and with limited active participation. During the week, he is able to resume studying in progressive increments of time and with frequent breaks. In collaboration with his professors and support services, he is able to take his exams and complete his paper with accommodations. Two professors allow him to take exams 3 days later in a university testing center where he is granted extra time and a quiet environment. One professor has a policy that allows for a drop of the

lowest exam grade of the semester, so the student forgoes taking that exam. He is allowed a week extension for completing his paper.

He is seen in the student health center for two subsequent follow-up visits in 1 week increments. He reports feeling better at each visit, and repeat administrations of the symptom checklist show improving scores. After the second follow-up visit, he is discharged from further scheduled visits and is instructed to return on an as-needed basis.

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Recommended Readings and Resources

CDC HEADS UP to Brain Injury Awareness. https://www.cdc.gov/headsup/index.html.
Acute Concussion Evaluation. https://www.cdc.gov/headsup/pdfs/providers/ace-a.pdf.
SCAT-5. https://bjsm.bmj.com/content/bjsports/early/2017/04/26/bjsports-2017-097506SCAT5.full.pdf.
Balance Error Scoring System. https://idph.iowa.gov/Portals/1/Files/ACBI/BESS%20manual%20310.pdf.
NCAA Sport Science Institute Interassociation Consensus: Diagnosis and Management of Sport-Related Concussion Best Practices. http://www.ncaa.org/sport-science-institute/concussion-diagnosis-and-management-best-practices.

Chapter 8
Contraception for College Reproductive Health

Anna Camille Moreno

Introduction

College campuses are a unique environment to provide and improve the accessibility of reproductive health services for students. Approximately 80% of college women are sexually active [1]; therefore, it is valuable that clinicians caring for college students provide appropriate and comprehensive counseling that includes contraception, sexually transmitted infection (STI) prevention, and safe sex practices.

According to a survey conducted in 2018 on 26,181 US college students aged 18 years and older from 40 different schools, approximately 30% had used the withdrawal method as a form of birth control the last time they had penile-vaginal intercourse. In addition, about 61.6% used male condoms, 55% used birth control pills (monthly or extended cycle), 13.6% used intrauterine devices (IUD), 8.4% used fertility awareness methods (calendar, mucous, basal body temperature), and 7.8% used birth control implants [2].

The number of contraceptive options has grown in recent years, offering students various methods that are suitable for their lifestyle and needs. Healthcare providers need to be well informed about safe and effective contraceptive options so that college students can make sound decisions involving their reproductive health. It is also important for medical providers to know that hormonal contraception is not only used for both pregnancy prevention and cycle control but also has noncontraceptive health benefits (Table 8.1) [3].

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Table 8.1 Noncontraceptive indications of hormonal contraceptives [3]

1. Treatment for dysmenorrhea (painful periods)
2. Treatment of pelvic pain from endometriosis and adenomyosis
3. Treatment of menstrual cycle irregularity
4. Treatment of menorrhagia (heavy menstrual bleeding) or bleeding from leiomyoma
5. Treatment for premenstrual syndrome (PMS)
6. Decreased risk of endometrial, ovarian, and colorectal cancers
7. Treatment of hirsutism
8. Treatment of acne vulgaris
9. Treatment for premature ovarian insufficiency (previously known as premature ovarian failure)
10. Treatment of hypothalamic amenorrhea caused by eating disorders, exercise, and stress
11. Treatment for mittelschmerz (pain associated with ovulation)
12. Prevention of ovarian cysts
13. Improved bone mineral density in older women

Oral Contraceptives

Oral contraceptive pills (OCPs), in particular, are one of the most popular contraceptives on college campuses and have been used for more than 40 years in the United States [4]. Most oral agents contain estrogen and progestin, which prevent pregnancy by inhibiting ovulation and altering cervical mucus viscosity, making sperm mobility very difficult. The true failure rate of oral contraceptives is 3% due to incorrect use [4].

OCPs come in various combinations and dosages including monophasic, biphasic, and triphasic formulations that contain synthetic estrogen and synthetic progestin. Monophasic combination pills consist of fixed doses of estrogen and progestin, while biphasic and triphasic preparations mimic more closely the varying hormonal concentrations of the natural menstrual cycle. Monophasic formulations are often preferred since they are well studied in the literature and tend to have less hormonal-related adverse reactions. For college athletes specifically, a continuous combination formulation or extended cycling is available that allows them to only have four menses per year, enabling them to manipulate their menstrual cycles during travel and athletic competitions.

Progestin-only contraceptives, also known as the “minipill,” are available for those who cannot tolerate the estrogen-related side effects or in those who have relative and absolute contraindications to estrogen-containing preparations, e.g., history of hypertension, venous thromboembolism (VTE), heart disease, or impaired liver function. They are commonly associated with lower contraceptive efficacy, amenorrhea, and increased breakthrough bleeding. They are a good option for those who are breastfeeding/lactating and should not be used in women taking medications such as anticonvulsants, griseofulvin, and rifampin [3].

The World Health Organization (WHO) has published a list of medical eligibility categories that provide recommendations for clinicians in using specific

contraceptive methods by men and women who have certain medical conditions (Table 8.2) [5]. These recommendations aid in contraception counseling and in prescribing contraceptive methods for men and women.

Medication Interactions with OCPs

Certain medications can affect the metabolism of OCPs and decrease their effectiveness leading to unintended pregnancy and irregular or breakthrough bleeding. These include [4]:

- Antimicrobials (e.g., penicillins, tetracyclines, griseofulvin, rifampin)
- Anticonvulsants (e.g., phenytoin, carbamazepine, felbamate, topiramate)
- Anti-HIV (human immunodeficiency virus) protease inhibitors
- Herbal products (e.g., St. John's wort)

Table 8.2 World Health Organization medical eligibility categories for oral contraceptive pills (OCPs) [5]

Category 1 (no restrictions to OCP use)
Menarche to <40
Benign breast disease
Benign ovarian tumors
Endometriosis, fibroids
Postpartum >21 days, postabortion
History of ectopic pregnancy or abortion (postabortion after first or second trimester)
Category 2 (OCP can be used with caution and close follow-up if benefits outweigh risks)
Age > 40
Obesity
Migraine headaches without focal neurological involvement
Valvular heart disease
Diabetes mellitus (uncomplicated)
Hyperlipidemia
Category 3 (only use OCP if pregnancy risk is high and there are no other acceptable contraception options)
Cigarette smoking
Less than 21 days postpartum
Cholestatic jaundice
Hypertriglyceridemia
Category 4 (OCP is contraindicated)
Breast cancer
Cerebrovascular accident (active or history), CAD
Hypertension
Coronary (or ischemic) heart disease (active or history)
Deep vein thrombosis or pulmonary embolism (active or history)
Suspected pregnancy

Student Take: Female Smoker with Migraines

Emma Boise is a 36-year-old female who has been taking combined OCPs (ethinyl estradiol 20 microgram and levonorgestrel 0.1 milligram) for the last few years. She smokes about 28 cigarettes per day and has a history of menstrual migraines without auras. Her migraines are controlled on her current medication regimen and occasionally are triggered by poor sleep. She is not interested in smoking cessation. She has no personal or family history of early cardiovascular disease or a history of venous thromboembolism (VTE). Her blood pressure is controlled and she denies prior history of stroke. She is seeing a family medicine doctor at the student health center for her birth control refill. Her blood pressure during the visit is 120/80 mmHg. Her body mass index (BMI) is 24. Should she continue her birth control pills?

According to the US Medical Eligibility Criteria (USMEC), a history of migraines without auras is not a contraindication to continuing or starting combined OCPs [3]. If Emma had auras with her migraines, the medical risks would outweigh the benefits of continuing OCPs [3]. However, since Emma is a cigarette smoker and is over the age of 35 years, continuing use of combined OCPs could potentially increase her risk of heart disease and VTE; therefore, she should be advised to stop her combined OCPs and consider changing to an estrogen-free method of contraception.

Barrier Contraceptives

Barrier methods are potentially effective contraceptive options for those students who are consistently compliant with its use with each coital act, comfortable with their bodies, and highly motivated to avoid unwanted pregnancy.

Male condoms allow male students to actively take part in the contraceptive responsibility with their partners, have minimal side effects, and are available over the counter without a prescription. They are 98% effective with perfect use but only 87% effective with typical use [6]. In a multisite, randomized controlled study involving 5700 heterosexual, HIV-negative patients who received patient-centered HIV and STI risk reduction counseling at public STI clinics in the United States, 100% condom use and a statistically significant 20% lower incidence of STIs over 12 months were reported [7].

Latex condoms are associated with increased rates of breakage when exposed to high temperatures or ultraviolet light and also can be weakened by oil-based lubricants such as olive oil, mineral oil, and coconut oil.

Other barrier contraceptives include female condoms and dental dams. Female condoms are made of polyurethane sheath and placed in the vagina before coitus; [3] they are not used with a male condom. Dental dams are latex or polyurethane

sheets used between the mouth and vagina or anus during oral sex. It can be used with or without lubricant.

Long-Acting Reversible Contraception

Long-acting reversible contraception devices (LARCs) include hormonal (progestin-containing) and nonhormonal (copper-containing) intrauterine devices (IUDs) and progestin-only subdermal implants. Benefits of LARCs over OCPs include not having to remember to take a pill every day, reduction in heavy menstrual flow, and decrease in dysmenorrhea. In addition, LARCs can be immediately inserted postpartum or postabortion and can also be removed whenever pregnancy is desired.

Intrauterine Device (IUD)

Hormonal IUDs

There are four brands of hormonal IUDs that are currently available in the United States: levonorgestrel-releasing intrauterine system (LNG-IUS) 52 mg (Mirena® and Liletta®), LNG-IUS 19.5 mg (Kyleena®), and LNG-IUS 13.5 mg (Skyla®) (Table 8.3). They all have the same type of progestin at different dosages but all have the same mechanism of action. They exert an inflammatory effect on the lining of the uterus, causing endometrial thinning. In addition, hormonal IUDs prevent fertilization by thickening cervical mucus and preventing sperm movement and ability to penetrate the ovum. The most common side effect is irregular menstrual bleeding that occurs during the first 3–6 months after IUD insertion but usually decreases thereafter. LNG-IUS 52 mg (Mirena®) is the first and only IUD to be approved to treat heavy menstrual bleeding in women.

LNG-IUS 19.5 mg (Kyleena®) and LNG-IUS 13.5 mg (Skyla®) are commonly recommended by clinicians to nulliparous women due to smaller width and the diameter of the plastic T-shaped device and the insertion tube compared to other IUS. This may mean a more comfortable experience and ease with insertion of the smaller IUS.

Nonhormonal IUDs

Copper ions in the nonhormonal IUD (Paragard®) act as a spermicide by inducing an inflammatory reaction in the uterus. Menstrual pain and bleeding may increase after insertion of the copper IUD (Table 8.3).

Table 8.3 Intrauterine device options

Method	Dosage	Efficacy (%)	Advantages	Disadvantages
Mirena®	52 mg	99	Decrease menstrual bleeding and cramping May decrease risk of endometrial hyperplasia and cancer 20% amenorrhea rate	Irregular bleeding Initial bleeding and cramping Painful procedure
Liletta®	52 mg	99	Decrease menstrual bleeding and cramping May decrease risk of endometrial hyperplasia and cancer 20% amenorrhea rate Used commonly in nulliparous women	Irregular bleeding Initial bleeding and cramping Painful procedure
Kyleena®	19.5 mg	99	Decrease menstrual bleeding and cramping 12% amenorrhea rate	Irregular bleeding Initial bleeding and cramping Painful procedure
Skyla®	13.5 mg	99	Decrease menstrual bleeding and cramping 6% amenorrhea rate Used commonly in nulliparous women	Irregular bleeding Initial bleeding and cramping Painful procedure
Paragard®	0	99.2–99.4	Effective for emergency contraception	Heavier bleeding Does not improve cramping Painful procedure

Birth Control Implant

A progestin-only implant is also a highly effective contraception option for students. It is the only subdermal implant approved by the US Food and Drug Administration (FDA) that prevents pregnancy by suppressing ovulation, thickening cervical mucus, and altering the lining of the uterus making it unfavorable for implantation. It is very effective and has a 0.05% pregnancy rate in the first year of use. The progestin (etonogestrel) levels have been found to be lower in obese patients, but BMI does not correlate with failure [8]. There is no decrease in the effectiveness of the implant in overweight or obese women, and it may be offered as first-line contraception to any woman seeking a reversible and effective birth control method. Some women will have erratic bleeding after insertion, but the bleeding pattern is usually established by 3 months after placement. Other side effects that may occur include pain with insertion and removal and possibly procedural scarring.

Table 8.4 Emergency contraception methods

Method	Efficacy	Timing	BMI
Copper IUD	99%	Up to 5 days	All
Levonorgestrel	52–100%	Sooner the better	< or = 26
Ulipristal	62–85%	Up to 5 days	< or = 30

IUD intrauterine device, *BMI* body mass index

Emergency Contraception

There are three available methods of emergency contraception (EC) available in the United States: copper IUD, oral ulipristal acetate, and oral levonorgestrel (Table 8.4). Emergency contraception prevents unwanted pregnancy after unprotected sex by preventing ovulation but does not terminate a pregnancy. There have been no conclusive data of increased risk of birth defects to women who were already pregnant when they took EC.

Copper IUD

The copper IUD is the most effective type of EC. It is a T-shaped plastic rod that is inserted in the uterus up to 5 days after unprotected sex to prevent pregnancy. It has the additional benefit of being an effective birth control method for up to 10–12 years. It is effective for patients of all BMIs with an efficacy rate of 99%.

Ulipristal Acetate

Ulipristal acetate can also be used up to 5 days after unprotected sex and has an efficacy rate of 62–85%. It works by mimicking and blocking progestin, thereby delaying ovulation. It may not work as well in obese patients who have a BMI > 30 and requires a prescription. It is important to counsel the student that she has to wait 5 days to resume or start a hormonal contraception (pill, patch, ring, implant, injection, or hormonal IUD) after taking ulipristal acetate. Failing to do so may make both medications less effective due to the antagonistic effect of ulipristal acetate on the progesterone receptor.

Levonorgestrel

Levonorgestrel is a high-dose progestin hormone that blocks progestin and delays ovulation. Its efficacy increases the sooner it is taken after unprotected sex. It has low to medium efficacy (52–100%) depending on the timing of when the pill is

taken. The label for levonorgestrel EC states that it should be taken within 3 days, although some studies show that it may work up to 4–5 days [9]. It does not require a prescription and is available over the counter for all ages.

While ECs may be used up to 5 days after unprotected intercourse, women may be unsure where they are in their menstrual cycle, so women should be encouraged to obtain EC as soon as possible.

Transitioning from EC to Contraception

EC can be used more than once in the same month [10]. Students should be counseled on the importance of avoiding further unprotected intercourse or using an effective barrier method during the week after EC use. Students requiring frequent use of EC should be strongly encouraged to use an effective method of ongoing hormonal contraception such as a LARC. The American Society of Emergency Contraception (ASEC) has published rigorous guidelines on the use of hormonal contraception after EC.

Lessons for Campus Health: Provision of Contraception

Effective contraceptive counseling influences method choices, satisfaction, continuation rates, and health outcomes for students. The US Centers for Disease Control and Prevention (CDC) recommends a step-by-step approach to contraceptive counseling and education [11]. The summary below is intended to assist healthcare providers when they counsel college students about choosing a contraceptive method that will meet their needs and desires:

- *Step 1:* Establish and maintain rapport with the student.
- *Step 2:* Obtain clinical and social information. Take an appropriate medical history with focus on medical conditions that may affect eligibility for a particular type of contraceptive. This should include but not be limited to sexual history, risk assessment (smoking status and VTE risk factors), contraceptive experiences, preferences, and clarification of family planning goals.
- *Step 3:* Work with the student interactively to select the most effective and appropriate contraceptive method. Methods should be presented in a tiered approach, in which the most effective methods are discussed first. This discussion should include efficacy, correct use, and potential adverse reactions. Referrals should be made appropriately if some methods are not available at the healthcare center.
- *Step 4:* Conduct a physical assessment related to contraceptive use, whenever it is warranted. For OCPs, blood pressure should be closely monitored for several months after starting OCPs and yearly surveillance thereafter. If appropriate, laboratory tests for lipids, glucose, and liver enzymes should be monitored if the

student has acute or chronic medical comorbidities. A pelvic examination should be conducted before or during the visit for IUD insertion. If indicated, cervical cytology screening and human papilloma virus (HPV) and STI screening should be performed during the pelvic examination. Pregnancy testing should be performed for all patients.

- *Step 5:* Provide the contraceptive method along with instructions about correct and consistent use. Follow up and confirm patient understanding.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
The choice of contraceptives has grown in recent years. The student should choose the right option for his or her lifestyle.	Hormonal contraception is not only used for pregnancy prevention and cycle control but also has noncontraceptive health benefits.
Provide continuing medical education opportunities for medical providers in order for them to maintain knowledge of all new contraceptive options.	Low-dose oral contraceptives are safe and effective.
	Progestin-only contraceptives are an option for women who cannot tolerate or take estrogen preparations.
Accessible reproductive health services should be available at all college campuses.	Injectable, implantable, and transdermal formulations are available for students who have difficulties with medication adherence.
	Clinicians should provide not just EC for the student but also counsel them on ongoing hormonal contraception after EC.

Conclusion

Contraception counseling and provision by healthcare providers play valuable roles in the reproductive health of college students. Many effective contraceptive methods offer both contraceptive and noncontraceptive benefits. The choice of contraception must be individualized after thoroughly assessing a student's lifestyle, medical history, health, and reproductive goals. Engaging the college student in the healthcare decision-making is warranted to improve reproductive health outcomes that will improve patient satisfaction and adherence and prevent unwanted pregnancy.

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Recommended Readings and Resources (i.e., Books, Periodicals, Video Links, Web Resources, Etc.)

https://www.plannedparenthood.org.
https://www.bedsider.org.
https://powertodecide.org.
US MEC & US SPR app. (U.S. medical eligibility criteria for contraceptive use and U.S. selected practice recommendations for contraceptive use, 2016).
http://americansocietyforec.org/uploads/3/4/5/6/34568220/asec_fact_sheet-_hormonal_contraception_after_ec.pdf

Chapter 9
Sexual Health

Mary B. Johnson

Introduction

Many students enter college without adequate sexual health knowledge, and they often engage in sexual behaviors that place them at increased risk for unintended health outcomes. Sexual health should be addressed at all patient visits, and yet these questions are frequently not discussed. The World Health Organization (WHO) describes sexual health as "a state of physical, mental and social wellbeing in relation to sexuality. It requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violence" [1]. Using this lens to evaluate your student population will help ensure a complete exam while providing them with thorough health promotion and disease prevention measures to promote a positive sexual experience.

Conversations Around Sexual Health: Taking a Sexual History

Taking a sexual history can be a challenge for the clinician. The US Centers for Disease Control and Prevention (CDC) five Ps (Table 9.1) is a great way to frame conversations around sexual health [2].

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Table 9.1 The five Ps framework for taking a sexual history [2]

The five Ps framework for taking a sexual history
Partners When assessing the risk of contracting a sexually transmitted infection (STI), it is important to determine the number and gender of your patient's sex partners. Some key considerations in forming questions about your patient's partners are not making assumptions about the patient's sexual orientation; inquiring about the length of their current relationship(s); the partner's risk factors, such as current or past sex partners or drug use; and inquiring about multiple current partners
Practices Being as specific as possible regarding the type of sex practices your patient is having is critical in assessing patient risk, risk-reduction strategies, the determination of necessary testing, and the identification of anatomical sites from which to collect specimens for STI testing. Considerations for this questioning include how the patient views gender and sex as well as if the questions are being asked on paper or during the patient visit. Your tone, inflection, and even word order on a written questionnaire can impact the way the patient answers the question. Partnering with your campus LGBTQ+ center or group is a wonderful way to train staff and have another set of eyes reading pre-visit questionnaires
Protection When determining the appropriate level of risk-reduction counseling for each patient, learn more about the patient's sexual practices by using open-ended questions. Based on the answers, you may discern which direction to take the dialogue while assessing the patient's perception of his or her own risk and his or her partner's risk as well as any barriers to testing for STIs. Considerations for questions related to protection are not just for partner contact but can also include safe use of sex toys and other sex aids
Past history Knowing your patient's history of prior STIs is important as a history of STI places one at greater risk in the future. Considerations include asking not only about past diagnoses but also treatments, recurring symptoms, testing since diagnosis, and partner treatment
Prevention of pregnancy Based on information gathered, determine the appropriateness of efforts to prevent pregnancy. It is important to determine if a pregnancy is desired and, if not, the steps the patient can take to reduce the chances of an unplanned pregnancy

Sexually Transmitted Infection Screening

Adolescents and young adults have the highest incidence of sexually transmitted infections (STIs), and the direct and indirect costs of these are significant [3]. While college students are in this high-risk population, numerous factors affect appropriate testing and treatment including accessing and affordability of testing and perceived stigma. For many students, testing for human immunodeficiency virus (HIV)/STIs is a new and intimidating experience. Some ways to increase the number of students that receive routine testing are (1) increasing opportunities for testing both through targeted outreach events and routine screening with annual visits, (2) using safe spaces to engage students, and (3) creating materials that both increase awareness and normalize the act of testing.

Another way to help increase the number of students routinely tested is to focus on healthy sexual experiences including education and practices that allow students to take charge of their sexual health such as self-collection and expedited partner therapy [4].

STI screenings including HIV should be offered annually as part of routine care for all individuals who are sexually active. Clinician discretion can be used for couples that are in mutually monogamous relationships greater than 2 years. Routine screening helps decrease the stigma of STI testing and increases the number of young adults getting tested. The CDC publishes guidelines for STI screening and treatment. Establishing a good relationship with your local health department is also a good way to be alerted to new STI outbreaks and potential resistance in your area.

Gender Violence Screening

Female college students experience higher rates of intimate partner violence (IPV) and sexual violence (SV) compared to men of all ages, older women, and young women who are not attending college [5]. IPV is defined as abusive behavior and/or coercion within an intimate relationship, and SV is defined as sexual activity that occurs when consent is not obtained or is not freely given. Experts and medical organizations have issued recommendations that health-care providers should routinely screen women for IPV and SV [6]. College health center encounters represent unique, yet often missed, opportunities to screen for IPV/SV in a high-risk population [7]. While most IPV and SV research is aimed at women, best practice is to provide IPV/SV screenings to all patients regardless of gender or sexual identity.

Studies have shown that patient self-administered or computerized screenings are as effective as clinician interviewing in terms of disclosure, comfort, and time spent screening [8]. The four questions in Table 9.2 can be added to a clinician's interview or self-administered before the appointment and cover primary areas of concern related to IPV/SV.

The CDC has compiled a comprehensive list of screening instruments that have been tested on various patient populations [9].

Table 9.2 Screening for intimate partner or sexual violence

Screening for intimate partner or sexual violence
1. Have you ever felt emotionally or psychologically injured by your partner or another person important to you?
2. Has your partner or another person important to you ever caused you physical harm?
3. Were you ever forced to have sexual contact or intercourse?
4. When you were a child, were you ever touched in a way that made you feel uncomfortable?

Reporting to Campus Officials: The Clery Act and Title IX

The Clery Act requires colleges and universities that receive federal funding to disseminate a public annual security report (ASR) to employees and students [10]. Know who on your staff is a confidential resource versus a mandatory Campus Security Authority (CSA) in regard to the Clery Act. On most campuses, there are two types of individuals who, although they have significant responsibility for student and campus activities, are not CSAs under Clery: (1) pastoral counselor (functioning within the scope of that recognition as a pastoral counselor) and (2) professional mental health counselor (functioning within the scope of his or her license or certification).

The Clery Act is not the only campus safety legislation to which institutions must adhere if they receive Title IV funding. Title IX, the Family Education Rights and Privacy Act (FERPA), and the Drug-Free Schools and Community Act (DFSCA) are among the laws that govern institutional reporting and policies around campus violence—notwithstanding state and local law [10]. You should be aware that these laws contain significant legal overlap, both with each other and with the requirements of the Clery Act. Understanding the ways in which they interact is critical for the compliance success of institutions seeking to create safer campus communities. For example, most campus Title IX policies will call out specific roles within the student health center and counseling center as confidential campus resources. However, these roles can vary, so it is important to know your campus' policy.

Pap/HPV Guidelines

Pap Guidelines

The US Preventive Services Task Force (USPSTF) recommends screening for cervical cancer in women aged 21–65 years with cytology every 3 years or, for women aged 30–65 years who want to lengthen the screening interval, screening with a combination of cytology and human papillomavirus (HPV) testing every 5 years [11]. The only exceptions to this recommendation are patients with a history of a high-grade precancerous cervical lesion or cervical cancer, women with in utero exposure to diethylstilbestrol, or women who are immunocompromised. These women should receive more frequent follow-up and in-depth screenings in the appropriate clinical setting.

The Advisory Committee on Immunization Practices (ACIP) recommends the HPV vaccination in females aged 11–12 with catch-up for aged 13–26; in males aged 11–12 with catch-up for aged 13–21; in gay, bisexual, other men who have sex with men, and transgender people; and for immunocompromised persons who have

not been adequately vaccinated previously [12]. While it is ideal that adolescents should be vaccinated before they are exposed to HPV, people who have already been infected with one or more HPV types can still get protection from other HPV types in the vaccine. Due to family beliefs, students may or may not arrive to college with the HPV vaccination or a complete series. Remember to talk with patients to see if they would like to be put on a catch-up schedule to help protect them against HPV. If starting a patient between the ages of 15 and 26 years, three doses of HPV vaccine are recommended at 0, 1–2, and 6 months. [12]

HIV Pre-exposure Prophylaxis (PREP)

While HIV rates have recently decreased among the general population, HIV remains a serious issue for young adults. Young adults aged 13–24 years accounted for 21% of new HIV infections in the United States in 2016 [13]. According to the USPSTF's draft recommendation statement on the prevention of human immunodeficiency virus (HIV) infection using pre-exposure prophylaxis, if current HIV rates persist among men who have sex with men (MSM), then it is estimated that 1 in 2 black MSM, 1 in 4 Latino MSM, and 1 in 11 white MSM will be diagnosed with HIV during their lifetime [14]. College health centers are uniquely positioned to make a significant impact in the health of young adults by offering HIV pre-exposure prophylaxis (PrEP) as a standard health-care service and help address health disparities among marginalized students.

HIV PrEP is a medical intervention that can reduce the risk of HIV infection by greater than 90% if taken daily as prescribed [14]. PrEP should always be used in combination with other prevention strategies such as condoms and other barrier methods. Potential candidates for PrEP include (but are not limited to) those shown in Table 9.3.

Table 9.3 Potential candidates for HIV pre-exposure prophylaxis (PrEP)

Potential candidates for PrEP
MSM who have had condomless anal sex within past 6 months
Transgender individuals engaging in high-risk sexual behavior, e.g., multiple partners, condomless anal sex
Individuals who have been diagnosed with anogenital gonorrhea or syphilis in the past 6 months
Individuals who have a partner who is living with HIV
Heterosexual women who have sex with MSM or people who inject drugs
Individuals engaging in transactional sex
People who inject drugs
Individuals using stimulant drugs in association with high-risk sexual behavior
Individuals who have been prescribed postexposure prophylaxis (PEP)
Someone requesting PrEP

Note that for people who seek to prevent HIV after a single high-risk potential HIV exposure, such as condomless anal sex or a sexual assault, postexposure prophylaxis (PEP) is another option [14]. PEP must be given within 72 hours of exposure to be effective (preferably 24 hours). PEP includes a course of three antiretroviral medications given for 28 days. Patients completing a course of PEP are often candidates to initiate PrEP immediately after their course of PEP is completed.

Clinics should identify a streamlined and consistent process using the latest evidence-based practice guidelines when assessing the need for PrEP. Clinical decision-making tools and checklists can help clinicians initiate PrEP. This chapter's Appendices were adapted from 2017 CDC/USPHS Guidelines (2018) and provide a good starting point to initiate your own PrEP protocols in a student health center [15, 16].

For Additional Clinician Assistance with PrEP, clinicians can use the CDC PrEP Hotline 855-448-7737 or the UCSF PrEP Consultation Service for Clinicians http://nccc.ucsf.edu.

Sexual Dysfunction

Sexual dysfunction can be an overlooked area of subjective questioning, especially among young adults, but is a common area contributing to a negative impact on quality of life and sometimes medication compliance**.** The International Classification of Disease (ICD-10) states that sexual dysfunction extends to symptoms including lack of sexual desire, lack of sexual pleasure, failure of genital response, orgasmic dysfunction, premature ejaculation, and dyspareunia [17]. This broad classification leads to a wide range of potential stressors to evaluate in relation to the presenting symptoms. To complicate things further, the underlying problem can be multifactorial, requiring a multidisciplinary evaluation and treatment approach that addresses biological, psychological, sociocultural, and relational factors.

A French study of 15- to 24-year-olds revealed that half of females and a third of males reported at least one sexual dysfunction; however, only a third of females and 9% of males reported that the dysfunctions hindered their sexuality [18]. Adding screening questions to pre-visit questionnaires may help start these conversations and help patients connect their condition to either organic or more complex emotional or psychosocial stressors. Two resources are listed at the end of the chapter to assist with the evaluation and treatment of both male and female sexual dysfunction.

Gender-Affirming Hormone Therapy

Providing gender-affirming hormone therapy (GAHT) in primary care settings has grown over the past decade such that both monitoring hormone therapy and initiating hormone therapy are essential services. By not offering GAHT on campus or connecting students with local resources that offer these services, colleges create additional complications for groups of students who already feel marginalized at a high-stress time in their life. Removing barriers to care allows the students to focus their energy back on their academics.

Those who are not familiar with monitoring or initiating hormone therapy should consider designating continuing education hours in these areas. The Center for Excellence for Transgender Health at the University of California, San Francisco, has guidelines for prescribing gender-affirming hormones that can be adapted and used as a care model [19]. Additional implementation details are outside the scope of this chapter but should be investigated before adding gender-affirming hormone therapy services.

Providing GAHT is relatively easy and inexpensive but does require extensive training. Smaller schools without clinicians may not have the resources to provide gender-affirming hormone therapy but can still support their students by connecting with local resources that offer these services. For any size school, it is important to know whether your college's insurance policy covers GAHT.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Students want their college to offer resources and support while also empowering them to decide for themselves if and how to access those resources.	Sexual health should be a routine part of your continuing education to be able to provide up-to-date clinical guidance.
Particularly for students at 4-year institutions, there is a belief that attending college is part of lifelong learning; "that's the purpose of an institution like this, is…education, not just on a school subject level…just on anything on life and you know, sexual awareness is definitely a key component to life and being knowledgeable of that is definitely… something everyone needs to have" [20].	Practice using a trauma-informed approach with taking a sexual health history. One example is using open-ended, non-leading questions so the patient can make a determination of what they consider a sexual trauma.
Review and implement interventions and practices that can contribute to building safe and supportive school environments for vulnerable populations such as LGBTQ+ students.	Make a detailed history a routine part of all exams. Ask the same questions of all patients.

Administration	Clinical
Require staff to complete training in areas of sexual health, e.g., how to use a trauma-informed approach in obtaining a health history.	Review how to appropriately gather important health information related to the complexity and diversity of sexual orientations, gender identities, and gender expressions.
Partner with vulnerable populations on campus to gather student feedback and assess areas of growth.	Acknowledge how stigma and prejudice against LGBTQ+ can impact health outcomes, and be open to adjusting clinical practice to reduce unintended consequences.

Conclusion

Sexual health is a critical part of every patient visit. Collecting or updating the patient's sexual health history is important not only so that you can provide the resources and education related to sexual health to promote a positive sexual experience but also to assess risk and ensure your care plan matches with the patient's overall health needs.

Screenings play a vital role in assessing a patient's risks and health needs. For example, STI screenings including HIV should be offered annually as part of routine care for all individuals who are sexually active. Additionally, screen all patients, regardless of gender identity or sexual orientation, for intimate partner violence and sexual violence.

Another important sexual health screen in this age group is cervical cancer screening for women aged 21–65 years with cytology every 3 years or, for women aged 30–65 years who want to lengthen the screening interval, screening with a combination of cytology and HPV testing every 5 years. During these screenings, certain health promotion and disease prevention strategies can easily be woven into the patient's plan of care, for example, reviewing the ACIP's recommendation for the HPV vaccinations, specifically the catch-up schedules for those who have not been adequately vaccinated previously. Utilization of clinical decision-making tools and checklists can prove useful when assessing the risk and need of complex topics such as initiating PrEP.

There is an increase in student requests for continuing and initiating gender-affirming hormone therapy in campus student health centers. Be prepared to connect students with resources if these services are not offered in your clinic yet, and confirm that your student's health insurance covers gender-affirming hormone therapy.

Appendices

Appendix A: Initiating PrEP: A Step-by-Step Checklist for Providers

Need assessment	***One or more* of the following risk factors places the individual at risk for HIV**	
	Risks for sexual transmission □ Any condomless sex in prior 6 months □ Any STI diagnosed in prior 6 months □ Not in a monogamous relationship with a partner confirmed to be HIV-uninfected □ Having sex with HIV+ partner(s) □ Commercial sex work	**Risks for parenteral transmission** □ Shared injection equipment Needles and "works" for illicit/recreational drugs C*onsider anabolic steroids, body fillers,* etc. □ Known HIV+ injecting partner(s) □ Having sex with injecting partner(s)
Clinical eligibility	***Within 30 days before* starting PrEP, check hepatitis B status and renal function**	
	□ Hepatitis B surface antigen (sAg) *required* □ Hepatitis B surface antibody (sAb) *recommended* □ Serum creatinine *required* □ Estimated creatinine clearance *required* □ Urinalysis (to establish baseline) *recommended*	***Caution* if active hepatitis B (positive sAg)** □ Truvada treats HBV; use may cause "flare" □ eCrCl must be ≥60 mL/min □ Do not reduce Truvada dose □ Descovy is *not yet* approved for use as PrEP
	***Within 7 days before* starting PrEP, test for HIV infection**	
	Order *one* of these: □ Automated, lab-based antigen/antibody combination □ Automated, lab-based IgM/IgG-sensitive antibody assay (3rd generation) □ HIV RNA ("viral load"), quantitative □ Point-of-care (rapid) test with finger-stick blood	**Must be confirmed as HIV-uninfected before PrEP** □ Rapid 4th gen (determine HIV-1/2 Ag/Ab combo) has assay (4th or "5th" generation); *preferred test* had poor performance for detection of p24 antigen, missing many early infections § □ If high-risk exposures, consider RNA *and* 4th gen □ Do *not* rely on oral fluid testing; sensitivity is lower with oral fluid than with blood
	Any of these symptoms in prior month? □ Fever □ Fatigue □ Skin rash □ Pharyngitis □ Cervical adenopathy	**Cannot have recent symptoms of acute HIV** □ Must be free of these symptoms in the month prior to starting PrEP □ If *any* symptoms are present, rule out acute HIV by ordering quantitative HIV RNA

Additional testing to consider	**If not already done in the prior 3–6 months,** □ Serum RPR for syphilis □ Nucleic acid amplification tests for gonorrhea and chlamydia (cervix or vaginal swab for women, urine for men – along with pharynx and rectum, as appropriate based on sexual health history) □ Nucleic acid amplification test or wet prep for *Trichomonas vaginalis*, as appropriate □ Hepatitis C antibody	
Patient counseling	**Some patients experience minor changes as they start Truvada** Around one in six patients develop mild headaches, nausea, or flatulence; most symptoms resolve in 1–2 months If symptoms continue or patients experience any unexpected reactions, especially rashes, they should contact their provider immediately	
	Adherence strategies Pair pill-taking with daily task. Ask if it is something they do consistently every day, even on weekends Other adherence strategies: set an alarm, use a pill box, and keep an extra dose handy	
	Anticipatory guidance Dose can be safely taken 3–4 hours before or 3–4 hours after a regularly scheduled dosing time No interactions with alcohol or recreational drugs; however, encourage the patient to avoid sex under the influence No drug interactions for individuals receiving hormone replacement therapy	
	Remind patients that with any gap in treatment; they must be retested for HIV before being restarting on PrEP	
Prescription and follow-up	**First prescription:** Truvada, one tablet PO daily, dispense #30, zero refills □ UNC'S practice – CDC says #90; no rf is OK **Return to clinic in 3–4 weeks** to assess adherence, side effects, and risk-reduction behaviors □ UNC'S practice – **subsequent prescriptions:** Truvada, one tablet PO daily, dispense #30, two refills	
	At least every 3 months: □ Repeat HIV testing for *all* patients *on* PrEP □ Assess adherence, side effects, and risk behaviors □ Assess ongoing need for PrEP	**At least every 6 months:** □ Check creatinine and eCrCl □ Screen for STIs, if not done in interim

Adapted from CDC/USPHS PrEP Guidelines [15]

Appendix B: Follow-Up Assessments for Patients on PrEP

Assessment	Time on therapy			
	3 months	6 months	9 months	12 months
HIV antibody testing (5th-gen antigen/antibody assay)	☐	☐	☐	☐
Pregnancy testing (if appropriate)	☐	☐	☐	☐
Continued education: ask about side effects, adherence, risk-reduction behaviors	☐	☐	☐	☐
Determine need for continuing PrEP	☐	☐	☐	☐
Creatinine and eCrCl calculation		☐		☐
Serum RPR for syphilis	☐	☐		☐
NAAT for gonorrhea and chlamydia	☐	☐		☐
Urinalysis with dipstick				☐
30-day prescription with two refills	☐	☐	☐	☐

Adapted from CDC/USPHS PrEP Guidelines [15]
Note: If a patient continues on PrEP after 12 months, restart schedule (i.e., assessments at month 15 are same as those at month 3)

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Recommended Readings and Resources (i.e., Books, Periodicals, Video Links, Web Resources, Etc.)

Download or bookmark the Electronic Preventive Services Selector (ePSS) Tool: the ePSS is an application that includes all final Task Force recommendation statements and is designed to help primary care clinicians identify the right clinical preventive services for their patients. https://epss.ahrq.gov/ePSS/search.jsp.

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Part II
Population and Public Health Management on a College Campus

Chapter 10
Supporting the Health and Well-Being of a Diverse Student Population

Raphael D. Coleman, Katie Wilkinson, Padma R. Entsuah, Jaclyn M. Hawkins, and Gina Orlando

Introduction

Higher education institutions have become increasingly diverse across several dimensions of social identity (e.g., race, class status, sexuality, nationality, veteran status, ability, etc.) over the past several decades [1]. For example, among every historically marginalized racial group, there were increases in college attendance between 1967 and 2015. There was also an approximate 3% increase in the number of millennials identifying as lesbian, gay, bisexual, and/or transgender (LGBT) between 2012 and 2017. Additionally, in the past two decades, students entering universities are coming from increasingly diverse socioeconomic backgrounds, considering that the number of Pell Grant recipients nearly doubled to 7.1 million students in 2016 [1]. As student demographics evolve, acknowledging, anticipating, and responding to these changes can help college healthcare professionals cultivate inclusive campus environments that mitigate barriers to accessing health programs and services while contributing to the best possible and enduring outcomes as students live, work, and learn.

When highlighting the unique health- and well-being-related needs of historically marginalized and special student populations, college health and healthcare texts typically identify common medical concerns specific to a particular population (e.g., students with disabilities, international students, etc.) and suggest practical recommendations for providing care to students who may identify with historically marginalized groups [2]. While this approach may provide a broad overview of each population's specific health needs and illuminate health disparities, it is a missed opportunity to address the experiences and assets of students with intersecting identities [3]. This chapter presents a culturally humble, equity-minded, and power-conscious approach to delivering college health services. We use these frameworks

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to illustrate the nuanced experiences of students holding multiple historically marginalized identities while affirming the strengths and capital they bring to the patient–provider relationship. Specifically, this chapter provides a broad overview of cultural humility, using equity-minded and power-conscious conceptual frameworks. We present practical recommendations for college health practitioners and administrators grounded in these frameworks and illustrate exemplar approaches to enhancing health and well-being among specific student populations.

A Culturally Humble, Equity-Minded, and Power-Conscious Approach to College Healthcare

Scholars and practitioners call for culturally sensitive and culturally competent approaches to the provision of healthcare. Although both frameworks emphasize the need for providers to be conscious and sensitive to the social and cultural knowledges that patients bring to patient–provider relationships, exhibiting cultural humility challenges providers to accept that culture informs beliefs, values, and behavior and that the relationships among these concepts are dynamic [4]. To this end, college healthcare providers and administrators must engage in self-reflection and self-critique to identify implicit biases that they may hold when treating patients. They must also implement policies or protocols to support the health and well-being of a diverse student population.

Beyond self-reflection and self-critique, college healthcare providers and administrators must be action-oriented, actively identifying and removing barriers that contribute to health disparities among student populations on their campuses [5]. Equity-mindedness challenges practitioners and administrators to understand that individual health outcomes are often the result of systems that limit students' ability to access certain resources, as opposed to attributing disparities to individual behaviors [5]. Consequently, college healthcare providers and administrators must proactively identify equity gaps and lead efforts to enhance campus systems and policies that may present barriers to students' health and well-being.

While taking action to identify gaps and affect change, college healthcare practitioners and administrators must be conscious of power dynamics at play in individual, institutional, and cultural systems that impact student health and well-being [6]. Specifically, healthcare practitioners and administrators must examine how their programs and services may center or miss certain students based on their social identities, who has the power in cultivating and sustaining those systems, and who may be benefiting or disadvantaged by existing approaches to supporting student health and well-being [6].

