

Accommodations in Didactic, Lab, and Clinical Settings

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INTRODUCTION

This chapter provides an overview of didactic and clinical accommodations, including information on accommodating the various forms of assessment that are used in health science programs. Specific guidance is offered with regard to accommodating overnight call, students with color-vision deficiency (CVD), autism spectrum disorders (ASDs), blood-borne diseases and those who are deaf and hard-of-hearing (DHOH). Finally, a section on the inclusion of service animals helps programs develop appropriate protocols for animals that may be entering the clinic. Throughout the chapter, practice examples afford the reader an opportunity to apply the guidance to real student scenarios, while case examples provide a legal framework for determining reasonable clinical accommodations.

As discussed in Chapter 4, determining accommodations is an interactive process between the student and the disability resource professional (DRP) or responsible campus entity. Often, the academic accommodations required for health sciences settings are highly nuanced. This chapter helps DRPs and institutions understand how to work collaboratively to determine and implement reasonable accommodations in all types of health science education settings.

ACCOMMODATIONS IN THE DIDACTIC SETTING

Accommodation requests for the didactic setting are the most straightforward of all the learning domains. Students often have a history of using accommodations in classroom environments and are aware of their accommodation needs. Institutions are able to easily implement the most common didactic accommodations, including extended time for tests, reduced distraction testing location, lecture notes, specialized furniture, alternative format versions of books and articles, assistive technologies, and noise-canceling headphones.

Written Exams: Additional Time and Breaks

ADDITIONAL TIME FOR EXAMS

Extended time (25%, 50%, or 100%) for didactic-based, written exams is considered a standard, reasonable accommodation for students whose disabilities impact their cognitive processing speed or the physical ability to respond (e.g., a hand injury that makes typing difficult, a chronic pain condition that results in slower movement). Students with learning disabilities, attention deficit hyperactivity disorder (ADHD), and those whose disability or medication causes cognitive “fogging” or slowing (e.g., fibromyalgia, chemotherapy, or depression) may require additional time to process information and respond to exam questions. In these instances, the accommodation is designed to provide the student with adequate time to respond to the material.

DETERMINING HOW MUCH ADDITIONAL TIME TO ALLOW ON EXAMS

The amount of extra time a student is afforded should be proportional to the impact on a student's functioning. For students with disabilities that impact executive functioning (e.g., ASDs, ADHD, and anxiety), 25% or 50% additional time may provide sufficient time to refocus attention and organize their thoughts or to implement compensatory skills for reducing associated anxieties. In other cases, students may have a processing disorder that impacts the speed at which they read, comprehend, and respond to questions, or they may have more than one disability that, when combined, exponentially impact reading, processing, or response time. These students generally require 50% or 100% additional time for exams. Chronic health conditions can also impact cognitive processing, and as a result, these students may also require additional time. In some cases, taking breaks in lieu of extra time may better address the barriers associated with time. For example, students with ADHD may not benefit from additional time and instead may need to take periodic breaks to move around or refocus their attention before resuming an exam. For more complex cases where dual disabilities result in exponential barriers, a combination of accommodations (extra time and breaks) may be necessary.

It is important to note that although this book provides examples of particular disabilities needing particular amounts of extra time, the analysis should always focus on the student's specific functioning, and not solely on the diagnosis. The provision of extended time is not an exact science; therefore, DRPs should use a combination of resources to determine need (e.g., standard scores, student reported impact, history of accommodation, singular or multiple impacts on functioning, etc. and then review and adjust the time as needed to ensure that the accommodation adequately addresses the barrier for each student.

BREAKS DURING EXAMS

At times, students with disabilities require breaks to take medication, monitor blood pressure or sugar levels, manage chronic pain, refocus, rest, or stretch. These needs can be addressed via "stop-the-clock" breaks. In these cases, students are given breaks during the testing session and the "clock" measuring testing time is stopped until the end of the break. These breaks are usually provided between test sections to avoid exposure to questions in advance. In these cases, students only receive extra time to address a specific, non academic need and do not have additional access to the exam questions.

Stop-the-clock breaks should be well-defined with a set length and pre-determined number of breaks based on the total length of the exam and an understanding of the student's needs (e.g., 10 minutes per hour of exam).