Taken together, cultural humility, equity-mindedness, and power consciousness challenge college healthcare providers and administrators to (1) pay attention to social and historical factors affecting students' experience with healthcare systems, (2) challenge individual and organizational implicit biases (i.e., assumptions and

stereotypes beyond one's awareness about a culture or identity) that contribute to health disparities, (3) make equity-minded data-driven decisions, and (4) lead their campus' efforts to proactively cultivate an environment that supports the health and well-being of a diverse student population.

Consider Social and Historical Contextual Factors Impacting Students' Experiences with Healthcare Systems

The iceberg model of health and disease (Fig. 10.1) helps conceptualize the complexity of each individual patient beyond their initially observable health status [7]. The model demonstrates how one's current state of health can be viewed as the tip of an iceberg, presenting easily identifiable indicators of illness and wellness, that has formed as a result of needs being met or unmet. Beneath the surface, the iceberg model divides into three subdivisions: lifestyle/behavioral level, psychological/motivational level, and spiritual/being/meaning realm. What lies beneath the surface illuminates both the psycho-sociocultural determinants and the environmental and ecological determinants that impact individuals and populations. The iceberg model serves as a reminder that historical context, personal lived experience, and

Fig. 10.1 An iceberg model of health and disease [7]

social identities can influence a student's ability, willingness, and desire to engage with college health. Furthermore, it is essential to understand that history, previous access to healthcare, and adverse experiences can exacerbate the inherent power imbalance in the patient/provider relationship.

College healthcare providers and administrators must be aware of the historical context of the fields of health and higher education and the relevance of this history to the student populations that they serve. Regardless of current efforts to enhance inclusive practices, it is important to remember that any US-based college health center exists in a system that historically has committed ethical violations and misused its power at the cost of the patient. A poignant example is the Tuskegee Syphilis Experiment that resulted in communities of color distrusting the medical system [8]. More recently, the misconduct of Larry Nassar, and many other health professionals in higher education, has brought national attention to the harassment, assault, and gaslighting that students experience on campus [9]. Gaslighting especially has been gaining more attention in the field of healthcare and can be defined as—whether intentional or not—causing a patient to question their own feelings, instincts, and sanity particularly as it pertains to symptoms of pain and illness. Considering the reverberation of the effects of historical institutional betrayals by healthcare systems into the present, college health practitioners must be cognizant of the ways in which that history impacts students' accessing health- and well-being-related programs and services.

At the individual level, students' healthcare literacy and familiarity navigating healthcare systems may influence their accessibility of college healthcare services. Students who previously have not had access to health insurance or consistent medical visits may find it difficult to utilize services available to them after entering the university. Moreover, students who have previously accessed healthcare services in other primary languages and in countries outside of the United States may have limited familiarity with navigating US healthcare systems. As such, college healthcare providers and administrators must ensure that the ways in which they are delivering healthcare meet students where they are, considering their experiences accessing healthcare in a variety of settings prior to matriculating at their institution. This goal can be achieved by focusing on using more digestible or colloquial language, as opposed to scientific and/or colloquial, when meeting with students who are not well versed in the terminology. It also involves checking for understanding throughout the appointment.

In addition to health literacy and navigating a variety of healthcare systems, college healthcare providers and administrators must be conscious of previous adverse experiences students may have had when seeking healthcare. Students' past experiences of being misgendered and dismissed or having critical needs ignored in the healthcare setting can affect their willingness to engage within college health. Such marginalization may negatively impact a student's sense of belonging. Ultimately, college healthcare providers and administrators should avoid creating environments that perpetuate adverse experiences that served as barriers to students accessing healthcare in other settings prior to their matriculation at their institution.

Healthcare Provider:

- Make recommendations and diagnoses in language that is clear and understandable to patients. Move toward an "interpretive" relationship in which the healthcare provider works closely with their patient to define available care options and recommend treatment that is in alignment with the patient's values and needs. A key element to this approach is striving to understand each patient holistically and provide care that centers on their story [10, 11].
- Use person-first language. For example, in the context of addiction instead of stigmatizing someone as an "addict," using person-first language refers to the individual as a "person who uses drugs" or a "person living with a substance use disorder."
- Create a space to acknowledge how students would prefer to be referred.
- Move away from singularly utilizing the *prescribe and treat* approach to integrating the *advocate and inspire* stance where the provider advocates for the student's health and inspires growth and development [12]. For example, instead of instructing a student to simply "exercise more," the healthcare provider can explore with the student what types of movement or activities have worked in the past and how the student's success can be supported.

Administrator:

- Provide accessible information about navigating and utilizing services (online, via phone, in person) regarding scheduling, follow-ups, referrals, and billing.
- Develop systems that hold all staff accountable for inappropriate behavior including negligence, microaggressions, Health Insurance Portability and Accountability Act (HIPAA) violations, etc.
- Implement thorough assessment strategies with clearly defined measures to ensure that student experience goals are being met. For example, implement a comment card system with active follow-up and policies that center the student experience.

Challenge Individual and Organizational Implicit Biases Through Critical Self-Reflection

Rather than seeking mastery of an "other" culture or identity in order to inform identification of needs and appropriate care, to be culturally humble is to accept that culture informs beliefs, values, and behavior and that the relationship among these concepts is dynamic. With this knowledge, a culturally humble provider aims to center the individual student experience to guide care [4]. In practice, this involves a commitment to learning that is open and has no endpoint; to be humble in this way is to be a "student" of the patient [4]. Further, the aim is to continually incorporate new knowledge, attitudes, and behaviors over time.

On an individual level, it is critical to gain awareness of one's own strengths, limitations, values, beliefs, and position, as well as engage in continual reflection

and critique of personal assumptions and beliefs. Questioning one's own identities and values before those of the student are core tenets of this framework [4]. Doing so matters because research has demonstrated that medical providers' biases have been found to negatively impact patient outcomes. This finding is particularly apparent with outcomes among historically marginalized and underserved populations [13]. What's more, providers who have intentions of providing equitable care may not mitigate the impact of their interactions that are influenced by implicit or unconscious biases [14].

To encourage culturally humble work, it's recommended that administrators offer trainings to help providers understand implicit bias, increase awareness of held biases, and offer strategies to correct or overcome them [13]. Continuing medical education (CME) opportunities that engage with cultural humility practice can be sought by investigating sessions provided by relevant professional organizations (e.g., American College Health Association) or offerings made available through accreditation bodies, such as the Accreditation Council on Continuing Medical Education. Multiple training modalities are often made available, including in-person workshops, webinars, online tutorials, and conference sessions. If these types of trainings do not appear to be available, it may be necessary to express interest. For example, various sections of the American College Health Association periodically conduct needs assessments among section members to determine the reported knowledge and training needs on a given topic or issue. Beyond the individual provider, college health administrators also play a key role as the framework suggests necessary action at multiple levels.

In the same way that the culturally humble provider regularly practices self-reflection and self-critique, administrators must engage in this way on an institutional level [4]. College health administrators may engage with these questions as a starting point:

- *What are the demographics of the staff? What are the efforts to recruit and retain a diverse staff* [4]*?* As cross-cultural interactions in the healthcare setting can be negatively influenced by biases, facilitating more positive intergroup connection among people with various identities can decrease biases. Such effect has been demonstrated in research within the medical school context among students [15] and in faculty interactions [16]. Recruiting a diverse staff can aid in this effort, including student staff and peer educators. Moving beyond recruitment, incorporating issues of diversity during new staff orientation and considering retention methods of a diverse staff are also worthy goals [17].
- *What sort of cultural humility and multicultural training opportunities are available to those in the organization* [4]*? What is the expectation of staff to participate?* While trainings are one way to start recognizing and interrogating biases, one-off sessions have not been found to be enough to make real change in patient outcomes. Multiple touchpoints to engage with biases, along with complimentary strategies such as those that allow for countering and replacing biases and integrating perspective-taking (actively considering another's perspective when thinking), may be more likely to sustain change over time [18]. Seeking a

partnership with other stakeholders on campus, such as colleagues within the Office of Multicultural Affairs or other identity-related departments, could be a way to investigate what on-campus training opportunities may be available. Additional opportunities in this vein may include asking staff members to do research on related concepts and present their findings to colleagues [17]. Connecting with college health colleagues at other institutions to learn more about training resources they have utilized, via professional organization email Listserv, may also be of value.

- *What are the expectations around and methods of evaluation* [4]*?* Organizations may take a cue from examples in the research regarding measurement of cultural humility. Such examples have highlighted a connection between client perceptions of how culturally humble their therapists are to the strength of the therapeutic relationship—the latter being an indicator of therapy outcomes [19, 20]. Committing to evaluation and quality improvement activities is key to the reflection and critique process on an institutional level [21]. Engaging in regular population-level data collection assessments to gauge well-being and campus climate is one example. Another could be seeking satisfaction feedback, with a focus on historically marginalized student populations. Feedback opportunities should be easily accessible and regularly available [17].
- *What is the historical context around healthcare within the campus community* [4]*? How does that context inform future action?* For cultural humility to be adopted, all parties must be willing to participate. Community members who have had experiences with the healthcare system that resulted in harm, resentment, and hostility may be reluctant to engage fully [21]. Past and current experiences with discrimination and microaggressions may violate the student's trust in and dependency on the healthcare system, referred to as institutional betrayal [22, 23]. This concept is inclusive of both overt discriminatory actions and inaction related to policies, meant to inform culturally responsive care and prevent maltreatment, that are inadequate, not enforced, or nonexistent [22, 23]. It is up to institutions to engage in reflection on a systemic level in order to be transparent about the harms that have occurred to students and to identify what protective factors or assets exist [22]. Relatedly, strengthening the stated values around caring for and supporting community members as well as elevating the attention paid to those who report harms committed are also ways that an institution can begin to repair the relationship with those who have lost trust in or have been betrayed by it [22]. Institutions may also take action to provide more culturally responsive care by working collaboratively with community members to investigate, inform, and implement efforts to best meet health needs [24]. An example of this could be involving or creating a student health advisory committee.

The National Standards for Culturally and Linguistically Appropriate Services (CLAS standards), from the US Department of Health and Human Service's Office of Minority Health, may provide additional guidance for incorporating culturally humble and responsive practices on the institutional level. Further, developing time-limited plans and policies around these issues can help keep institutions accountable

for culturally humble practices [4]. Again, engaging in this systemic reflection and critique must be ongoing with the expectation that transformation will occur over time as new responses to these types of questions and updated information are incorporated into practice. The following strategies will help providers and administrators examine and critique their current practices and ensure they develop an ongoing process for positively transforming their practice.

Healthcare Provider:

- Aim to become a "student" of the patient [4] with patient-centered interactions and care.
- Increase awareness of personal positions, biases, and identities.
- Commit to ongoing reflection and critique of personal assumptions and biases of others. Incorporate new knowledge into future practice and care.
- Seek out continuing education opportunities to increase awareness of personal biases and strategies to overcome or correct them with relevant professional organizations and accreditation entities.

Administrator:

- Engage in assessment and evaluation activities to collect population-based health and well-being data as well as feedback on existing services from students.
- Identify and incorporate regular cultural humility and multicultural training opportunities for all staff.
- Foster accountability by developing, adhering to, and making transparent plans and policies aimed to increase or set the standard for culturally humble practices.
- Become aware of community members' (i.e., students) experience with the healthcare system, take action to foster trust, and involve them in informing the development of new and improved services and initiatives.

Make Evidence-Informed Decisions Utilizing Appropriate Data to Address Inequities

To identify equity gaps and mitigate health disparities, college healthcare providers and administrators should prioritize evidence-informed decision-making and use appropriate data to drive these processes. Collecting health data about students across various social identities allows practitioners to examine the concerns of varying student populations to identify equity gaps and health disparities [5]. Although it is critical to gather student demographic information reflecting their multiple identities, it is also key to acknowledge what information or whose experiences are not captured in the data. Practitioners must note how assessment questions will isolate groups from responding or how certain items may reflect biases that could skew the assessment results [25]. For example, when asking students about gender, if only male and female are listed as options, those who identify with another gender identity will not have their experience reflected in the data. Further, it may prevent

them from completing that assessment or assessments in the future, feeling that their experience is not valued or respected by the practitioner. Engaging student voices from various communities in the assessment process can help to identify gaps resulting from the data collection. Further, analyzing the collected data across various student identity groups can help to identify specific inequities [25]. Acknowledging what the data do and do not reflect can provide a more holistic picture of student experiences and the steps college healthcare providers and administrators can take to address inequities [26]. Such an approach can also drive additional data collection efforts in order to best inform and address the needs of a diverse student population [25].

For example, Columbia University administers the American College Health Association – National College Health Assessment (ACHA-NCHA) every 2 years. The use of a census approach during survey administration results in a sizable response, so the university can conduct analyses across several demographic variables. These data are disaggregated by race in order to understand what health inequities racial minority students experience compared to their white counterparts across all variables. This information is then shared with the Office of Multicultural Affairs in order to facilitate conversation about what barriers students may face accessing health- and well-being-related services and how to address them. Columbia Health uses this disaggregated data in order to inform their practice and make necessary changes to best reach students. Not only does this drive further policy change, environmental efforts, and programming to reduce health inequities, it brings the information back to the community to engage them in the process.

Using a data-driven approach can also help to reduce decision-making based on biases or stereotypes [5, 27]. Considering student motives or behaviors through the lens of a bias or stereotype could result in a deficit-minded approach and assume fault in the students [5, 27]. For example, without reflecting on their biases or stereotypes, practitioners may attribute the racial differences in health outcomes between black and white students to moral or personal attributes of the students. However, by using an equity-minded approach, practitioners can reflect on how policies, practices, or procedures may contribute to or result in inequitable health outcomes for black students compared to white students. The following strategies will help providers and administrators use an equity-minded approach to making data-driven decisions that result in equitable health outcomes for students of multiple identities.

Healthcare Providers:

- Use data to make decisions about student care.
- Be mindful of stereotypes or biases to ensure care is not influenced by students' demographic traits.
- Identify barriers to care and use data to address them, making changes in practice to reach groups who are not receiving needed care.

Administrators:

- Use data to inform policy, environmental, and programmatic changes.

- Design assessments that reflect multiple student identities and acknowledge limitations of data.
- Engage student communities and campus partners when designing assessment instrument, during data collection and analysis.

Leading Equity-Minded Community Transformation

Equity-minded college healthcare providers and administrators must be action-oriented, which involves understanding the causes of health disparities and then taking actions to address them [5]. When exploring causes of health disparities, practitioners must acknowledge the significant role that systemic inequities play rather than individual or group differences. Equity-minded practitioners must also own the ways in which they and their organizations contribute to and dismantle systems that reinforce inequity [28]. Systems of oppression that award privilege to certain identities can often impact how, or if, someone takes action. To help dismantle these systems, providers and administrators must reflect on their personal identities and privileges, afforded by social identity and positionality within the organization, to understand their capital in challenging existing systems and practices.

It is not enough to recognize one's own power and privilege. College health practitioners must also identify the health disparities that exist and the systems—whether social, structural, or policy-related—that create these disparities. To ensure health centers are adequately serving the student population, college healthcare providers and administrators must ensure that the demography is reflective of the university population and that the health outcomes are consistent across social identities. To do this, administrators can compare the demographics of patients to that of the institution, to determine who is missing or which student populations are not accessing care. Additionally, disaggregating data from assessments and evaluations allows administrators to analyze health data based on social identity, which may highlight trends among certain populations. For example, certain populations may be more likely to cancel follow-up appointments, or certain groups may be less likely to follow the medical recommendations outlined by the provider.

Discrepancies in these demographics could warrant further exploration about why certain populations are not seeking services or completing follow-up care. This process requires providers to work with marginalized populations to understand the systems of oppression—such as racism, classism, or xenophobia—that influence individual and institutional care. Providers and administrators must consider biases and stereotypes that they, and fellow practitioners, have about certain populations and how those biases may impact their work with, and for, students. Furthermore, practitioners should also review policies and practices that potentially reinforce those systems of oppression. Practices such as not asking for pronouns or referring to students by their legal name instead of preferred name could make them feel

uncomfortable seeking care. Similarly, policies such as requiring students to pay out of pocket for certain treatments could create a barrier to accessing care.

College health administrators can work with students from marginalized groups to identify ways to make the clinical space more inviting. Improvements could include providing information about health concerns experienced by these populations or intentionally including images in the waiting area or exam rooms that reflect the campus demographic. Students entering the clinical space should feel welcome. To this end, it is important to adequately train those who do intake to use more inclusive language and a warm tone and pronounce student names correctly. If a campus has a large English as a second language (ESL) population, administrators can recruit individuals who speak the same languages as the student population. This allows students the opportunity to ask for a translator, should they need it. When making hiring decisions, administrators can aim to have the staff demographic reflect that of the student population. Providers who have similar backgrounds or life experiences to the campus community may help students feel like there is someone who can relate to them, which may make them feel more comfortable disclosing health concerns.

To combat some of the symptoms of inequity, providers can build treatment plans that are tailored to the individual. For example, if treatment requires a student to follow a particular pattern of eating, the provider must consider whether the plan includes foods the student is accustomed to eating, that they have the knowledge about how to follow that pattern of eating, and whether they are food secure.

Once they have more context about these inequities, college health administrators can advocate for change that helps to eliminate them. Consider how and to whom this information is being disseminated. Administrators can identify and leverage the capital of those who have power and authority to change policy and procedure. Administrators can authorize anti-racism and social justice professional development opportunities for members of their department or institution.

Being an equity-minded practitioner requires constant vigilance and disruption of existing structures. It requires practitioners to be critical of processes and acknowledge when those processes are not meeting students' needs and then be willing to work with students to advocate for change in order to ensure those needs are being met. The following strategies will help providers and administrators address the "disempowerment and alienation of marginalized groups in society (that lead to) major obstacles to achieving health equity" [29].

Healthcare Providers:

- Recognize and name power differentials that exist in patient–provider relationships. Understand that the student is the expert in their life experience and as such can best speak to their health status and needs.
- Tailor services and recommendations for care to the individual student. Understand that noncompliance may be a result of broader social and contextual factors, not just individual behavior. Consider any history of trauma or discrimination they may have faced in healthcare settings and the impact that may have on their care.

- Be respectful toward patients and demonstrate acceptance and nonjudgment when discussing their concerns through tone of voice, language, and nonverbal communication.

Administrators:

- Identify and name power differentials that exist within the organization. If in a position of power, advocate for policies and practices that minimize health inequities. Recognize the role that all staff, regardless of role, impact a student's experience in the health center.
- Integrate equity-mindedness as part of the organization mission. Advocate for health center staff to allocate time and resources to participate in equity-minded professional development opportunities.
- Engage students from marginalized populations to inform changes to policies and practices that help to dismantle systemic inequities.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Administrators must actively engage in efforts at all levels of the university to advocate for policy and systems changes in support of the health and well-being of a diverse student population.	Clinicians must engage in self-reflection and self-critique to examine and challenge implicit biases that they may bring to patient–provider relationships.
In order to identify causes of equity gaps and health disparities and address them, administrators must make evidence-informed decisions utilizing appropriate and available data that reflects the experiences of a diverse student population.	Clinicians should avoid perpetuating adverse experiences that students may have encountered when accessing healthcare programs and services prior to receiving care in their organization.

Conclusion

As college student populations become increasingly diverse across all social identities, college healthcare providers and administrators are uniquely positioned to acknowledge, anticipate, and advocate for the health- and well-being-related needs of a diverse student population. Prioritizing culturally humble, equity-minded, and power-conscious approaches to college health practice can ensure college health practitioners are consistently engaging in self-reflection and self-critique at the individual and organizational levels to identify causes of equity gaps that contribute to health disparities among students. With the knowledge of the root causes of these equity gaps, college health practitioners can proactively lead efforts to develop and advocate for changes in systems and policies within their health organization and the institution at large to ensure that the health- and well-being-related services they provide are accessible to a diverse student population.

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Recommended Readings and Resources

National Standards for Culturally and Linguistically Appropriate Services [CLAS Standards] checklist. https://thinkculturalhealth.hhs.gov/assets/pdfs/AnImplementationChecklistfortheNationalCLASStandards.pdf

Power-Conscious Approaches to Sexual Violence. https://sudikoff.gseis.ucla.edu/power-conscious-approaches-to-campus-sexual-violence/
Practicing Cultural Humility to Transform Healthcare. https://www.rwjf.org/en/blog/2018/06/practicing-cultural-humility-to-transform-healthcare.html
The Association of American Colleges & Universities Reading List on Intersectionality & Well-being. https://www.aacu.org/diversitydemocracy/2018/winter

Chapter 11
Student Veterans

Amina Moghul

Who Are Student Veterans?

Student veteran is an umbrella term that encompasses former service members, current service members on active duty or in the reserves, national guard, and cadets at military service academies or in the Reserve Officer Training Corps. As a group, student veterans tend to differ from traditional college students in terms of age, marital status, service-connected disability, past educational experience, work experience, and unique medical histories related to their past military occupations and service [1].

Nearly every college or university in the United States enrolls student veterans, the majority of whom (79.2%) are enrolled at public institutions [2]. The number of student veterans has grown significantly in the last decade, owing to nearly 2 decades of ongoing war in the Middle East and the unique educational benefits that many veterans qualify for, including various scholarship and tuition assistance programs. In 2009, there were approximately 500,000 student veterans receiving education benefits; in 2013, there were more than 1,000,000 [3].

Of student veterans, 73% are male and 27% are female. Given that only 10–12% of military personnel are female, female veterans are overrepresented in postsecondary education. Furthermore, 62% are first-generation students compared to 30% of all students entering colleges or universities [4].

For student veterans, the average time to complete a degree is about 5 years. For active duty students, reservists, and those in the national guard, interruptions to schooling in the form of training, deployments, or relocation can make it difficult to complete a degree program in a reasonable length of time, or at all, and may result in lost scholarships, tuition dollars, and credits, which poses a significant financial burden.

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Of student veterans, 85% are between the ages of 24 and 40. The average age of student veterans entering postsecondary education is 25. In addition, 47% of student veterans are parents and 47% are married [4].

Common Challenges Faced by Student Veterans

Because of a greater likelihood of competing responsibilities such as parenting and employment obligations, student veterans face an inability to invest as much time outside of the classroom toward their studies. Student veterans benefitting from the Post-9/11 GI Bill in particular receive only about $21,000 in cash benefits (in 2019) in addition to the cost of tuition equivalent to that of public universities in their state [5]. If the student veteran is supporting a family, they must typically work at least part-time, if not full-time, to make ends meet. According to a survey by the Institute for Veterans and Military Families, 56% of student veterans reported having inadequate financial resources to stay in college even with GI Bill help, and 28% said their family obligations created a conflict [6].

Establishing residency in the state in which their university is located can be another significant challenge for student veterans. Service members and veterans are often required to relocate, and these frequent moves can make it difficult to establish residency in one state in order to qualify for in-state tuition. This poses a financial burden because those who rely on the Post-9/11 GI Bill or tuition assistance programs may end up paying a significantly larger portion of their tuition themselves.

Adapting to Life as a Student

Many student veterans experience difficulty transitioning from a military style of technical learning and a hierarchical organizational structure to a university learning environment, which is typically more collaborative. From a social standpoint, student veterans coming from a work and living environment that is highly regimented may struggle with the comparatively less disciplined environment of a college campus. For veterans, the concept of freely and openly expressing one's opinion can seem foreign and difficult. This can make adapting to the classroom setting or socialization more challenging.

Antimilitary bias on campus is another concern for student veterans. Commonly reported examples include professors and students who express strongly negative opinions about the military. Readings and assignments may also be biased, and antimilitary signs or protestors may have a presence on campus. All of these may contribute to feelings of anxiety and social isolation.

Navigating the Complexities of Educational Benefits

Student veterans who are not on Reserve Officer Training Corps (ROTC) scholarships or attending service academies face the complexities of trying to navigate using their educational benefits. Many larger universities that are well resourced may have full-time employees dedicated to assisting student veterans with programs such as the GI Bill or tuition assistance, but smaller colleges may not be able to assist student veterans with the often frustrating and confusing volume of paperwork that needs to get processed. Student veterans report difficulty with getting their benefits in place, especially when using the Post-9/11 GI Bill, due to systemic delays in receiving tuition payments and housing allowances. Concern about the processing of tuition payments in the utilization of these benefits often leads to concerns that they will not receive credit for a semester and an inability to enroll in classes on time.

Medical Care Considerations

Clinicians should be aware that student veterans at service academies or on ROTC scholarships who plan to commission into the armed forces after graduating college may be less forthcoming about medical issues due to a concern that they may be disqualified from service based on their medical history. Nevertheless, many student veterans seek care for medical conditions related to their service, most commonly musculoskeletal and hearing problems.

The most common musculoskeletal problems reported by student veterans are amputations, joint pain, and back pain. Impacts of these include difficulty with sitting for prolonged periods of time, sitting at standard desks, and manipulating writing instruments or keyboards; frequent medical appointments interfering with classes/assignments; medication side effects interfering with school obligations; or mobility issues.

Hearing problems, such as hearing loss or tinnitus, might result in the need for special seating or equipment, annoyance or irritability, missed conversations, or difficulty participating in group discussions.

Clinicians and administrators should be prepared to have a network of healthcare providers experienced in treating chronic pain, sports injuries, and hearing concerns.

Mental Health

Up to one-third of student veterans might struggle with the “invisible wounds” of war, which include traumatic brain injury (TBI), post-traumatic stress disorder (PTSD), or major depression. These conditions can have a major impact on academic performance.

Between 12% and 20% of military service members are diagnosed with a mental health condition while on active duty, regardless of combat status [7]. This number likely underestimates the actual percentage of service members with mental health conditions due to underreporting. Furthermore, of those who have been deployed to combat zones, 30% or more report trauma-related mental health conditions or psychological distress. These exposures do not always fade with the passing of time and can leave enduring psychological scars that can affect their daily lives, as well as academic performance. Because of the mental health burden, student veterans are more likely than their nonveteran student counterparts to show lower academic achievement and are at higher risk of dropping out of college [7].

The most common symptoms that veterans returning from deployment experience are involuntary memories, flashbacks, and negative alterations in mood. These life-impacting consequences of deployments, combined with the age difference from their student peers, make student veterans susceptible to social isolation.

Suicide

According to a study conducted by the National Center for Veterans' Studies, nearly half of all student veterans reported thinking of suicide at some point in their lifetime, and 20% said they had suicidal thoughts with a plan [8]. About 10% reported thinking about suicide very often, and 7.7% reported a previous suicide attempt [8]. Nearly 4% reported a suicide attempt was either likely or very likely [8]. These figures are much higher than college students in general, with only 6% of college students reporting seriously considering suicide and only 1.3% reporting a suicide attempt [8]. This warrants extra vigilance on the clinician's part to ensure proper mental health screenings are taking place when seeing student veterans in clinical settings. Clinicians should ask about veteran status and screen veterans for anxiety using the Generalized Anxiety Disorder 7-item (GAD-7) questionnaire, depression using the Patient Health Questionnaire (PHQ)-2 and PHQ-9 questionnaires, and PTSD using the PTSD Checklist for DSM-5 (PCL-5) questionnaire, regardless of the presenting complaint. In addition, clinicians should be prepared to assess for a history of traumatic brain injury and make referrals to specialists with expertise in traumatic brain injury when appropriate.

Post-traumatic Stress Disorder

Perhaps the most notable mental health concern relevant to student veterans is post-traumatic stress disorder. PTSD develops after someone suffers a traumatic event—most commonly combat or a physical or sexual assault. Greater than 90% of veterans have experienced a traumatic event in their lifetime, but only 10–30% will develop PTSD [7]. A 2008 study by the RAND Corporation, Center for Military Health

Policy Research, determined that the prevalence of PTSD among previously deployed Operation Enduring Freedom/Operation Iraqi Freedom (Afghanistan and Iraq) service members was 13.8% [9]. Other studies estimate that 11–20% of Afghanistan and Iraq war veterans and 30% of Vietnam war veterans have PTSD, but only about 8% of the 5 million veterans using the US Department of Veterans Affairs (VA) care have been diagnosed with PTSD [10].

More than 80% of veterans with PTSD have a coexisting mental health condition [11]. More than 20% of veterans with PTSD also have a substance use disorder. PTSD also raises the risk of suicide, physical health problems, and sleep disorders [12, 13].

In the classroom, PTSD symptoms might be observed when discussions focus on the military or war-zone experiences. These topics may result in observable anger and anxiety for student veterans. Student veterans may also exhibit avoidance behavior due to PTSD; it is important for clinicians and administrators to be observant when student veterans do not attend or participate in class. Student veterans with PTSD also may have difficulty sitting still, may scan their environments frequently, or have heightened startle responses. Student veterans also might have difficulty relating to other students' concerns and worries or find them trivial and unimportant. These experiences might lead to further feelings of social isolation.

Given that many student veterans—especially those at smaller and more rural colleges and universities—may not have a strong social support structure and may be geographically and socially isolated, it is imperative that clinicians be familiar with how to recognize the symptoms of PTSD and how to assess student veterans for this condition. A variety of methods exist for gathering information about trauma-related symptomatology. It is best to begin with a PTSD Screening Instrument, such as the Primary Care PTSD Screen for DSM-5 (PC-PTSD-5) or the Trauma Screening Questionnaire (TSQ). If this screening is positive, the clinician should move on to a more specific diagnostic tool, utilizing self-report or clinician interview. The most common self-report tool available is the PTSD Checklist for DSM-5 (PCL-5). Among the tools available to conduct clinician interviews are the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5), PTSD Symptom Scale – Interview (PSSI), and the Structured Interview for PTSD (SI-PTSD). Clinicians should also screen for substance use disorders, as these have a high prevalence among PTSD sufferers.

Current clinical practice guidelines from the VA, based on two recent meta-analyses, recommend individual trauma-focused therapy—such as prolonged exposure (PE), cognitive processing therapy (CPT), and eye movement desensitization and reprocessing (EMDR)—over treatment with medication as the first-line treatment. The trauma-focused therapies were found to result in greater reduction in PTSD symptoms with a lower risk of negative side effects. In settings where trauma-focused therapies are not available or where the student veteran is not interested, treatment with medication (Table 11.1) or individual, manualized psychotherapies—that is, therapies performed according to specific guidelines to maximize consistency across settings, therapists, and clients (such as stress inoculation training [SIT], present-centered therapy [PCT], and interpersonal psychotherapy [IPT])—should be considered.

Table 11.1 Medications for the treatment of PTSD

Medication	Dosing	Common side effects	Contraindications
Sertraline	Initial dose: 25–50 mg once daily; can be titrated up by 25–50 mg every 1–2 weeks; maximum 200 mg/day	Insomnia, fatigue, drowsiness, nausea, diarrhea, dry mouth, decreased libido, sexual dysfunction	Hypersensitivity; use of monoamine oxidase inhibitors (MAOIs) including linezolid and methylene blue (concurrently or within 14 days of stopping an MAOI); concurrent use with oral disulfiram
Paroxetine	Initial dose: 20 mg once daily; may titrate up based on response and tolerability by 10–20 mg per day every 1–2 weeks up to 60 mg per day	Diaphoresis, decreased libido, sexual dysfunction, nausea, diarrhea, dry mouth, constipation, dyspepsia, decreased appetite, asthenia, headaches, insomnia, drowsiness, dizziness, tremor	Hypersensitivity, pregnancy, use of MAOIs including linezolid and methylene blue (concurrently or within 14 days of stopping an MAOI), concomitant use with pimozide or thioridazine
Fluoxetine	Initial dose: 10–20 mg once daily; may titrate up based on response and tolerability in 10–20 mg increments every 1–2 weeks, up to 80 mg per day	Insomnia, headaches, drowsiness, anxiety, nervousness, yawning, decreased libido, nausea, diarrhea, anorexia, dry mouth, weakness, tremor, pharyngitis	Hypersensitivity, use of MAOIs intended to treat psychiatric disorders (concurrently, or within 14 days of discontinuing MAOI), patients receiving linezolid or methylene blue, use with pimozide or thioridazine
Venlafaxine	Initial dose: 37.5 mg once daily; increased based on response and tolerability by <75 mg increments at intervals of 4 or more days up to 300 mg once daily	Insomnia, dizziness, drowsiness, diaphoresis, nausea, xerostomia, weakness	Hypersensitivity, use of MAOIs intended to treat psychiatric disorders (concurrently or within 14 days of discontinuing MAOI); initiation in patients receiving linezolid or methylene blue
Prazosin (off-label)	For PTSD-related nightmares and sleep disruption; initial dose: 1 mg at bedtime after 2–3 days, increase dose to 2 mg at bedtime, then adjust dose based on response and tolerability in 1–5 mg increments every 7 days up to a maximum of 15 mg nightly	Palpitations, dizziness, drowsiness, headache, fatigue, nausea, weakness	Hypersensitivity; known sensitivity to quinazolines

Substance Use Disorders

Substance use disorders (SUD) are a common problem for veterans, especially those returning from deployments to combat zones or those who also suffer from PTSD. Of veterans seeking first-time care through the VA, 11% meet criteria for SUD [14]. In military settings, there is often a reluctance to seek care for mental health issues because of perceived or real negative career consequences, including the potential for military discharge. This may lead to a greater risk of "self-medication" with alcohol, tobacco, or other drugs.

Student veterans presenting with concerns related to SUD also should be assessed for PTSD. About one-third of veterans seeking care for a substance use disorder also have a diagnosis of PTSD [13]. The combination of SUD and PTSD increases the risk of self-destructive behaviors such as suicide, as well as domestic violence and child abuse. Clinicians should holistically assess for the extent that SUD is impacting a student veteran and engage other campus support resources in the care plan.

Recommended treatments for SUD include relapse prevention, cognitive behavioral therapy, contingency management, and medication options.

Military Sexual Trauma

The term "military sexual trauma" (MST) refers to both sexual harassment and sexual assault that occur in military settings. As with sexual trauma in any setting, both men and women can be victims, and perpetrators may be of the same or opposite gender.

Approximately 1 in 4 female veterans and 1 in 100 male veterans in the VA healthcare system report having been victims of MST [15, 16].

Sexual assault prevalence in the military ranges from 4% to 11% for female veterans, depending on the branch of service, based on an annual US Department of Defense survey on sexual harassment and assault [17]. Of female veterans, the odds of experiencing an assault were highest for 17- to 20-year-olds; in 89% of the cases, the alleged offender was a male military member [17].

Similar to civilian victims, most victims of military sexual trauma do not make official reports to authorities about their experiences. Given the prevalence of MST, student veterans should be screened for a history of sexual harassment and assault using the following questions:

- "While you were in the military, did you ever experience any unwanted sexual attention, like verbal remarks, touching, or pressure for sexual favors?"
- "Did anyone ever use force or use the threat of force to have sex with you against your will?"

Clinicians should attempt to develop a good rapport with the student veteran and remind them of the confidentiality of the clinician-patient relationship. Clinicians should also avoid using terms such as "rape" and "sexual harassment," as these assume the student veteran knows how each of those is defined. Furthermore, these terms may cause increased anxiety in victims who don't want to be labeled or face the social stigma that is associated with being a rape victim. Clinicians should consider asking questions that better encompass the varieties of ways student veterans may have experienced sexual trauma.

College health clinicians should identify local resources to support this population of students. The VA provides free treatment for any physical or mental health conditions that are a result of MST, regardless of whether the veteran has a service-connective disability related to the MST. Every VA healthcare facility has an MST coordinator who can assist with accessing care for veterans. MST-related outpatient care is available at every VA medical center, as well as at many VA community-based outpatient clinics. MST-related outpatient counseling is also available at many VA community-based Vet Centers, as well as more intensive treatment options available via residential and inpatient treatment facilities.

Some veterans may not wish to seek care through the VA, or the distance to the nearest VA may lead to difficulty accessing care. Therefore, clinicians should be armed with a set of local resources, including outpatient offices as well as residential and inpatient facilities that are well versed in the care of sexual trauma victims.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Ensure access to a multidisciplinary array of campus or community resources with experience providing clinical and administrative support to student veterans	Be aware of underreporting of symptoms or conditions, especially in students at service academics or on ROTC scholarships
Partner with on-campus student veterans' organizations to offer resources and support student veterans' unique health needs	Know how to recognize signs of PTSD and have referral resources identified
Involve student veterans in the design and implementation of outreach and support strategies	Be familiar with VA-based resources to support victims of military sexual trauma

Student Take

John is a 25-year-old male student veteran who served as a combat medic in the Army for 7 years:

> "I enlisted directly out of high school and was honorably discharged from service a year ago, before enrolling as a full-time student using the Post-9/11 GI Bill. When I joined the Army, I did so partially to earn the education benefits."

"I have a wife and 2 children who rely on me, and decided to go to the student health clinic to ask for help with my mood and inability to focus in the classroom at my wife's urging. Ever since I started school, I have struggled to get my homework assignments done on time and complete readings for my classes. I was a 'mostly As and Bs' student in high school but am averaging a C at best in most of my classes now."

"Truth be told, there were a lot of things negatively impacting my ability to succeed at school. My wife is a bartender who works Thursday, Friday, and Saturday nights because those are the days I don't have school. Because I am a full-time caregiver to my kids on the weekend, I don't get much time to work on schoolwork. My GI Bill housing allowance and my wife's earnings are not enough to make ends meet, so I drive for a ride-hailing service during the week."

"The doctor who took care of me at the campus health clinic asked me about my military experience, my sleep, my drinking, and a lot of other questions. We got to talking about my Arabic class and how hearing the language stirred up a lot of anger for me. When I was serving as a medic in Iraq, I lost 2 of my best buddies to an IED explosion. I tried my best to save them but I couldn't. Every day, I wake up and wish it was me instead of them. Then I feel even worse for thinking that way because my family needs me, but I'm not doing a good job of being there for them because I end up drinking too much most nights. My wife is getting pretty sick of it and basically told me I needed to get help or she was leaving and taking my kids."

"I told the doctor I was debating leaving school because of how much I was dealing with.

The doctor asked me a bunch of questions about my mood and my drinking and thought I might have PTSD and drinking problems, so she referred me to a campus club for student veterans and to a local therapist who was an expert at treating PTSD, and got me linked in with a nonprofit veterans service organization that helps veterans get benefits through the VA, offers career guidance, and camaraderie. With their help, I learned about special programs that might be available to help me."

"I dropped my course load down and started trauma-focused therapy almost 2 years ago. I got help for my PTSD, suicidal thoughts, and my binge drinking and am doing so much better now. I have a little over a year left before I graduate and I have a better relationship with my wife and kids now."

Conclusion

Lessons for Campus Health

Student veterans represent a small but special population of nontraditional students. College health administrators and clinicians need to be aware of the resources for the unique medical needs of student veterans. Clinicians should keep an up-to-date toolkit of campus and community-based contacts for the treatment of PTSD, SUD, TBI, and MST to ensure optimal care of the student veteran. The secondary impacts

of these conditions, if untreated or undertreated, can be devastating for student veterans and their families. Early intervention, referral, and support are key to the success of this unique population.

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Recommended Readings and Resources

PTSD Checklist for DSM-5 (PCL-5). Accessible at https://www.ptsd.va.gov/professional/assessment/documents/PCL5_Standard_form.PDF.

Clinical-Administered PTSD Scale for DSM-5 (CAPS-5); this form may be requested from the U.S. Department of Veterans Affairs. Details can be found at: https://www.ptsd.va.gov/professional/assessment/ncptsd-instrument-request-form.asp.

PTSD Symptom Scale – Interview (PSSI) for DSM-IV; may be obtained by contacting Edna Foe, PhD, Department of Psychiatry, University of Pennsylvania; foa@mail.med.upenn.edu.

Structured Interview for PRSD (SI-PTSD); may be obtained by contacting Jonathan Davidson, MD, Department of Psychiatry, P.O. Box 3812, Duke University Medical Center, Durham, NC 27710-3812; Phone: 919-684-2880.

Veterans and Military Service Organizations Directory; Department of Veterans Affairs. Available at: https://www.va.gov/vso/VSO-Directory.pdf.

Chapter 12
Health Science Students

Giang T. Nguyen

Student Take

Maria is an undergraduate nursing student doing a clinical rotation at a community hospital 30 minutes from the nursing school. She is thrilled to be doing her first clinical rotations after spending most of her time in a classroom setting. During the first half of her rotation, she has a needlestick injury after drawing routine blood work for one of her patients in the phlebotomy station. It is a minimally penetrating stick into her finger, and she does not bleed much. The incident happens with her back to everyone in the room, so no one else sees. She remembers hearing about the possibility of body fluid exposures during her orientation a couple months ago, but so much information was presented that she cannot remember the details and isn't sure about next steps. She washes her hands thoroughly, replaces her gloves, and finishes her tasks with the patient. At the end of her shift, she meekly admits to her preceptor that the injury had occurred. The preceptor tells her that students with body fluid exposures are supposed to be seen at the university health center, but since it is now after-hours, that is not an option. The student is sent to the hospital's emergency department for evaluation. At this point, the phlebotomy patient has already left the hospital, so there is no "source patient" blood work to assist with risk assessment. The student is embarrassed about having the injury in the first place, placing the blame on herself and her lack of skills. She is also terrified of the possibility of getting an infection. Her mind drifts to thoughts of how her future career as a nurse practitioner might be affected by human immunodeficiency virus (HIV) or viral hepatitis. She wonders if she can safely start a family.

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Introduction

Health science students constitute a unique subpopulation in college health. The varied settings in which they are learning include not only classrooms and laboratories but also clinical exam rooms, emergency departments, surgical suites, nursing homes, psychiatric facilities, and community-based clinics, to name a few. In addition, they often straddle the roles of learner and care provider.

Potential exposures include communicable diseases, needlestick injuries and other body fluid exposures, agitated/violent patients, and (in the case of veterinary students and those doing laboratory work) animal bites and scratches. On-call duties pose additional challenges. In addition, these clinical settings may include off-site rotations and site placements that are miles away from the main campus where college health centers are located. Moreover, the emotional stressors associated with health science training also play an important role in the student experience. Lastly, college and university health services should be mindful of the privacy implications for students who might be learning and receiving medical care in the same facility.

Several broad issues are relevant to most health science students. These include immunization and screening requirements, considerations related to away rotations and satellite campuses, laboratory and clinical exposures, and emotional well-being.

The specifics of our recommendations will vary depending on the unique features of each student's training program. For the purpose of this chapter, our discussion of health science students will include students who are studying nursing, dentistry, veterinary sciences, medicine, and related fields (including but not limited to physician assistant programs, pharmacy, optometry, clinical social work, and physical/occupational therapy). In addition, recommendations might also be applicable to students in public health, depending on the situations involved.

Immunization and Screening Requirements

Institutions must decide for themselves which immunizations and screening tests are required for their health science students. State regulations might dictate the minimum requirements for all students attending colleges and universities, but health science students generally need to adhere to more stringent requirements. Health science students are likely to be exposed to infectious diseases while doing their clinical work, and healthcare institutions also need to ensure that learners do not put patients at risk by inadvertently passing infections from one patient to the next. Whenever considering changes to existing immunization requirements, it would be advisable for college health officials to review the proposed changes with institutional offices of general counsel if there are concerns about whether such changes are consistent with broader university protocols and state/regional statutes.

Immunization guidelines from the American College Health Association (ACHA) include specific recommendations for healthcare students [1]. These recommendations include measles, mumps, rubella, tetanus, diphtheria, pertussis, varicella, and yearly influenza immunization. Also, documentation of a completed hepatitis B vaccine series should be supplemented by quantitative hepatitis B surface antibody titer consistent with immunity.

For tuberculosis, the 2018 ACHA recommendations advised a two-step tuberculin skin testing (TST) or a single blood test for TB infection (IGRA) at baseline; subsequent annual/serial screening should be based on state regulations or risk assessment [1]. In March 2019, the US Centers for Disease Control and Prevention (CDC) and the National Tuberculosis Controllers Association (NTCA) issued joint recommendations explicitly stating that annual TB testing is no longer recommended unless there is a known exposure or ongoing transmission [2]. Decisions on the use of skin testing versus blood testing depend on resources (phlebotomy, clinical staff for administering injections and for interpreting skin readings), cost (TB blood tests tend to be more expensive than skin testing), and logistical considerations (students might fail to return within 48–72 hours for skin test interpretation). One study in college students suggested that TST might have greater specificity than IGRA [3].

When there is known latent TB infection (LTBI), treatment is highly recommended, and the NTCA-CDC guidelines express a preference for shorter treatment regimens, since completion is more likely for a 4-month regimen than for 6- or 9-month regimens [2].

For veterinary students, rabies vaccination is also recommended [4]. Pre-exposure vaccination is a three-dose series administered intramuscularly on days 0, 7, and 21 or 28. Depending on level of exposure risk, serum antibody testing to ensure continued immunity may be helpful every 2 years.

Chemical and Infectious Exposures

Work in laboratories and clinical environments might put health science students at risk for exposures to chemical contact (skin, inhalation, eye injury), burns due to open flames, body fluid exposures (needlestick and instrument injury, fluid splatter), and animal exposures (bites, scratches, animal waste).

Laboratories should maintain records of all the chemicals used within the facility. Safety data sheets (SDS) should be easily accessible in order to assist clinicians in the evaluation of students following an exposure. While it is ideal that students be sent to the college health center or emergency department with a copy of the relevant SDS, this often does not happen. Clinicians can obtain the SDS by searching on the Internet if the chemical name is known. The regional poison control center is also a valuable resource.

Prevention must be a priority in the training of students before they are placed in potentially harmful situations. Faculty and staff need to reinforce safety expectations when working with students and must role-model appropriate behaviors, such as hand hygiene and the use of personal protective equipment (PPE), including eye protection, gloves, masks, and protective gowns. Safe use (and disposal) of needles, syringes, scalpel blades, and other sharp instruments should also be mandated. Some of this can be ensured through engineered solutions (e.g., use of safety-engineered sharp medical devices to reduce likelihood of needlestick injury after an injection, use of ultrasonic cleaning baths to minimize the need for manual scrubbing of sharp surgical and dental instruments during the sterilization process). Hand washing and use of gloves are simple and effective ways to reduce infectious risk.

Infection control practices are likely to be common in medical/surgical, nursing, and dental settings (especially if such facilities are monitored by accrediting organizations such as The Joint Commission), but student and staff might not follow these practices consistently, particularly when they are working under time pressures. A culture of safety must be emphasized by clinical leaders and reinforced by academic leadership.

Dental students who are rushing to clean their used instruments in order to maximize time seeing patients might inadvertently cut themselves when scrubbing sharp instruments. Such injuries can be particularly problematic because the source patient is impossible to track when a student is cleaning a tray full of instruments.

The US Public Health Service offers guidance for the management of occupational exposures to hepatitis B virus (HBV), hepatitis C virus (HCV), and HIV [5]. Students who may be at risk of body fluid exposures should be trained in advance regarding appropriate response. Immediately following a blood or other body fluid exposure, the following measures should be implemented immediately: (1) wash needlesticks and cuts with soap and water; (2) flush splashes to the nose, mouth, or skin with water; (3) irrigate eyes with clean water, saline, or sterile irrigants; (4) report the incident to your supervisor; and (5) immediately seek medical treatment [6].

Timely postexposure management is critical, and several situations can create challenges in clinical management (e.g., delayed reporting, unknown source patient, pregnancy in the exposed person). Protocols should be in place to minimize the impact of these complicating factors. Ideally, the response should begin while the source patient is still present, so that specimens can be collected to establish whether there is existing infection with viral hepatitis or HIV. When evaluating students, clinicians can turn to the Clinicians' Postexposure Prophylaxis (PEP) Line at 1-888-448-4911 (http://www.nccc.ucsf.edu/). For students who are not immune to hepatitis B, prophylaxis for HBV should also be discussed, keeping in mind that hepatitis B immune globulin (HBIG) is prepared from human plasma. With regard to hepatitis C, there is currently no effective postexposure prophylaxis; thus, recommendations would be limited to counseling, education, and future monitoring. Decisions about PEP for HIV should be directed by the wishes of the exposed patient and informed by the level of risk involved (Table 12.1) [5]. The cost of workup and PEP is another likely concern. Depending on the details of their health insurance plans, students might still have significant out-of-pocket costs due to

Table 12.1 Assessing human immunodeficiency virus (HIV) risk following a body fluid exposure

Exposure (with HIV-infected source patient)	Risk of HIV transmission
Percutaneous exposure to blood[a]	0.3%
Mucus membrane exposure to blood	0.09%
Non-intact skin exposure to blood	Not precisely known but <0.09%
Exposure to fluid/tissues other than blood	Lower than that of exposure to blood

[a]Risk from percutaneous exposure may be modified by the quantity of blood exposure (potentially greater risk with devices visibly contaminated with source patient blood, needles that had been placed directly in a blood vessel, deeper injuries, and hollow-bore needles) [5]

deductibles, copayments, laboratory fees, and high drug costs. Some schools have the financial means to cover out-of-pocket costs incurred by their students following body fluid exposures, but most schools do not have the resources.

Students who experience a body fluid exposure might be reluctant to report the incident due to concern that they will be blamed for the incident and that such blame might affect their future academic and professional success. Concerns about the professional impact of a chronic infection such as HIV may also lead to delayed action (e.g., "Will they let me be a surgeon if I am known to be HIV+?"). Since PEP must be initiated within 72 hours of exposure, delays in reporting need to be minimized.

In some veterinary settings, infection control practices may be less stringent due to cultural factors and lower perception of risk [7]. Several infectious disease clusters have occurred among veterinary students [8, 9]. Adherence to established PPE protocols can play an important role [10]. In addition, veterinary labs that use cadaveric materials as part of their teaching should have careful processes for ensuring that refrigeration units are set to temperatures low enough to kill expected organisms [9].

When suspected clusters of illness or communicable disease exposure occur among students, college health services should attempt to identify the source quickly and prevent future spread of illness. When exposures occur in hospital settings, the hospital epidemiologist may be a valuable resource. The local/regional health department might also need to be involved. Coordination and clear communication are important, and messaging must be consistent across all information sources (e.g., college health service, academic leadership, hospital/clinical leadership, health department). Consultation with experts in public health communication may be helpful to ensure that students (and in many cases the families of students) have a clear understanding of the seriousness of the situation without creating excessive distress in the community.

Proximity to Resources

Health science students may be placed at training sites that are a considerable distance from the main campus. Protocols should be in place to let faculty and students know what to do if a student needs medical attention during an "away" rotation. In

some cases, this might mean that the student accesses local resources in the community. Different clinical placement sites may each have their own unique protocols for addressing injuries and body fluid exposures, so college health services need to be nimble in their response. Strong relationships between college health services and the satellite training sites (prior to the occurrence of any incident) can be a great help when issues arise.

Students doing clinical work internationally face additional challenges. Linguistic barriers, clinical resource limitations, and variations in clinical protocols can all play a role in a student's experience. Institutions may choose to contract with international medical and travel security services to ensure that students and faculty have access to medical care when they are traveling on official university business. Unlike students who are traveling for most study abroad/cultural exchange programs, health science students may have higher risk if they are working in low-resource international healthcare settings. Targeted predeparture training can significantly reduce the likelihood of body fluid exposures among students participating in global health electives (Table 12.2) [11].

Self-Care and Emotional Well-Being

Student mental health is a current priority at universities across the nation and indeed all over the world. Issues of stress, coping, resiliency, imposter syndrome, isolation, identity/intersectionality, and psychiatric disability affect students in all disciplines. As mentioned at the beginning of this chapter, however, health science students often carry the added burden of being a member of the patient care team.

The biomedical literature and popular press have described many situations of burnout in healthcare workers, including nurses, attending physicians, social workers, and medical residents. Health science education offers opportunities to build resilience among future healthcare providers and to initiate healthy patterns that

Table 12.2 Sample training/supervision plan for medical students participating in global health electives in low-resource settings [11]

Predeparture	Post-arrival
Lectures/training Blood/body fluid exposure risk reduction Strategies for handling contaminated needles without safety devices Use of goggles during procedures to minimize mucous membrane exposure	Direct observation First five phlebotomies First five peripheral intravenous (IV) placements
Procedure simulation with mannequins	Clinician supervision for all other procedures regardless of number previously performed
Ten directly observed phlebotomies	

promote appropriate work-life balance. Basic life functions (eating, sleeping, exercise, etc.) should be viewed as necessities rather than things that receive attention only when all other duties are satisfied. Professional development should include guidance on how best to accomplish these things as efficiently as possible.

Health science students typically play an integral role in the care of patients. As such, students may feel a tension between their responsibilities to the patient and responsibilities to their own well-being. They also feel a sense of responsibility to the clinical team, not wishing to appear lazy or undedicated. Faculty can help by explicitly encouraging breaks (for meals, sleep, etc.) and by assuring role modeling of self-care among other members of the care team.

When students have acute or chronic health problems (both physical and mental health), academic institutions have a responsibility to establish clear guidelines and expectations on how students can access healthcare when needed. University health resources can help by ensuring extended hours for care, but it is unlikely that resources will allow 24/7 access to every level of care that might be needed. Thus, a student who needs to see a clinician for follow-up care will likely need to find a way to step away from clinical duties during daytime hours. Professional development education can benefit by providing guidance on how to do this in the least disruptive way possible, as this will be an issue for the rest of their careers.

Institutions should also prepare health science students for the emotional trauma of patient death and other negative outcomes. This situation can be even more painful when the death occurs in a young patient or happens by means of suicide. In addition to grieving, members of the care team (students included) may feel a sense of guilt or anger that they did not (or could not) do more to achieve a better outcome. Clinical faculty can be encouraged to explicitly recognize how difficult that situation might be and to provide referral to campus services should the student feel that the emotional impact is affecting their ability to study and work. Chaplain services and counseling centers can be valuable resources for students who are struggling.

In some cases, curricular innovations can be used to create a more supportive environment for both patients and students. For example, one dental school required mental health education for their students and faculty, since the ability to identify and appropriately support individuals in emotional distress can help health science professionals to support each other as well as support their patients (Uri Hangorsky, University of Pennsylvania, 1/2020, personal communication).

Substance use and abuse also should be addressed. Some students adhere to the "work hard, play hard" approach, but this can lead to self-destructive behaviors such as binge drinking, unsafe sexual encounters, and illicit drug use. In addition, non-prescription use of prescription stimulants is an issue for undergraduates, and these patterns of use may continue into graduate/professional programs. Some reports have suggested that substance abuse and addiction does affect physicians and nurses [12, 13]. As such, clinicians should remember that health science students are not immune to these concerns and (like other students) would benefit from alcohol/drug use screening and counseling.

Safety and Privacy

As mentioned earlier, safety must be top priority within healthcare and laboratory settings. Within clinical care, the safety of the patient is often emphasized explicitly; however, the importance of personal safety might be less explicitly conveyed. Administrators and faculty should be explicit in letting health science students know that they must do what is necessary to ensure their own personal safety while accomplishing the work of the day. As such, students must not "cut corners," and they must feel that they have the "permission" to attend to their own safety.

In some clinical settings, patients might be aggressive [14–16], putting students at risk. This includes both human patients and (in the case of veterinary students) animals. The risk of aggression may be unpredictable, but it may be possible to minimize risk for learners. Training of students can include approaches to reduce risk of bodily harm. Also, protocols should be in place to respond to situations when a history of prior aggression has been reported. For example, a dog might be known to bite during clinical exams. In such a case, it could be helpful to have the student observe a faculty member in order to benefit from role modeling rather than having the student perform the examination solo.

Sexual assault, harassment/victimization, and other forms of interpersonal violence are problematic for all student populations [17]. However, health science students might experience these problems in settings that differ from the typical university student. For example, clinical social work and psychology students might spend considerable time with clients or supervisors within very private (and sound insulated) counseling rooms. Students may fear retaliation or negative consequences on their professional trajectory if they report incidents of sexual or relationship violence. Women and people who identify as transgender/genderqueer/nonbinary are at particularly high risk of victimization [17].

Institutions must establish systems that ensure the privacy of health science students who receive care at the institution where they train. The Liaison Committee on Medical Education (LCME; www.lcme.org) has explicit requirements that clinicians who are involved in the health services for a student (including mental health services) are not involved in their academic assessment or promotion. Thus, institutions should establish clear boundaries between students' protected health information (PHI) and the faculty/administrators who oversee the students' academic program, even if those faculty are clinicians who would normally have access to the electronic health record overall.

Privacy boundaries also apply to health science students and access to information about other students. Health science students should not be placed in the position of caring for their fellow classmates or needing to access the PHI of their classmates.

The matter of clearance to return after a leave of absence touches upon both safety and privacy concerns. When a student takes a leave of absence due to a health-related issue, institutions typically require that students are cleared by university's health service prior to approval to return. The health service would benefit from receipt of information from all care providers who saw the student during the leave, but students will need to authorize this sharing of information. Sometimes, university health services will need to make decisions based upon incomplete information. Unlike

decisions for non-health science students, returns from leave for clinical programs require consideration of the student's safety and appropriateness to work in clinical settings, so clear communication with academic coordinators and with disability accommodation offices is helpful to make sure that decisions are informed by all of the relevant factors. As stewards of highly sensitive protected health information, university health services need to be prudent about the level of detail that is shared with administrators outside of the health service. Even when students provide authorization for the sharing of information, the level of detail should be limited to that which is necessary for the campus partners to make academic decisions.

Make No Assumptions

It can be tempting for clinicians at university health centers to address health science students as colleagues (or soon-to-be colleagues), but it is important to remember that, first and foremost, these students are coming to the health service as patients. Clinicians should not assume any underlying level of knowledge about the medical conditions for which the students are presenting. Moreover, health science students might be embarrassed to express their lack of knowledge for fear of being seen in a negative light. There is a fine line, however, as students might also express discontent about being "spoken down to." Framing the discussion beforehand may help (e.g., "You might know this already from your studies, but I'm going to go through the details to make sure we're on the same page…").

Beyond knowledge of medicine in general, students are also likely to have confusion and lack of understanding surrounding healthcare financing and insurance. Like all students, healthcare students may have had minimal experience managing their own healthcare and dealing with copays, deductibles, referrals, prior authorizations, and out-of-pocket maximum thresholds.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Students enrolled in health science programs are potentially exposed to risks that nonclinical students do not encounter.	Don't assume that health science students are knowledgeable in medical topics or know how to navigate the healthcare system.
Protocols must be in place in anticipation of the most common scenarios facing health science students.	Ensure that protocols are in place for timely evaluation and follow-up after body fluid exposures and that clinicians (and on-call responders) are informed.
Staff should receive appropriate training, and resources should be allocated in order to respond to the unique needs of health science students.	Emphasize a balanced approach to self-care, prioritize sleep/exercise, and inquire about substance use and emotional distress.

Conclusion

Health science students face many of the same challenges experienced by college students overall. However, these issues are compounded by the pressures of real and perceived responsibilities to the health of patients. Critical to the professional development of health science professionals is the capacity to find balance between the needs of the patient and the needs of the self. Strong partnerships between university health services and the academic leadership of health science programs can help to address the wide range of health-related needs for this community of students.

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Recommended Readings and Resources (i.e., Books, Periodicals, Video Links, Web Resources, Etc.)

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Chapter 13
Student Safety in the Clinical Setting

David McBride

Introduction

The American Association for the Accreditation of Ambulatory Health Care (AAAHC), with the American College Health Association (ACHA) as a founding partner, was born in 1979 with the goal to "encourage and assist ambulatory health care organizations to provide the highest achievable level of care for recipients in the most efficient and economically sound manner" [1]. Boynton Health at the University of Minnesota was the first university health center to be accredited by the AAAHC that same year [2, 3]. The Joint Commission for Accreditation of Hospitals (JCAHO) began accrediting ambulatory practices just a few years prior to that milestone [4]. As part of the accreditation process, the values of quality and safety in the delivery of healthcare have consistently been paramount. College health as a discipline has been integral to the discussion about, and advancement of, the importance of providing high-quality and safe care for our patients.

The Institute for Health Care Improvement (IHI) was founded 12 years later in 1991 by Dr. Don Berwick and colleagues with the intention of continuing to critically examine and redesign the delivery of healthcare [5]. In 2008, IHI put forth the triple aim for healthcare [6]:

- Improving the health of populations
- Lowering the per capita cost of care delivery
- Improving the experience of care

The Institute of Medicine has further described the elements of the experience of care in *Crossing the Quality Chasm: A New Health System for the 21st Century* to include that the care be "safe, effective, timely, efficient, equitable, and patient-centered" [7]. The triple aim suggests that care provided to individuals, as the

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historic focus of medicine, is not enough to transform the health of the populations that we serve. Within the examination of the experience of care, it is apparent that our delivery of care is often the cause of harm in our quest to help. The Institute of Medicine estimated in *To Err is Human: Building a Safer Health System* that deaths due to medical errors approached 100,000 in 2000 and that number has continued to be sought and debated [8], hence the need to attend to the concept of patient safety.

In healthcare, perhaps, the inclination to critically and openly examine our care processes is limited by many factors. These include, but are not limited to, fear of litigation, loss of trust on the part of our patients, and a reluctance to admit that our "science" is imperfect. As such, healthcare has been a latecomer among industries to take on issues of safety systematically and with transparency. James R. Knickman and Brian Elbel note, "Many industries have spent years working to improve their production processes by closely examining each of the steps involved, seeing how they fit together or do not fit together, and then asking whether those processes can be improved to reduce the number of defects or the range of variations" [9]. Healthcare practitioners may not consider quality improvement and safety monitoring as part of the central mission of directly caring for individual patients, stating that there is not time in a busy clinical schedule to do this work. Don Berwick mordantly noted, "You can't make planes safer by asking pilots to please not crash" [10]. Ensuring patient safety in the clinical environment requires a concerted and systematic effort and will not happen by chance. Fortunately, our tradition of engagement in quality and safety as a discipline positions college health as leaders in this effort.

What Is "Patient Safety"?

The World Health Organization (WHO) defines patient safety as "the absence of preventable harm to a patient during the process of health care and reduction of risk of unnecessary harm associated with health care to an acceptable minimum" [11]. The unnecessary harm conferred in the delivery of care is, more often than not, the result of systematic failures rather than provider negligence, though safety is maximized through both the insurance of provider competencies and through well-established systems [12]. Additionally, the delivery of healthcare in the ambulatory setting is complex in its often episodic nature, reliance on the patient as a key participant in the care process, and by virtue of the frequent fragmentation of care present in an ambulatory setting.

The Agency for Healthcare Research and Quality suggests that a number of factors influence safety in the ambulatory care setting. These include patient and caregiver behaviors, provider–patient interactions, and the role of the community and health system [13]. The first element, the role of patient and caregiver behaviors, refers to the fact that patients in the ambulatory setting (and their friends or families, i.e., "caregivers") have a much greater role in the implementation of care than in the inpatient setting. The ambulatory patient must be a partner in care delivery in order

for this to be successful, and providers must be cognizant of this reality and work to empower patients to assume this role. Students may not understand the credentials and level of training of college health providers and therefore may not trust our advice without the benefit of long-standing relationships, potentially leading to a breakdown in how care instructions are understood and followed [14, 15]. Furthermore, college students have the independence to make decisions about healthcare on their own but may lack the developmental or experiential ability to do so in an informed way.

According to the AHRQ, "provider–patient interactions" are a significant determinant of patient safety in the ambulatory setting. Transitions of care, continuity, and communication are key elements of these interactions or relationships. Particularly in settings in which episodic care is the rule, coordinated care with smooth handoffs and transitions may not be the norm. Care transition, during discharge from the hospital or emergency department back to campus, is a good example. Upward of 40% of individuals discharged from the hospital have lab results pending [16]. Medication doses are often adjusted, or medications may be started or discontinued in the hospital. College health providers who are effectively, but not technically, the primary care provider may not consistently receive this communication, creating a patient safety challenge. College health providers often serve students in a transitional space between their home primary care provider (family physician or pediatrician) and the provider who will become their adult provider. Furthermore, college or university health centers (C/UHCs) may not assign a consistent primary provider, and students may not value the relationship with one college health provider. This system to deliver episodic care, rather than care in continuity, is in conflict with research suggesting that our students are using our centers to address primary and preventive care concerns [17]. Hence, discontinuity and fragmentation are may be created within our own centers.

"Health system issues" within an ambulatory practice can contribute to patient safety breakdowns. Medication errors, for example, can result from the lack of adequate ordering, acknowledgment, and patient identification systems. In areas of high volume—such as immunization or allergy shot administration—errors and patient safety breakdowns may occur if the system of care is not well developed. In vaccine delivery, the wrong vaccine, a dose given at the incorrect age, or the wrong vaccine dose are sources of patient safety errors [18]. Delivering safe continuity care relies on systems to monitor that care.

Most of the work evaluating the safety of care comes from the hospital and inpatient setting, though by far the majority of healthcare in this country is delivered in the ambulatory care setting. In 2016, 883.7 million visits were held in provider offices, compared to 145.6 million emergency department visits and 36 million hospital admissions [19, 20]. So what are examples of patient safety problems in the ambulatory setting? From a review of more than 100 articles, the three most common categories of patient safety problems in the ambulatory setting reported in the literature include administrative and communication incidents, diagnostic incidents, and prescribing and medication management incidents [21].

Administrative and communication incidents include documentation problems (missing documentation, unclear or incorrect documentation), lab monitoring errors, and communication between providers or between providers and patients (as noted by AHRQ), though electronic medical records (EMR) have improved these issues substantially. Diagnostic incidents include misdiagnosis or missed diagnosis. Though the data is difficult to gather, 5% of adults may experience a diagnostic error each year in the United States (e.g., delayed diagnosis of cancer after suggestive symptoms or lab results) [22, 23]. Fortunately, the authors found that harm related to these patient safety problems was infrequent, though they are best avoided nonetheless.

National college health leaders have called on the discipline to examine and improve the quality of care we deliver as a way of demonstrating our value in contributing to college student success [24]. Building on our discipline's tradition of self-examination and quality improvement that goes back to that first university health center accreditation in 1979, college health centers are well positioned to provide exceptionally safe and high-quality patient care through a systematic approach.

How to Ensure Patient Safety in Your College or University Health Center

Intentionally Foster a Culture of Safety

A safe care environment starts with a high-level commitment to the creation of a culture of safety [25]. The C/UHC leadership, including the director, must be aware of the issues around ensuring patient safety and actively promote this concept around the center. Patient safety cannot be delegated completely to a committee or quality assurance officer. C/UHC leadership can engage in free materials from the IHI, Agency for Healthcare Research and Quality (AHRQ), or accrediting bodies to learn about concepts of patient safety. This knowledge is foundational to effective leadership within the university health setting.

In order to promote a culture of patient safety, organizational leaders might engage in any or all of the following:

- The creation of a patient safety guiding document that has a clear link to the organizational mission and values will help to establish a framework. This document may include specific areas of patient safety on which the C/UHC will focus. For example, Cornell Health includes patient safety in its vision statement, which is based on the triple aim: "Provide an experience of care that keeps those we serve at the center of everything we do; is respectful, compassionate, accessible, equitable, affordable, and safe…."
- Create a patient safety committee with staff from all levels of the organization, and provide protected time to engage in safety work. A clear charge from the

leadership team with measurable objectives will help this committee to be most productive. Consider that a committee with more than seven individuals may be less able to make decisions and to be agile [26].

- Conduct periodic Patient Safety Leadership WalkRounds during which the leadership team walks around the C/UHC to detect potential safety hazards [27]. These rounds serve several goals. The first is to visibly demonstrate the organizational commitment to safety. The second is to identify true safety hazards that might include areas around the center where there are slip-and-fall risks, inadequate security of sharps, or PHI compromises. Based on the WalkRounds, findings are shared with the organization in writing and/or at meetings, and solutions are quickly implemented.
- Share stories of patient safety problems that were identified and solved by center staff during all-staff meetings. Celebration of the finding of the safety challenge and the solution to the problem may empower staff to engage in the culture of safety.
- Report out periodically to the university and to staff about the safety wins within the C/UHC within the time period in an "annual report." Frame this report in a way that acknowledges that finding and improving problems is a priority and that transparency is key to this process.
- Make patient safety part of the regular evaluation process for employees. Clearly communicate expectations around quality and patient safety to all staff. If possible, use provider-level quality and safety data to give ongoing and summative feedback to providers.

Reporting and Data Collection

From a culture of concern for patient safety can flow the important concept of reporting and collecting data on safety. It is not possible to improve the safety of care delivery without knowing the challenges of the current state. C/UHC leadership must carefully set a tone that allows employees and patients to feel confident that there will be a just and honest response when a report is made in good faith. Data collected and analyzed for the purpose of quality and patient safety improvement is generally considered privileged and therefore not discoverable, though consultation with your institution's counsel is advised [28].

Staff should also be encouraged to report not just incidents but also "near misses" in which an incident could have occurred but was averted or did not occur. For example, when a student is called from the waiting room and turns out to be the wrong patient, but with the same name as the intended patient, it is a near miss. The harm that was averted was evaluation and treatment of the wrong patient. Another example is the vial of outdated medication discovered in a drug closet in the queue for administration.

If the organization creates a simple, accessible, and consistent mechanism for reporting patient safety concerns, the more likely it will be that employees will use

this system. Systems such as Microsoft Access or Google Forms can gather data from a form (Fig. 13.1) and feed responses into a spreadsheet for analysis (important note: ensure that any PHI, if collected in these reports, is properly secured and protected). This systematic collection allows data to be collated, and successes, shortfalls, and trends tracked over time.

a

OCCURRENCE REPORT
UNIVERSITY HEALTH CENTER

SECTION 1: OCCURRENCE DESCRIPTION

Date of Occurrence	Time of Occurrence	Date of Report	Name(s) of person(people) initiating the report:	
____/____/_____ mm / dd / yyyy	_____:_____ AM/PM	____/____/_____ mm / dd / yyyy		
Name of person involved in the occurrence: _____ ☐ Health Center Staff ☐ Student ☐ Faculty/Staff ☐ Visitor		**Date of Birth** ____/____/_____ mm / dd / yyyy	☐ Male ☐ Female ☐ Other: _____	**UID#**
Street Address		**City**	**State**	**Zip Code**

Was this occurrence observed? ☐ Yes ☐ No — **Witness(es) name(s):**

Was an injury sustained? ☐ Yes ☐ No — If "yes", then please describe below:

Where did this occurrence occur in the health center (department and location)?

Was there an adverse reaction? ☐ Yes ☐ No — If "yes", then please describe below:

SECTION 2: TYPE(S) OF OCCURRENCE(S) (Check all that apply)

☐ **FALL.** Please describe below:

☐ **TREATMENT/TEST/PROCEDURE.**

- ☐ Needle stick (staff). *Staff must complete the OH Report of blood/body fluid exposure & follow post-exposure procedures.*
- ☐ Needle stick (patient or visitor).
- ☐ Blood/body fluid exposure. *Staff must complete the OH Report of blood/body fluid exposure & follow post-exposure procedures.*
- ☐ Lab error (please specify): _____
- ☐ Other (please specify): _____

☐ **MEDICATION ERROR.** Related to: ☐ Dispensing ☐ Prescribing ☐ Administration
Please describe below:

☐ **MISCELLANEOUS OCCURRENCES.** Related to: ☐ HIPAA violation ☐ Agitated Patient ☐ Other
Please describe below:

Fig. 13.1 Occurrence report

b

SECTION 3: CAUSE ANALYSIS AND ACTION PLAN

1. **Describe what happened and why the event occurred:**

2. **Describe any factors that may have contributed to the event or impacted the outcome (e.g. human, equipment, environmental, uncontrollable, or other factors):**

3. **Explain if other services or operations were impacted by the event:**

4. **Examine how contributing factors could be improved or changed to reduce future risk (e.g. human resources issues, information/communication, environmental, emergency response, management, or supervision):**

Reviewed by Supervisor and Referred to Risk Management:

Supervisor's Printed Name | *Supervisor's Signature and Date*

SECTION 4: RISK MANAGEMENT COMMITTEE REVIEW

Risk Management Committee Comments and Recommendations:

Reviewed by Risk Management and Referred to Executive Committee:

Risk Management Chairperson's Printed Name | *Risk Management Chairperson's Signature and Date*

SECTION 5: EXECUTIVE COMMITTEE REVIEW

Action Plan

Activity	*Assigned To*	*Date Assigned*	*Date Completed*

Clinical Director's Printed Name | *Director's Printed Name*

Clinical Director's Signature and Date | *Director's Signature and Date*

Fig. 13.1 (continued)

C/UHCs may review individual events, performing a root-cause analysis (why did the event occur), as well as establish trends of events. For example, one C/UHC reported that tracking and trending identified a particular location in the center where falls repeatedly occurred. The location was at an entrance door where wet umbrellas tended to drip onto the floor. The combination of a wet floor and students

wearing flip-flops contributed to the slip-and-fall risk. A solution of frequent mopping of the area and nonslip floor coverings placed in the location successfully stopped falls in that location.

Patient Feedback

Patient feedback is an important source of information that can be used to improve patient safety. Trends in patient comments may help to identify areas that may lead to patient safety breakdowns. AHRQ proposes a short questionnaire to assess patient health literacy—an important assessment of the patient role in the delivery of ambulatory care. Lack of understanding of discharge instructions may affect the ability of the patient to follow through as instructed. College students may be reluctant to admit a lack of understanding, and it is likely that college student health literacy varies greatly based on a number of factors, including college classification, ethnicity, gender, and primary language [29]. Gathering aggregate data on perceptions of provider communication will identify ways in which our communication is ineffective. Questions that may address the important patient role in the care process and the implication for safety include:

- Did this provider or staff member explain things in a way that was easy to understand?
- Did this provider or staff member use medical words you did not understand?
- Did this clinician or staff member answer all of your questions to your satisfaction [30]?

Routinely using methods such as teach-back, in which the patient is asked to repeat back their understanding of information conveyed by the provider, and also using written discharge instructions (on paper or electronic) may address problems with clear understanding between providers and patients.

Data Analysis and Continuous Improvement

Using the data collected through the mechanisms described above, an iterative improvement process can then be employed to address occurrences and trends in patient safety. Benn et al. propose the cycle pictured in Fig. 13.2, similar to a plan-do-study-act (PDSA) cycle [31].

Depending on the size of the practice, safety incidents may be small in number, obviating the need to prioritize.

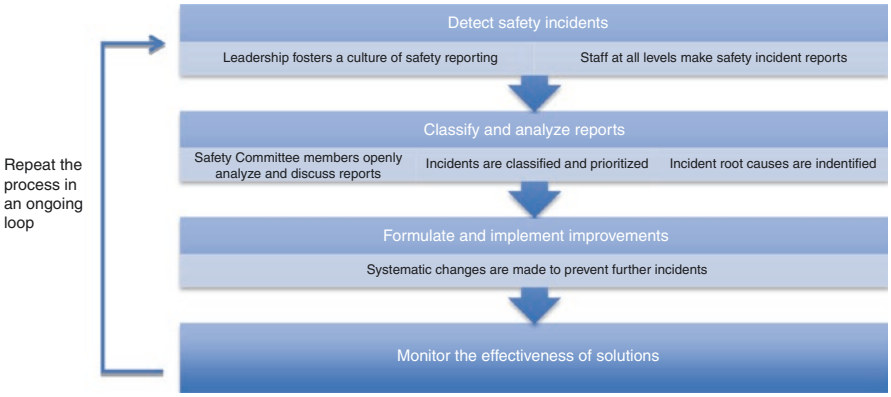

Fig. 13.2 Sample safety feedback loop [31]

Systematic Processes

Systems can be established proactively to address common safety issues. As an example, the C/UHC can establish a system for tracking referrals to care outside of the center or to the hospital for admission. Designating staff to perform periodic referral tracking is a useful endeavor. Carnegie Mellon University engaged in such a process to improve their referral and follow-up process. Using a classic improvement model of identifying/elevating a problem using baseline date, setting a goal, identifying barriers to success, and testing small, feasible changes to improve, CMU staff was able to improve their referral follow-up from 66% to 100% in a 4-month period [32]. CMU identified two barriers to the referral tracking process: (1) having one individual be accountable for the process and (2) not maximizing the utility of their EMR. In addition to addressing these issues, the health center put several additional systems into place, e.g., creating a database of referrals that had been made and putting commonly used specialist contact information into the EMR.

Accrediting organizations also offer tool kits to improve patient safety in a systematic way. Accreditation as an activity is an excellent way to examine and improve the center's environment of care. AAAHC provides tool kits to accredited organizations, and these kits are also available for purchase. The topics include medication reconciliation, antibiotic stewardship, allergy documentation, and safe injection practices [33]. Free materials for improving patient safety are also available from the US Centers for Disease Control and Prevention. The One and Only Campaign is an example of such a free resource [34].

Create Policies and Procedures to Guide Patient Safety Activities

Several key policies and/or procedures are useful to have in writing to guide the patient safety process at a C/UHC. Within the American College Health Association, members are often willing to share their written documents to prevent the need to start these documents from scratch. In particular, the following policies/procedures may be developed:

- *Incident reporting and management* includes information about the process for accepting, investigating, and resolving an incident report.
- *Managing patient feedback* addresses what feedback is gathered from patients, in what interval, in what method (electronic, on paper); how the feedback is compiled, analyzed, and responded to; and how patient safety information is gleaned from this feedback.
- *Quality management* may broadly address how quality is assessed and improved within the organization but also how patient safety is one of those aspects of the practice to which particular attention is paid.

Furthermore, it is advisable to consider potential areas of patient safety compromise and develop policies and procedures to address these areas. Examples in this category might include a policy on chaperones, the use of fellow students or healthcare learners in the clinical environment, and participation of patients in research within the C/UHC.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Learn about issues of patient safety at IHI.org and ARHQ.gov to help create a culture of safety at your C/UHC.	Use methods such as “teach-back” to ensure that patients understand the diagnosis and treatment plan.
Work with the leadership team to create a culture of reporting and improvement, including a simple and accessible reporting mechanism.	Report patient safety issues and near misses to leadership, through the established channels, when they arise.
Regularly lead “safety walk rounds” and involve staff broadly in safety efforts.	Utilize free resources from AHRQ and accrediting agencies (templates and guides) to improve patient safety.
Develop key written policies/procedures related to patient safety.	Connect with college health colleagues to learn about examples of improving patient safety.

Conclusion

College health as a discipline has an exceptional history of commitment to self-examination, quality improvement, and patient safety. It is important to recognize that patient safety problems are relatively common in the ambulatory setting, though they infrequently cause harm. Patient safety problems are more often the result of systematic failures or lack of systems rather than provider negligence. Using a systematic approach, college/university health centers can maximize the safety of care that they provide.

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Chapter 14
Campus Management of Infectious Disease Outbreaks

Melanie J. Bernitz, Michael P. McNeil, and Julie A. Casani

Introduction

Communicable and infectious diseases are no strangers to campus health services. These diseases can range from ongoing incidence of illnesses such as sexually transmitted infections, episodic events such as the common cold affecting many students with minimal overall impact, or a single case of meningococcal disease resulting in multiple students, faculty, and staff receiving vaccine.

College campuses are an ideal setting for transmission of communicable diseases. Students often live, study, and socialize in close quarters well within the 3–6 feet of personal space recommended by infection control practices. The demand of keeping up with course work in a fast-paced academic term makes students reluctant to "stay at home when sick." Diminishing vaccine rates and physiologic effects of the ongoing college epidemic of stress and anxiety may contribute to increased vulnerability to infections [1, 2].

The growing number of international students and study-abroad programs increase the likelihood of the importation of infectious diseases such as malaria, tuberculosis, and measles. A campus community is less isolated from the surrounding community than it has been historically. Students are more likely to live off-campus, have transportation off-campus, and work in academic-related internships

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or community locations than in the past [3]. These activities lead to blended biomes and more exposure.

During an infectious disease emergency on campus, a university's top priorities are to protect the lives, health, and safety of students, faculty, staff, visitors, and emergency responders while ensuring the security of, and mitigating damage to, the university. All colleges and universities should have a campus-wide infectious disease management plan as part of their emergency operations plan to allow review of necessary resources and action steps should there be a campus infectious disease outbreak. This plan should consider prevention, identification, containment, and control [4]. Prevention will include hand hygiene, social distancing, and cough etiquette. Identification and containment include identifying all community members at risk. Once a student is diagnosed, it may be necessary to contact anyone with whom they were in close contact: classroom contacts (including students, professors, and teaching assistants), social contacts (e.g., parties attended), residential contacts, clubs and organizations, and athletics. Control will require ongoing monitoring of spread, treatment of impacted community members, messaging, and other measures to reduce disease transmission.

General Concepts for Infectious Disease Efforts on Campus

Planning

Pandemic and outbreak planning are essential to a well-coordinated response and recovery. Many higher education institutions share emergency response plans that can be adapted to outbreak response. Resources for developing plans are available from the Federal Emergency Management Agency (FEMA) [5] and the U.S. Centers for Disease Control and Prevention (CDC) [6]. Plans should include 3 spheres of response: internal to Student Health, to the campus, and to the surrounding community.

An initial step is to complete a student health vulnerability and capability assessment to provide an understanding of what resources are available, what roles are expected, what limitations might exist, and what equipment might be needed urgently. Certain planning assumptions should be made that are realistic: vaccine supply may be limited, staff may be affected or not report to work, students may leave campus limiting demand but affecting the wider community, portions of the campus community may be more at risk, and staff and faculty may increase demands for services such as vaccines or prophylactic medicines. Coordinating with campus and community partners will define roles, responsibilities, and expectations. Participation in a college or university emergency management planning group will establish partnerships for essential resources. For example, if the decision is made to shelter students with communicable disease in their residence halls, dining services may be able to provide boxed meals, and facilities services may be able to

provide deep cleaning of communal restrooms and shower areas. Coordinating with the university or college communications office can result in the development of pre-formatted messaging and broadcasting systems that can be mobilized during an event. Community health care facilities will also be planning for outbreaks and may make assumptions about capacity at Student Health that is not realistic and vice versa. Managed by local and state public health departments, Health Care Coalitions exist that coordinate this planning, and colleges and universities are key members.

Staff training should occur regularly and may include the full spectrum of classroom introduction, table top exercises where key actions are discussed, and full-scale exercises with simulated patients. Each of these activities should be evaluated for the viability of the plan, and revisions incorporated in the next iteration. Most accreditation agencies require some form of emergency planning exercises and quality assurance programs. The campus health service can conduct these drills and exercises independently or participate in larger campus-wide or community exercises. Planning out a multi-year cycle of training and exercises can fulfill several of these requirements.

Legal and Policy Requirements

Each state has its own set of statutes over the implementation of vaccination laws. The CDC [7], in conjunction with other federal health agencies, makes recommendations to the states. Maryland's College and University Student Vaccination Act, passed in 2000, was one of the first and most sweeping vaccination laws for college students, specifically targeting bacterial meningitis. State legislators argued that college students live in such close proximity to each other that students without vaccines ran the risk of causing a campus-wide outbreak.

Most campuses have a policy regarding pre-matriculation requirements for students based on relevant state statute, best practices, and guiding professional organizations. These legal and policy requirements form the foundation for creating an environment where the first approach to addressing a number of potential infectious diseases is primary prevention. However, few campuses carry the primary prevention policy approach over to non-students (employees, visiting scholars, etc.). This gap, not usually addressed in state-level legal requirements, introduces unnecessary and avoidable risk to campuses.

At least 38 states have laws requiring meningitis education or, less commonly, vaccination. New York, for example, requires institutions with residence halls to provide information about the disease to students. In some states, vaccination may be required for all incoming students or for those who will live on campus. Twenty-one states have hepatitis B immunization requirements. States also have varying requirements on all other immunizations [8].