Planned and regimented stop-the-clock breaks are only appropriate for a student with clearly defined needs, for example, the need to stretch once per hour. For students with less regimented needs, such as managing the sudden onset of a migraine, breaks must be more flexible. In this example, a student may need to take medication to alleviate the symptoms, which could take 20–30 minutes to take effect. During this time, the student may require a break from computer screens and they may need a quiet, darker area in which to rest. For these students, the total break time (say 30 minutes for a 3-hour exam) may be used in one setting, upon experience of migraine symptoms. In cases where the need for breaks cannot be scheduled (e.g., a student's blood sugar drops, multiple urgent extended bathroom breaks are needed), the rest breaks must be provided on an as-needed basis rather than scheduling them in advance. If the management of symptoms will require more than 100% of the originally scheduled exam time, the exam or event may need to be rescheduled.

For some exams, particularly those administered in online forums such as through learning management systems or third party entities, stop-the-clock breaks may not be an available tool. In those cases, the amount of additional time that would have been allotted to breaks can be added to the exam clock, and the student can opt to take breaks when needed.

When evaluating requests for extra time, the DRP must identify functional limitations and understand *how* these limitations impact the student on a daily basis and during intermittent flare-ups. Once understood, the DRP can select the most appropriate accommodation (e.g., extra time and/or additional breaks) to specifically address the student's needs (see Practice Recommendation 5.1).

Practice Recommendation 5.1 Extra Time and Stop-the-Clock Exam Breaks

At times, students will require different accommodations to address varied components of their disability. Be sure to independently address all functional limitations and associated barriers. For example, students with diabetes may experience blood sugar instability in times of stress (e.g., during exam periods). This can result in cognitive slowing, as well as the need for breaks to check blood sugar, administer medication, and eat a snack. Students with these needs may require extended time to address the cognitive fogging and extra breaks to address medication management.

REDUCED-DISTRACTION ENVIRONMENT OR PRIVATE-ROOM EXAMS

Students with disabilities related to ADHD, processing or ASDs, and anxiety may become distracted by extraneous stimuli during classroom exams. In these instances, it may be reasonable to approve a reduced-distraction environment for didactic examinations. This accommodation is designed to minimize interruptions and distractions including classroom noise (e.g., students coughing, erasing, and tapping pencils), wall decorations, telephones, bright lighting, and interruptions when students get up, finish early, or ask questions of the professors. Students who are sensitive to stimuli, including those with significant anxiety, ADHD, or obsessive-compulsive disorder (OCD), may require a private testing room. Finally, students who use text-to-speech software for testing, those who have scribes, or use other forms of assistive technology may need a private room to avoid disrupting other test takers. For the same reason, students who use self-talk or similar strategies to ameliorate the effects of their disabilities may also benefit from a private testing room.

PRIORITY SEATING

Priority seating is another reasonable accommodation for the didactic setting. Students with low vision, ADHD, other disabilities affecting focus and concentration, and students who are Deaf or hard-of-hearing may require seating near the speaker or the projected screen to ensure equal access to course materials (e.g., to see an interpreter, have greater view of presentations, or reduce distractions).

GROUP WORK

Group exercises may present barriers for some students with disabilities. This is an important aspect of the learning environment to consider when health sciences programs employ a collaborative learning model with required small-group learning sessions. These sessions typically assign students to teams that work through clinical scenarios together, guided by a teaching assistant or faculty member. These exercises can elicit fears of judgment and stigma if a student worries that symptoms of their disability will be noticed

by peers (e.g., delayed responses, inability to quickly read material, difficulty synthesizing materials, and so on).

Attention to universal design for instruction (UDI) principles can ensure that small group exercises are accessible to all students (Sullivan & Meeks, 2018; Burgstahler, 2017). See Table 5.1 for a review of practices.