Legal reporting requirements when an infectious agent diagnosis occurs (generally to the local health department) also serve as a policy-driven opportunity to engage in primary prevention. At the first indicators of an agent that could cause

widespread illness, focus should include the prevention of spread and not just treatment of infected individuals.

However, even in the absence of a state law mandating distribution of information to students or vaccination, institutions can choose to do so voluntarily. There may be more inclusive requirements for students in certain schools, such as medical, dentistry, nursing, pharmacy, or veterinary programs. The American College Health Association (ACHA) Guidelines on Immunization Recommendations for College Students [9] provides a framework for an institutional immunization policy.

Diagnosis of an Infectious Disease

Before an infectious disease diagnosis is made, college health services should be prepared to contain infection. Consider signage to remind patients when to identify themselves to clinic staff as potentially contagious, such as when they have a fever, rash, or cough. Have masks available at medical service entry points. Design policies whereby students are immediately placed in isolation rooms to minimize spread to others in the common waiting area. Clinical staff should be trained in appropriate use of personal protective equipment (PPE) and the importance of hand hygiene. Cleaning protocols should be in place for exam rooms and common areas, before and after patient use, in alignment with accepted standards for infection prevention and control such as those recommended by the Occupational Safety and Health Administration Bloodborne Pathogens Standard 29 CFR 1910.1030 [10].

If a diagnosis requires laboratory confirmation, there must be a mechanism for testing and tracking results. Some tests occur in-house (such as rapid influenza testing), others go to a commercial laboratory (such as antibody testing), and others may only be done at a specialized site such as the CDC. In all cases, ensure that there is the capability for immediate notification of positive results so that timely follow-up and isolation can occur.

Coordination with Public Health Authorities

Health care providers are required to report all suspected or actual cases of certain diseases, infections, microorganisms, and conditions to local health authorities due to their public health risks. College health clinicians should familiarize themselves with the reporting requirements of their state and local health authority, including the ways to report (telephone, fax, online) and the timing of the reports. Through this reporting, once a group of cases is identified, public health officials may declare an outbreak, allowing coordination of response and allocation of resources. Public health authorities can also act as valuable resources to college health providers around non-reportable conditions or in the early stages of an outbreak. They can

assist in reviewing messaging and provide connections to other campuses or facilities that have had similar experiences.

Preventing Additional Cases

Once an outbreak is declared, mitigation of further spread is crucial, including widespread messaging on frequent hand washing, cough hygiene, social distancing, and not sharing drinks or utensils. Close contacts of those with the infection have the highest risk of developing disease, so special attention should be given to household and intimate contacts, classmates, and social contacts. In some cases, such as meningitis, antibiotics may be prescribed to eliminate carrier state and prevent further cases. There may be a recommendation to provide vaccination to reduce risk of further spread that might be implemented through a mass vaccination effort to a defined population.

A Point of Dispensing (POD) is a place where vaccines, antibiotics, and other medications or supplies can be quickly dispensed to a large number of people. This model has been designed to support situations such as an aerosolized anthrax release or pandemic influenza. Using a POD set-up model, a university or college can rapidly set up a "clinic" to vaccinate or provide medication to a defined population in a short time. The POD planning will allow identification of resources, staff, and supplies and will help direct flow to rapidly dispense the antibiotic or give the vaccine. These models have been used successfully on college campuses for mass vaccination efforts [11, 12].

Communications

Internal communications are important early in an outbreak. Ensure clinical staff are aware of possible patterns and are using disease surveillance methods to identify patterns early through clinical huddles and broadcast messages to share information. The designated medical director will communicate emerging patterns to others in the institution for decisions on broader communication strategies. Where possible, working with communications and health education/information experts is ideal as they will aid in editing messages and identifying dissemination routes.

External communications will be determined by the nature of the outbreak along with which campus units and external parties need to be informed. In order to ensure consistent information while protecting individual students' privacy, communications should be centralized and coordinated, with statements, scripts, and action plans. The designated medical lead at the university should be coordinating with local public health authorities around information that should be shared as part of a public health-declared outbreak. However, there will be internal university decisions around appropriate campus-wide communications or actions. These will need

to take into consideration students, faculty, staff, visitors, and families. Consider dissemination strategies such as campus-wide emails, student newspapers, social media, digital messaging, and posters, and potential use of the news media. During an outbreak, there should also be enhanced surveillance, including alerting local hospitals, urgent care centers, and other neighboring campuses.

Primary Prevention for Infectious Diseases

The primary prevention of infectious diseases is based in a combination of requirements, education, and action strategies, with a specific focus on populations with increased risk. While there may always be situations where campuses will be in a responsive mode, considerable attention should be given to primary prevention to mitigate risk and seek to prevent the introduction and spread of infectious diseases on campuses (Table 14.1) [13].

Immunizations and Tracking

One of the most effective strategies to prevent infections is the use of immunizations to facilitate immunity and protect the individual and community [14]. For decades college and university campuses have required or strongly encouraged immunizations against some of the most common and preventable illnesses (e.g., varicella, measles, influenza) [15]. In order to determine the appropriateness of immunizations as a primary prevention strategy, campuses need to review state-level statutory requirements, best practices, and recommendations from the Advisory Committee on Immunization Practices [16] and American College Health Association [9, 17].

Pre-matriculation requirements can be especially helpful in facilitating herd immunity against common infectious diseases that do not require annual

Table 14.1 Key primary prevention strategies

Ensuring students are immunized
Providing comprehensive education on reducing infectious disease risk
Enhanced efforts for sub-populations at greater risk
Hand washing to reduce the risk of influenza and other common agents
Covering a cough or sneeze
Anti-bacterial cleaning of common surfaces
Personal protective equipment
Location-appropriate cleaning

immunization (e.g., measles, mumps, and rubella [MMR]; varicella; and meningitis). For those agents that require annual vaccination (e.g., influenza), campuses should be offering continuing and heavily promoted opportunities to receive vaccines in a quick, convenient manner with little to no out-of-pocket costs to members of the campus community. Further, campuses should assess the levels of primary protection available via immunizations by collecting and maintaining data on faculty and staff as well. By having data on all regular populations on a campus, the tracking of prevention can be streamlined and incorporated into matriculation requirements. Tracking of exemptions that might be relevant is also critical so that timely notification happens in the event of an outbreak.

Education

Providing up-to-date, relevant, culturally competent health information to campus populations can be a key strategy in the primary prevention of infectious diseases. Since the acceptance of germ theory, education promoting sanitizing and primary protective behaviors has been commonplace. Laws exist that require key employee categories to receive continuing training on prevention strategies, such as food service workers and medical staff. College health staff should seek out ongoing opportunities to educate and remind campus populations of the value and benefit of primary prevention against communicable diseases.

Sub-population-Specific Prevention

There are a number of unique populations on a campus where specific primary prevention activities provide necessary protections against infectious disease risk. Campus health officials should review and consider appropriate additional measures to complement the population-level primary prevention strategies.

Athletes Considerations include skin-to-skin and surface exposure considerations for primary prevention. Both intercollegiate and intramural athletes should be part of the prevention approach with additional warranted athletic-specific education and cleaning strategies [18].

Health Sciences Students Additional immunizations (e.g., rabies for veterinary students; hepatitis A & B for medical students), trainings in the use of personal protective equipment (PPE), hand washing, and other strategies may be appropriate [17].

Laboratory Considerations Students and staff working in laboratory settings should be regularly educated regarding the prevention of disease transmission. This includes individuals working with infectious agents as well as those working with animals where zoonotic illnesses may be a consideration. Workforce and Environmental Health and Safety teams may be key partners.

Residential vs. Non-residential Students Residential living arrangements vary, and campuses may need to focus on and disseminate messaging regarding the primary prevention of infectious disease. Partners may include on- and off-campus housing offices.

Recent Outbreaks on Campuses

While not all recent outbreaks are reflected here, these examples serve to illustrate the reason campuses should invest heavily in prevention and planning. Contemporary factors such as student mobility (including international travel), concerns around vaccination rates, and widespread misinformation serve to complicate the work on campus professionals in preventing, identifying, managing, and treating infectious agents on campuses.

Hepatitis A/Norovirus

Campuses often report an outbreak of norovirus with multiple students presenting with diarrhea and vomiting. There may be the need for cleaning of dormitories, bathrooms, and common areas. Hand sanitizer can be distributed in dining halls, libraries, and computer labs. Athletic facilities may need to be closed for special cleaning.

Measles

Several campuses have experienced recent measles outbreaks, with large-scale exclusions of students, faculty, and staff until immunization records could be verified. The UCLA and Cal State LA experiences in 2019 received widespread media attention because of the volume of people excluded from campus, despite the lower number of confirmed measles cases. With a generation of students that may not have been vaccinated, variable state requirements and exemption opportunities, and a number of widespread outbreaks in non-higher education communities, campuses are scrambling to determine the best way to minimize risk and update infectious disease plans [19]. Further, studies suggesting measles illness results in compromised immune protection against other diseases are a cause for potential concern.

Meningococcal Disease

Since 1998, the CDC has conducted surveillance for meningococcal disease in college students [20, 21]. Studies in the United States and United Kingdom show increased risk of disease among those living in a residence hall, first-year undergraduates, drinkers, and persons with upper respiratory tract infections [22–24]. Recent student deaths from bacterial meningitis have occurred at institutions including Texas Southern University and the University of South Florida. The intensity of disease and fatalities have resulted in significant media attention and fear. Since 1997 ACHA has been recommending education and vaccination, including more recent considerations surrounding outbreaks of meningitis B on campuses (including among non-residential graduate students). Meningitis B is now the leading cause of meningococcal disease among 16- to 23-year-olds in the United States, with college students at increased risk [25, 26]. The Advisory Committee on Immunization Practices recommends that all healthy adolescents and young adults (16–23 years) may be vaccinated, and adolescents and young adults at increased risk due to a medical condition (e.g., immunocompromised) or during a meningitis B outbreak should be vaccinated [27]. Colleges should individualize these recommendations to their campus.

Methicillin-Resistant Staphylococcus Aureus *(MRSA)*

Dozens of colleges and universities have experienced methicillin-resistant *Staphylococcus aureus* (MRSA) outbreaks, most commonly in contact sports such as football and wrestling. Rarely, there are associated fatalities. More typically, multiple team members will develop MRSA. The CDC has issued useful guidelines and posters for athletics programs on preventing and managing MRSA infections (see list of resources at end of chapter) [7].

Mumps

A number of outbreaks on college campuses, including the 2019 Temple University outbreak, have been part of the 5000–6000 cases of mumps reported each year [28]. While rarely fatal, mumps is highly disruptive to students and the learning environment. Considerations for addressing mumps on campus include assessing living situations, learning settings, social density for transmission risk, as well as behavioral attributes that facilitate transmission of pathogens in respiratory or oral secretions [20].

Pertussis

In December 2007, a southern university had an outbreak of pertussis. Nearly 100 people had symptoms of the disease: 12 cases were medically confirmed, 50 cases were suspected, and an additional 50 people had at least 1 symptom [29]. The university provided vaccinations, testing, and antibiotic prophylaxis to students. To reduce further transmission, the fall semester was ended a week early, and large-scale public events were canceled. Another university noted an increase in the number of students presenting to the health service with prolonged cough, and found 13% met the case definition for pertussis [30]. Pertussis presents with persistent, paroxysmal cough lasting for up to 3 months or longer. It is highly contagious and is spread by respiratory droplets, but is preventable by vaccine. Antibiotic treatment and prophylaxis are effective.

Seasonal Influenza and H1N1

Each year campuses spend significant resources to promote and provide vaccination against seasonal influenza. Most years feature circulating flu that matches the vaccine, though the widespread impact of the H1N1 virus in 2009 demonstrated the need for additional action. The CDC estimates that more than 60 million cases and 12,000 deaths resulted during the 2009 pandemic outbreak [31]. Lessons learned from 2009 included concerns around missing class, the role of health care providers in encouraging vaccination uptake, promoting vaccination as self-protection and a social responsibility, and using positive messages to promote prevention. College students lack knowledge about vaccine safety, effectiveness, and necessity [32]. As such, educational and outreach campaigns on campus can increase vaccine uptake.

Tracking of Immunization Exemptions

Even in states or schools with mandatory vaccination requirements, there likely will be students who receive exemptions, both medical and non-medical. Medical exemptions are always allowable, but medical documentation should be verified. This exemption should be recorded in the student's medical record and in the school's student information system, with an appropriate timeframe for expiration of the exemption. Some medical exemptions are lifelong and can be recorded as such, while others will have a time limit (such as pregnancy or during treatment of a specific condition). Systems should allow notification once the medical exemption has expired to ensure the student then completes the required vaccination series.

Non-medical exemption allowance may vary by state and school, with some schools choosing requirements that are more stringent than state requirements. Schools should define their allowance or non-allowance of religious and philosophical exemptions, and the required documentation and review process, expiration dates, and mechanisms for requesting a renewal. Similar to medical exemptions, any allowed non-medical exemption should be recorded in the school's information system. Each school should have in place a process for identifying students who have not completed a vaccination series and thereby be able to rapidly identify them in case of a campus outbreak.

Any student who has a vaccine exemption should be advised to have laboratory titers drawn, where possible, to evaluate their immunity to certain diseases. With negative or unknown titers and non-vaccination, students will be assumed non-immune to that disease. As such, the student should be notified at the time that their exemption is granted that they will be excluded from campus should there be an outbreak of the disease to which they are not immune in order to protect them and the campus community. These campus exclusions can last for a prolonged period (a month or more) and negatively impact their academic success.

Isolation or Quarantine of Impacted Students

Both isolation and quarantine are common practices in public health to control exposure to infected or potentially infected individuals. Isolation separates people known to have an illness from healthy people and restricts their movement to stop the spread of that illness. Quarantine applies to those who have been exposed to an illness, are suspected to be susceptible to infection, but who may or may not become infected and are not yet ill. Quarantine is intended to protect the public from the disease. Both may be undertaken voluntarily or be required by public health authorities if there is a considerable public health threat.

In many cases, the decision to isolate or quarantine a student or students is made by the campus health service acting on the guidance of the local health department. The type of infection and the stage of disease at diagnosis will determine the length of the isolation period.

Students may be isolated at home, in a residence hall or a university-owned apartment, or in a hospital if their clinical status is severe. Students with the same diagnosis can be isolated together. Administrators should regularly monitor options and capacity for isolation on campus in case of a large outbreak. Students who are on isolation or quarantine will potentially have food delivery and transportation needs; administrators should work with colleagues in dining and transportation services to have contingency plans in place. Staff who will be in contact with the isolated student should be provided with a mask to reduce chance of infection.

Coordination with Academic and Other Departments

For students missing class due to an infectious disease, provisions will need to be made for missed work. It may be possible to set up remote access to classrooms and online work where possible, to minimize the negative academic consequences of missed time from school. Similarly, this may be the case for non-immune students who are excluded from campus during an outbreak.

Cleaning and disinfecting protocols should be regularly reviewed with facilities staff to ensure that appropriate cleaning agents and "high-touch" cleaning service are available. In clinical areas, exam rooms should be cleaned before and after each patient with an Environmental Protection Agency (EPA)-registered tuberculocidal disinfectant.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Campus health systems should collaborate with campus and community partners to integrate plans, identify roles, and leverage resources.	Clinicians should be knowledgeable of infectious disease plans and actively participate in drills and exercises.
Review state and campus immunization requirements	Actively review student vaccination records to encourage proactive immunization at every visit
Ensure proper immunization compliance mechanisms	Understand and follow state-reporting requirements
Facilitate and support comprehensive prevention efforts	
Ensure an updated emergency response plan and facilitate annual drills	

Conclusion

Addressing infectious diseases on a college campus is centered on planning, prevention, and rapid response with good communication across all areas. Regardless of the infectious agent, the management of information spread, including misinformation, must be part of every campus plan. Having plans in place, and running periodic table top drills, can help a campus ensure proper preparation for any issue. Further, ensuring that prevention plays a primary role, and following the appropriate legislative requirements, will help campuses reduce the likelihood of having to manage a widespread disease outbreak.

Student Take

Campus police were notified at 2 AM that several students from a single residence hall were going to a local Emergency Department for vomiting and diarrhea. All attended a party at the campus union 2 days ago. An Incident Management Team was established by Student Health, Dining, Housing, and Campus Media. Students in the residence hall were advised to stay in their rooms where simple care packages (soup, crackers, and juice boxes) were provided. Deep cleaning of restrooms and public areas in the residence hall were conducted twice a day. Messages were sent out via email, student media, text messaging services, and campus social media. Attendance excuses for the involved students were sent to all course instructors. The local health department assisted with expedited cultures, a food survey for the party, and the inspection of food handling at the student center. Twenty-seven cases were found – all residents of the single residence hall and all who attended the party. The diagnosis of norovirus was confirmed and no secondary cases were identified.

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Recommended Readings and Resources

General

Immunization Recommendations for College Students. American College Health Association. https://www.acha.org/documents/resources/guidelines/ACHA_Immunization_Recommendations_Oct2018.pdf.

Ready Campus. Federal Emergency Management Agency, US Department of Homeland Security. https://www.ready.gov/campus.

Zombie Preparedness. US Centers for Disease Control and Prevention. https://www.cdc.gov/cpr/zombie/index.htm.

Points of Dispensing (POD)

Association of State and Territorial Health Officials (ASTHO) & National Association of County and City Health Officials (NACCHO). Extended medical countermeasure distribution and dispensing considerations for anthrax incidents version 1.0. https://www.astho.org/uploadedFiles/10_Programs/Preparedness/FINAL-NACCHO-ASTHO-MCM-report.pdf

Centers for Disease Control and Prevention. Point of Dispensing (POD) standards. https://www.cdc.gov/cpr/documents/coopagreement-archive/fy2008/DispensingStandards.pdf.

Centers for Disease Control and Prevention. Receiving, distributing, and dispensing strategic national stockpile assets: a guide to preparedness, version 11. https://www.orau.gov/sns/v11/ReceivingDistributingDispensingSNSAssets_V11.pdf.

Influenza

Free Course: Influenza Pandemic Preparedness and Response in Ambulatory Settings. The Joint Commission. https://www.jointcommission.org/issues/article.aspx?Article=CqGqvWEpIu0gZFcHUsMa4zmYMjOCG6O4%2FRu1JHjE39E%3D.

Influenza Planning and Preparedness Resources. US Centers for Disease Control and Prevention. https://www.cdc.gov/flu/pandemic-resources/planning-preparedness/index.html.
Influenza Public Health Preparedness. World Health Organization. https://www.who.int/influenza/preparedness/en/.
Pandemic Influenza Plan: 2017 Update. US Department of Health and Huma Services. https://www.cdc.gov/flu/pandemic-resources/pdf/pan-flu-report-2017v2.pdf.
National Strategy for Pandemic Influenza: Implementation Plan. US Homeland Security Council. https://www.cdc.gov/flu/pandemic-resources/pdf/pandemic-influenza-implementation.pdf.

Measles

Measles Awareness Toolkit. National Foundation for Infectious Diseases. https://www.nfid.org/toolkits/measles-awareness-toolkit/.

Mumps

Mumps Social Media Toolkit: Don't Let Mumps Ruin Your Fun. American College Health Association. https://www.acha.org/ACHA/Resources/Mumps_Toolkit.aspx.

Methicillin-Resistant Staphylococcus Aureus (MRSA)

Factsheets & Posters for Parents, Athletes, and Clinicians. US Centers for Disease Control and Prevention. https://www.cdc.gov/mrsa/community/posters/index.html.

Meningitis

Recommendations of the Advisory Committee on Immunization Practices (ACIP). Meningococcal disease and college students. https://www.cdc.gov/mmwr/preview/mmwrhtml/rr4907a2.htm.

Chapter 15
Immunization Compliance Management

Heather Spencer

Introduction

Vaccines are an important component in the public health mission to reduce illness and disease. Vaccines provide individual protection for those who are vaccinated and can also provide protection at the population level by reducing the spread of disease. For these reasons, many states and universities require students to have certain immunizations to enroll. With this requirement comes the clinical and administrative challenge of ensuring all students are compliant, while making the process as easy as possible for students.

Importance of Immunization Compliance

Ensuring students are immunized when they attend college is important for 2 primary reasons: risk and impact. Students in a university or college setting are often at greater risk of acquiring a transmittable disease due to lifestyle. Campus living includes many students in residence halls, dining facilities, social gatherings and classrooms. Students being in such close contact with a large number of other people in shared spaces increases the opportunity to spread infectious diseases. The spread of disease on college campuses has been witnessed in recent years, with several vaccine-preventable outbreaks [1]. In addition to the risk of an outbreak and the impact they have on the population, the impact on the individual can be seen as well. A study found that students who were not immunized for the flu were less likely to perform well academically and more likely to miss class [2].

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Immunization Requirements by State

Immunization requirements differ greatly by state. Some states require students to have a comprehensive list of immunizations, some require selected immunizations, while others have very few requirements. Some examples of the differences between states in different regions of the country can be seen in Table 15.1 [3–7]. In addition to what immunizations are required, states differ on which students in their population should have the required immunizations. Often this is determined by how many course credit hours a student is taking and whether or not the classes are on campus or distance education courses. Individual colleges and universities can require vaccines that are not required by their state's immunization law, and can suggest or recommend additional vaccines for college entry.

Following the Law

As medicine and technology advance, state laws may not be up-to-date with current practices. Many health care organizations have moved to using electronic health records (EHRs) and patient portals. Patient portals are online applications that allow patients to view their medical records, schedule appointments, and communicate with their healthcare providers, medical practices, and hospitals. This allows students to access immunization documentation online without requesting information from their health care provider or health care entity. This ease of access certainly

Table 15.1 Minimum state vaccine requirements: X = Required, O = Recommended

	California [3]	Colorado [4]	New York [5]	North Carolina [6]	Texas [7]
DTap/DTP/Td (Diphtheria/tetanus/pertussis or tetanus/diphtheria toxoid)	X	O		X	
Tdap booster		O		X	
Polio		O		X	
Measles, mumps, rubella (MMR)	X	X	X	X	
Measles	X	X	X	X	
Meningococcal ACWY	X	X	X		X
Meningococcal B		O			
Mumps	X	X	X	X	
Rubella	X	X	X	X	
Hepatitis A series		O			
Hepatitis B series	X	O		X	
HPV (human papillomavirus)		O			
Influenza		O			
Varicella	X	O		X	

takes some of the burden off the student, but can create issues for schools when following current laws for required components of an immunization document. Some state laws require immunization documentation to show the signature or stamp of a physician, or his/her designee, as well as the address of the physician practice. Patient portal documents usually do not contain this information, although they usually do list the portal Web address. As more and more healthcare organizations rely on patient portals, it can be difficult, if not impossible, for students to obtain records with all the components required by law. This leaves colleges and universities with the issue of having to decide to follow current laws or make exceptions related to this advancement in technology.

There are times when the law does not reflect the current medical recommendation. An example of this is when a state requires 1 dose of the varicella vaccine, while the U.S. Centers for Disease Control and Prevention (CDC) recommends 2 doses to prevent chickenpox [8]. In this case, the college or university can choose to follow the law or require the second dose as a university requirement to ensure ideal immunity. Occasionally there are discrepancies between the CDC-Advisory Committee on Immunization Practices (ACIP) and state laws regarding the recommended minimal interval of immunization administration. From a legal perspective the law overrules the recommendation, but every case should be evaluated. In reviewing and making a decision on how to follow a state law, universities can reach out to their state immunization branch for guidance. It is also recommended that university administration and legal counsel are both involved in any decisions.

A concern for some students is that vaccines required for college entry were not available or required when the students received their childhood vaccines. In these cases, if additional immunizations are required by law, students need to obtain the vaccine(s) to become compliant.

Review Process

The burden on colleges and universities to review immunization documents can be heavy depending on the size of the organization and the state's and school's immunization requirements. Creating a streamlined process for submitting and reviewing immunization records benefits the organization and the students.

There are multiple ways students can submit immunization documents: email, mail, fax, drop-off, and uploading documents to a patient portal. There are several electronic health records (EHR) on the market that are specialized for student health that provide immunization compliance modules. Utilizing an EHR and reducing or eliminating paper processes can increase efficiency, but also cost.

Staffing models to ensure student immunization compliance differ across colleges and universities. The number of immunization compliance staff needed is in large part due to the number of students at a school and if the process is primarily a paper process or an electronic process. The type of staff utilized also differs by school. Some schools utilize nurses to review records and communicate with

students regarding compliance status. Other schools use administrative staff to review records and tap into nursing and/or provider expertise for specific clinical questions. A third option is to outsource this review process to a third-party immunization compliance company or to an EHR company that offers this service. Schools outsource immunization compliance for different reasons. Small schools may not have the volume of immunization records needing review to justify hiring a staff member, or staffing may be slim and there is no bandwidth for the current staff to take on these duties. Large schools may consider outsourcing because they will need to hire several staff members to manage the immunization compliance process and outsourcing is less expensive than hiring multiple staff. Schools may also choose to outsource if they have an EHR that does not have an immunization compliance module. Separate immunization compliance software can be purchased, but usually requires double entry of immunization data in the clinical EHR and the immunization compliance system. Due to this and the cost of the additional software, some schools opt to outsource.

Assisting Students in Reaching Compliance

Assisting students in reaching compliance can be challenging and seem overwhelming when faced with hundreds or even thousands of new students (freshmen, transfer, international, study abroad, graduate) each semester. The immunization needs of international students are often greater than those of domestic students, so if a school has a high percentage of international students, the immunization review process can be substantial. For all students, communication is key when trying to achieve campus immunization compliance. The first step in communication is making sure students know what immunizations are required and the process to submit their immunization documentation before they arrive on campus. Partnering with other campus departments who interact with new students is a great strategy to increase student awareness of immunization requirements and thus compliance (Table 15.2).

In addition to campus partners, student health staff play an important role in assisting students to achieve compliance. Often students submit records that are incomplete. As the deadline for compliance gets closer, immunization staff can reach out to those students who have not submitted documents or submitted incomplete documents to remind them of the requirement. Students and parents often have questions about what is required, as well as questions about their immunization compliance status. Having a way that students and parents can reach out and ask questions is helpful and can ease frustration. An immunization email account and/or phone line are both streamlined ways incoming students can send questions to immunization compliance staff. Ensuring that emails and voicemails are responded to by the end of the next business day helps reduce parent and student frustration.

Table 15.2 Opportunities to partner with other campus departments

Admissions	Immunization compliance requirements and submission information can be included in admissions packets and other pre-enrollment communications.
New Student Orientation and Programs	Orientation is a great time to include immunization compliance requirements and information. Student Health staff can present immunization compliance information and/or be available to answer questions about immunization requirements at student and parent orientation and informational fairs.
Registration and Records	Once students have registered for classes, Registration and Records can send students reminder emails or letters about immunization requirements. These reminders can be sent at key times: after the student registers; 1 month before classes start; during "Welcome to Campus" week; 1 week before immunization documentation is due; and 1 day before immunization documentation is due.
Campus Housing	Housing can include the importance of vaccinations and immunization requirements in housing materials sent to new students.
International Student and Study Abroad Offices	Immunization requirement information can be included in pre-matriculation information. International student immunization clinics hosted by student health are helpful when international students arrive on campus. This is especially beneficial when there are required vaccines that international students cannot obtain in their home country. These clinics are most effective when coordinated with the campus international student office and held during international student orientation before the start of classes.
Athletics	On many campuses, athletes arrive earlier than other students for training and practice. Communication with athletic trainers and coaches about which athletes still need vaccinations can help increase the compliance rate in this student population. Athletic vaccination clinics can also be coordinated at the athletic facility to capture multiple sports or at individual team practices. These clinics can be held during the summer before classes start or at the beginning of the semester and then again as targeted flu vaccination clinics later in the fall.

Social media can be utilized to not only get information out, but also to answer student and parent questions or direct them to someone who can help. Some colleges encourage parents to follow the student health center on social media so that they are aware of upcoming deadlines to help remind their student. To expand the reach of social media posts to students, health centers can ask other campus departments and organizations, such as Parents and Family Services and Student Government, to share posts.

Enforcing Requirements

There are generally 2 times to enforce state-mandated immunization requirements: before student entry and after student entry. Requiring students to comply with all immunization requirements before student entry gives the students less time to

submit records and become compliant, but ensures that students arriving to campus have been immunized. This can be enforced by not allowing students to register for classes or access on-campus housing without proof of immunization compliance. Enforcing immunization requirements after students come to campus gives students more time to retrieve documents and immunizations, but does result in students being on campus for a period of time without the required immunizations. Once the compliance deadline has passed, schools can enforce immunization compliance in various ways: dropping students from their course schedules; placing student accounts on hold (limiting their ability to register for the next semester's classes and/or use campus amenities); charging a late or reinstatement fee; and even reporting students to the Dean of Student Conduct Office.

Obtaining Records

Tracking down evidence of immunizations can be challenging for students. If a student or their parents do not have their immunization records, students can check with their current and past health care provider, county health department, high school, previous college or university, past employer, military branch or their state's immunization registry. Sometimes it is not possible for students to find childhood immunization records. International students may come from countries where common United States immunizations were not recommended or not available. For example, the Hepatitis B vaccine has never been required in France, and in 1998 the French government stopped offering this vaccine to students who wanted it [9]. Students who cannot obtain the required vaccinations in their home country must get vaccinated when they arrive in the United States. Student Health can assist with this by providing the vaccines directly or giving the student a list of local resources where the vaccine is available, such as retail pharmacies, travel clinics, and the local Health Department.

Obtaining vaccination records can be an issue for non-traditional adult students as well. Some do not know where they received their childhood vaccines and others find that they are no longer able to contact the medical practice through which they received their vaccines.

Titers as Proof of Immunity

For certain diseases in which students cannot produce evidence of prior vaccination antibody titer blood tests can be performed. Titers identify the number of antibodies in a person's blood, telling a provider if a person is immune to a disease. For other diseases, titer blood tests are not available and the student will need to be revaccinated (Table 15.3) [10–19].

Table 15.3 Vaccines/diseases where titers can be used versus those that require revaccination

	Titer	Revaccination
DTap/DTP/Td (diphtheria/tetanus/pertussis or tetanus/diphtheria Toxoid) [10, 11]	X	
Polio [12]	X	
MMR (measles, mumps, rubella) [13]	X	
Measles [13]	X	
Meningococcal ACWY [14]		X
Meningococcal B [14]		X
Mumps [13]	X	
Rubella [13]	X	
Hepatitis A series [15]	X	
Hepatitis B series [16]	X	
HPV (human papillomavirus) [17]		X
Influenza [18]		X
Varicella [19]	X	

Exemptions

Most states have laws that allow for medical, religious, or philosophical exemptions from immunization compliance.

Medical Exemptions

Medical exemptions usually require physician-signed documentation of the illness or condition that precludes the student to receive the required vaccine. Some states require that the physician signing the documentation be licensed in the state, which is often a challenge for students coming from another state or country. Many states provide a clearly defined list of conditions that are eligible for immunization exemption; requests for exemptions for conditions not on that list usually require approval from the state medical director.

Non-medical Exemptions

Non-medical exemptions include both religious and personal belief exemptions.

Religious exemptions allow students to opt out of receiving vaccines if doing so goes against their faith or religious beliefs. Very few religious groups prohibit vaccinations as a part of their faith. The most common in the United States are Christian Scientologists and the Dutch Reformed Church.

A personal or philosophical belief exemption allows students to opt out of receiving vaccines if this goes against their personal beliefs about vaccines. A primary reason that students use personal belief exemptions is concern around vaccine safety. In 2019, 45 states and Washington D.C. allowed religious exemptions and 14 states allowed personal belief exemptions to be used in the college setting [20]. In some cases, exemptions can be submitted for select immunizations but not others. In the state of Virginia, students can receive a personal exemption for the human papillomavirus (HPV) vaccine but cannot submit a personal exemption for other required vaccines [20]. Documentation required for religious and personal belief exemptions range from a statement from a religious leader to a statement from the student or student's parent if the student is a minor. All exemption documentation is submitted to the college or university in lieu of vaccine documentation. The American College Health Association (ACHA) recommends counseling by a health service clinician for those students who request non-medical exemptions [21]. While this recommendation is well intentioned, there are challenges in implementing this as policy. The staffing resources needed to contact students and meet with them individually can be limited depending on the number of students who submit non-medical exemptions. Decisions also need to be made around the consequences of a student not attending a counseling session and if these students would be considered non-compliant.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Engage campus partners to help communicate immunization requirements	Establish a relationship with a contact at the local health department
Develop a standardized process for the submission and review of immunization records	Assign a provider point person for immunization compliance to ensure review consistency
Develop a tracking system to monitor immunization compliance of incoming students	Attend local and state health department meetings and conferences to keep up-to-date on relevant information
Establish a relationship with a member of the state immunization branch	

Conclusion

Immunization compliance management is an important part of the college entry process for public health and individual student health reasons. Following state immunization laws and determining if additional vaccinations are needed is the first

step to an immunization compliance plan. Once immunization requirements are determined, establishing a clear process for students to submit immunization documentation and for the review of documentation is essential for compliance management. Effective communication of the requirements and the documentation submission process aid in getting students to comply with requirements in a timely manner.

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Recommended Readings and Resources

Immunization Action Coalition – State Information. https://immunize.org/states/.

CDC – SchoolVaxView. https://www.cdc.gov/vaccines/imz-managers/coverage/schoolvaxview/groups/college.html.

American College Health Association – Vaccines and Immunizations. https://www.acha.org/ACHA/Resources/Topics/Vaccine.aspx.

Chapter 16
Nutrition Services

Franca B. Alphin and Toni Ann Apadula

Introduction

Nutrition services are provided as an integral component of Student Health (SH) at many universities. Such services can also be located or co-located in Dining Services or other university departments such as Health Promotion or Wellness areas. Nutrition services supports the SH medical providers in offering further assessment and evidence-based nutritional treatments as well as strategies for students presenting with conditions, issues such as diabetes, irritable bowel syndrome, ulcerative colitis, eating disorders, polycystic ovarian syndrome (PCOS), obesity, and weight management, among others.

In addition, nutrition services provide education to students wishing to learn more about current dietary trends or those wishing to make improvements or changes to their diets, perhaps going more plant based or even vegan. With the enormous amount of often-conflicting information available via the Internet, it is important to have registered dietitians (RDs) or other nutrition experts available to help dispel the confusion.

Nutrition Assessment

An evaluation of a person's nutritional status and concerns can be undertaken in a myriad of ways, and none are perfect. People tend to forget what they eat and are not very reliable when recounting portion sizes. Due to time constraints, using a

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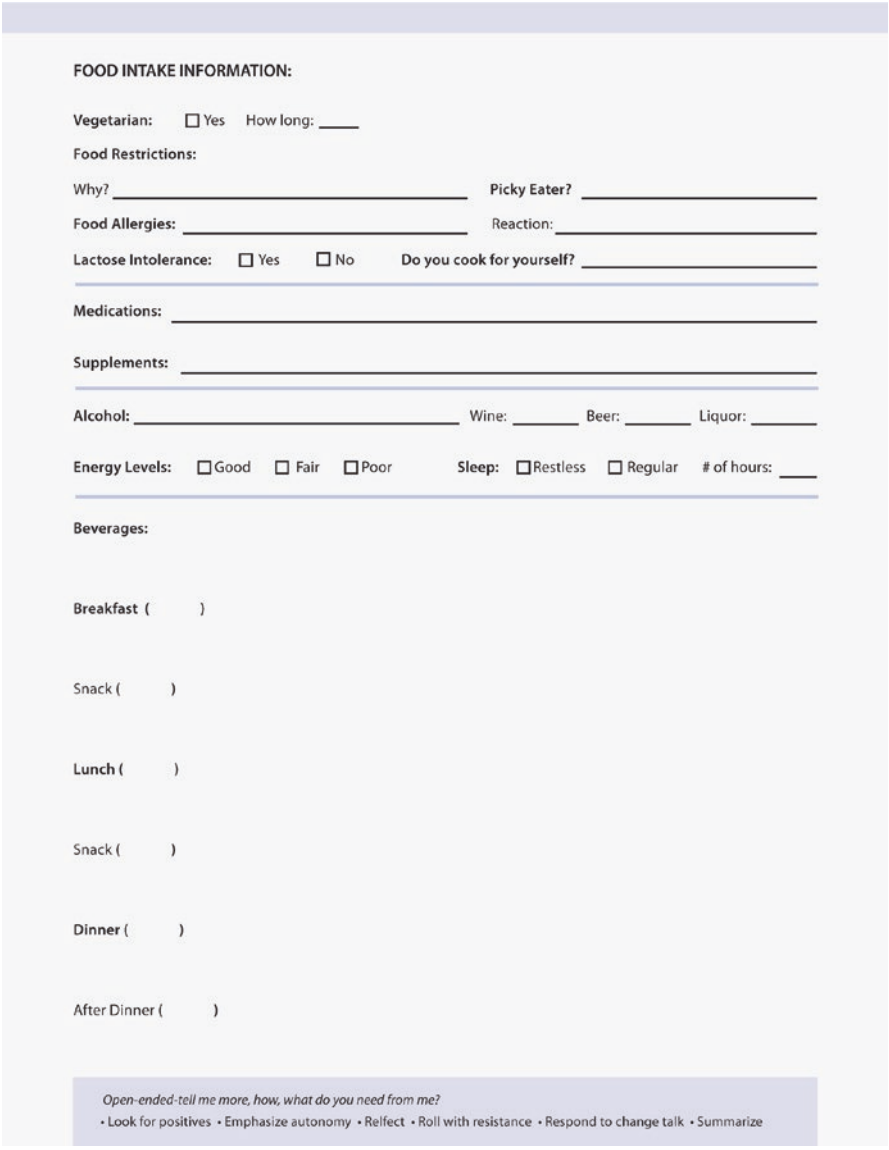
food frequency questionnaire (where one is asked how often or frequently certain foods are eaten) is not realistic. Most often, nutrition assessments resort to just asking the student/patient to recount what might be a typical day's intake, recognizing that no single day can be completely representative. In addition, asking about weekend intake is helpful, as weekends are often different from weekdays in terms of dietary habits. Figure 16.1shows a sample form that one could use for



FOOD INTAKE INFORMATION:

Vegetarian: ☐ Yes How long: ____

Food Restrictions:

Why? _____ **Picky Eater?** _____

Food Allergies: _____ Reaction: _____

Lactose Intolerance: ☐ Yes ☐ No **Do you cook for yourself?** _____

Medications: _____

Supplements: _____

Alcohol: _____ Wine: _____ Beer: _____ Liquor: _____

Energy Levels: ☐ Good ☐ Fair ☐ Poor **Sleep:** ☐ Restless ☐ Regular # of hours: ____

Beverages:

Breakfast ( )

Snack ( )

Lunch ( )

Snack ( )

Dinner ( )

After Dinner ( )

Open-ended-tell me more, how, what do you need from me?

• Look for positives • Emphasize autonomy • Relfect • Roll with resistance • Respond to change talk • Summarize

Fig. 16.1 Example nutritional assessment form

assessing intake as well as other health habits. At the bottom of the form are examples of some open-ended questions, encouraging the patient to share more information.

In general, while a form such as this might be helpful to start a conversation, more useful information can be gleaned through engaging the student in a more relaxed discussion.

In addition to dietary items, it is also important to inquire about sleep habits (hours and quality), physical activity (type of activity, duration and frequency), supplement use, as well as herbal supplements, food allergies, alcohol intake, and substance use. Rarely is a nutrition visit just about nutrition. If there is any discomfort on the provider's part to ask questions that may not directly relate to nutrition, consider prefacing the question with an educational statement such as: "Did you know that poor sleep can impact eating habits, which in turn can affect weight? How is your sleep?"

Upon completion of a dietary assessment, focus can turn to the issues that appear most pressing such as chaotic meal timing, nutritionally poor-quality meal choices, skipping meals, or inadequate or low-quality carbohydrate intake, just to name a few. Commonly heard statements from students/patients that might wish to conseal their engagement in some unhealthy practices are presented in Table 16.1 along with some ideas on follow-up or possible interpretations of these statements.

Table 16.1 Dietary assessment "red" flags – catch phrases

Student catch phrase/red flag	Dietary assessment
"I want to gain weight"	Although this sounds promising, it's often more to appease others' wishes than actually desiring to gain weight. Follow with, "Can you describe to me what you've done to try to gain weight?"
"I eat 'healthy'"	Ask the student to define what "healthy" means to them as this usually refers to "high volume" eating – lots of fruits and vegetables, but relatively low calorie intake. If starches such as grains, pasta, and potatoes are missing, then this student is most likely restricting. This scenario would apply to fat and sugar as well. Although many Americans over-consume breads, grains, and starches, having none of these categories of foods is also not a sign of healthy eating.
"I'm a picky eater"	Very convenient way to restrict. Even picky eaters can maintain a healthy weight.
"I've become vegetarian (or vegan or gluten free)"	Although this can be a healthy change, it may also be another convenient way to restrict. A good follow-up question is, "Can you share with me what may have prompted your decision to do that?" Is the student wanting to lose weight?
"I've tried to gain weight but can't"	This statement may mean that the student hasn't really tried or that he/she really doesn't know how to do it. Students/patients are often unaware that consistency in meal timing and food quantity is key to steady weight gain, and this can be a real challenge for some.

Upon dietary assessment (24 hours), areas of concern might not be readily apparent to the provider. Here are some quick tips on what one might look for or areas needing to be addressed:

- Student eats very little fat, very few starches, and lots of fruits and vegetables.
  - Restrictive eating – trying to save calories
- Meals, snacks are often not well balanced – just an apple or a piece of string cheese rather than combining the protein and the carbohydrate.
  - Combining nutrients such as protein and carbohydrate makes for more sustained blood sugar levels and therefore more energy throughout the day. Can also help minimize "sugar cravings."
- Resistance to eating between meals: "I don't snack" or don't like to snack – often too "messy."
  - Ask for additional details as this may be someone who is more "controlling or rigid" around food, thereby missing out on the benefits of well-balanced, structured snack options. She/He may have a tendency to overeat and/or lose control, and keeping eating to meals only makes control appear easier but not always more beneficial. Snacking can be very helpful if done properly. Many interpret "grazing" as snacking and the two are different. Grazing is a more mindless act of just grabbing what is around whereas snacking is intentional, timed, and proportioned eating.
- Noting that meals/snacks are spaced haphazardly throughout the day: "I usually don't eat the next morning if I have had a large dinner the night before." "I exercise to burn off the calories."
  - Compensation/guilty talk may represent a great deal of judgment or punitive behavior around food, which can be a sign of disordered eating.
- High food volume, but relatively low in energy density: "I exercise a lot and just can't keep up with my food."
  - There should be no reason that one can't maintain or even gain weight, regardless of exercise, with a well-timed and well-crafted meal plan.
- Lacking in adequate protein
  - This problem could be due to lack of knowledge, being a picky eater, or other reasons, but is something that needs to be addressed.
- Predominately fast food, refined foods, and high in sugars and sodium
  - Wonderful opportunity to assess the student's knowledge of impact of nutrition on health.

In addition to conversational and dietary red flags, here is a list of physical complaints that might be mentioned or assessed during the meeting that can have a nutritional component to them.

- Recent weight loss – This alone is not necessarily a sign of an eating disorder. Many things may contribute to weight loss such as untreated depression or anxiety. Weight loss needs to be followed up to assess its etiology.
- Low energy/tired during the day – Could be a sign of low energy intake, iron or vitamin D insufficiency, any of which could increase apparent symptoms of depression or anxiety.
- Feeling cold all the time – Could point to lower metabolic rate related to low energy intake
- Dizzy when standing up – May point to low blood sugar or low blood pressure related to low energy or inadequate carbohydrate intake or low fluid/salt intake.
- Discussion of food or calories during the meeting - i.e thinking about food all the time – Hunger, obsessive thoughts, restriction.
- Irregular or absent menstrual periods – Insufficient, consistent inadequate energy intake (perhaps low fat or protein intake), over-exercising.
- Low pulse/heart rate – Insufficient energy intake (it is not a sign of an athletic heart in these clients). Often the only sign of significant restriction in conjunction with recent weight loss. Lab work is often normal.
- New or unexplained gastrointestinal (GI) upset or constipation – May be a sign of the body slowing down and reduced peristalsis due to possible energy restriction. These symptoms often make restriction worse as clients try to manipulate diet to find relief. May also relate to increased fiber intake or change in activity.

Lastly, ascertaining an element of social history is also important. Areas of concern regarding the possibility of unhealthy or disordered eating habits may present in conversation with discussion of:

- Eating differently when alone than when with others.
- Not eating with others, avoiding social situations around food.
- History of strong family criticism about weight or body shape.
- Having a parent who has not recovered from his/her own “eating issue.” Usually presents as a parent who is overly obsessed with “fitness” or “weight.”
- Overweight as a child with history of dieting attempts that may or may not have been successful and lives with fear of gaining weight.

If these types of comments or statements are shared, further discussion to clarify what is meant is warranted. If the patient is amenable to the idea, any of these comments might suggest a further discussion with a counselor at some point.

What Is "Healthy Eating"?

The phrase "healthy eating" takes on many different meanings. When conducting a nutritional assessment, it is important to learn what this phrase means from the student's perspective.

Students can be asked to share what they consider "healthy eating." Answers will range from popular diet trends such as "low carb," "keto," and "intermittent fasting" to avoiding carbohydrates altogether or eating mainly vegetables and protein. None of these answers necessarily signify "healthy" eating. More concerning is that most often what students consider healthy eating may not address their nutritional needs. There are times where some variation of these might work, depending on the goal. If there is concern about a student's eating pattern or nutrition goals, referral to a dietitian for further discussion would be warranted.

A strategy to help students – or anyone for that matter – understand nutrition is to use the word "balanced" rather than healthy. People eating balanced will not be omitting entire food groups such as "grains," and will be getting some vegetables and fruit while also ensuring adequate fat and protein intake. Of course, it is difficult to eat "balanced" if always eating fast food. Figure 16.2 helps emphasize that a balanced diet is a well-structured diet. A caveat to this approach is that proportions on the plate must be adjusted based on gender, height, body composition, and activity. For example, an athlete eating this way may not get enough energy. Based on the duration, frequency and type of activity, their plate would have a higher proportion of starches and grains and a lower intake of fruits and vegetables, thereby providing more of the needed energy. Protein intake would increase slightly as well.

The outer circle of the plate represents other areas of wellness that are not directly nutrition related but are linked. Consideration should be given to how our food sources, food purchases, and ability to sustain a healthy diet impact these areas of wellness.

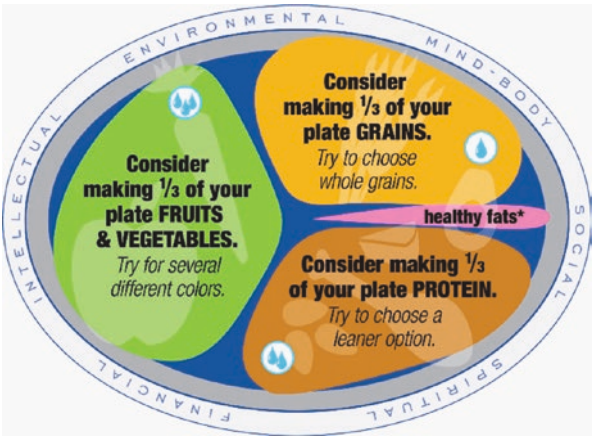


Fig. 16.2 A balanced eating plan created by Duke Student Health Nutrition Staff

Weight Management

Healthy weight management is one of the primary concerns addressed in nutrition services. Students come to school concerned about weight gain. Although weight gain continues to be a challenge during this life transition, recent research has shown that it's not quite as significant as what had been termed "the freshmen 15" (pounds) [1].

Crucial questions to ask when it comes to weight include personal weight history and family history, as well as whether anyone in the family suffers from addictions. Although the concept of "food addiction" is controversial and has not been sufficiently validated through research, people do use food as a way to cope. In addition, asking about physical activity is important as it can support a patient's desire to make changes to weight. However, not everyone likes to "exercise," and some students may have had adverse and shaming experiences around such activity. Therefore, it may be advisable to discuss "movement" in the context of physical activity versus exercise, as everyone "moves" during the day. Physical activity suggests a minimum of 150 minutes per week, or approximately 30 minutes of aerobic activity 5 times per week [2]. Exercise routines also need to be evaluated every few weeks to ensure that the body is still under positive stress (gradual increased work load) to allow it to adapt. When discussing fat and lean muscle weight, a student can be reminded that a pound is a pound – both weigh the same, but fat just takes up more space than muscle.

If weight gain is a concern, then discussion around what is contributing to that can be helpful: late night eating, alcohol, stress eating, poor sleep practices, or lack of exercise. Usually, weight gain does not indicate loss of control, but rather that life is throwing out new stressors and the student may not know how to cope.

The Health at Every Size approach is useful when working with students or any patient, given that research points to the reality that people cannot sustain diet behavior [3]. This approach emphasizes that there is not a one-size-fits-all mentality to weight management, but rather that each person is unique in body composition and weight. The reality is that one equation, such as body mass index (BMI), cannot determine someone's ideal body weight. BMI, although historically viewed as the gold standard for assessing body weight, is based on population estimates and not intended to be used solely to determine someone's ideal weight [4, 5]. One can appreciate that there are weights that put individuals at higher risk of disease, and thus should be addressed, but not solely by pointing out that someone's BMI is above 25 kg/m^2, or randomly suggesting that someone who appears slightly overweight should lose weight to be healthier [5]. Either of these comments could trigger a sense of shame, which could compound the problem rather than make it better [6–8].

Motivational interviewing is a recommended approach to work with students to assess what might be contributing to their higher weight or weight gain. Such a strategy mitigates making students feel guilty about their weight. Open-ended questions ("How…?" or "Why…?") are used to help address the internal reasons for desiring change:

- "I'd like to hear more about why you might feel the need to count calories to help with weight management?"
- "Why might you feel that carbohydrates are not a part of a healthy lifestyle?"
- "Why is it that you feel eating at night is bad?"

With this method there is also quite a bit of reflection on the part of the clinician. Paraphrasing, another technique, can help ensure that the clinician is understanding the student correctly. ("So let me repeat what I think I heard you say").

Weight gain may stem from traumatic experiences, previous shaming about weight when young, or current life struggles where eating can be used to relieve stress. Asking students how they feel about their weight would be an ideal segue to understand where they are in their readiness to address it. Although clinicians have an obligation to inform patients of health risks around weight gain and heavier weights, this advising can be done by simply asking permission to share such information, even if the patient is not interested in losing weight. Ideally the topic of weight could be addressed again at a further visit to see if readiness has changed. If the student does not have an interest in changing weight, perhaps a discussion around feelings about weight might be informative.

Disordered Eating as Seen Through the Nutrition Lens

Disordered eating can be described as an unhealthy relationship with food that negatively affects the quality of life. Examples can include calorie counting, carb counting, "good" or "bad" food mentality, or constant worry about overeating or losing control. These patterns are not an eating disorder per se but can, in some individuals, lead to one. Eating disorders are well defined and described in the Diagnostic and Statistical Manual of Mental Health Disorders V (DSM-V) [9] and in the eating disorders chapter in this book (Chap. 3). Ideally, students struggling with eating disorders are supported by a team of clinicians made up of, but not limited to, a medical provider, a dietitian, a social worker or psychologist, a psychiatrist, and a case manager. Allowing these professionals to meet at a regularly scheduled time permits more efficient review and care of these students. The case management of these students can be extensive and, without a team, can be very time consuming. The team approach also maximizes patient safety. In assessing level of care, along with the medical provider's assessment, also consider whether or not a student

Table 16.2 Example change conversation

Question: "Last time we talked, we agreed to adding a snack mid-afternoon to help stave off hunger so that there is less urgency to binge/purge after dinner. How did that go?"
Student answer: "I tried doing this for a few days, but it always came back to my wanting to save calories so I didn't eat the snack, and the binging and purging has gotten worse. Now I'm doing it twice per day."

might be managed in school or might need to leave. Any proposed care plan should address not only weight concerns but also behavioral challenges around the level of motivation and the student's ability to follow through on mutually agreed-upon recommendations. If other clinicians are not available to help with the treatment of these students, it is imperative to be familiar with students' presenting level of care. It is not solely an issue of weight, but rather whether or not the student is able to engage in care and follow through on recommended changes. If the student can follow through and there is weekly improvement (often determined by positive weight changes around 0.5 to 1 pound per week gain for anorexia), or a decrease in harmful behaviors, even if small, it might be appropriate to maintain an outpatient visit basis. However, students who are not able to do this after multiple visits, no matter how much they try, will need to be referred to a higher level of care and/or case management. Please note an example (Table 16.2) of what a conversation might sound like when asking about change.

If the student is not receptive to the idea or willing to go to a higher level of care, although warranted, it is imperative to document this in the medical chart. In addition, if there is concern about the student's well-being, consider engaging a case manager who might be involved with the student as well as higher administration.

If it is determined that the student is able to stay in school and do the work, the student should be scheduled for an every-other-week visit with the dietitian, while seeing the therapist and medical providers on alternate weeks. Students requiring more support should be considered for a higher level of care. Depending on level of illness, ideally family members should be involved, ascertaining first that the family is a positive influence on the student. Engaging family when there might be significant dysfunction at home could do more harm than good. Of course, any desire to reach out to the family should be discussed with the student before doing so. It is so important to remember to always include the student/patient in the treatment decisions. One exception to this rule would be in a significantly compromised student where clear decision making is impaired.

Note that one treatment provider should never be the sole caregiver of a patient with an eating disorder. The treatment for these disorders involves a multiprofessional approach to address the multiple underlying therapeutic issues as well as medical and nutritional concerns. If the patient is refusing help from any other clinicians and only wants to work with one provider, it is important she or he understand that this approach is not ethical or appropriate.

Nutritional Support for a Student Cleared to Remain in School

Patients struggling with eating disorders have many food fears. It is important to ascertain what those are in early conversation. Often these are "sugar" or "carb" focused and to some degree fat focused as well. Protein tends to be the nutrient least feared. For a restrictive patient, where weight restoration is the initial goal, if there is willingness to add more protein, even if the diet is lacking in the other nutrients, that can be a first step. Perhaps it is as simple as adding a piece of chicken or 2 to 3 egg whites, but this step is crucial, not so much calorically, but to begin to gain comfort with change and reduce the fear of losing control and gaining too much weight. Asking the patient to do too much at once only increases fears. This process requires a great deal of psycho-nutrition education to help allay the fears and misunderstandings the student might have. If the patient is able to make progress, then gradually beginning to increase foods and slowly introducing other foods can be considered. Sometimes adding liquid calories in the form of Boost®, Ensure®, or any of the more medical nutritional shakes on the market, may be a first step; although these patients may not wish to "drink" their calories, but it is an approach worth considering. Recognize that not all "shakes" are the same, some being higher in sugar and lower in nutrients. Focus on the brands prompting "nutritional supplement."

Consider having the patient use food records, such as shown in Fig. 16.3, for accountability of change behavior. There are apps that are similar to this type of record available if the patient prefers using their phone. However, please do not recommend apps that "calorie or macro count" as this promotes the focus on "numeric value" rather than behavior change. Note that in the example food journal (Fig. 16.3) we ask the patient how they feel physically. This item is to begin to increase awareness of the physical changes that happen when one eats more. The journal can be expanded to include a hunger/satiety scale to allow patients to work on signs of hunger and fullness. In addition, asking them to reflect on what they are doing while eating, what they are thinking about, and how those thoughts are making them feel is also helpful. As is evidenced in 16.3 sleep and activity should also be noted as these factors are instrumental in recovery.

Hyperlipidemia

Although the guidelines for managing high cholesterol seem to be ever changing, favoring pharmaceutical intervention earlier than in the past, depending on risk factors, dietary intervention should be the first step.

A student's/patient's history is very relevant in that a high risk of heart disease in the family may warrant much earlier pharmaceutical intervention versus a very

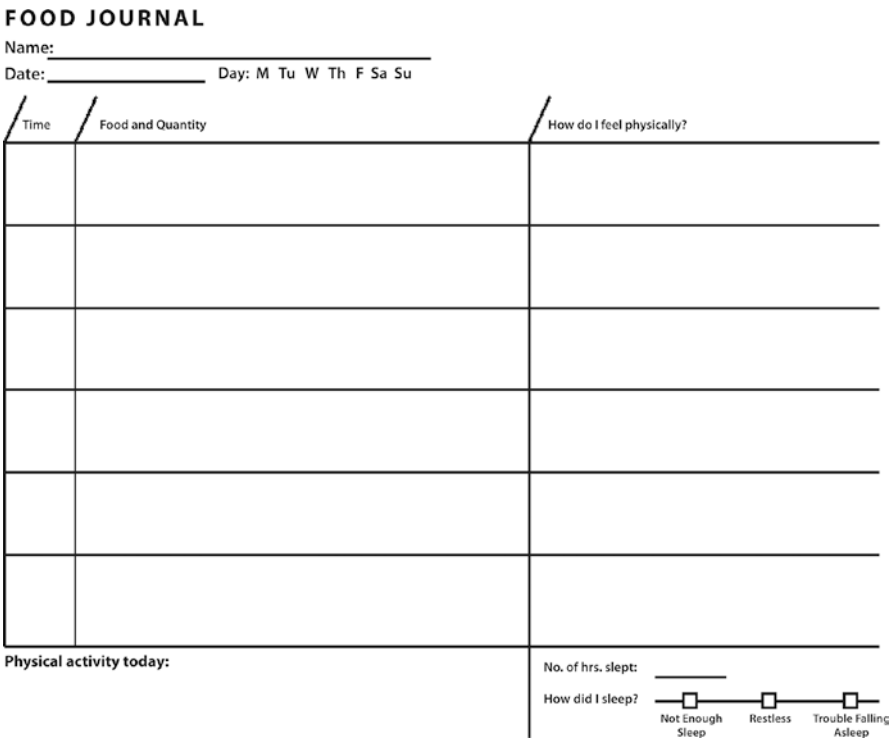


Fig. 16.3 Example food journal

low-risk patient with only hyperlipidemia. Most important is to remember the ratio of high-density lipoprotein (HDL) to total cholesterol, as that is often a better indicator of risk than using only total cholesterol and/or low-density lipoprotein (LDL) levels. [10]. A diet high in fiber may help reduce serum cholesterol. Soluble fiber – which can be found in berries and oatmeal, for example, as well as broccoli, cauliflower, cabbage, beans and even cereals – is the preferred source of fiber. Over-the-counter fiber supplements such as Metamucil® or Benefiber® can also be recommended. Although there are also fiber "gummies" on the market, focusing on food sources of fiber rather than "candied" versions would be optimal. It is not advisable to recommend too much fiber at once, as this may result in rather uncomfortable GI distress. In addition, when adding fiber, water should also be gradually increased.

In the case of hypertriglyceridemia, given that elevated sugar intake may be contributing, it is important to inquire further about sugar intake in the form of beverages, candy, sweets, desserts, and alcohol. It may also be prudent to rule out diabetes in patients with elevated triglycerides.

Mental Health and Nutrition

Evidence supporting the connection between mental health and the microbiome is growing. Probiotics, for example, might be helpful for those struggling with depression or anxiety [11]. Particular areas of interest are the connections between fast food/highly processed foods and depression, and how an improved state of mind has been seen when introducing more vegetables and fruits while lowering added sugar content and higher fat options [11–13]. In addition, the microbiome, which contains so many of our "healthy" bacteria, may not be as diverse or rich in people making poor dietary choices. The evidence supporting the importance of nutrition in promoting good mental health is still in its relative infancy; however, nutrition textbooks are beginning to include this topic more regularly [14].

Gastrointestinal Disorders

One of the more common reasons for referrals to dietitians is gastrointestinal distress. Symptoms may include bloating, gas, diarrhea or constipation or both, or GI discomfort. Any of these may have an underlying dietary etiology (Table 16.3) [15].

Students struggling with eating disorders often present with GI symptoms as well. The use of laxatives and diuretics could also cause gastrointestinal symptoms.

A thorough nutritional assessment with a focus on family and personal history of these complaints is needed. If symptoms tend to run in families, a closer look at ruling out celiac disease may be necessary. Close assessment of the fiber content of the diet is warranted. With the current emphasis on the importance of eating more vegetables and greens, some students may take this too far. For example, a diet comprised of oatmeal, salad, broccoli, cauliflower, kale, and shredded cabbage can create a lot of GI distress. In addition, constant gum chewing makes for more air in the GI tract, and drinking seltzer water or carbonated drinks can also lead to more gas or discomfort. Sugar alcohols, sorbitol, xylitol, and mannitol may also cause GI distress.

Table 16.3 Common GI symptoms that may have a dietary component

GI symptoms	Possible dietary components
Bloating	Lactose intolerance, high-fiber diet, concerns re: an eating disorder, use of sorbitol, xylitol, or mannitol (sugar alcohols)-containing products. Products containing chicory root or inulin (think bars and cereal with fiber added)
Constipation	Lack of dietary fiber, high-fat/low-fiber diet, concerns re: eating disorder – history of laxative use, meal timing (eating all food in one meal). Insufficient fluid intake
Diarrhea	Lactose or food intolerance, stress, laxative use (EDs), food allergy
Heart burn/ reflux	Coffee, tea, alcohol, high-fat diet, large quantities of food at once, lying down after eating, stress, citrus, vinegars, salad dressing, cigarette smoke, exercising too close to meal time, eating quickly

Sports Nutrition

Athletes are a unique group of students due to their special dietary needs. In particular, athletes may require significantly more calories than the non-active students along with increased macro- and micro-nutrient needs. Therefore, athletes should be screened for what is known as inadequate energy intake (energy intake too low to support optimal health and performance) that could result in complications [16–18]. Given the amount of energy that many athletes require, it could very well be that many undereat without being aware of it. Some may be happy with the resulting weight loss, if there is any, and feel that it helps make them better. However, underfueling, whether intentional or not, can contribute considerably to poor performance and adverse health outcomes.

With women, amenorrhea may be a relatively early sign and thus it is very important to ask about regularity of menses. Prescribing oral contraception as a "fix" to this is not the optimal solution if the patient does not wish birth control. Rather, inquiring about appetite, mental health, energy levels, and sleep is more helpful to assess whether or not symptoms might be from undereating. It is important to note that undereating may occur for many reasons. High-intensity exercise, poor sleep, depression or anxiety, lack of education around optimal food choices, and lack of availability of food due to limited finances could all contribute to poor appetite or low calorie intake. In addition and often most importantly, many young athletes are not aware of the necessary dietary changes when training changes. Increasing length of time working out, intensity of workouts, or frequency of days can all lead to an unintentional undereating scenario.

Refer to the Relative Energy Deficiency in Sport (RED-S) graphic (Fig. 16.4) for an illustration of the systems thatare affected by low/inadequate energy intake.

Food Allergies, Intolerances, and Sensitivities

According to the U.S. Centers for Disease Control and Prevention (CDC), 32 million Americans have diagnosed food allergies, and 1 in 13 school-aged children are affected [19]. There has been a rise in prevalence of food allergies of 50% between 1997 and 2011 [19], and roughly 40% of those diagnosed are allergic to more than one food. Many theories exist about what could be causing the increase in prevalence of food allergies, but with no real answers. One thing is for certain: As these numbers increase so will the number of students with food allergens entering our campus communities.

While most food allergies present in childhood, about 15% of food allergies show up for the first time in adulthood. Therefore, there is a real possibility that a first-time allergic response could happen on campus. Moreover, teenagers and young adults are at the highest risk for fatal food-related anaphylaxis, which makes it vital for colleges and universities to develop a campus-wide coordinated approach

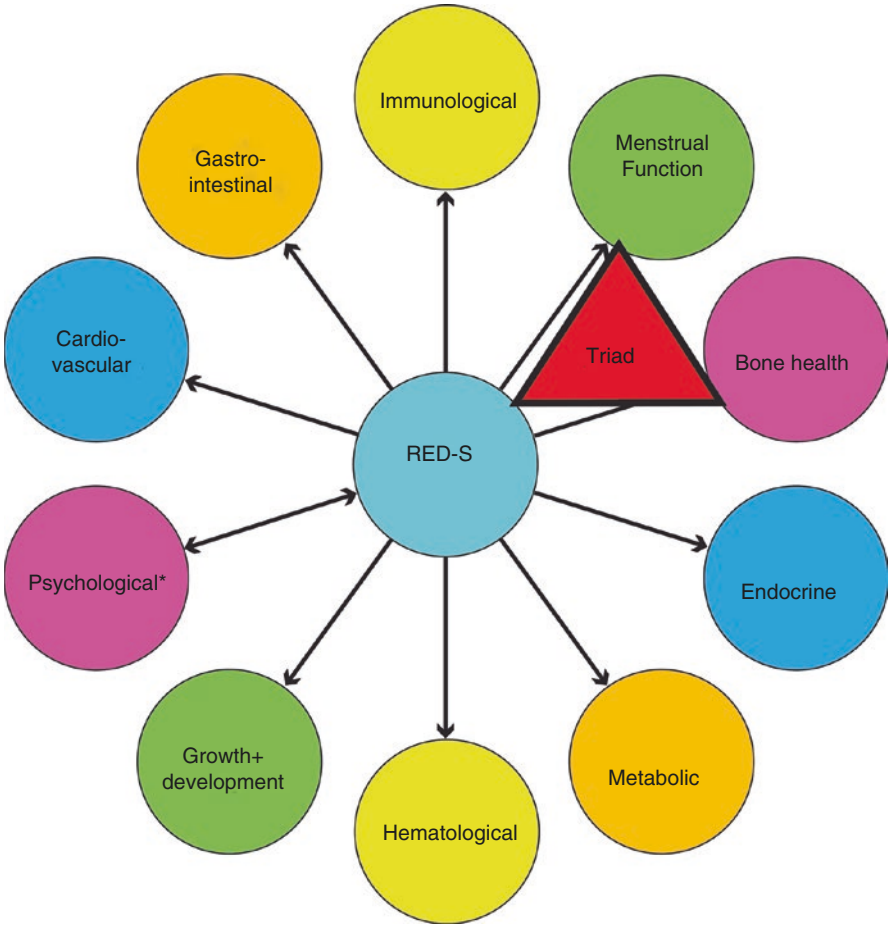


Fig. 16.4 Relative Energy Deficiency in Sport (RED-S). (Reprinted with permission from Statuta et al. [18])

to handling both safe food service and response to a reaction. Departments involved should include Student Disability offices, Campus Dining and Housing, and of course the Student Health Center. See FARE – Food Allergy and Resource and Education to learn more [20]. The Americans with Disabilities Act identifies food allergies and celiac disease as conditions that qualify as a disability, so be sure your student disability office is included in your planned approach.

When a student identifies with special dietary needs, the flowchart in Fig. 16.5 can give students and their families a place to begin to find information.

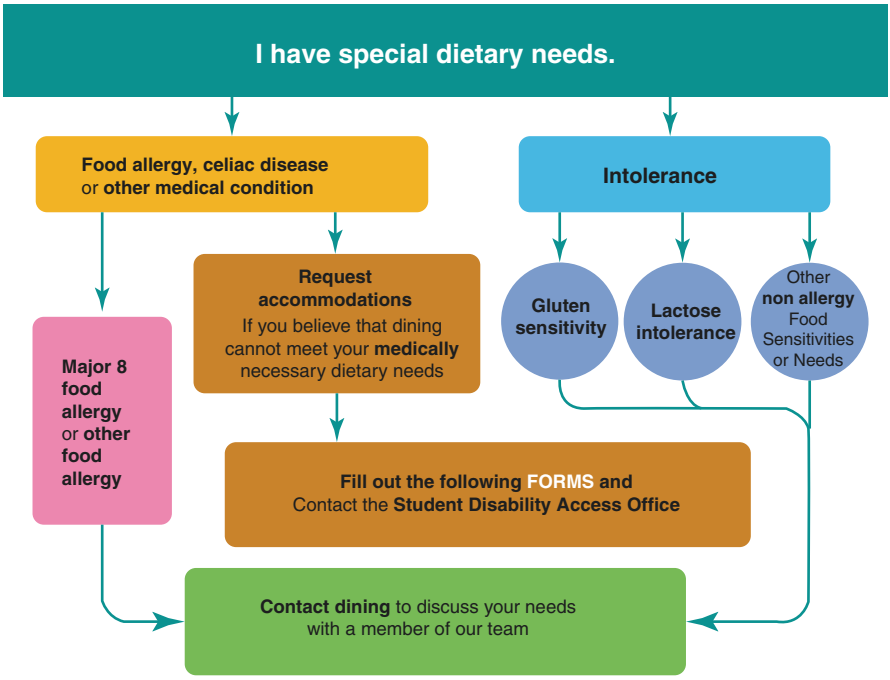


Fig. 16.5 Special dietary needs approach

Sample Coordinated Approach:

1. Student/family review dining Website (or wherever allergy information is posted) for information about the handling of food allergens on campus.
2. Student/family have questions and need further advice so they contact Dining Services, which directs them to the dining nutritionist to meet, or speak by phone.
3. If indicated, dining nutritionist will meet student to tour dining venues with student and introduce them to key staff members.
4. A plan is agreed upon for how to reasonably accommodate the student's needs.
5. If the allergens are too complicated or campus dining does not have the resources to reasonably accommodate the student, they should be referred to the student disability office.

It is also important that campus dining is comfortable enough to establish what reasonable accommodations can safely be made. Over-promising is dangerous. In short, if your university doesn't feel it is equipped to handle complicated dietary needs, work with your Student Disability Office and allow students to decline a meal plan.

Table 16.4 Major 8 food allergens[a]

1. Milk
2. Egg
3. Peanut
4. Tree nuts
5. Wheat
6. Soy
7. Fish
8. Shellfish

[a]Sesame is an allergen we are seeing more of, and have begun labeling foods that contain sesame in our dining facilities

In the Dining Halls

There are more than 170 foods that have been documented to cause allergic responses, but technically any individual can be allergic to almost any food. The "Major 8" (Table 16.4) are those foods that cause 90% of the most serious reactions in the United States.

Keep in mind that while these are the most common food allergens in the United States, international students may present with more unique food allergies, such as buckwheat. Buckwheat is frequently found in gluten-free foods in the United States but is a common allergy in mainland Europe and Asia. Students coming to the United States for the first time could face a potential risk.

Dining services should label foods at point of service (using an item identifier card that lists any of the major food allergens contained in an item), while also offering access to an online nutrition program for more detailed dietary analysis. These programs allow students the ability to filter out foods that contain their particular food allergen and thus find safe alternatives.

Not Sure Where to Start

Simple steps can be taken to provide increased availability to students with food allergens at campus dining halls. A few of these are:

- All dining halls can serve tree nut/peanut-free recipes. These should include desserts.
- Serve nut butters only in single-serve, sealed containers.
- Only use gluten-free soy sauce.
- When recipes are created, add any allergens to recipe name; i.e., "Soy-Glazed Salmon" – right away you can tell that this dish contains at least 2 of the major 8 food allergens.

- Add glass dividers to self-serve areas such as salad bars so that diners are less likely to mix serving utensils.
- Encourage diners with allergens to avoid self-serve areas and ask a manager to serve them from an unused batch of food.

An allergic reaction to a food is an immune system response to a particular food substance, generally a protein in a food. Reactions can range from mild to life threatening and anything in between. In all cases, food allergens should be taken seriously.

It is important that campus dining staff are trained in safe food preparation and service, as well as recognizing the signs and symptoms of an allergic reaction. Having a plan of action in place is vital.

We suggest keeping a medical emergency "to do list" in central locations and next to all house phones.

This list should include:

1. Emergency services phone numbers.
2. The address of your facility (you would be surprised at how many people don't know this information).
3. Any person who has been exposed to a food they are allergic to has to be seen by emergency personnel.

Any exposure to a food allergen – even if the person says she is OK or has used an Epi-pen – requires a trip to the emergency department.

Dining staff should receive annual S*ervSafe* ® [21] training as well as *AllerTrain U* ™ [22] training.

Other Potential Food-Related Issues

Food sensitivity testing (MRT® or Mediator Release Testing or LEAP therapy) has become popular over the past several years, and oftentimes students and their parents or guardians take the results as absolute and diagnostic for food allergens when they are not. At times this may lead to overly restrictive eating when a student is presented with a long list of foods to avoid and little guidance. Working with a nutritionist to reintroduce foods and develop a sustainable balanced diet is a good approach.

Food intolerance generally causes discomfort (usually abdominal) – e.g., lactose intolerance or alcohol intolerance – that is not life threatening but certainly uncomfortable and unpleasant. Most food allergies and special dietary needs can be handled safely on campus as long as there is a coordinated plan for care and open communication beginning with students communicating their needs.

Conclusion

This chapter has only briefly touched on some of the more common complaints seen in student health that have a nutritional intervention option. As mentioned previously, there appears to be very little debate over the value of nutritional support in wellness. What is often underestimated or not considered is the impact that dietary interventions or recommendations might have on improving symptoms and health, prior to investigating more aggressive options. In a health care system where nutrition education may be a minuscule or even nonexistent part of a medical provider's training, it is understandable that medical professionals may not be well-versed in discussing nutrition. Therefore, it is important to have a registered dietitian on staff, or as a referral option. Nutrition services are an integral part of the interdisciplinary team approach to health care.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Nutrition services are a crucial investment in college health.	Many illnesses and symptoms that are seen in Student Health can benefit from some nutrition assistance. Consider it first rather than last.
Nutrition is an integral part of an interprofessional, interdisciplinary approach to the ideal model of holistic health care but is one of the least utilized services.	Prior to prescribing medication, consider if dietary intervention might be an alternative first step as in the case of GI complaints or hypercholesterolemia, for example.
The benefits of having a dietitian on staff are well worth the expense, given the multitude of services that they can provide for clinical care, prevention, and education.	Consider not using BMI as the sole indicator of weight or health concerns. Begin the conversation with what the patient might or might not be concerned about, which may or may not include their weight.
Given the little nutrition education that most medical providers receive during their training, adding a nutrition professional to the team helps to support quality care for students.	A student could experience a first-time food allergy reaction while away at school. Train staff at dining venues to know the symptoms and recognize signs.

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Chapter 17
Sleep on College and University Campuses

Michael P. McNeil and Eric S. Davidson

Introduction

The issue of poor sleep on campus is not new. In the 1970s, Taub and colleagues noted associations among college students between inconsistent wake-up times and depression as well as changes in sleep-wake cycles with difficulty concentrating [1]. More recent data from the spring 2019 American College Health Association's National College Health Assessment (ACHA-NCHA) showed, among other important findings (Table 17.1), that most students (90%) reported some level of problem with daytime sleepiness [2].

Despite what is known about the challenges of sleep behaviors and the potential effects on measures of student success, little is known about the outcomes of programming related to sleep on campuses. There is a lack of strong evidence on what can be done to help improve sleep and associated outcomes beyond clinical interventions (e.g., sleep studies, sleep medicine). Opportunities exist for campuses to increase evidence-informed programming, conduct rigorous evaluations, and better determine how improved sleep contributes to overall student success outcomes.

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Table 17.1 The scope of the sleep problem among college students [2].

Nearly two-thirds (65%) of students want to receive sleep information from their institution
Less than a quarter of students (24%) report actually receiving sleep information from their institution.
More than a third of students (35%) report sleep difficulties being traumatic or very difficult to handle.
Sixty percent of students report getting enough sleep to feel rested 0–3 days in the past week
More than 60% of students report feeling tired, dragged out, or sleeping during the day 3 or more days a week.
More than 40% of students report some level of negative academic impact related to sleep difficulties.

Understanding Sleep on Campus

Sleep issues, and the treatment of sleep as a discretionary use of time, begins well before students enroll in post-secondary education. Past studies demonstrate that poor quality or insufficient sleep is negatively associated with academic performance in adolescents [3, 4]. As students onboard to a college campus (at any academic level), conversations about the value of sleep are rarely part of the orientation process. About 75% of students report never receiving information on sleep from their campuses [5]. Further, sleep conversations for faculty, staff, and other campus employees are equally absent. In most cases sleep only enters the conversation when a problem has arisen, and an astute campus professional thinks to ask about sleep as a potential contributor or cause.

Sleep and Academics

Given academics is at the core of any institutional mission, it is critical to understanding how sleep helps or hinders academic achievement. Multiple studies have found that lack of sleep or other sleep problems are associated with lower academic achievement [6–9]. One study found that each additional day of disturbed sleep increased the probability of dropping a course by 10%, while other more frequently discussed topics (e.g., alcohol, stress, drug use) had a lesser impact [10]. As the researchers noted, addressing sleep on campus "represents an underutilized opportunity for universities to maximize retention rates and academic success." [10]

Undergraduate or Graduate Students

An unsurprising number of past efforts have focused collegiate sleep studies and education on undergraduate students [11–14]. While this may seem intuitive, one study found that the mean number of nights getting enough sleep to feel rested did

not vary greatly between the 2 levels (mean of just under 3 nights for undergraduates and almost 3.5 nights for graduate students) [15]. While this study suggests that graduate students may have better overall sleep hygiene, there is clearly room to improve sleep behaviors among both populations.

Sleep and Athletics

Given the competing demands of academics, athletics, and social activities, sleep may often be compromised or deemed as not part of student athlete culture. There is mixed evidence on the impact of sleep on athletic performance, with studies showing no changes in power but noted differences in reaction time when sleep deprived [16] as well as impacts on athlete emotional well-being and immune functioning [17]. Understanding that sleep has not historically played a key role provides opportunities to understand the context of messaging and strategies for promoting good sleep hygiene.

Sleep and Gender

Both male and female students with good sleep are more likely to have a healthy body mass index (BMI), engage in regular physical activity, feel less exhausted, and have better academic performance [8]. Males who sleep well have less anxiety and back pain, while females who sleep well are more likely to not smoke, not binge drink, have fewer abusive relationships, and fewer broken bones [8]. While it should be noted the directionality of these associations was not studied, the results suggest an overall connection of multiple health issues with sleep.

Prevention Versus Interventions

Within past decades, there has been increased effort to improve college students' sleep behaviors. Many initiatives have included health promotion, prevention, brief assessments and screenings, and clinical interventions. More recently, institutions have been encouraged to enact sleep-promoting environmental strategies and policies [1].

Although numerous studies evaluating collegiate sleep interventions exist [2, 6, 8, 9, 11–13, 18–34], many are not considered to be evidence based due to a lack randomized controlled trials, rigorous experimental designs, or adequate replication. Only 2 systematic reviews regarding collegiate sleep interventions exist [2, 6]. Researchers reviewing only collegiate sleep education programs found insufficient evidence to support that these programs improved sleep hygiene or sleep quality [2].

Other researchers reviewing studies examining psychological interventions found cognitive behavioral therapy (CBT) to have the largest effect on sleep variables [6]. Sleep hygiene, relaxation, mindfulness, and hypnotherapy showed moderate effectiveness [6]. Because combining appeared more effective, it was suggested that CBT be paired with relaxation, mindfulness, and hypnotherapy interventions [6].

Cognitive Behavioral Therapy (CBT)

Cognitive behavioral therapy for insomnia (CBT-I)—addressing one's stimulus control, sleep restriction, sleep hygiene, relaxation training, and cognitive restructuring (Table 17.2)—has been found extremely effective with general adult populations [19, 35–42]. This method has been repeatedly found to improve sleep efficiency, sleep latency, sleep quality, fatigue, and reduced awakenings [35]. CBT-I's length of time and number of sessions required to maintain fidelity to the treatment protocols can be time consuming for students and resource intensive for institutions. Modifications of the model do exist. For example, a one session version of CBT-I enhanced with sleep hygiene education found improvements in insomnia [18]. Additional research on the use of CBT-I with college students, as well as meaningful modifications, is needed.

Cognitive Behavioral Therapy–Based Interventions

Attempts to use CBT-based interventions in group or technology-delivered methods prove promising, are considered to be less labor and time intensive, and allow greater reach. One program, commonly known as Refresh, has been adopted by several institutions [43–45]. Students are sent 8 weekly emails with PDFs containing content on sleep physiology, circadian rhythms, stimulus control, sleep restriction, and cognitive restructuring strategies to reduce sleep-related maladaptive thoughts (Table 17.2). Those participating have reported greater sleep quality and

Table 17.2 Common elements addressed during cognitive behavioral therapy for insomnia

Stimulus Control – A conditioned association between one's sleeping area and sleep [35, 37, 38].
Sleep Restriction – Reducing the amount of time in one's sleep location to more accurately reflect the time spent sleeping during a typical night, in an effort to consolidate sleep [35, 39].
Sleep Hygiene – Behaviors that may influence sleep quality and quantity [19, 35, 36, 40].
Relaxation Training – Training that counteracts physiological and mental arousal often reported by people with sleep difficulties. Common activities include developing a pre-bedtime routine, and relaxation exercises that include deep breathing and progressive muscle relaxation [35, 41].
Cognitive Restructuring – Determining one's dysfunctional beliefs and attitudes about sleep, systematically challenging these thoughts, and developing more adaptive thoughts to replace the maladaptive thoughts [35, 42].

reductions in depression [20]. Another intervention comprised of a sleep lecture followed by once-weekly emails containing information on stimulus control, sleep restriction, sleep hygiene, sleep titration, and relapse prevention resulted in improved sleep quality and less psychological distress [21].

Mindfulness, Relaxation, and Hypnotherapy

There is a growing body of evidence supporting the use of mindfulness for a variety of reasons including sleep [22–24, 46]. Such interventions often include content originating from mindfulness-based stress reduction (MBSR), including relaxation, deep breathing, exercise, and mediation [47]. Others efforts appear to focus on movement-based mindfulness courses utilizing Pilates, Taiji quan, and Gyrokinesis [22–24, 46]. Koru, a manualized mindfulness program developed specifically for college students, has also demonstrated positive results [24].

The use of relaxing music to improve sleep has been researched with general populations. Of the 37 studies reviewed in a dissertation study, nearly 90% positively impacted sleep quality, and almost 17% suggested an equal or greater impact than other sleep interventions [48]. Two collegiate-based studies have found that listening to music improved students' sleep quality [25, 49].

Using hypnosis to extend and increase the amount of slow wave sleep also shows promise. Studies conducted within laboratory settings have found that listening to hypnotic suggestion recordings prior to napping and sleeping reduced time spent awake, enhanced slow wave sleep activity, and improved sleep quality [26, 50]. The effect of application outside of laboratory environments appears yet to be researched.

Sleep Education Interventions

Many educational efforts focus on the intrapersonal level, attempting to change participant's sleep-related knowledge, beliefs, attitudes, and values. Intervention content generally focuses on sleep-related myths (Table 17.3) [51]; sleep stages; consequences of poor sleep; benefits of positive sleep on physical health, memory, learning and academics; sleep quantity; sleep quality; sleep hygiene; self-stimulus control; sleep environment; exercise; and nutrition. Of these, the promotion of sleep hygiene practices has been the focus of most efforts (Table 17.4) [7, 11, 52–54].

Several educational interventions have been implemented within an academic course. The Sleep Treatment and Education Program (STEPS), a 30-minute scripted intervention focusing on sleep hygiene, was first implemented within a psychology course [11]. Students within the experimental group reported increased sleep hygiene and sleep quality. A 25-minute, STEPS-based, scripted presentation with PowerPoint delivered to freshman seminar class students improved sleep quality [12]. STEPS was later modified to incorporate content regarding technology

Table 17.3 False beliefs that impinge on population sleep practices [51]

Being able to fall asleep "anytime, anywhere" is a sign of a healthy sleep system.
Many adults need only 5 or fewer hours of sleep for general health.
Your brain and body can learn to function just as well with less sleep.
Adults sleep more as they get older.
If you can get it, more sleep is always better.
One night of sleep deprivation will have lasting negative health consequences.
In terms of your health, it does not matter what time of day you sleep.
Lying in bed with your eyes closed is almost as good as sleeping.
If you have difficulty falling asleep, it is best to stay in bed and try to fall back to sleep.
Although annoying for bed partners, loud snoring is mostly harmless.
A sound sleeper rarely moves at night.
Hitting the snooze when you wake up is better than getting up when the alarm first goes off.
If you are having difficulties sleeping at night, taking a nap in the afternoon is a good way to get adequate sleep.
Alcohol before bed will improve your sleep.
For sleeping, it is better to have a warmer bedroom than a cooler bedroom.
Boredom can make you sleepy even if you got adequate sleep before.
Watching television in bed is a good way to relax before sleep.
Exercising within 4 hours of bedtime will disturb your sleep.
During sleep, the brain is not active.
Remembering your dreams is a sign of a good night's sleep.

Table 17.4 Commonly recommended sleep hygiene practices [11, 52–54]

Eliminate caffeine and other stimulant use completely.
Eliminate or minimize caffeine and other stimulant use 6 hours prior to bed.
Eliminate or minimize alcohol use prior to bed time.
Go to bed and wake up at the same time, all 7 days a week.
Exercise daily.
Eliminate afternoon and evening naps.
If napping, restrict to early afternoon and no more than 30 minutes.
Expose oneself to bright lights upon waking in the morning.

management; experimental students reported less technology use, increased sleep hours, and fewer awakenings than control subjects [27]. Others strategies found successful in improving sleep include offering an actual for-credit sleep management course, and providing supplemental materials and online activities [8, 28].

Educational interventions using technology (e.g., email, online programs, text messaging) have been attempted. In-person interventions supplemented with informational emails, sleep diary completion, and individualized email feedback have

improved sleep hygiene and quality [21, 29–31]. Students completing the Sleep to Stay Awake on-line program were more likely to stop using electronics earlier, maintain more consistent wake-sleep schedules, rise earlier during the day, and sleep better prior to tests [32]. Timing of delivery of technology enhanced and delivered interventions may be crucial; the Sleep 101 online program was found to be more effective when assigned to as a pre-matriculation requirement, than when assigned during mid-semester [33]. Text messaging efforts to improve student sleep hygiene require additional study to determine how to best utilize this method. Two studies using text messaging reported non-significant increases in sleep knowledge, hygiene, and quality [13, 34].

Social marketing and media campaigns to tout effective sleep hygiene and sleep behaviors are common. Communication strategies used often include Websites, email, text messaging, social media, advertisements, posters, videos, information tables, and events. The University of Arizona evaluated its campaign, indicating that students seeing campaign materials reported improved sleep quality, earlier bedtimes, falling asleep faster, and sleeping longer [9]. While advocated as a strategy to improve health, additional research regarding social marketing's application to collegiate sleep is needed.

Environmental Strategies

Individualized environmental control is a common element of many sleep education programs. As with alcohol prevention, educational efforts are not enough to foster institutional change, and require environmental strategies applied at the institutional, community, and policy socio-ecological levels.

Within residence hall systems there appears to be a gap between residence design and institutional intention to meet student sleep needs. Common sleep environment disturbances included noise from other residents, traffic, heating and cooling units, creaking floorboards, and maintenance equipment. Other environmental disturbances include uncomfortable temperatures. Researchers and practitioners have proposed that residence systems become more sleep-friendly by installing lights that dim during sleeping hours, reducing building temperatures at night, including sleep questions on roommate selection/pairing surveys, and enforcing quiet hours [1, 14, 55]. Furthermore, facilities and planning and residence professionals are encouraged to engineer new spaces and retro-fit existing spaces to be more sleep promoting.

In the modern era where online learning platforms are part of the modern academic experience, faculty have shifted deadlines for assignments from in-class submission to examples such as midnight on the day it is due. While technology makes this possible for all involved, setting late-night deadlines also unintentionally de-emphasizes the role of sleep and may passively encourage students to use the late hours leading up to the deadline as the time to do the work. Faculty can play an important role in promoting sleep and help create an institutional culture. Faculty

are encouraged to add a sleep statement to course syllabi that denounces poor sleep as being perceived as a token of academic effort and social capital [51]. To reduce students staying up late or pulling all-nighters, faculty are recommended to decrease late assignment times, not allowing on-line submissions after 10 P.M. or before regular office hours [1, 32]. Such practices should be clearly communicated and enforced. Faculty using online platforms can also use analytics to determine if their enrolled students are sacrificing sleep to engage with course materials and offer proactive messaging that promotes good sleep as a contributor to learning and academic success.

Academic administrators should consider how class scheduling and learning resources (e.g., labs, libraries) are organized to determine if the model is sleep-supporting. Delaying academic morning start times has been found to be effective with secondary education populations in improving sleep [3, 4]; this is an action that needs to be researched with collegiate populations. Other key strategies to encourage sleep among students include closing learning resources during late night hours, limiting courses offered very early or very late, and having academic advisors promote positive sleep messages to their advisees.

Campus operations may also promote poor sleep. Libraries, computer labs, recreational centers, dining centers, and other spaces where students study, socialize, and live 24 hours per day reinforce perceptions that college students are "night owls," and may further contribute to problematic sleep habits. Institutions should question what services, programs, and events actually need to be operating during late hours or all day [1]. Some institutions are experimenting with napping pods and rooms—locations in which students are encouraged to take naps [56].

A majority of college students consume at least one energy drink per month, others use stimulants to stay awake to study [57]. Many campus stores and retail facilities have found selling these items profitable. Institutions are encouraged to refrain from selling these items, as well as pharmacologic sleep aids and over-the-counter stimulant medications [1].

Conclusion

If institutions of higher education truly wish to achieve their missions, retain students, and have students who are academically and co-curricularly successful, poor sleep must be viewed as a hindrance to these goals. Promotion of positive sleep behaviors needs to become an institutional priority. Institutions would benefit by employing a variety of interventions that address sleep through cognitive behavioral strategies, mindfulness, relaxation, sleep education and hygiene, environmental strategies, and policy.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Investing in staff, resources, and materials to address poor student sleep may have significant returns on retention, learning and development, academic success, and institutional mission success.	Sleep may be a more important issue to address than other health issues commonly addressed by practitioners in college health settings.
It is important that individual and group programs and interventions are developed based on existing evidence-based and evidence-informed practices. Efforts implemented need to be assessed and evaluated.	Poor sleep may contribute to students experiencing greater problems and difficulties in multiple domains including academics, extra-curricular involvement, health and wellness, and social.
Environmental strategies must be implemented to create an environment that promotes sleep, rather than detracts from it.	It is important to base interventions, programs, policies, and environmental strategies on evidence-based and evidence-informed practices. Efforts implemented must be assessed and evaluated to determine effectiveness.

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Recommended Readings and Resources (i.e., Books, Periodicals, Video Links, Web Resources, Etc.)

American Academy of Sleep Medicine – www.sleepeducation.com. This site provides readers with the opportunity to explore a variety of sleep-related topics, take self-tests, and locate sleep specialists. The site also offers a sleep education in school section, geared toward K-12, though it offers ideas that may be adapted to the higher education environment.

College Sleep Environmental Scan – [E-mail] collegesleepscan@stthomas.edu. Created by colleagues at the University of St. Thomas and focused on the on- and off-campus environment, the scan provides a framework for campuses to conduct self-assessment. From the self-reflection campus, professionals can develop a priority list for improving sleep among students.

Framework for Assessing Learning and Development Outcomes (FALDOs) – www.cas.edu. Published by the Council for the Advancement of Standards in Higher Education, the FALDOs provide an opportunity for higher education practitioners to review and plan how to address learning and development in and out of the classroom.

Go Ask Alice! Sleep Q&As – goaskalice.columbia.edu/category/68. Columbia University's globally recognized and multiple-award-winning online health resource features questions and answers addressing a range of sleep issues. University professionals have answered sleep questions submitted by readers and all published questions are reviewed/updated regularly.

Healthfinder.gov (Sleep) – http://healthfinder.gov/HealthTopics/Category/everyday-healthy-living/mental-health-and-relationship/get-enough-sleep. Sponsored by the U.S. Department of Health and Human Services, this site offers readers an opportunity to learn about the basics of good sleep, action-oriented suggestions, and links to more resources. This site is available in English and Spanish.

National Center on Sleep Disorders Research - http://www.nhlbi.nih.gov/about/org/ncsdr/. A unit of the National Heart, Lung, and Blood Institute, the NCSDR provides information on sleep research, professional education, patient and public information, and communications. Links are available to publications, there is a sleep and youth section, and site visitors can participate in an interactive sleep quiz.

National Sleep Foundation – sleepfoundation.org. Home to the Sleep in America poll, this site from the National Sleep Foundation offers resources on sleep health, problems and disorders, tools and tips, sleep specialist finder, and even a sleep store. Included in this resource is information on sleep-related topics such as drowsy driving (advocacy kit available).

Sleep Research Society – sleepresearchsociety.org. The society focuses on scientists who research sleep and educate. The website and other tools for the organization provides useful publications, advocacy opportunities, events, and ways to connect with other sleep researchers.

Chapter 18
Substance Use and Abuse: Alcohol, Tobacco, and Other Drugs

Alicia K. Czachowski and M. Scott Tims

Introduction

Substance use, misuse, and abuse is an issue for most institutions of higher education. According to the American College Health Association's National College Health Assessment (ACHA-NCHA) in the spring of 2019, 58.4% of college students had consumed alcohol in the last 30 days. While a smaller number of students report using tobacco over the last 10 years, there has been an increase in those using vaping products. The legalization of marijuana in many states has created complexity for those working on campuses and is reflected in the increase in the number of students using marijuana [1]. Only a small percentage of students misuse prescription drugs. [1] However, college-aged individuals are most at risk in engaging in this behavior when compared to other age groups [2]. Institutions of higher education have the responsibility to prevent and intervene in situations of substance misuse and abuse, and to provide support to students in recovery.

Campus alcohol culture can be defined as "the way people drink, including the social norms, attitudes and beliefs around what is and what is not socially acceptable for a group of people before, during and after drinking" [3]. The culture of excessive use, misuse, and abuse of a variety of substances by students has a negative impact on their health and well-being, and their academic success. Changing the culture on a campus cannot be done in isolation and requires the effort of the entire campus community. An environmental approach, which includes interventions at a variety of levels, is the most likely to net long-term cultural change.

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The purpose of this chapter is to examine the ways in which college health administrators and clinicians can mitigate the risk of alcohol and other drug misuse and abuse, intervene with students who are already misusing or abusing, and assist students who are in recovery. Many of the examples focus on individuals or small groups of students; however, it is imperative that institutions also focus on population-level prevention and implement environmental control strategies.

Higher Education Requirements

Drug-Free Schools and Communities Act (EDGAR Part 86)

The Drug-Free Schools and Communities Act of 1989 requires that institutions of higher education that receive federal funding develop, implement, and certify a drug and alcohol misuse and abuse prevention program [4]. The purpose of the program is to prevent the illegal possession, use, or distribution of drugs and alcohol by all students and employees on school grounds or as part of any institutional activities. Information about the program must be shared annually, in writing, to all students and employees. The senior administrator of the institution, typically the president, must certify compliance. The information shared annually must include:

- The institution's alcohol and other drug policies
- Local, state, and federal laws for alcohol and other drugs
- Clear descriptions of both legal and institutional sanctions for violating laws or policies
- Health risks of using, misusing, and abusing substances
- Descriptions of counseling, treatment, or rehabilitation interventions available for students and employees [5]

Institutions should keep a record of the notification and its dissemination in case of federal audit. If found to be not in compliance, institutions could face heavy fines [5].

Biennial Review (EDGAR Part 86.100)

Along with the annual notification, the Drug-Free Schools and Campuses Regulation (EDGAR Part 86.100) requires institutions to complete a biennial review of their alcohol and other drug programs and policies [4]. The biennial review requires that a committee collect and review data from institutional stakeholders on policy dissemination, alcohol and other drug incidence and prevalence, policy violations, emergency medical transports where alcohol or other drug use occurred, and evaluation data from alcohol and other drug prevention initiatives. Sources of data for such reviews include:

- Need assessments such as the ACHA-NCHA III or the assessments available from the Core Institute
- Campus police or public safety incident records
- Housing and residential life policy violations
- Student conduct policy violations records
- Campus health center medical records
- Health promotion workshop evaluations

Beyond what is needed for the biennial review, conducting regular assessment is critical to staying current with the substances being used, special populations of concern, and how behavior is changing over time at an institution. Needs assessments, which are typically conducted every 2 to 3 years, can be done biannually to coincide with the writing of the biennial review.

College health professionals should use the biennial review to guide recommendations for future prevention efforts [6]. The National Institute on Alcohol Abuse and Alcoholism's Alcohol Intervention Matrix (AIM) provides a listing of established prevention strategies. This Website includes information on the cost as well as the expected duration of effect for each strategy [7].

Campus administrators are responsible for keeping the biennial review in a readily accessible location, typically online, in case of audit [6]. Biennial reviews typically coincide with financial aid and Clery Act compliance audits, [7] and may also be a component of audits of federally funded research grants [6]. If an institution is found noncompliant, it could face fines and loss of federal financial assistance, including student financial aid. The Department of Education will provide guidance to assist the institution in achieving compliance [6].

Prevention and Intervention

Prescription Drug Misuse

Patients do not always use medications in the way their prescribers intended, and they may share their medications with others. College students who misuse prescription drugs are most likely to obtain them from friends or relatives [8]. Administrators and clinicians can help curb this behavior by implementing policies and procedures for ensuring adequate patient education when controlled substances are prescribed that includes both verbal and printed materials [9]. The National Institute on Drug Abuse (NIDA) recommends that clinicians monitor all medications a patient is taking [9]. Many states now have online databases that allow clinicians to review patients' prescription histories to determine if there is a pattern of misuse [9]. Health centers may also consider implementing regular screenings for medication misuse. NIDA offers a Web resource of evidence-based screening tools that can be utilized during appointments [8]. These screening measures allow clinicians to identify students with potential substance misuse disorders and refer them for appropriate treatment [9].

Clinicians should have a conversation with the patient about the medical and legal implications of selling or sharing controlled substances with their peers. From a legal standpoint, there is no difference between selling and sharing medications with others, so students may be unaware that they are committing a crime when sharing medications with friends. Clinically, there may be significant side effects that occur when mixing alcohol with prescription medications, including but not limited to: decreased medication efficacy, increased risk of overdose, dizziness, drowsiness, or liver damage. Clinicians should also use the student's appointment to correct common myths about prescription drug misuse. For example, prescription stimulants are the medications college students are most likely to misuse because of a belief that they will improve academic performance while research shows this is not the case [8, 10].

Opioids

In 2017, the number of overdoses from opioids in the United States was 6 times higher than in 1999, [11] but fortunately this issue has not had the same impact on college campuses. NIDA reported that there has been a significant decrease in the misuse of prescription opiods among college students between 2013 and 2018, with approximately 3% of students currently being affected [12]. Institutions should nevertheless develop policies and procedures that address this public health issue. In 2016 the American College Health Association (ACHA) developed guidelines for prescribing opioids in college health centers. This document includes recommendations on prescribing for acute pain, chronic pain, responding to overdose, and assisting with treatment and recovery [13]. Similarly, the U.S. Centers for Disease Control and Prevention (CDC) has developed the Morbidity and Mortality Weekly Report (MMWR): CDC Guideline for Prescribing Opioids for Chronic Pain — United States, 2016 [14].

Naloxone is an opioid antagonist medication designed to rapidly reverse an opioid overdose. Many institutions have made naloxone available to their first responders and incorporated it into their opioid prescribing procedures. Some institutions have made naloxone kits available to students in their residence halls and in other public buildings. The decision to implement this type of program is complex and requires a significant amount of education and training on overdose prevention and response among many campus community members [13]. Regardless of whether such a program is implemented, ACHA recommends that health centers and first responders have procedures, training, and expertise in emergency response to overdose. [13]

Screening, Brief Intervention, and Referral to Treatment (SBIRT)

Screening, Brief Intervention, and Referral to Treatment (SBIRT) programs are an effective way to intervene in alcohol or other drug misuse or abuse on a college campus. SBIRT is an approach for early intervention and referral for people with

substance use disorders and those at risk of developing these disorders [15]. This intervention was specifically developed to seamlessly integrate into existing clinic workflow and can be implemented during an appointment. It involves 3 steps:

1. A patient completes a standardized screening tool to assess for substance use behaviors.
2. A clinician provides feedback to the patient based on the results of the screening.
3. The clinician provides a referral to treatment for those who require services, typically to colleagues working in college counseling centers or health promotion departments [16].

The Substance Abuse and Mental Health Services Administration (SAMSHA) recommends that screening occur annually for adults. There are many evidence-based questionnaires available. SAMSHA recommends the AUDIT-C Plus 2 because it includes alcohol, marijuana, and other drugs [17]. NIDA's online Screening and Assessment Tools Chart provides an excellent review [16].

Many counseling centers and Health Promotion departments offer Brief Alcohol Screening for College Students (BASICS). BASICS is a highly effective alcohol skills training program in which students complete an assessment and meet individually with a trained provider [18]. The goal of BASICS is to minimize harm associated with alcohol consumption and increase the use of harm-reduction behaviors. BASICS is typically conducted over the course of 1 or 2 sessions and is based on motivational interviewing and stages of change theory [19]. The student completes an assessment and gets a personalized feedback report based on their drinking behavior. The sessions are nonjudgmental, non-labeling, and not focused on abstinence from substances. Rather, the trained provider works with students to help them establish personalized goals around their alcohol use [19]. If an institution is unable to offer BASICS due to resource limitation, administrators should develop a referral system to the institution's counseling center or community treatment providers.

Marijuana

Even though many states have legalized or decriminalized the use and possession of marijuana, under federal law marijuana is a Schedule 1 drug [20]. Therefore, institutions of higher education who receive federal funding must ban marijuana on campus.

In terms of prevention education, the Higher Education Center for Alcohol and Drug Misuse Prevention and Recovery recommends focusing on the harms associated with use, including brain development concerns among younger users, impaired driving, academic consequences, and concerns associated with consuming edible marijuana products [21]. The waxes and oils used in electronic vaping devices contain higher concentrations of THC than in dried cannabis and may present an increased risk of lung injury in users [22]. While there have not been many studies completed regarding marijuana prevention programs on college campuses, many

institutions use interventions modeled on the SBIRT and BASICS interventions. One study demonstrated that a Web-based screening and follow-up protocol helped to correct misperceptions about the norms of marijuana use and reduced consequences related to marijuana use [23]. As more research is conducted, it is reasonable to approach marijuana prevention with a strategy similar to those used for alcohol prevention [22].

Tobacco

The American College Health Association has taken the stance that institutions of higher education should adopt a ban on all tobacco products on campus. A strongly worded policy can help in the prevention and control efforts on campus. Given the rise in use of vaping devices among college students, policies should address these new products as well [24].

Enforcement is typically the most challenging aspect of implementing tobacco-free policies. It is important to include those most likely charged with enforcement, such as campus police or the public safety office, in the early stages of policy development. Enforcement options could include citations or fines for those found using tobacco products in prohibited areas [25]. An online reporting system that allows members of the public to report when and where they witness people using tobacco products is also an effective approach [24]. Clear signage, regular marketing, and consistently enforced sanctions are vital to the success of policy implementation [24].

Like prescription drug misuse and SBIRT, health centers should implement regular screening for tobacco use and have a plan for intervention efforts to assist with those who express a readiness to quit. Such interventions include offering tobacco-cessation counseling at the health or counseling center, making nicotine replacement therapy products available on campus, and ensuring clinicians are knowledgeable in the prescription and management of tobacco cessation medication [24].

Recovery

Recovery in Higher Education

As substance use disorders are increasingly being treated as a chronic illness, the types of interventions and treatments for students in recovery have changed [26]. The issues faced by college students in recovery and college are complicated by being in what can be described as an "abstinence hostile environment" [26]. Recovery, coupled with the stress of attending college and the transition into adulthood, means that students in recovery on campus have added challenges and difficulties that require additional support for success. Institutions are increasingly providing post-treatment support for students to help them stay in recovery and maximize their academic success [27, 28].

Collegiate Recovery Programs

The growth of Collegiate Recovery Programs (CRPs) over the past several years has paralleled the rapid growth of the larger recovery advocacy movement in the United States [29].These peer-led programs provide students with social support and increased connectedness to campus support services. The Association of Recovery in Higher Education provides a wealth of information on creating and sustaining such programs, including standards and recommendations or "core elements" [28]. While there is not currently a standard model or program, there are a series of essential elements common to all such programs [28, 29]:

1. CRPs embrace abstinence-based recovery as a standard.
2. CRPs are housed within the college/university and are part of the campus community.
3. CRPs have paid, qualified, ethical, and dedicated professionals who support students in recovery.
4. CRPs provide a variety of recovery support services to assist students in maintaining and protecting their recovery.
5. CRPs have within them a collegiate recovery community (CRC), with students in recovery from their alcoholism and/or drug addiction as the primary focus [28].

CRPs do best with a dedicated physical space for students in recovery to gather and offer peer support to each other.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
It is essential that all institutions who receive federal funding comply with Drug-Free Schools and Communities Act (EDGAR Part 86).	Clinicians play an important role in policy development, screenings, and patient education. Linking clinical work and screening to the broader institutional strategy may help increase engagement.
While some states are decriminalizing or legalizing marijuana use, institutions of higher education who receive federal funding must ban marijuana on campus in order to receive their funding.	Appropriate implementation of SBIRT, including workflow adaptation and providing training and access to a robust referral network, is critical for adoption.
Tobacco ban policies are difficult to enforce. Administrators should involve campus police or the public safety office early on in the policy development and implementation process.	Ongoing professional development for clinical staff to assure a broad understanding of substance use/abuse issues is vital. Education should focus on motivational interviewing techniques and tobacco cessation education.
	Creating collaborative care teams that leverage the expertise of individuals in Student Health and Counseling Services can improve the effectiveness of intervention strategies.

Conclusion

Managing substance use and misuse on a college campus is an ever-evolving challenge, but one that must be met to maximize the safety and academic success of our students. Changing the culture around alcohol and other drug misuse on a college campus requires the efforts of the entire campus community. With support from senior institutional leadership, college health professionals should engage in population-level prevention and intervention strategies that address the pervasive environmental factors that contribute to this culture. Coupled with strong prevention and intervention programs, and active engagement from clinical providers, this approach can make a great impact on the health and academic success of our students.

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Recommended Readings and Resources

Alcohol Policy Information System https://alcoholpolicy.niaaa.nih.gov/.
American Addictions Center https://americanaddictioncenters.org/.
American College Health Association National College Health Assessment. https://www.acha.org/NCHA/NCHA_Home.
American College Health Association Guidelines: Opioid Prescribing in College Health. https://www.acha.org/documents/resources/guidelines/ACHA_Opioid_Prescribing_in_College_Health.pdf.
American College Health Association Guidelines: Position Statement on Tobacco on College and University Campuses https://www.acha.org/documents/resources/guidelines/ACHA_Position_Statement_on_Tobacco_Nov2011.pdf.
Association for Recovery in Higher Education. https://collegiaterecovery.org.
Center of Alcohol & Substance Use Studies http://alcoholstudies.rutgers.edu/.
Center for Disease Control and Prevention Guidelines for Prescribing Opioids for Chronic Pain — United States, 2016. https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fmmwr%2Fvolumes%2F65%2Frr%2Frr6501e1er.htm.
Coalition of Higher Education Associations for Substance Abuse Prevention http://coheasap.myacpa.org/.
Complying with the Drug-Free Schools and Campuses Regulations (EDGAR Part 86): A Guide for University and College Administrators https://safesupportivelearning.ed.gov/sites/default/files/hec/product/dfscr.pdf.
CORE Institute https://core.siu.edu/.
Higher Education Center for Alcohol and Drug Misuse Prevention and Recovery https://hecaod.osu.edu/.
Illinois Higher Education Center Drug-Free Schools and Campuses Act (Edgar Part 86) Resources. https://www.eiu.edu/ihec/drugfreeschools.php.
Journal of Studies on Alcohol and Other Drugs.
Journal of Substance Abuse Treatment.
Monitoring the Future (MTF). http://monitoringthefuture.org/.
National Institute on Alcohol Abuse and Alcoholism (NIAAA). www.niaaa.nih.gov.
NIAAA College AIM. https://www.collegedrinkingprevention.gov/collegeaim/.
National Institute on Drug Abuse Screening Tools and Prevention. https://www.drugabuse.gov/nidamed-medical-health-professionals/screening-tools-prevention.
National Social Norms Center. http://socialnorms.org/.
Resurgence of the Drug-Free Schools and Communities Act: A Call to Action. https://info.stanleycss.com/2016ResurgenceofDrugFreeSchools.html.
Substance Abuse and Mental Health Services Administration (SAMSHA) Offices and Centers. https://www.samhsa.gov/about-us/who-we-are/offices-centers.

Part III
Organization and Administrative Considerations for College Health

Chapter 19
Unique Issues in the Practice of Medicine in the Institutional Context

Sarah A. Van Orman and Alyson Covington

Introduction

With the development of residential institutions of higher education in the mid-nineteenth century came the recognition that providing for the physical and mental health needs of students and addressing public health was central to their academic missions. This remains true today as it was when these first college health programs emerged. Today's college health programs are similar to any other health care organization, providing high-quality clinical care that is compliant with ethical, legal, and regulatory requirements. They also have institutional expectations and responsibilities within and for their campus community creating unique challenges and opportunities.

Accreditation

One of the frequent questions asked is what is the value of accreditation in the college health setting? Some of the ways you can assess the value of accreditation is to evaluate the cost, the utilization of accreditation status as a marketing tool, as a benchmarking tool for regulatory compliance, and as a pathway for establishing standardization of care. These values are connected to providing quality healthcare.

The first step in assessing the value of accreditation is to consider the cost. The Accreditation Association of Ambulatory Healthcare (AAAHC) accreditation

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survey costs on average $8000 for a 2-day survey with 1 surveyor [1]. There is not an annual fee billed to the organization. Joint Commission accreditation fees are based on an on-site survey fee calculated on type of services provided, volume, and the number of sites to be evaluated for an ambulatory care facility; there is also an annual fee that is billed in January of each year [2]. AAAHC recruits surveyors with college health experience to conduct college health surveys and offers separate sessions at AAAHC conferences for college health organizations. The Joint Commission does not offer specialized sessions for college health organizations, and accreditation is conducted by primary care surveyors.

The above costs do not include the human resources costs associated with the preparation for the survey. There are electronic document products available to manage both organizational policies and procedures as well as providing electronic crosswalks. These crosswalks provide a mapping framework for benchmarking organizational compliance with accreditation standards. Such products also must be budgeted into operational costs for student health care centers.

As of 2014 the American College Health Association (ACHA) reported 17 member institutions being accredited through The Joint Commission and 215 member institutions being accredited through the AAAHC [3]. In 2016, the number of higher education institutions in the United States was reported to be 4360 and the number of undergraduate students enrolled in colleges and universities for 2017–2018 was reported to be 22.2 million [4].

Traditionally, accreditation status has been used to establish health care organizations as being credible—providing services that are validated by an external agency. This can be a beneficial marketing point for universities and colleges that are accredited, as many consumers are aware of accreditation standards for hospitals in the community and consider having identified quality in health care as an advantage when choosing a school.

Quality of care delivered, patient safety, and staff safety are positively associated with accredited health care organizations [5]. This relates to accredited health care organizations updating processes for compliance with accreditation standards. Accreditation standards are developed and updated by accrediting agencies to meet changing federal regulatory requirements and best practices. Progressive changes in standards in AAAHC have mandatory written programs for blood-borne pathogens, sharp instrument disposal programs, and safety programs; and they require written program evaluations for quality improvement programs. The Joint Commission has similar requirements and makes similar changes in their standards as regulations change.

Standardization of care has also been linked to accreditation status. Peer review criteria are established by accredited organizations to meet nationally recognized standards related to documentation, proposed care, and outcomes measures. This results in an accredited organization using standardized criteria for determining the reappointment of the medical care staff and the granting of privileges to perform procedures. These steps are all related to maintaining a high quality of care and establishing accountability for the care provided [5].

Being accredited can be a central part of each college health center's organizational mission to provide appropriate and quality health care to the student population. Accreditation standards provide the framework for compliance with regulatory standards related to safety, confidentiality of protected health information, and business practices in addition to the quality of care provided by the accredited student health center. Accreditation is a tangible measurement that promotes value over other colleges or universities that do not have accredited student health services.

Patient Records and Confidentiality

HIPAA, FERPA, and State Medical Records Laws

The use and disclosure of health records produced by a college health program is unique within healthcare. Two specific federal and, in most cases, one or more state laws are applicable. Unlike non-college health organizations, campus health records are not protected by the Health Insurance Portability and Accountability Act (HIPAA) but rather by the Federal Education Rights and Privacy Act (FERPA) [6]. Records are generally covered by FERPA even when a school has contracted with an external provider to provide services to its students. There are many important distinctions between these protections including limitations under FERPA on the use of records for HIPAA-permitted uses of treatment, payment, and operations. At the same time, most campus health centers must comply with one or more state medical and/or mental health records laws, which provide additional protections. These state laws often have been written to align with HIPAA rather than FERPA, which can pose challenges for campus health programs.

When developing and implementing health records policy, college health administrators are strongly advised to consult with attorneys with experience with HIPAA, FERPA, and their applicable state law. Neither general higher education nor health care attorneys often have experience with the uniqueness of student health records.

Sharing Medical and Mental Health Records

Student medical and mental health care is organized differently across campuses. Even when medical and mental health services are administratively integrated, health records may not be shared. Increasingly, campus medical and mental health leaders are recognizing the importance of shared information to provide comprehensive care to each individual as well as to reduce risk when information and treatment gaps exist. Failure to share records creates institutional risk in situations involving care of students at risk of harm to themselves and others.

Issues to consider when developing campus policy for sharing health records include: patient notification and consent, state health records laws, mechanisms for information exchange when separate electronic health records are used, provider training in best practices for documentation, and selective protection of highly sensitive information. These issues will become more complex as most organizations consider the move to open notes, providing patients with full access to their own electronic health records.

Ethical and Practical Considerations for Parental Releases

As most students on campus are age 18 and over, their health records are confidential. Parents and guardians, however, frequently request that their students sign blanket releases to allow access to all their health information, especially at the beginning of their first year on campus. Establishing clear policies and consistent education geared to families is important to manage these expectations. Students and their families should be encouraged to establish their own practices that rely on primary communication to be between the student and health care provider. This process can support more developmentally appropriate family involvement in a student's healthcare.

Releases to share information with family members should be condition and/or time specific. Families should be informed that a student can revoke permission granted in a previously signed release at any point. Campus health providers should also routinely verify with their patients that family disclosures are still desired at each point of contact. A student may view family disclosure quite differently as their time on campus progresses and if they develop sensitive health conditions.

Campus Teams

On most campuses, cross-campus coordinating teams meet to discuss students of concern. Teams often include representation from campus services such as public safety and residential life along with mental health and occasionally medical leadership. These teams function to ensure cross-campus coordination and response to students who may be at risk to themselves, a risk to others, or who are creating disruption in the community. Campus health leaders serving on these committees should have a clear understanding of their role and the limits of confidentiality. While disclosure of protected health information is generally not permitted, they can often provide advice and guidance to the campus team such as offering suggestions on next steps for further evaluation or suggested referrals for a student struggling with emotional or physical issues. Information obtained from campus partners can be shared with the treatment team and guide clinical decision making [7].

College health clinicians often serve on campus review bodies to assist with providing expert interpretation and review of medical and mental health records submitted by students to campus administrators. Common review bodies include for disability accommodations, requests for leaves of absence, and academic petitions related to medical and mental health conditions. These roles are appropriate as long as the providers involved are not involved in the care of the patient and clear boundaries around confidentiality are maintained.

Crisis Management

Role of the Chief Health Officer

College health administrators play a pivotal role during campus crises, both health and non-health related. Examples of common public health crises include communicable disease outbreaks such as meningococcal meningitis, active tuberculosis, or norovirus; community mental health issues such as high-profile or public deaths, shootings, or suicide; and non-health-related emergencies that may impact public health such as fires, blizzards, or earthquakes. College health administrators should designate staff members to receive regular notifications from local public health agencies as well as monitor global health issues to provide early warning of an emerging issue that may impact students either on campus and abroad.

The college health administrator should be prepared to provide expert advice to campus leadership on the specific actions needed during an emergency to mitigate the health impact of these events. The administrator needs to understand best practices in these circumstances and advocate for these positions with non-healthcare leaders. For example, a non-healthcare leader may advocate for a campus policy that is either more or less stringent than that recommended by public health authorities. It is important for the campus health leader to advocate and educate in support of decision making aligned with best public health practice in the face of sometimes complex and frightening communicable diseases (Box 19.1) [8].

A campus health center staff member typically serves as the liaison between local public health authorities, other health care organizations, and campus leadership. Developing strong relationships with key individuals prior to a crisis can be critical to effectiveness.

This set of responsibilities can be referred to as serving as a “chief health officer,” advising policy and priorities during an emergency.

Box 19.1
During the 2014 Ebola outbreak in West Africa many institutions struggled to craft appropriate policies for both university-associated travelers to West Africa and campus visitors from these areas. In some cases, university policies went beyond recommendations from national and local public health in restricting all travel and prohibiting visitors from these areas [8].

Crisis Communications

Central to the role of chief health officer is guiding public communications. Ensuring that accurate and timely information reaches the campus community can lessen further harm and reduce public anxiety.

The campus health administrator often serves as the public spokesperson during a health-related emergency. Alternatively, they may prepare and vet communications for senior leadership. Basic media training prior to a crisis can prepare a campus health administrator or their designee for appearances on local television and radio and speaking with student journalists. Cultivating relationships with student media on campus leads to more trust during a crisis.

Public messages during a crisis should be short and focused. Limit communications to no more than three key messages and repeat them often (Box 19.2). While accuracy is important, speed is also critical given how quickly information spreads on social media. Be prepared to share with the community what you know and what you don't know with empathy and transparency. Give the audience concrete action steps they can take [9]. Specific guidelines are available when communicating about a death by suicide to mitigate community risk [10].

Emergency Management

The campus health administrator will typically serve on the central campus emergency response team. Many campuses use a standardized system utilized by local, state, and federal agencies known as "incident command."

Box 19.2
Sample all-campus communication about a communicable disease:

Dear Campus Community Members,

We are writing to let you know that a member of our campus community has been diagnosed with <name of disease>.

<Name of disease> is a common <virus/bacteria> that can cause severe symptoms including <symptoms> in some people.

<Name of disease> does/does not pose any risk to other people on campus. It is spread/not spread through <mechanisms>.

The most important action anyone can take to reduce their risk is to <actions to take>.

More information has been posted on our Website at www.healthcenterXYZ. If you have questions, please call the XYZ health center at 123-456-7890.

Campus health administrators should consider obtaining basic training in the Incident Command System available on-line or in person at no cost through the Federal Emergency Management Agency (FEMA) [11]. In addition to a campus emergency response plan, the health center should develop and maintain their own continuity of operations plan and disaster recovery plan. Continuity of operations planning requires continual updating and training in order to have a high level of preparedness.

The continuity of operations plan allows the campus health center to identify and deliver essential services, protect vital records, and recover operations in the event of an emergency. It also sets expectations on what services the campus health center can provide in an emergency. For example, even a large, comprehensive health center does not have the facilities, equipment, or staff to treat patients with significant trauma. Campus leadership may have unrealistic assumptions about the level of services the health center can provide in an emergency.

Risk Management

Peer Review

Regular evaluation of clinical practice is not only a requirement of accreditation, but vital to ensuring high-quality clinical care. College health practices may be part of a larger medical staff organization that provides a structure for this review, but are often independent. College health leaders of small organizations may need to contract with local healthcare groups or engage an external physician peer review company to provide ongoing review of clinical practice and/or review adverse patient outcomes. Ensuring an unbiased and external review is critical to ensure patient safety.

Special Notes on Prevention of Sexual Misconduct

Assuring patient safety through the prevention of provider misconduct is an important part of any health care organization. Student patients may be a particularly vulnerable population. They are often seeking health care for the first time without a parent or guardian present. Language and cultural barriers may make it more difficult for international students to advocate for themselves or report concerns.

Best practices include the adoption of clear policies and training related to sensitive health exams including a chaperone policy, a robust process for soliciting and investigating patient concerns, and regular training to ensure all staff understand the importance of and process for reporting boundary violations for both themselves and other members of the care team. Guidelines for policies during sensitive exams have been developed by the American College Health Association [12].

Reporting Sexual Assault, Domestic/Interpersonal Violence, and Sexual Harassment

Campus health professionals often have multiple obligations for reporting sexual assault and sexual misconduct [13, 14]. Like other health care professionals, state laws may mandate the reporting of abuse and mistreatment of vulnerable adults and minors as well as reporting requirements when providing care to the victims of crimes such as sexual assault and domestic violence. In addition, two additional federal statutes—the Clery Act and Title IX—may create additional reporting obligations for campus health providers [14, 15].

Mental health providers are typically considered confidential when providing care to non-vulnerable adults and are not obligated to report. They may, however, have obligations to report when engaged in activities outside of the clinical setting such as teaching courses, doing outreach, and advising students. Campuses may also establish voluntary reporting policies for the collection of campus crime statistics.

Medical providers may have reporting obligations under both the Clery Act and Title IX (Box 19.3) [14, 15]. Campus health administrators should work closely with legal counsel on their campus to develop policies and training for staff consistent with these requirements.

Scope of Care

Campus Expectations

Research suggests that families of students may have different expectations of the scope of services available on campus than what college health programs are able to provide [16]. This is particularly true for mental health services. While most

Box 19.3
The Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, or Clery Act, was signed in 1990. The Clery Act is designed to provide transparency around campus crime policy and statistics. It requires that universities produce an annual document, the annual security report, detailing policies and statistics about a variety of crimes on campus [14].

Title IX is a federal law that prohibits discrimination on the basis of sex in federally funded education programs and activities. Guidance from the Department of Education, Office of Civil rights requires many employees and students, known as “responsible employees” to report sexual violence and misconduct to campus authorities [15].

campuses provide only short-term care, students may expect to receive ongoing, complex care at the campus counseling center. Similarly, very few campuses provide medical care after hours and most refer students to local emergency departments and/or urgent care centers. Medical care may be limited to basic first aid and referral, and generally does not include specialty care. In some communities, specialty care may not even be available in the local area. For example, psychiatry or specialty medical services may not be readily available in some small communities and may require the student to travel significant distances to receive care. Clearly communicating the scope of services to students, campus administrators, families, and local healthcare providers is important to minimize disappointment and gaps in care once a student arrives on campus and in some cases before a student makes an enrollment decision. Information about the scope of services should be easily accessible on campus health websites and included in new student and family orientation written communications.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
College health programs are both healthcare and student affairs programs. This creates unique challenges and opportunities.	Clinicians in college health practices have unique responsibilities in reporting sexual assault and misconduct.
Campus health administrators are public health leaders on their campuses during emergencies.	Clinicians in college health serve as clinical advisors to campus faculty and staff on student health issues.
College health records have different federal protections than non-college health records.	Clinicians in college health must counsel their patients and their families on the scope of care available on campus including treatment limitations.

Conclusion

College health programs are uniquely situated with the fabric of university life creating challenges and opportunities in the provision of healthcare on campus. College health clinicians and administrators must balance their dual roles of caring for their individual patients and serving the needs of the institution.

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Chapter 20
Situating Healthcare Within the Broader Context of Wellness on Campus

Julie Edwards

Introduction

Student health serves as a primary care center on college campuses to provide services that support students' physical well-being. It addresses clinical concerns and provides students with linkages to other available campus resources to support their holistic well-being. This chapter discusses ways that student health centers can position themselves as central partners within the broader context of wellness on college campuses.

Creating Campus Cultures of Well-Being

Well-being is an optimal and dynamic state that includes satisfaction with life, feelings of fulfillment, safety, and positive emotions. Well-being allows people to achieve their full potential, and this concept transcends any one department or program on a college campus. Universities are becoming more aware of the critical need to support students by creating comprehensive, collaborative approaches to address all dimensions of holistic well-being so students may flourish while in college and beyond.

A Gallup-Purdue study of more than 30,000 college graduates found that "only 11 percent of college graduates are thriving—strong, consistent, and progressing—in all five elements of well-being. More than one in six graduates are not thriving in any of the elements" [1]. How can universities and colleges positively impact students' well-being? The answer may lie in how campuses empower students to flourish.

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Models of Well-Being

Several frameworks for well-being exist to encourage campuses to implement systems-level approaches to support students in achieving their full potential. The Okanagan Charter's vision for health-promoting universities and colleges is to "transform the health and sustainability of our current and future societies, strengthen communities and contribute to the well-being of people, places and the planet" [2]. This charter includes two calls to action for higher education institutions:

1. Embed health into all aspects of campus culture, across the administration, operations, and academic mandates.
2. Lead health promotion action and collaboration locally and globally.

The Okanagan Charter urges universities and colleges to understand that health promotion must move beyond focusing on individual change toward interventions that address the social determinants of health. This systems-level approach is necessary to generate thriving campus communities and an overall culture of well-being.

"Collective impact" refers to a cross-sector collaboration that brings together a broad spectrum of organizations to solve a specific social problem in a community (Table 20.1) [3]. This framework is similar to the Okanagan Charter in that it emphasizes that well-being cannot be effectively addressed by one department or program, but rather through innovative, strategic collaborations with diverse partners to identify campus concerns and work together to address them.

Collective impact creates a coordinated effort to infuse health and well-being into the campus culture. It brings value to higher education institutions by reinforcing the institution's mission, strengthening existing community engagement efforts, and facilitating campus-based change. By participating in collective impact initiatives, universities can better serve their students by moving from reactive responses to campus concerns to proactively creating shared action plans with diverse campus partners to implement varied approaches that address campus problems. The collective impact work monitors the results of these efforts to determine if they are achieving the intended outcomes.

Table 20.1 The five conditions of collective impact

Common agenda	Common understanding of the problem Shared vision for change
Shared measurement	Collecting data and measuring results Focusing on performance management Sharing accountability
Mutually reinforcing activities	Differentiated approaches Coordinating through joint plan of action
Continuous communication	Consistent and open communication Focusing on building trust
Backbone support	Separate organization(s) with staff Resources and skills to convene and coordinate participating organizations

Many institutions of higher education have existing initiatives taking place to support student well-being. The frameworks mentioned above serve as tools to create systems-level approaches and launch multi-layered initiatives that can enhance well-being on campuses. Rather than duplicating existing efforts, these frameworks can be used to identify ways to align approaches for a broader impact.

Considerations for Administrators/Clinicians

Student health centers reach large numbers of diverse students on a daily basis. As such, they have access to data trends highlighting key concerns among student populations. This data can be used to identify key areas to focus prevention efforts to develop a joint action plan shared by the campus community. Student health centers can serve as primary partners in creating a culture of well-being on college campuses by sharing the knowledge they have about students to drive systems-level change. Administrators and clinicians should become familiar with the models being discussed in the industry to determine the best approach to use on their respective campuses. They can then determine the most appropriate collaborations to support campus well-being and can even serve as key facilitators to drive this work.

Incorporating Health Promotion and Education into Clinical Practice

The Field of Health Promotion

Health promotion is the process of enabling people to increase control over and to improve their health. It moves beyond a focus on individual behavior toward a wide range of social and environmental interventions [4]. At colleges and universities, health promotion serves the core mission of higher education by supporting students and creating healthy learning environments.

Public health is the main lens of health promotion professionals. They strive to prevent problems from happening or reoccurring through assessing the needs of the campus population, implementing evidence-informed strategies to address those needs, and researching the effectiveness on the overall population. Health promotion professionals implement systems-level approaches to make the greatest impact for the largest number of people (Table 20.2) [5].

As an example, the Healthy People 2020 framework [6] aligns with the socioecological framework in health promotion and disease prevention and underscores that initiatives are more likely to be effective when they are designed to address multiple levels of influence on health behaviors. Peer educators align with the social cognitive theory, depending on their design. These groups can provide social support for

Table 20.2 Theories utilized in health promotion with applications in clinical practice [5]

Socioecological model	Recognizes multi-dimensional levels that influence health behavior: individual, interpersonal, institutional/organizational, community, and systems/policy.
Health belief model	Focuses on individual beliefs about health conditions that predict individual behaviors. Defines the key factors that influence health behaviors as an individual's perceived threat to sickness or disease; belief of consequence; potential positive benefits of action; perceived barriers to action; exposure to factors that prompt action; and confidence in ability to succeed.
Transtheoretical model	Explains an individual's readiness to change their behavior: pre-contemplation, contemplation, preparation, action, maintenance, and termination. Recognizes that habitual changes occur in a cyclical process and different intervention strategies can be implemented to move a person through these stages.
Social cognitive theory	Describes the influence of individual experiences, the actions of others, and environmental factors on individual health behaviors. Provides opportunities for social support through instilling expectations, self-efficacy, and using observational learning and other reinforcements to achieve behavior change.
Reasoned action/ planned behavior theories	Suggests that an individual's health behavior is determined by their intention to perform a behavior; the intention to perform a behavior is predicted by the individual's attitude toward the behavior and subjective norms regarding the behavior.

college students around key topics such as alcohol use, sexual health, mental well-being, and bystander intervention. The social support in these groups can create model expectations for peers to positively change their behaviors.

The health promotion and education models included above can be used to create short- and long-term interventions not only within clinical settings, but also in strategies to create systemic changes on campuses. They serve as critical tools to address student concerns and encourage sustainable behavioral change for students to achieve optimal well-being.

Considerations for Administrators/Clinicians

Health promotion complements the work of clinicians whose primary role is to treat individuals when they are sick or injured. Administrators and clinicians should become familiar with the theories mentioned previously to identify ways health promotion can be utilized more effectively in clinical practice. Consideration should be given to determine how student health can work collaboratively with health promotion to proactively address student concerns and teach students skills and tools that allow them to achieve overall well-being. Collaboration is crucial to create systemic change on college campuses.

Utilizing Case Management and Behavioral Assessment Teams

Case management is another resource that can provide systems-level support for college campuses. According to the Higher Education Case Managers Association (HECMA), "Higher Education Case Managers serve their University and individual students by coordinating prevention, intervention, and support efforts across campus and community systems to assist at risk students and students facing crises, life traumas, and other barriers that impede success" [7]. Case management is designed to help students overcome obstacles they may encounter in their lives. This is central to the academic mission of most higher education institutions, which seek to retain students and provide them with an environment that is conducive to their academic success. Case management can serve as a critical tool to support students and keep them safe.

Clinical and Non-clinical Case Management

There are different models of case management used on college campuses. Some are more focused on clinical case management, which involves connecting students to resources either on- or off-campus (therapists, referrals to clinical specialists, etc.). In these situations, clinical case managers provide critical student support to arrange for appropriate medical or mental health care, monitor compliance with treatment plans, and ensure students are not a risk to themselves or the campus community. Clinical case managers follow Health Insurance Portability and Accountability Act (HIPAA) guidelines and serve as part of treatment and coordination of medical and mental healthcare teams.

Non-clinical case managers can assist in areas outside of the clinical realm to address social determinants of health impacting students including financial, personal, or academic concerns. In these situations, non-clinical case managers link students to campus or community resources so they may receive the help they need and continue to be successful. Non-clinical case managers are guided by the Family Educational Rights and Privacy Act (FERPA) and share information on a "need-to-know" basis with other campus partners.

Both clinical and non-clinical case managers serve as advocates for students so they can more effectively navigate complex systems, especially since college may be the first time they are on their own. Case management is proactive and solution-focused; it can connect students with resources they need and help them set and reach academic, personal, and career goals. When considering case management resources for campuses, it is important to be intentional about where the department resides organizationally and establish clear parameters of their functions.

Locations for Case Management on a College Campus

Case management resources generally reside within Student Affairs, although there are examples where case managers are housed in clinical settings (such as student health or counseling), housing, student conduct, or academic advising. If case managers report to a specific department, their role may be focused on that particular area (e.g., a case manager in student counseling may be responsible for connecting students with community therapists specifically). Case managers who report through Student Affairs are typically interdisciplinary in that they are familiar with the wide range of services offered throughout campus and the surrounding community so they can readily refer students to resources specific to their needs, whether financial, clinical, personal, or academic.

Behavioral Intervention Teams

Behavioral Intervention Teams (BITs) "are small groups of school officials who meet regularly to collect and review concerning information about at-risk community members and develop intervention plans to assist them," according to the National Behavioral Intervention Team Association (NaBITA) [8]. These teams are available on college campuses to gather individual and community-level data to intervene in certain situations such as assisting students in crisis and supporting students with disabilities or mental health challenges.

Case managers can serve as key partners on BITs to provide context around issues impacting individual students as well as systemic concerns that need to be addressed more broadly.

Considerations for Administrators/Clinicians

If administrators are considering case management structures for their campuses, they should be clear on the role of the case management team, particularly whether it will be focused on one particular area or will support students more broadly by connecting them to appropriate campus resources. These considerations are crucial in determining which department the case management team should report through and how to focus their efforts to support students' academic success and overall well-being.

Integrating Student Health and Wellness Centers

Many colleges and universities are structured with separate departments for student health, counseling, and health promotion, and wellness services. As such, the work being done in these areas can sometimes seem fragmented and focused on a presenting issue, rather than addressing underlying causes that may impact that issue.

Co-locations and integration of services between health, counseling, and wellness services have been happening over 2 decades, though consensus on best practices or consistent results on positive treatment-related outcomes have yet to be established. An example of an innovative structure is the Student Care Network, developed by Vanderbilt University, to streamline care for students and link them to campus resources most suited for their presenting concerns [9]. Vanderbilt reimagined their structure by developing an Office of Student Care Coordination that serves as the first step for students in receiving care. Vanderbilt categorized existing campus resources around 9 dimensions of wellness to highlight the multitude of resources available to students and link them to the most appropriate resources based on their needs.

An integrated approach may offer the best foundation for providing holistic care to students, which is consistent with the current cultural shifts toward systems-level approaches as highlighted in the Okanagan Charter and Collective Impact. Collaborative identification, treatment, prevention, and health promotion initiatives can generate thriving campus communities and create an overall culture of well-being.

The American College Health Association (ACHA) identified consistent themes of benefits and key considerations around integration in their 2010 whitepaper [10]. The majority of the researched studies agreed that co-location and/or integration of services may have the potential to provide holistic care to students and increase access to service delivery and potentially health outcomes, if done correctly. Most studies cited improvements in comprehensiveness of services and improvement in the quality of services due to co-location, and several studies examining primary care and behavioral health service integration in the general population showed cost savings, positive clinical outcomes, and a greater number of depression-free days. Integrated centers reported that they were more easily able to meet the demands of their students and had more efficient utilization of their services.

Co-location and/or integration require significant coordination between departments, reconciliation of care and treatment philosophies, clear communication, alignment of mission and vision, and adequate human and operational resources. Many studies cautioned that the benefits of co-location may not be realized if adequate support and resources are not in place, and potential negative outcomes could include reductions in morale and efficiency, resistance voiced by clinicians, differences in philosophies of care, and difficulties in accessing and sharing medical records between services.

One of the successful methods highlighted in integrated models of care on campuses were interdisciplinary treatment teams around student concerns such as suicidality, violence, depression, anxiety, substance use, and eating concerns. By bringing together relevant campus partners from campus health, counseling, wellness, housing, etc., discussions can ensue around how to best support students and provide holistic care whether in a clinical setting or by linking students to other relevant campus resources.

Stepped care approaches can also meet the demands of students and allow them to access services more effectively. According to the 2018 Association for University and College Counseling Center Directors (AUCCCD) survey [11], 35.9% of centers

currently use a version of stepped care. Examples of stepped care approaches include utilizing health promotion departments to provide Wellness Coaching, Brief Alcohol Intervention for College Students (BASICS) sessions, mindfulness classes, and other self-care strategies to empower students to maintain their own well-being. These strengths-based approaches can free up clinicians to focus on acute physical and mental health care relevant to their roles.

Considerations for Administrators/Clinicians

Administrators should explore ways to provide collaborative health, counseling, wellness, and other campus services, giving consideration to co-location or integration of centers to improve student outcomes. Clinicians should consider opportunities to work more collaboratively with counseling and wellness departments, such as interdisciplinary teams or stepped care approaches, to provide more holistic care for students. In reviewing options, administrators and clinicians should determine the outcomes they want to achieve and identify approaches that would be best suited for their respective campuses.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Develop a clear framework of campus well-being to drive the work of campus health and other key partners to support the campus community.	Identify ways they can contribute to campus well-being by sharing their unique knowledge and skillset to embed health in all aspects of campus culture.
Identify relevant health promotion theories that can be utilized more effectively to support students, empower them to achieve overall well-being, and monitor outcomes achieved.	Identify ways health promotion can be utilized more effectively in clinical practice and determine how college health can work collaboratively with health promotion to empower students to achieve overall well-being.
Determine whether case management can be implemented to support campus well-being; be clear about the role case management will play and intended outcomes of the program.	Identify ways campus health can support the work of case management and how to utilize this service effectively in clinical settings.
Explore ways to provide collaborative health, counseling, wellness, and other campus services with consideration of co-location or integration of centers; determine intended outcomes and what approaches would be best suited for their respective campuses.	Identify opportunities to work more collaboratively with counseling, wellness, and other campus partners to provide more holistic care for students.

Student Take

During mid-terms, a first-year student notices that her roommate is having trouble sleeping, crying frequently, and no longer coming out of her room to engage with people. She talks to her Resident Assistant, who files a BIT report, and the case management office reaches out to the roommate. They connect her with the counseling center to assess her safety and provide her with stress management strategies. The counseling center recommends a follow-up with student health to evaluate her for the potential benefit of short- and/or long-term medication to be used in conjunction with therapy. They also encourage her to visit the health promotion office to explore their sleep and mindfulness programs. The student follows up with student health, participates in group programming offered by health promotion, and completes her first year successfully.

Conclusion

Students' health and well-being are critical factors in their retention in school, academic achievement, and success. Health challenges can undermine motivation, engagement, and rates of completion and graduation. A systems-level approach is crucial to support students not only when they are experiencing challenges, but also to empower them to lead healthier lifestyles, which may prevent future concerns.

Campus well-being should not be owned by one department or program; it should be the focus of the entire campus community. It is important for campus health clinicians to serve as key partners in these efforts because they bring unique knowledge of data trends seen on a regular basis among students served. College health, working collaboratively with other student services and academic departments on campus, can strengthen students' readiness and ability to take full advantage of their educational programs, which will ultimately improve their overall well-being.

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Chapter 21
Organizational Structures of Student Health

Richard P. Keeling

Introduction

The organization and structure of college health services (a term that embraces a variety of administrative synonyms applied differently across higher education, the most common of which is *student health service(s),* or *student health center*) are sensitive to institutional and community context and always subject to change. Just as many other terms used in higher education convey a certain paradigm that is actually not generalizable across the field, *college health* suggests a particular form of health care and conjures up a stereotypical image of the setting, staff, and process through which that health care is delivered. But the broad field of higher education includes a wide diversity of institutional types with customized missions, purposes, and academic programs. College health services are at least as diverse in organization, structure, leadership, and function as are the institutions that provide them.

There are, however, certain general patterns of organization and structure that are true of the great majority of college health services. Within each of those patterns, there are large and small variations. Often, these organizational variants have been created (or simply allowed to develop) over time in response to particular situational, personnel, or temporal considerations, rather than in response to an intentional strategic plan. This can be a significant challenge to administrators who have the responsibility of bringing a student health service's historical practice in line with the demands of modern health care and higher education standards.

Another challenging aspect of college health administration is that the structure, organizational placement, and reporting line(s) of a college health service are often designed and implemented by people who have limited experience with health care or its administration. There are unquestionably advantages to such an arrangement from the perspective of the leader of a college health program (especially, a

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significant level of administrative autonomy), but the disadvantages have acquired greater magnitude and significance in the context of recent trends in health care costs, declining budget flexibility in higher education, and rising demands for both institutional sustainability and lower levels of college costs and post-graduation student debt.

Organizational Placement

In the great majority of American 4-year colleges and universities, college health services are located within a portfolio of departments and units that provide personal, and sometimes academic, support services to students. These portfolios have traditionally been called student affairs, student or campus life, or student services divisions. Other components of the portfolio have typically included residence life; recreation; counseling; student organizations and activities; career services; student conduct; community engagement; health promotion; sexual assault prevention; and diversity, inclusion, and equity offices [1]. This pattern exists even when the university has an academic medical center, whether or not the academic medical center is geographically proximate to the academic campus. When a university does assign responsibility for college health to the academic medical center, that responsibility is almost always given to an academic department in the medical school.

Variations also occur in the case of universities that have completely separate academic and medical campuses at some distance from each other. The need for a student health operation on the medical campus dictates that a separate health center be established within that campus to serve health sciences students. In that circumstance, the main campus health center reports within student affairs on the academic campus, and the student health service in the medical center usually reports to either a student affairs officer on the medical campus or an academic department chair. A common administrative adaptation in universities that have an academic medical center on or near the main campus is for the college health service to have a dual reporting structure, with a "solid line" to a senior student affairs officer for most administrative, operational, and program purposes, and a "dotted line" to a dean or department chair in the medical school for oversight of matters related to medical quality and safety.

In other institutional types—2-year community and technical colleges, universities with one or more branch campuses, for-profit colleges, and public institutions in densely urban areas—the organizational placement of college health services varies greatly. Many such institutions do not provide on-site student health care at all, or do so only at the level of very basic triage and referral. Public urban universities often provide very limited student health care services compared to the far more extensive and comprehensive services offered by their private institution neighbors (compare the student health service at New York University to a health service at one of the City University of New York campuses, for example). Universities that have branch campuses generally provide less extensive health services for students

on those campuses than on the main campus (examples: Georgia State University; Simon Fraser University; the University of South Florida). Across these differences, campus health services are most likely located within some student life portfolio. Especially in public 2-year institutions, this student life portfolio is often focused more on academic than personal support services, so the peers and partners of student health programs on those campuses may be academic advisors, learning specialists, tutors, and career counselors.

Changes in higher education and health care have fostered alterations in this general pattern of organizational placement within student affairs portfolios [2]. Student affairs, which has traditionally reported to the senior executive (president or chancellor), now often reports to the provost, or senior academic officer. This has distinct advantages, given the role of health-related programs and services in supporting students' learning and academic success, but it increases the "administrative distance" between the health service and the senior executive. The emergence in many institutions of a strong priority on admissions and retention has led to partnerships, intersectional work, or administrative mergers of student affairs and enrollment management divisions that often result in the creation of very large portfolios under the broad rubric of student success. There is a concern at times that the priorities and professional demands of college health center administration and staff will get lost within such large divisions.

The pressing need for revenue diversification to ensure fiscal sustainability of college health services in the current environment of continually rising costs of health care and higher education has generated new college health business models that are increasingly dependent on fee-for-service charges and third-party reimbursements. These complex business models have, as is the case with housing and dining services, resulted in the organizational relocation of some larger college health services to administrative and financial portfolios at the vice presidential (or vice chancellor) level. The integration of health-related programs and services into comprehensive organizational entities has, in the view of some college health professionals, diluted the specific influence of the college health service and informally moved it further from senior administrative thinking and planning.

Scope of Care and Internal Structure

Colleges and universities in the United States originally formed student health services in response to medical or public health needs: to enable students to receive basic health care without leaving campus and thereby preserve their focus on their studies, and to respond to campus epidemics and other public health challenges [3]. Just as the word "health" is commonly understood to refer to physical health and the term "health care" is assumed to refer to the medical assessment and treatment of physical health problems, so college health has been understood as the delivery of basic medical or nursing services to students. There has been little debate about the scope of such services even though the demographics of college and university

students have changed dramatically. There has never been any serious expectation that college health services would provide advanced or specialty care, perform significant surgery, or offer comprehensive care for students with most chronic illnesses. Even the overnight care provided in college health infirmaries—few of which still operate—has been understood as low intensity, low risk, or respite care, not at all like the service delivered in an acute care hospital.

There is little variation at the upper end of health care delivery expectations, but great variation at basic levels. The nature of the institution and its students, the types of academic programs provided, whether students live on campus, what services are available and accessible in the surrounding area or community, the institution's philosophy about student life and student services, and the staffing pattern in the health center are all major factors in determining how far beyond low-intensity assessment, triage, and referral the health service will go. If the clinical staff are registered nurses, for example, the service will provide a different level of care than if nurse practitioners and/or physician assistants are included. Many health centers in smaller or regional institutions are very capably led by nurses or nurse practitioners who, performing within the guidelines of their licenses, can provide exactly the level of care needed by most students in most circumstances. State regulations for nurse, advanced practice nurse, nurse practitioner, or physician assistant practice vary, and therefore, the degree to which a physician must oversee certain elements of their practice, review their clinical documentation, be available for consultation with them, and be accountable for their decisions also differs.

Organizational Implications of Increasing Mental Health Needs

For many decades, college health was organized to provide basic medical or nursing services for acute or episodic minor illnesses and injuries among otherwise healthy young adults. Many college health services retain more or less that service model today, regardless of their leadership. But several trends—notably an increase in the prevalence of mental health concerns and psychological distress among college and university students, the emergence of fair and ethical practices in responding to the needs of students with disabilities, and the matriculation of an increasing number of students with chronic health conditions—have led to significant and far-reaching changes in the roles and functions of college health. This, in turn, had led to equally significant and far-reaching adaptations in their organization and structure.

Initially, larger private and public universities broadened the service model of college health to include psychiatric services. Most clinicians in college health were physicians when that transition occurred; accordingly, the providers of mental health care were primarily psychiatrists located within the college health service. In some institutions, the mental health or psychiatric service was called "mental hygiene" [4]. When college health services began offering psychiatric care, counseling centers, as we now know them, were just developing. Their spectrum of care and service models generally addressed low-intensity psychological concerns of

late adolescents and young adults: primarily adjustment disorders, relationship problems, and stress management. Counseling centers eventually broadened their service models to include assessment and care for students with more serious mental health disorders when the demand for such services began to rise. They began to offer comprehensive, integrated, holistic mental health services provided by psychologists and professional counselors, as well as psychiatrists and other medically oriented psychiatric professionals (psychiatric nurse practitioners and physician assistants, clinical social workers, and certain case managers). In some universities, psychiatric services are provided in the student health service, while non-medical counseling and psychological services are offered through a counseling center. One of the most important organizational decisions senior administrators must now make is whether to retain separate medically oriented and developmentally oriented psychological services.

Whether psychiatric care is provided in the health service, the counseling center, or both (as is the case in a few institutions), there is a critical need for coordination of care and resources to ensure that students' psychological needs are appropriately and effectively recognized and addressed. The reality that many students come to the health service, rather than a counseling center, when they experience psychological distress has also supported another major organizational change: the integration not just of medical and developmental psychological services, but, at a higher level, of all health-related programs and services [5].

Integration of Health-Related Services for Students

Whether or not that integration occurs in a formal organizational sense, it has happened at the level of clinical practice. In many college health services today, at least a third of student visits, and a third of the time and effort of clinicians, is devoted to serving students who have mental health concerns [6]. Several factors fuel that trend: (1) The demand for psychological care often exceeds the service capacity of the counseling center to provide it; (2) some students for reasons of culture, tradition, or perceived stigma prefer to come to a medical practice for care; and (3) many students simply become confused about where to seek care and present to health services as the most familiar option. The challenge created by that new, and expanding, pattern of mental health service delivery is that some clinicians in college health do not feel adequately trained and prepared to provide psychiatric care beyond prescribing or monitoring certain basic psychotropic medications for mild to moderate anxiety or depression. Hesitant to turn students away given the significance of psychological distress as a factor in student learning and success, they turn to leadership in health services to provide additional training and professional development and seek to create better and more functional cross-referral relationships with counselors or off-campus psychiatric services.

These trends in mental health care, a holistic perspective on the delivery of health care in general, and principles of inter-professional practice and administrative efficiency, have prompted the integration of health, mental health, and health

promotion (or wellness) programs and services on many campuses. Integration, however, means different things in different places—from the simple co-location of services in the same building without any formal administrative, programmatic, or service integration to full organizational merger under the leadership of a single executive. Within that spectrum of organizational types are intermediate arrangements, such as having 3 otherwise independent units (health, counseling, health promotion) that report to the same administrator. This initial step, such as co-location or having the same reporting line, is at times followed by increasing degrees of administrative or programmatic integration. There are substantial advantages to having shared administrative services (e.g., physical plant, information technology, budget and finance, human resources) and infrastructure; program and service integration creates important opportunities for better shared case management, improved care coordination, appropriate sharing of clinical information, and true inter-professional care and practice.

There are certainly challenges in integrative organizational models [7]. Preserving disciplinary autonomy is important, so health, counseling, and health promotion programs all require their own unit directors—the relationships among whom are vital to the success of student care and outcomes. The background, experience, and discipline of an overall executive matter a great deal, and staff members in each discipline may prefer that the executive be "one of them." In practice, medical and nursing clinicians; psychologists, counselors, and social workers; health educators and outreach specialists; and health care administrators have all been effective and successful in that role. The need to share appropriate elements of students' personal health information between clinicians in different units has often been a barrier to implementing and sustaining good inter-professional care and practice. Discomfort and sometimes resistance to such sharing often arise from sound concerns about protecting students' privacy, basic elements of disciplinary culture, and the need for adherence to professional standards and regulatory requirements. If not carefully understood and addressed, these issues will undermine the success of service integration. The focal point of these concerns is often the need to move to a single, shared electronic practice management and clinical documentation system. Although currently available college health-specific information systems all provide adequate ways to protect and limit unnecessary access to personal health information, administrators must understand and respond carefully to the legitimate concerns of mental health providers in establishing inter-professional practice models, shared information systems, and integrated services [7–9].

College Health Perspectives

Administration
What are the key points for administrators managing college health?
The greatest challenges in the administration and funding of college health result from rising health care costs, declining budget flexibility in higher education, and increasing demands for both institutional sustainability and lower levels of college costs and post-graduation student debt.

Administration
A key administrative decision is whether to retain separate medically oriented and developmentally oriented psychological services.
Administrators must respond thoughtfully to the legitimate concerns of mental health providers in establishing inter-professional practice models, shared information systems, and integrated health services.

Conclusion

The history, evolution, and changes in organization and structure of college and university student health services demonstrate long-term patterns of sensitivity to context, responsiveness to students' emerging health-related needs, and adaptability to institutional change. The development of integrated organizational structures supports the principle of inter-professional care and services, taking the innovation developed in hospitals and clinics serving patients with complex and chronic illnesses and applying it more broadly to an educational setting in which students are prepared for success as individuals, citizens, and leaders. Regardless of the specifics of their organizational placement and administrative structure, college health centers serve core elements of institutional mission by removing barriers to learning and supporting students' personal and academic success.

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Chapter 22
Funding Student Health Services

James R. Jacobs and Leigh S. Stacy

Introduction

This chapter describes concepts related to funding student health services at colleges and universities. As this content will feel familiar for those in the daily practice of college health, the chapter is oriented to university administrators, trustees, students, and others who might desire deeper understanding into the financial sustainability of college health. It builds upon the work done by Brindis and Reyes [1] and examines the significant evolution in this field since 1997. Given the enormous diversity in the size, scope, and mission of institutions of higher education, the particular budget and finance procedures of individual institutions will affect the applicability of some ideas presented here.

Definitions

College: The terms *college*, *university*, and *institution* will be used interchangeably, unless otherwise specified, but the focus here is exclusive to post-secondary institutions of higher education.

College Health: The terms *college health* and *student health* are considered synonymous and refer to a portfolio of services that the college makes available to support the health and well-being of its students [2]. There is no standardized definition

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of a college health portfolio. In general, it includes primary care medical services, psychiatric and counseling services, and prevention and well-being services, but there is remarkable variability from campus to campus. Depending on the institution's resources and organizational structure, the student health service can range from a part-time registered nurse at one end of a spectrum to a sprawling operation that includes multi-specialty medical and mental health clinics, prevention services, disability services, recreational sports, and possibly even a 24/7 infirmary at the other end of the spectrum. Some college health services also provide care for faculty, staff, dependents, and other university affiliates, but our focus here is students.

Health Fees

It is increasingly commonplace for a designated "health fee" to be included among the mandatory fees assessed by the college each academic term, alongside tuition. It is presumed that health fee revenue is used to fund student health services. At some institutions, there is no designated health fee per se, although one might postulate that a health fee-equivalent is baked into the calculation of tuition and other fees and is then available for distribution through the funding allocation process.

Importantly, there are downsides of a visible, designated health fee. First, it creates an illusion of prepaid access to service. When a miserable-feeling student presents late in the day and is told there are no appointments available and is referred to a local urgent care instead, the student—even more so the parents—might feel frustrated and misled, especially considering potential challenges with transportation to and from the urgent care clinic, payment of a co-pay, and other inconvenience.

Second, a mandatory health fee might be interpreted by students and parents as a guarantee of unlimited free access to all services within student health. The student might feel separate charges for specific resources within student health—such as renting a pair of crutches for a week, the administration of intravenous fluids or intramuscular medications, or an access fee for ongoing medication management by a staff psychiatrist—are an unfair barrier to care.

Third, it is an inconvenient truth that the health fee is to a greater or lesser extent subsidizing the student's health insurance plan, which many institutions require students to carry. The health fee covers much of the primary and mental health care for which that health insurance plan would otherwise be asked to pay. We must hope that the convenience and student-centeredness that we offer for most students most of the time compensates for what might appear to be a form of "double-dipping."

Finally, year-over-year increases in the health fee are often not permitted to exceed the percentage increase in tuition and thus do not keep pace with healthcare inflation. Salaries, staffing, and strategic evolution of services cannot be right-sized if the health service budget is tied too tightly to the health fee alone.

Upsides of the health fee include that it is too visible for the institution to reappropriate and that, because it is a required fee, the cost can often be included in the student's financial aid package, thereby sparing out-of-pocket expense. In

addition, in most locales, third-party reimbursement for a single, or at most 2, primary care or counseling visits per academic term exceeds even the most expensive of health fees. In this capitated model of a required health fee, it may seem an excessive expense to the many students who don't access services, but in an absolute sense it is actually quite a bargain for those who do.

Non-health Fee Institutional Funding Sources

General Funds: Although the terminology varies across institutions, we will use *general funds* to refer to reliable, recurring institutional funding other than that generated by the health fee. A downside of general funds is that in a given budget cycle(s), the institution might decide to globally hold back from the corpus or expected inflationary growth in order to put aside monies to meet other strategic or recessionary objectives.

Base-Funding: We will use *base-funding* to refer to the sum of revenue provided by the health fee plus revenue received through general funds. For the vast majority of college health services, base-funding is the dominant form of revenue. If base-funding is sufficient to provide adequate services to most students most of the time, student health essentially operates as a capitated managed care organization. Unfortunately, this model can break down as additional sources of revenue, including escalating out-of-pocket expenses to the patient for services not covered by base-funding, are required to keep the system whole or to meet service demand.

One-Time Funding: One-time funding is a non-recurring influx of funding to meet a specific need. Occasionally, one-time funding is repeated across several fiscal years, but if there is sustained need, it is understood that no increase to base-funding will be forthcoming and that there is an absolute expectation that the department will identify an alternative ongoing source of funding (e.g., eliminate another program or charge a user fee for the new program).

Fee-for-Service: Fee-for-service billing of third-party payers (not necessarily limited to health insurance plans) has been the traditional way for healthcare providers to generate income for many years. The provider provides a clinical service, a claim is submitted to the third-party payer (with whom the provider has a contractual relationship), and the provider is paid. Since the recession of 2008, increasing numbers of college health services have turned to third-party billing, despite the substantial administrative burdens.

Fee-for-service funding also can take the form of a fee associated with specific services, in which the client is expected to pay the fee when the service is requested and received. Hybrid forms of this model are common. For example, the base-funded capitated model covers the cost of a wound evaluation by the primary care

student health clinician, but there is an additional fee if the clinician proceeds to suture the wound. Or, the capitated model covers a psychological intake appointment, but there is a fee for subsequent psychoeducational testing to assess for attention deficit hyperactivity disorder (ADHD). In the college health setting, fee-for-service is not necessarily limited to clinical services. For example, a fee might be assessed for compulsory consultation with a substance abuse counselor after an alcohol violation in the residence hall.

Purchase-for-Resale: Purchase-for-resale is distinct from fee-for-service in that it involves the purchase of products (e.g., vaccine or durable medical equipment) and services (e.g., laboratory testing or radiography) that are sold to the student-patient (or to a third-party payer) at a margin, such as to generate a revenue stream. The most prominent example is a full-service pharmacy offered within a college health service. Historically, margins on generic pharmaceuticals were large enough that college health services could profitably operate a full-service pharmacy, but they are now largely a loss leader unless there is a large and vibrant retail component to their offerings, such as selling candy bars, greeting cards, novelties, etc.

Endowment Income: Endowments generate yearly income that is subject to stringent institutional guidelines and dependent on investment performance and market forecasts. The use of the income generated is restricted to terms of the endowment agreement. We elect here to stratify endowment income as distinct from base-funding.

Gift Income: Gifts typically result in one-time funding for a designated purpose. The counseling services might accrue several small donations and then use $500 to sponsor a half-day training for the eating disorders team. Or, a $500,000 gift for student well-being might be used to fund a life coach for 4–5 years. When gifts are used to fund salary and fringe, there must be full appreciation that the position will end when the gift has been spent, unless a new donation is forthcoming or the institution has recognized so much value in the new position that a decision is made to increase base-funding to sustain it.

Carve-Out: Occasionally, the institution will conclude that a certain function of student health is so mission-critical or politically sensitive that it will receive special budgetary consideration, essentially carving it out from vulnerability and fluxes in the annual budget process. The expense associated with the administration of influenza vaccines, in the quest to immunize as much of a campus population as possible, is one such example.

Subvention: Subvention in this context essentially means to make whole. If the student health service exceeds its budget in a given year due to, for example, paying overtime for staff to administer a new vaccine during an emergency response to a pandemic, it is hoped that the institution will subvene the health service budget to relieve the unavoidable deficit. As an adjuvant to subvention, the institution should

permit the student health service to maintain and control a financial reserve as a means to mitigate expense associated with unknown or unanticipated health events or crises. Said reserve might also be a mechanism for the health service to fund limited capital improvement projects and major equipment purchases without having to go to the budget process for new one-time funds, although capital planning dollars will almost always be necessary for major renovations and new construction. Subvention will likely be necessary in the aftermath of a natural disaster or mass causality incident in which the health services have been particularly affected.

Unfunded Mandate: An unfunded mandate is a statuary or institutional requirement imposed on a health service with no funding provided to fulfill the requirement. For example, when a state legislature expands mandatory vaccine requirements for all institutions of higher education, or when the Human Resources Department conducts a salary market equity analysis and requires the advanced practice providers (nurse practitioners and physician assistants) in the practice to receive a pronounced salary increase. Subvention, reserves, and/or a permanent increase in general funds may be necessary when unfunded mandates come along.

Access Fee: Some health services charge a nominal per-visit or time-delimited access fee in lieu of an automatic health fee or in parallel with a relatively small health fee.

Student Health Insurance Plan (Ship)

Some institutions elect to sponsor a student health insurance plan(s) (SHIP). In the current era, these tend to be comprehensive, Affordable Care Act (ACA)-compliant health insurance products that are optimized for both the resources available in the local geographic area and for the anticipated needs of the mostly young adult population being served (e.g., outpatient mental healthcare, transgender care, international benefits during study abroad). The American College Health Association has suggested standards for SHIPs, and a recent research study [3] illuminates some of the nuances of administering these plans. Importantly, the SHIP is primarily, or in many cases exclusively, for services provided outside of student health, such as at a hospital, urgent care clinic, imaging center, or specialist's office, since services provided by most college health services (which do not bill insurance) are funded by the institution.

As of this writing, the age-26 rule of the ACA remains in effect. Accordingly, SHIPs remain most appealing to older graduate and professional students and to some international students. For younger domestic students, it is appealing—where family circumstances permit—to remain as a dependent under a parent's health insurance plan. Until, that is, the student discovers that there are no or few in-network plan benefits in the region where the college is located. For this reason, many institutions choose to proactively and automatically enroll all students in the

SHIP, and require those who elect to waive such coverage to formally demonstrate that their chosen plan will meet essential healthcare needs in the given location. Inadequate coverage, especially at times when care is most needed, can adversely impact a student's academic success, or even the ability to remain in school.

Synthesis of Concepts

Consider a college of 5000 students who pay a health fee of $200 per semester (neglecting intersessions and summer terms for sake of clarity). For the current fiscal year, this generates $two million, assuming that the total is not subjected to an institutional overhead charge.

Over the course of time, institutional expectations for the scope and breadth of services and timeliness of access to service have resulted in a general funds allocation that for the current fiscal year totals an additional $2.5 million. Thus, for the current fiscal year, health services has base-funding of $4.5 million.

The projected health services budget for the current year is $4.55 million, but it is anticipated that salary savings from 2 positions that took longer than expected to fill will eliminate the projected $0.05 million overspend. Furthermore, Health Services has accumulated a $0.2 million reserve, on which basis the university budget office was willing to approve a budget in excess of anticipated income.

For the next fiscal year, it is anticipated that both the health fee and general funds will increase by a nominal 3%. Salaries, which form the bulk of the health services budget, will also nominally increase by 3%. Recall though, that a deficit was projected for the current year. This occurred from increasing the full-time equivalent (FTE) commitment of 2 part-time therapists, to help reduce wait-times in the counseling services. Now, the health service is fully staffed and the increased FTEs are established, making it likely that the next budget will project a deficit of $0.065 million.

As the budget is being prepared, 3 events collide. A campus tragedy leads to intense student activism and public scrutiny, causing senior administration to ask health services to create a new office to support students affected by sexual violence. A budget is proposed, and administration agrees to provide funding as a carve-out. At the same time, an alum who became wealthy in the biotech sector offers to create an endowment designated to pay for all clinical laboratory testing ordered for student-patients by health services clinicians. Heretofore, lab testing was paid by the health services budget at approximately $0.05 million per year, thereby relieving, at least in part, the projected shortfall for next year. Remarkably, at the same time, a risk management inquiry after an unfortunate clinical outcome results in a recommendation to add in-house radiography to student health services. Student health and the budget office agree to split the one-time costs of purchase and installation of equipment, but, under pressure from risk management, the budget office also agrees to a permanent increase in general funds to pay for a technician and annual maintenance contracts. Student health contracts with a local

radiology group to over-read the radiographs and passes along a fee of $15 per study to the student-users of this service, which becomes a source of complaints in the student newspaper for years to come.

Complexities and Considerations for Third-Party Billing in Student Health

Why do student health centers not just bill the student's health insurance for all clinical encounters? The vast majority of clinical practices in the United States rely on this model successfully, so why not us? Since the economic downtown of approximately 2008, student health services have increasingly turned to third-party billing for medical visits to supplement base-funding, but it is a very complicated process.

A private practice clinic in town might choose to contract with, for example, certain products offered by Aetna, Blue Cross, and Cigna. There are enough people in town who have health insurance from one of these carriers that the practice stays as busy and profitable as it needs to be. If a potential patient with health insurance coverage from an entity with which the practice does not have a contract seeks an appointment, they will likely be told that the practice cannot see them or that they will have to pay all costs out of pocket.

In the college setting, students might have health insurance coverage from hundreds of different insurance products. If a student health center contracts with only a few of them, many students will be placed at significant financial disadvantage. Anything that places a financial or other barrier between students and the healthcare—mental healthcare in particular—that they need to be successful and safe in their role as a student might be seen as creating untenable risk for the institution, in addition to being socially unjust.

There are commercial agencies who are eager to assist college health services with all of these administrative tasks, but they generally charge large fees, which might limit the ability of the college health service to make insurance billing financially viable. Even if an institution determines that is financially viable, many of the services provided in college health are not reimbursable in this model.

For example, consider a student who has surgery while home for a holiday break. Sutures need to be removed during the second week back at school. In the traditional insurance billing model, student health could charge a co-pay and bill the student's health insurance plan for a new evaluation visit; better that we do this at no charge.

In addition, a significant portion of the effort of student health center staff do not fit within the framework of a traditional medical practice upon which the insurance billing model is built: pandemic planning, sitting on committees, writing letters for the office of disability services, guest lecturing for a class, presenting a fireside chat in a dormitory lounge, post-vention following a campus tragedy, consulting about a distressed student who is studying abroad, the list goes on and on. The financial

Table 22.1 Concepts important in considering insurance billing by student health

Contracting	With which products will we endeavor to establish in-network contracts? Will they be willing to contract with us? Are the reimbursement rates acceptable?
Credentialing	Who in our organization will manage the initial and ongoing task of getting our clinicians credentialed with the insurance carrier(s)? What do we do if one or more of our clinicians cannot get credentialed with one or more of the carriers?
Coding	The art and science of coding clinic notes for ultimate reimbursement is complex and is lost by clinicians who have not had to be concerned with coding in the fully capitated environment. Uptraining these clinicians will take significant time.
Billing/accounts receivable	Many student health services do not have staff who are skilled at billing and accounts receivable, because these functions have traditionally not been needed.
Which services?	Is the intent to bill insurance for ALL clinical services or to pick and choose? It seems unlikely to be institutionally tenable, for example, to bill for access to counseling, when the student might feel disenfranchised by the prospect of a co-pay or the inevitability of an insurance EOB being mailed to parents.

EOB Explanation of benefits

viability of a private clinic in the community is predicated on achieving a critical mass of billable encounters. In college health, that crucial mass cannot be achieved. While a fee-for-service model can subvene it, college health, as it should be practiced, will always require institutional support (Table 22.1).

Additional Topics

In this chapter, we have not included several ancillary topics related to the financial sustainability of college health. These include, but are not limited to, contracted or outsourced clinical services, leveraging local nonprofit and government agencies as partners to provide certain services, and productivity-incentivized pay schedules for clinicians. Each of these topics is worthy of consideration, depending upon institutional needs and capabilities.

Future Considerations

As we look to the future of college health funding we anticipate:

- Increased emphasis on third-party billing. It is intriguing to consider the possible evolution of not-for-profit regional or national consortia to assist small- and medium-size health services with insurance contracting and credentialing.
- Expanded prevalence of blended delivery models, where some amount of services (e.g., short-term counseling) are provided through the base-funded capi-

tated model at little or no out-of-pocket expense, with other services (e.g., open-ended long-term therapy) being subject to fee-for-service.
- Assuming the foregoing, subsequent repurposing of health fee dollars away from clinical operations to expand prevention and nonclinical well-being services.
- More intentional definition of health service scope and mitigation of scope-creep.
- Increased involvement of schools and colleges within the university to fund concierge-type access for students within a particular program.
- Increasing reliance on philanthropy, with particular focus on endowment of carve-outs and expansion of assistance funds to help students with co-pays and other out-of-pocket expenses.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
The institution's expectations for the scope of the college services and timeliness of access to these services must align with the financial resources available to provide those services.	Base-funding of college health services will never be able to keep up with healthcare inflation and evolution of context-appropriate clinical and non-clinical offerings. Expansion of third-party billing is inevitable, and clinicians should consider the ways that this will enhance and challenge their practice.

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Recommended Readings and Resources

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ACHA Guidelines. Outsourcing of college health programs: discussion points. Silver Spring, MD: American College Health Association; 2019. https://acha.org/documents/resources/guidelines/ACHA_Outsourcing_College_Health_Programs_May2019.pdf

Arthur J. Gallagher & Co. The value of student health insurance plans. https://www.gallagherstudent.com/parents/value-proposition/

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Chapter 23
Delivery of Innovative Healthcare Services

Brian H. Halstater

Introduction

The delivery of health care is rapidly evolving with many unique challenges. These challenges include adequate staffing of clinicians (physicians, advanced practice providers), clinical staff (registered nurses, licensed practical nurses, nursing assistants, medical assistants), and non-clinical staff (front desk, insurance representatives, medical records, administrative support); insurance contacts and payments; overhead including insurance; defined scope of service and hours of operation; legal and administrative oversight; and patient expectations. College students may assume that all of the above challenges are resolved and that upon payment of the student health fee and/or insurance bill that they are able to access the services provided by their school. Part of the health care evaluation on campus is figuring out novel ways to deliver healthcare services to students and doing so in a manner that (1) meets the students' needs, (2) reduces barriers to care, (3) has minimal financial impact, and (4) does not increase the work of the busy clinical team.

Three such services that over time will likely become part of routine care include telehealth, vending machine dispensing, and menstrual product dispensers. It is likely that these innovations can be applied not only to our student populations, but also to the larger population.

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Student Take 1
"I am a 20-year-old female in the beginning of my junior year, currently working hard on a double major of computer science and political science with a strong interest in election politics. I am also in a stable, mutual monogamous relationship with a male partner, using condoms for contraception and had a scare last week when my period was 3 days late. I very much want to see someone at Student Health about birth control but am having difficulty getting in during the week given my busy schedule. I would love to be able to talk with someone about birth control without having to take a few hours out of what little free time I have."

Telehealth

What is telehealth? While there is no uniformly agreed-upon definition of telehealth (also referred to as eHealth, mHealth, Digital Health, Mobile Health, Virtual Visits, eVisits, etc.), the Department of Health Resources and Services Administration (HRSA) defines telehealth as:

> the use of electronic information and telecommunication technologies to support long-distance clinical health care, patient and professional health-related education, public health, and health administration. Technologies include video conferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications. [1]

The Center for Connected Health Policy is more specific for healthcare delivery and states that "Telehealth encompasses a broad variety of technologies and tactics to deliver virtual medical, health, and education services. Telehealth is not a specific service, but a collection of means to enhance care and education delivery." [2]

Why Employ Telehealth for College Students?

According to the United States Department of Education, as of 2012 nearly all of US adults between the ages of 16 and 24 are digitally literate, [3] and the Pew Research Center found that 96% of adults between the ages of 18 and 29 in 2019 own a smartphone [4]. There is a gap in the literature with regard to how successful or interested college-aged students are with regard to telehealth. A small study of 37 students found that 91.2% of high school girl respondents felt that the use of telehealth was a very useful way to learn about reproductive health and life skills [5]. Additionally, there was a statistically significant increase in condom usage and human papillomavirus (HPV) vaccination rates (but not hormonal contraception) for those that utilized this telehealth service. This study suggests that college students have ready access to a smartphone, have the digital literacy to use technology

Table 23.1 What is the patient perception of telehealth visits?

What is the patient perception of telehealth visits?
91.6% reported satisfaction
82.7% perceived quality similar to an in-person visit
86.0% scheduled video visit made it easier to access care
87.6% estimated saving at least 1 hour of time
40.8% estimated saving >3 hours of time
86.7% agreed/strongly agreed easy to use
90.0% would use it again
Note: Most of those not satisfied with telehealth (57/67) were those who had technical issues with the visit

effectively, and the information gleaned will be useful and may lead to behavioral change.

College students are busy and typically enjoy the use of technology. A large retrospective study done on the effectiveness of video visits among more than 700 patients, encompassing multiple medical and surgical specialties, found that the majority of patients surveyed had a positive perception of the video visit as seen in Table 23.1 [6].

Who Provides the Telehealth Services—Outsourced or In-House?

Student Health Centers are uniquely positioned to be able to develop and/or utilize telehealth services for their student populations. The typical college population is relatively healthy without significant co-morbidities, and if telehealth services are provided, systems can be set up to identify the patient or complaint that is not ideal for distance-based care.

It should be noted that the first decision that student health leadership must make when deciding to offer telehealth services is who will be providing this care? The 2 options are: (1) utilizing existing providers and developing telehealth in-house, or (2) outsourcing telehealth to an outside agency. Both options have distinct advantages and disadvantages.

The primary advantage to outsourcing is that, for a fee, an outside clinical group will provide telehealth services to students for whatever patient complaints they cover. Hours of coverage can be negotiated, as can documentation and protocol. Typically the outside group would manage malpractice, licensure, and Internet security. Disadvantages are additional cost, lack of continuity, and potential incompatibility with the electronic health record. The advantages to in-house telehealth is that there is the potential for continuity of care as the same providers who "see" the students are also those who can "virtually see" them. The school can also determine what, if any, additional fee is applied, what scope of care is provided, and hours of coverage. At our student health center, we developed a list of complaints for which the student would be eligible to be seen using telehealth (Table 23.2).

Table 23.2 Clinical issues amenable to a telehealth visit at a representative student health center

Latent tuberculosis	Reproductive health
Initial discussion	Contraceptive consultation
Direct observed therapy (DOT)	Contraceptive refills
Mental health	STI counseling/testing (asymptomatic)
Anxiety follow-up	Vaginitis symptoms (consistent with prior)
Depression follow-up	Skin infection follow-up
PrEP (Pre-Exposure Prophylaxis for HIV)	Thyroid medicine follow-up
Initial discussion	Urinary tract infection symptoms (consistent with prior)
Refills	Provider-driven complaint/follow-up[a]

Abbreviations: *HIV* human immunodeficiency virus, *STI* sexually transmitted infection
[a]The "provider-driven complaint/follow-up" is a category for providers to schedule telehealth visits for patients who have complaints that are not included in this table. Examples may include the discussion of lab results, adjustment of chronic disease medications, dietary, or exercise advice

Note that since a finite list of complaints are eligible for telehealth services, providers are able to focus on one clinical issue at a time. In addition, the use of electronic health record (EHR) templates enabled timely completion of notes. Importantly, the provider was always given the right to ask the student to present to Student Health to be seen when a telehealth visit was not felt to be appropriate.

Disadvantages of providing telehealth in-house include the need for the institution to ensure end-to-end encryption of the health information; direct costs of hardware, software, and training; developing and implementing protocols; and determining schedules of who will provide telehealth coverage. Additionally there are not currently uniform medical licensure and laws from state to state in terms of what is appropriate for telehealth services, and a "home-grown" service requires diligence by the institution to ensure that regulations and laws are followed.

Asynchronous visits using telehealth is another way that Student Health Centers could provide clinical services. This service could be utilized for specific health needs for which the patient could receive care without being seen, as long as certain questions are responded to in the expected way. Student Health Centers are well-positioned to provide this service as patients with stable chronic illness could easily have their prescription refill provided.

Student Take 2

"I am a 20-year-old female in the beginning of my junior year, currently working very hard on a double major of computer science and political science with a strong interest in election politics. I am also in a stable, mutual monogamous relationship with a male partner, using combined oral contraceptive pills (COC) as my form of birth control, and I just realized that I'm on my last pack and my gynecologist is out of state and is not able to write for my next pack of pills (due to licensing laws)."

The asynchronous encounter would allow patients to access clinical services for specific issues using a templated questionnaire to the Student Health Center. The questionnaire would consist of a series of questions used to determine whether this medication could be prescribed without an actual visit to the student health center *and* that would allow the provider providing the service (in this case, refilling the COC) to feel comfortable that there were no contraindications or concerns with providing the service. The vast majority of patients will be able to get the service provided without an immediate clinic visit, and the screening is important as the patient's clinical condition could have changed since the initiation of her COC prescription. Questions could be taken directly from the U.S. Centers for Disease Control and Prevention (CDC) contraceptive guidelines [7] and could include a statement indicating that if the answer to any question is "concerning," the patient is requested to come to the Student Health Center to discuss with a provider (Table 23.3).

Table 23.3 Example screening questions for an oral contraceptive pill refill request

When was your last menstrual period? (if within expected time frame, continue; if not request she come in to be seen)
Have you given birth in the last 2 months? (if no, continue)
Are you breastfeeding? (if no, continue)
Are you over 35 years old? (if no, continue) If yes—do you smoke? (if no, continue)
Have you had a surgery for weight loss? (if no, continue; if yes follow-up question) If yes—was the procedure a "malabsorptive procedure" (Roux-en-Y gastric bypass or biliopancreatic diversion)? (if no, continue)
Do you have high blood pressure? (if no, continue)
Do you have a personal history of a blood clot in your legs (DVT) or chest (PE)? (if no, continue)
Do you have a heart condition? (if no, continue)
Have you had a stroke? (if no, continue)
Do you have lupus or multiple sclerosis? (if no, continue)
Do you have migraine headaches? (if no, continue; if yes, follow-up question) Do you have an aura with your headaches?[a] (if no, continue)
Do you have diabetes with complications—or have had diabetes for more than 20 years? (if no, continue)
Do you have gallstones or severe liver disease? (if no, continue)
Are you on anti-seizure medication? (if no, continue; if yes follow-up question) Are you on lamotrigine? (if no, continue with following medication question) Are you on any of the following anti-seizure medications—phenytoin, carbamazepine, barbiturates, primidone, topiramate, or oxcarbazepine? If yes—STOP and review which specific COC she is on 30 mcg COC ask her to come in 30 mcg or higher, continue If no—continue
Are you satisfied with your birth control method? (if yes, continue; if no, refill for 3 months and request she come in to discuss with the provider)

Abbreviations: *DVT* deep vein thrombosis, *PE* pulmonary embolism, *COC* combined oral contraceptives

[a]Most common reason we see for discontinuation

Once the questionnaire has been completed by the student, 1 of 3 options can be followed:

- For students who have responses that are "non-concerning," the COC can be refilled with follow-up requested at their convenience. Appropriate educational material can be provided to the student electronically as part of the COC refill confirmation process.
- For students with responses that are concerning (i.e., absolute contraindications such as migraine headache with aura), the refill would be denied and the student asked to use backup contraception until she can come in to the office to discuss contraceptive options.
- For students for whom there is no contraindication for refill but who would benefit from a consultation (such as those who would like to discuss other methods), the provider could provide a refill along with an offer to meet with a clinician (either person, or via video visits if offered)

An advantage to the use of asynchronous questionnaires is the ability to provide additional questions or statements to help meet the specific needs of the population related to the complaint, in this case sexual health. An example could be:

> Your sexual health is very important to us. Should you have any questions or concerns about your health, please come in to talk with one of our providers. Topics could include the HPV vaccine, alternative forms of birth control, sexual consent, safer sex, pap smears, and questions about your body or cycle. If you have any questions and would like to speak with one of our providers, please contact the office and schedule an appointment.

Telehealth can be used to fill several niches. The most obvious is for a student who is not on campus who would like to access services (again, check state law). Another is to supplement services by offering telehealth when the student health center is closed, potentially providing students with an alternative to waiting for the center to be open or seeking care at an Urgent Care or Emergency Room. Another use for telehealth is to address questions or concerns, such as in the case of our patient who wished to know more about contraception, which could be done without physically seeing her. A clinician could provide education for the student and help determine the best contraceptive option for her, all via telehealth. Medication refills—especially when the initial prescription, as is often the case with college students, came from outside the student health system—can be provided after a discussion and education, allowing the patient and provider to both feel secure in knowing why a medication was prescribed. They can also review the long-term plan for management. There is a large interest in providing mental health services via telehealth as well. Lastly, telehealth can be used to provide continuity of care for patients with their provider to check-in on how their mental or physical health issue is progressing.

Vending Machines

Student Take 3

"I am a 20-year-old female in the beginning of my junior year, currently working very hard on a double major for computer science and political science with a strong interest in election politics. I went out with friends to an all-you-can-eat event off campus and at 2 AM I awoke with a horrible case of heartburn and, of course, I have no heartburn medicine. I wish there was a way I could get some antacids at this early hour without having to walk into town."

A novel way to meet the health needs of the college population is to expand upon the products available routinely in vending machines on campus. In July of 2019, Duke University placed a "wellness vending machine" alongside more traditional vending machines in the student center (Fig. 23.1a, b). This initiative was done with input and approval from stakeholders including the student health advisory council (university students from different colleges), university legal counsel, risk management, communications, student affairs, university stores (who manage/stock the vending machines on campus), pharmacy, and the state pharmacy board. The supplies available to students in the vending machine fall into the following categories:

- *Colds and allergy*—decongestants, throat lozenges, antihistamines, cough treatment
- *Gastrointestinal (GI)*—hemorrhoidal cream, anti-diarrheal pills, antacids, multi-symptom GI relief
- *Miscellaneous*—lip balm, thermometer, topical antifungal, topical hydrocortisone, ear wax drops, wound bandages

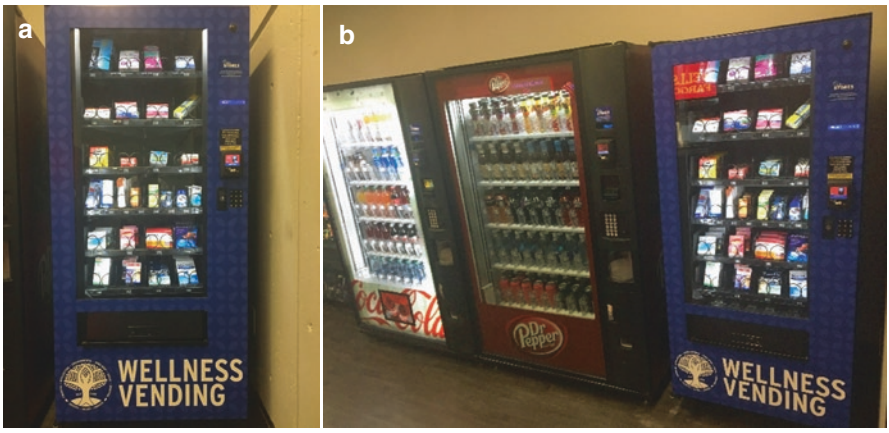

Fig. 23.1 (**a**, **b**) Vending machines offering products to meet health needs

- *Pain relief*—acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), dental/ oral analgesic
- *Women's health*—yeast infection cream, emergency contraception, pregnancy tests, dysuria pills

In the short time that the wellness machine has been in place, the most popular items have been acetaminophen, NSAIDs, and lip balm. The emergency contraception was sold 4 times in the first month after installation. The wellness machine has been a popular addition, and while the emergency contraception offering was the most discussed and required the most permissions and thought, products for the more routine health care needs are more commonly purchased by the student population. The wellness machine has been popular, and expansion to additional locations beyond the student center to reach a larger segment of the university population is being explored. Additional items, including menstrual products, are being considered for inclusion in future wellness machines.

Menstrual Product Dispensers

Student Take 4

"I am a 20-year-old transgender male in the beginning of my junior year. I am on hormone therapy and am currently working very hard on a double major of computer science and political science with a strong interest in election politics. I just went to the bathroom and discovered that despite being on testosterone since graduating high school, I have some vaginal bleeding and I don't have anything with me. I wish there was a way for me to deal with this besides either using toilet paper, asking a friend for help, or buying a pad on an emergency basis."

Menstrual products are a necessity for our menstruating students, and until recently, they have been available either in women's or gender-neutral bathrooms either as a courtesy (free) or for a small fee. Many colleges and universities now provide free menstrual products on campus. While there is no available data as to the utilization of the free hygiene products, a pilot project in the largest university library at Duke for women's and a gender-neutral bathrooms averaged 69 pads and 80 tampons taken each week (unpublished data). Recently, Duke University has started providing free menstrual products in select male gender-specific bathrooms (Fig. 23.2) on campus, and this availability is likely to be expanded.

Fig. 23.2 Free menstrual product dispensers in gender-specific male bathrooms

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Telehealth—If offering Outsource or in-house? Medical board and state law? What services provided? How documented in the EHR? Staffing? IT/hardware/software? How scheduled/hours offered?	*Telehealth*—If offering in-house Which complaints? How documented? Awareness that this is a venue students may use (if not offered by institution)? For asynchronous use (questionnaire)—what question for which clinical issue?
Vending machines—for over-the-counter (OTC) products What products? Political consideration (for male and female condoms; emergency contraception)? Permissions?	*Vending machines*—for OTC products Limited space, have to consider which products to offer Allows for increased self-care Alternative access for students
Menstrual Products—If offering Free or low cost to students? Locations on campus? Which bathrooms? How pay for/subsidize cost?	*Menstrual products*—If offering Advocates for self-care

Conclusion

The student population is one for which innovative methods of healthcare delivery are well suited. There is tremendous promise in telehealth, and it should be explored as our students become increasingly technologically savvy. Wellness vending machines could be used to either supplement (a student health provider suggests as part of a visit that the student consider going to the wellness machine and getting over-the-counter medication) or supplant (a student needs anti-diarrheal after a bout of gastroenteritis) provider visits. Placing self-service free menstrual products in gender-neutral and gender-specific bathrooms is a welcome, thoughtful way to support students.

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Recommended Readings and Resources (ie, Books, Periodicals, Video Links, Web Resources, etc.)

Health Resources & Services Administration (Telehealth Programs). https://www.hrsa.gov/rural-health/telehealth/index.html.
Center for Connected Heath Policy. https://www.cchpca.org/.
Health Information and Management Society. https://www.himss.org/library/mhealth.

College counseling from a distance: deciding whether and when to engage in telemental health services. Higher Educational Mental Health Alliance (HEMHA) 4-2018. hemha.org/hemhapress/wp-content/uploads/2018/04/HEMHA-Distance-Counseling_FINAL.pdf.
CDC US Medical Eligibility criteria for contraceptive use – combined hormonal contraceptives. https://www.cdc.gov/reproductivehealth/contraception/mmwr/mec/appendixd.html.

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Chapter 24
Disability Access in Higher Education: Documenting as University Health Service Providers

Grace C. Clifford

Introduction

As the number of students with disabilities on college campuses continues to steadily increase, collaborative efforts between Health Service Departments and Disability Service Offices (DSO) become increasingly critical in relation to retention and matriculation. Studies indicate that more than 11% of undergraduate students, and nearly 8% of graduate and professional students identify as having a disability [1, 2]. These increases are especially significant in the health sciences. A 2019 prevalence study found that 4.6% of students in allopathic medical schools were identified as having a disability compared to the 0.3–0.6% identified in previous studies [3].

With these statistics in mind, this chapter will endeavor to outline the role of the Disability Service Office (DSO), the process of determining reasonable accommodations, provide guidance on writing documentation for students with disabilities as a health service provider, offer recommendations for creating student-centered leave of absence policies, and outline the importance of strong working relationships between DSO and Health Service Department.

Americans with Disabilities Act Basics

The Role of a Disability Service Provider

Disability Service Offices (DSO) are charged with ensuring that all students with disabilities are afforded the opportunity to take full advantage of the programs,

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services, campus facilities, and opportunities that the institution has to offer. The work of the DSO is guided by the Americans with Disabilities Act (ADA), a civil rights law enacted in 1990 and amended in 2008 to prohibit discrimination and ensure equal access for individuals with disabilities. In compliance with the ADA, the DSO acts as an advocate for the equity process by determining and implementing reasonable accommodations and serves as the campus consultant for students, faculty, and staff regarding equal access.

Disability Defined

The ADA defines a disability as any mental or physical impairment that substantially limits one or more major life activities. To minimize opportunities for discrimination based on the interpretation of major life activities, the 2008 amendment to the ADA significantly expanded the definition. At present, major life activities include, but are not limited to: breathing, walking, talking, hearing, seeing, sleeping, learning, concentrating, caring for one's self, performing manual tasks, and working [4]. With this expanded definition in mind, students experiencing medical barriers, whether the impairment is psychological or physical, should be encouraged to engage with the DSO on campus.

As many institutions request medical records for all incoming students, a health service provider may be the first staff to become aware of a student's disability-related needs. For this reason, it may be helpful to provide information about the DSO on the Health Service's Web page, including the process to complete a release of information so that a copy of relevant records can be sent to the DSO. Unlike secondary education, it is the student's responsibility to self-identify as having a disability and requiring accommodations. Although some incoming students choose not to register as they wish to "try it without first" or want to leave their "special education" label behind, others may simply not be aware of the process. Students may disclose and request accommodations at any point; however, accommodations are not applied retroactively, so prompt and supported referrals are essential.

When referring students to the DSO, health service providers should communicate key points regarding the process. For instance, health service providers are bound by the Health Insurance Portability and Accountability Act (HIPAA), whereas the DSO falls under the Family Educational Rights and Privacy Act (FERPA). Information regarding the nature of the student's disability will be kept confidential; however, certain aspects of their interactions with the office, such as approved accommodations, have to be communicated to those who will have to assist with the implementation (e.g., Housing or Dining offices, faculty, or clerkship advisors).

Documenting Disabilities in Higher Education

Although exact processes might differ by institution, the process to register with the DSO typically involves completing an office-specific application (disclosure), provision of documentation from a qualified professional, and an intake meeting with a Disability Service Provider (DSP) to review the student's application, documentation, and disability-related needs. Although the documentation should be detailed and include key information for the DSP, the process should not be burdensome, nor should it be difficult to obtain the required documentation for the student.

Application and Intake Interview Overview

The application to register is intended to give the student an opportunity to explain in their own words the day-to-day impact of the disability. By gathering information about the lived experience of the student and the disability, the DSP can gain critical insight into the barriers to be reduced or removed with accommodations. The intake meeting serves in a similar manner, offering the DSP an opportunity to gather additional information regarding the impact of the disability in social and academic settings, as well as to review additional considerations based on the student's particular program of study [5]. However, both processes are guided by the provided documentation.

Documentation Guidelines

A diagnosis alone does not necessarily indicate the presence of a disability. For this reason, detailed information is required by the DSO to determine if a student is entitled to reasonable accommodations. The documentation provided by the student should be from a qualified individual and include key pieces of information including the diagnoses, the method(s) of diagnosis (including any tests or measures used to determine the diagnosis), detailed information regarding the specific functional limitations created by the disability, and recommendations for accommodation(s).

In order for the individual to be "qualified" to render a diagnosis and provide documentation in support of a student's request for accommodations, they must have a history with the student and be qualified to speak to the student's diagnosis and its impact in the specific context. Providers should not be close relatives of the student and should be licensed to practice in their area of expertise, relative to the student's diagnosis. Additionally, the provider should have an established relationship with the student and avoid simply citing symptoms or barriers as reported by

the student during a singular visit. Depending on the nature of the disability, student report of disability may be enough to provide provisional accommodations. However, follow-up appointments with a health service provider or via referral to an outside specialist to obtain documentation with more detailed information about the functional limitations should be recommended to secure ongoing accommodations.

As the ability to obtain documentation may be impacted by lack of resources or opportunities for accessing care, health service providers can also assist students in securing accommodations by reviewing their treatment history. Students from certain cultural backgrounds may believe that diagnoses of disability are inappropriate. Students coming from low-income households or under-resourced areas may not have had the same opportunities for testing or healthcare access as their peers. In these cases, the student's general practitioner may provide care for a wide variety of disabilities, including mental health. Likewise, some students with chronic conditions or mental health-based disabilities may utilize complementary and alternative medicine practices. This is especially common with international students. As sources of documentation can vary greatly by disability type and individual, students in need of accommodations should be encouraged to submit any documentation they may have to the DSP and then request a meeting to review what, if any, additional documentation may be required.

Format of Documentation

As diagnosing and determining functional limitations differs by disability type, no single format is required. Provisional accommodations may be made based on any of the following formats, among others:

- Copies of Electronic Health Records (EHR)
- DSO provided disability verification form
- Neuropsychological evaluations (attention-deficit/hyperactivity disorder [ADHD], Learning Disabilities)
- Audiology report
- Vocational Rehabilitation eligibility letters
- Veteran's Affairs paperwork
- Signed provider letter on letterhead

Documenting as a Health Services Provider

The requests for disability accommodation documentation that health service providers most commonly receive are for acute or temporary conditions (concussions, mononucleosis, fractures, sprains, etc.). However, health service providers may also

manage the ongoing treatment of a wide variety of conditions or disabilities and are therefore able to document on the student's behalf. When documenting for a student, health service providers should include information related to their relationship, method of diagnosis, and functional limitations created by the disability. When outlining the relationship with the student, appointment dates and times, including any scheduled follow-up appointments or referrals, are helpful.

Although tests and measures are beneficial, health service providers may determine a diagnosis based on the student's self-report. When this is the case, information about the stated symptoms and reasoning behind the diagnosis should be included. If the diagnosis was established by a previous provider, the health service providers can discuss a release of information with the student or simply cite the information in their documentation to the DSO.

Although it is more typical for mental health-based disabilities, such as anxiety and depression, to be documented through the University Counseling Center, students may disclose or exhibit mental health symptoms during a routine visit to the Health Service. As these types of disabilities often carry a stigma, students may be resistant to referrals or "additional steps" in the process to receive required accommodations. In these situations, it may be acceptable for the Health Service to complete the documentation. By reducing the barrier to documentation and accommodations, Health Service Providers not only connect the student to an important campus resource in the DSO, they also ensure access and promote help-seeking behavior.

Health Services are in a unique position to assist students who may have experienced barriers to obtaining documentation in the past. A students who may come from low-income households or under-resourced school districts may not have been identified as a student with a disability. Students who have "high functioning" disabilities may not have been identified in secondary education. For these reasons, it is not uncommon for students to be newly diagnosed with a disability during their college career. As this realization can be costly and an adjustment for the student, connecting them to the DSO assists in supporting the student and creating a "history of needing and receiving accommodations," which is essential when documenting for high stakes exams.

Documenting for High Stakes Exams

In addition to the documentation to receive accommodations for institutional programs and services, students may request assistance with applying for accommodations on outside, high stakes exams needed for graduate or professional school matriculation. As accommodation requests for such exams are reviewed and determined by outside individuals (some with notably more involved documentation and application processes), it is important to establish whether the Health Service has the bandwidth to provide the documentation for such requests. Although not dissimilar to the documentation requirements for institutional accommodations, the

timing of documentation may be more rigid (e.g., within 3 years for learning disorders or ADHD, and within the last year for psychological disabilities). These entities also review the disability request using an "average person" standard and focus on evidence of "substantial limitations to major life functions" by scrutinizing the diagnosis, how and when the diagnosis was reached, and the level of functional limitation created by the disability. As a result, the demonstration of the limits of any self-accommodations and the need for the accommodation to ensure equal access, rather than success, is essential.

As many students may have limited access to an outside provider who can provide such information/documentation, health service providers may serve as a critical resource to ensure the student receives the necessary accommodations for these exams. For this reason, they should actively work with the DSO or take advantage of resources offered by professional organizations. One such example is the *UCSF School of Medicine, USMLE Step Exam Guide* [6] (see recommended readings and resources at the end of this chapter).

Documenting Functional Limitations

The most critical information in disability documentation is the functional limitations created by the disability as the DSO is charged with identifying accommodations that will reduce and/or remove the disability-related barriers. A diagnosis alone does not provide the DSO sufficient insight to determine if the student qualifies as an individual with a disability, how the condition impacts the student's social and academic life, and what accommodations might successfully address the relevant barrier. For this reason, the impact the condition has on the student paired with suggestions for accommodations should be highlighted. When health service providers may be uncertain of what accommodations to recommend, detailed information regarding barriers provides the DSP with the key information required to do so. If a provider recommends a specific accommodation, a clear link between the functional limitation and the recommended accommodation should be established (Table 24.1).

Reasonable Accommodations

When a DSP is attempting to determine whether an accommodation is reasonable, they must first determine if the request could constitute a fundamental alteration to the course or overall program. This is done by reviewing the following [7]:

- The essential learning objectives of the practice for which the accommodations are requested
- Whether those objectives can be achieved in an alternate, but equally effective way that would provide disability access

Table 24.1 Examples of disabilities, common symptoms, barriers, and potential recommendations for accommodations

Disability example	Common symptoms	Barrier	Potential recommendations
Chronic migraines	Sensitivity to light Sensitivity to sound Nausea Fatigue Cognitive "fogging" Delayed processing	Impaired focus Inability to attend class during flares Inability to complete assignments during flares Inability to utilize computers for an extended period of time Impaired information processing	Ability to wear sunglasses in classroom Testing space with non-fluorescent lighting or low lighting Attendance considerations Additional testing time Online assessments in paper format Printed copies of projected materials Ability to take breaks during class/exams Extensions on assignments during disability episodes Note taking
Crohn's disease	Diarrhea Fever Fatigue Reduced appetite Abdominal discomfort Inflammation in joints	Inability to attend class during flares Inability to complete assignments during flares Impaired walking during flares Impaired focus	Ability to take breaks during class/exams to use the restroom Attendance considerations Additional testing time during flares or "stop the clock" breaks Extensions on assignments during disability episodes Meal plan releases Individualized meal plans Living arrangement with access to private bath Parking accommodations Transportation assistance

(continued)

Table 24.1 (continued)

Disability example	Common symptoms	Barrier	Potential recommendations
Postural orthostatic tachycardia syndrome (POTS)	High/low blood pressure Chest pain Dizziness/lightheadedness when standing up, prolonged standing in one position, or long walks Fainting Exhaustion/fatigue Abdominal pain Blurred vision Cognitive fogging Headaches Exercise intolerance	Inability to exercise or engage in strenuous activities Inability to regulate blood pressure Inability to attend class during flares Inability to complete assignments during flares Impaired focus	Parking accommodations Transportation assistance Physical education course substitution Attendance considerations Extensions on assignments during flares Note taking assistance Ability to record lecture Additional testing time Access to food and water during exams Ability to move about the classroom/exam Stool to elevate legs Air Conditioning Apartment (access to kitchen)
Concussion	Headaches Ringing in ears Nausea Fatigue Blurry vision Cognitive fogging Short-term memory impairments Delayed processing	Inability to attend class or complete assignments during recovery Impaired focus or sustained attention Inability to divide attention to listen to lecture and take notes Impaired ability to process information	Ability to wear sunglasses in classroom Testing space with non-fluorescent lighting or low lighting Attendance considerations Additional testing time Online assessments in paper format Printed copies of projected materials Ability to take breaks during class/exams Extensions on assignments during disability episodes Note taking

Table 24.1 (continued)

Disability example	Common symptoms	Barrier	Potential recommendations
Depression	Sleep disturbances Anxiety Difficulty sustaining attention or concentration	Inability to attend class Inability to complete assignments Impaired information processing Need for social isolation at times Impaired ability to maintain daily schedule Inability to regulate mood	Attendance considerations Extensions on assignments Additional testing time Ability to take breaks during class/exams "Stop the Clock" breaks for exams Ability to record lecture Note taking Single residence hall room within a suite Single residence hall room Single apartment Emotional Support Animal
Break/sprains	Broken bone Inflammation Reduced range of movement	Impaired mobility Impaired ambulation	Scribe for exams Additional time for exams if completing with non-dominant hand Note taking Ability to record lecture Parking Transportation assistance

This is determined through the interactive process, a method of evaluating and determining accommodations by the intentional and collaborative gathering of information. This includes all information collected during the evaluation: the documentation, any additional information from the documenting provider, notes from the student intake meeting regarding the lived experience, and information collected from the programmatic faculty and administrators regarding the essential functions of the program. It is also common for the DSO to connect with other DSPs to inquire about how such requests have been handled at their institutions. The outcome of this determination process is an eligibility determination and, if eligible, accommodations options. As the student may be found to be not eligible or may opt to not take advantage of the approved accommodations, they should remain anonymous to prevent the possibility of bias by programmatic faculty or staff [8].

Reasonable accommodations are intended to offer students with disabilities the same opportunities to succeed, or fail, in their chosen program as an individual without a disability. Reasonable accommodations are those that: allow an otherwise qualified student to demonstrate mastery of the material without creating a substantial change in essential course or degree requirements; do not pose a direct threat to the health or safety of others; and do not pose an undue financial or administrative

burden on the institution. As the determination of "undue financial burden" must be considered in relation to an institution's entire budget, including its endowment, it is rarely a factor for most DSOs.

To determine whether an accommodation request is reasonable, an individualized assessment of the course and/or programmatic requirements must occur (Fig. 24.1) [9]. This is especially true of students enrolled in programs with field or clinical requirements such as medicine, nursing, social work, or education.

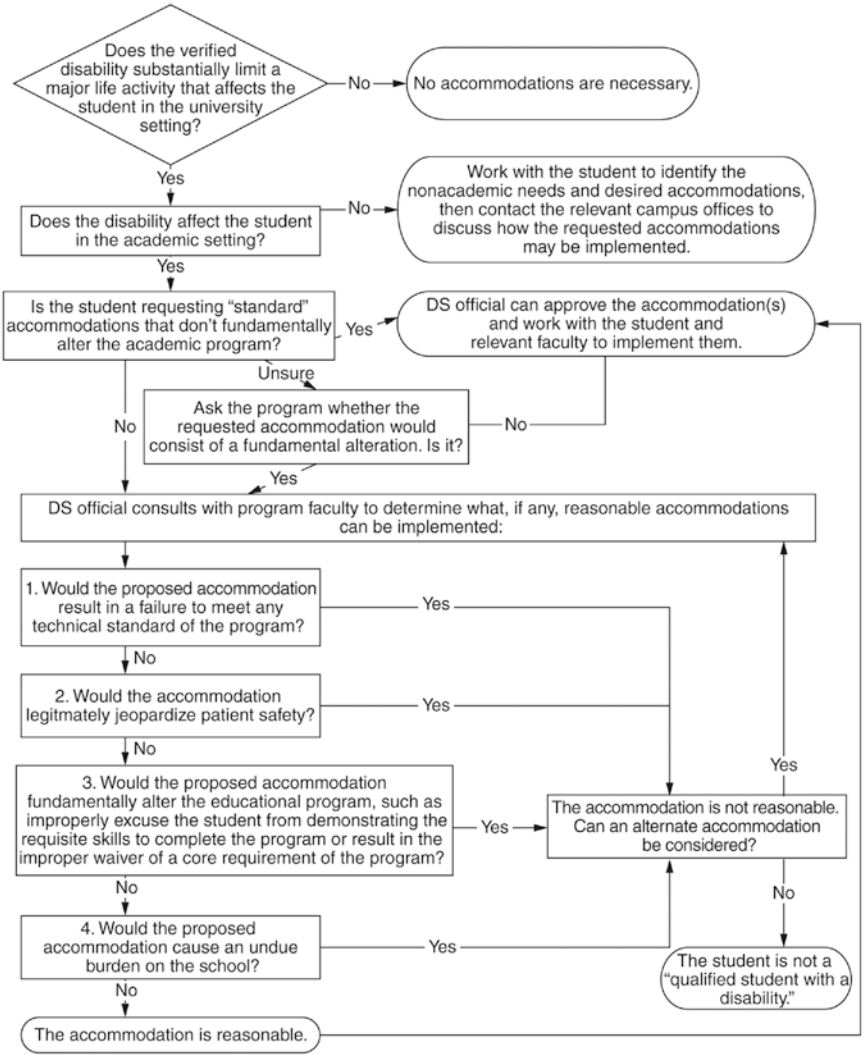

Fig. 24.1 Determining appropriate accommodations. (Reprinted with permission from Larid-Metke et al. [8])

Otherwise Qualified Student

An otherwise qualified student is defined as one who, with or without reasonable accommodations, meets the same academic, professional, technical, and behavioral standards of their chosen course or degree program as their non-disabled peers [9].

If a student requires a modification to the academic, professional, technical, or behavioral requirements of their chosen program that would create a fundamental alteration, they may be considered a "not otherwise qualified student." The impact a disability has on a student's level of functioning or their ability to qualify as an otherwise qualified student may change or fluctuate over time. If a previously "otherwise qualified" student begins to struggle with meeting the demands of the program, they should be referred to the DSO to review their accommodation plan and other available resources.

Recommendations for Leaves of Absence

In the wake of several higher education institutions coming under fire for practices that were considered discriminatory by the U.S. Department of Justice (DOJ) [10–13], it is essential that institutions develop comprehensive supports for students considering a leave of absence (LOA). The DSO should serve as a supportive advocate role for a student seeking a LOA, rather than an approving body.

Taking a Student-Centered Approach to Leave of Absence

University administrators may assume that a LOA is always a desirable course of action since it provides a student with an opportunity to rest and "stabilize" by returning to a supportive, less stressful home environment. Unfortunately, these assumptions are based on a certain level of privilege [14]. The reality is that many students build their support structures at college and may instead experience home insecurity, financial issues, and increased stress if they take the leave. Furthermore, the student may lose access to critical resources (e.g., student health insurance, funds from student loans and financial aid, access to the university counseling center and health service) and would be required to navigate the sometimes cumbersome process of re-establishing care with an outside provider at a critical and stressful time. For this reason, a leave of absence should only be considered after all other options have been explored and the student is able to make a fully informed decision.

By designating a DSP as an advocate and point person for the process, meaningful discussions about potential accommodations can occur in a non-pressured environment. This approach can lead to the identification of accommodations that

mitigate the disability-related barriers that may be contributing to the student's instability. These dialogues also offer the student the opportunity to identify methods for engaging in required self-care without leaving the program and their support structures.

By providing confidential support and wrap-around care that takes into account the student's financial, medical, mental health, social, and other needs, the institution normalizes mental health management and assists with the necessary destigmatization that promotes help-seeking behavior and self-care.

When Involuntary Leaves Are Required

Although not always possible, institutions should avoid using a LOA punitively. When a mandatory LOA is required due to ongoing conduct, health, or safety concerns, the institution must make an individualized assessment to demonstrate that the student's actions pose a direct threat or significant risk to the health and safety of others.

The Department of Justice defines a direct threat as "a significant risk to the health or safety of others that cannot be eliminated by a modification of policies, practices, or procedures, or by the provision of auxiliary aids or services." [15] In addition, the DOJ stipulates that "in determining whether an individual poses a direct threat to the health or safety of others, a public accommodation must conduct an individualized assessment based on reasonable judgment that relies on current medical knowledge or on the best available objective evidence, to ascertain: the nature, duration, and severity of the risk; the probability that the potential injury will actually occur; and whether reasonable modifications of policies, practices, or procedures or the provision of auxiliary aids or services will mitigate the risk." [16]

It is therefore essential to review institutional processes and policies in relation to LOAs to ensure the process itself does not deter students from help-seeking behavior. This can be encouraged by establishing and actively communicating a straightforward, student-centered process for taking a LOA (Table 24.2).

Table 24.2 Components of a student-centered leave-of-absence (LOA) process

A simple attestation form from the student's provider indicating the LOA is necessary
A simple attestation form from the student's personal provider indicating they are ready to return
Minimizing or eliminate fees for taking leaves, readmission, or terminating housing or meal plan contracts early
Identified individuals to review supporting documentation to ensure maintenance of student confidentiality
Case management services to assist students prior to, during, and after the LOA

Conclusion

Health service providers contribute to the retention and matriculation of students by serving as a documenting professional for the disability registration and accommodation process, and by normalizing help-seeking behavior. By engaging in strong, ongoing collaborations with the DSO, health service providers not only ensure equal access, but promote a holistic, self-care approach to disability management.

College Health Perspectives

Administration	Clinical
What are the key points for administrators managing college health?	*What are the key points for clinicians in college health?*
Develop active collaborations with the Disability Service Office through cross training on current issues in Health Service Offices and Disability Service Offices.	Refer students who may benefit from accommodations to the Disability Service Office.
Develop bandwidth to document for high stakes exams.	When documenting, include as much information as possible about the functional limitations created by the disability.
Promote self-care and help-seeking behavior through advocacy and student-centered LOA policies and procedures.	Develop effective lines of communication with the Disability Service Office.

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12. United States Department of Justice. Settlement agreement with Quinnipac University under the Americans with Disabilities Act (December 19, 2014).
13. United States Department of Justice. Agreement with Princeton University under the Americans with Disabilities Act (December 19, 2016).
14. Meeks LM, Murray JF. Leaves of absence in health science programs: not a catch-all solution. Disabil Compl High Educ. 2019;25(5):6–7.
15. Americans with Disabilities Act (ADA) of 1990, 28 CFR § 36.208 (b).
16. Americans with Disabilities Act (ADA) of 1990, 28 CFR § 36.208 (c).

Recommended Readings and Resources (ie, Books, Periodicals, Video Links, Web Resources, etc.)

Books

Meeks LM, Jain NR. The guide to assisting students with disabilities: equal access in health science and professional education. New York, NY: Springer Publishing; 2016.

Meeks LM, Jain NR. Accessibility, inclusion, and action in medical education: lived experiences of learners and physicians with disabilities: University of California San Francisco/Association of American Medical Colleges; 2018.

Vance ML, Lipsitz N, Parks K, editors. Beyond the Americans with disabilities act: inclusive policy & practice for higher education: National Association of Student Personnel Administrators, Inc; 2014.

Resources

Association on Higher Education and Disability. https://www.ahead.org/professional-resources/white-papers-guiding-documents (White Papers); https://www.ahead.org/professional-resources/publications (Recommended publications).

Coalition for Disability Access in Health Science Education Resource Page. https://www.hsmcoalition.org/resources

UCSF School of Medicine USMLE Step Exam Guide (Meeks, 2016). http://www.ahead-archive.org/conf/2017%20Conference/Handouts/7.2/UCSF-USMLEpacketforstepexams.pdf

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