Table 5.1 Potential Approaches to Small Group Barriers

SMALL GROUP BARRIER	POTENTIAL ACCOMMODATION	UDI APPROACH
Taking notes while simultaneously listening and participating in discussion.	Note taker for learner. Livescribe pen recording small group.	Provide written case materials with outline. Small group leader creates an audio recording of pen; (e.g., Livescribe) makes available to all students. Class notes available to all learners via volunteer note-takers. Assign one student each class to take photos of any items on board and upload to class content via learning management system.
Information and discussions presented verbally.	Note taker for learner. Instructors present concepts in charts, graphs, or photos as appropriate to student with disability.	Provide charts, graphs, photos, or videos that depict relevant concepts to all students. Diagram concepts on a whiteboard; upload photos of diagram to LMS.
Not enough time to process information and participate in meaningful discussion—especially if the case is presented in group.	Provide the learner with a disability with the case at least one week in advance. Leader calls on learner last to allow more time to develop feedback.	Open case prior to small group to allow for thoughtful reading and reflection. Students contribute at their comfort level. Leaders ensure equal participation for all. Incorporate observational learning methods; allow learners to observe how other groups deduce and formulate a differential diagnosis.
Anxiety about contributing to discussion.	Assign learners specific parts of case so they can practice their contribution.	Allow different forms of contributions for learners (e.g., taking notes for the group, providing an outline in advance, explaining a concept in detail verbally, drawing a representation of the concept or process for visual input).

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Table 5.1 Potential Approaches to Small Group Barrier (*continued*)

SMALL GROUP BARRIER	POTENTIAL ACCOMMODATION	UDI APPROACH
Attendance difficulties due to chronic health conditions.	Provide note taker. Alternate assignment if allowed by faculty.	Stream small group via Skype or Google Hangout, allowing students to attend remotely. Record small group. Post case materials on LMS.
Synthesizing information.	Provide note taker.	Incorporate reflection process (e.g., journaling, papers) after the small group session.

LMS, learning management systems; UDI, universal design for instruction.

Source: Reproduced with permission from Sullivan, L., & Meeks, L. M. (2018). Big solutions for small groups in health science programs. *Disability Compliance for Higher Education*, 23(8), 1–7.

Several additional measures can improve the accessibility of group work. Encourage faculty to create options for electronic or written submissions as an alternative to oral presentation of materials (e.g., asynchronous online forums on course websites). Provide a notetaker for the class and/or audio record sessions as an additional means to disseminate information to students in a meaningful, multimodal manner. Take pictures of any notes or drawings on the whiteboards (or similar device) that occur during the small group and upload these images to the course platform. This allows all students the opportunity to review and process small-group content after the session.

CLICKERS

Clickers are interactive technology response systems (similar to a television remote or loaded on a smartphone via an app) that enable instructors to pose questions to students and analyze class responses in real time. In large lectures with limited interaction, the use of clickers can encourage student participation and learning. Unfortunately, clickers may pose a barrier to students with disabilities if they are not fully accessible, for example, to those students with limited hand functioning, or visual or auditory processing disabilities. DRPs should ensure clickers have the following accessibility features:

- Raised buttons that require less than 5 pounds of force to operate
- Ability to provide clear feedback when responses have been submitted (e.g., beep, light, and vibration feedback)
- Models that are accessible to both right- and left-hand-dominant users

Students who are not physically able to use clickers should be provided with the questions in advance and permitted to provide responses

in written form using preferred assistive technology such as speech-to-text software or other devices. *Clickers are not recommended for graded quizzes or other assessments, as they make it difficult to appropriately accommodate students requiring extended time.* When used for “polling” the class, faculty should provide a reasonable amount of time for students to respond, taking into consideration the range of times students may need to formulate a response.

Other Standard Accommodations in the Didactic Setting

Although extended time and a reduced-distraction environment for exams are among the most frequently requested accommodations, several other accommodations are commonly utilized in the didactic setting. These accommodations include notetakers, readers, assistive technology, scribes, adjustments to classroom participation requirements, and podcasts, videos, or recordings of the lectures (see Table 5.2).

Table 5.2 Other Standard Accommodations for the Didactic Setting

ACCOMMODATION	POTENTIAL DISABILITIES OR FUNCTIONAL LIMITATIONS	IMPLEMENTATION OF ACCOMMODATION(S)
Need to obtain lecture information from additional source	Physical barrier to writing/typing Attentional issues Slowed processing speed Slowed reading fluency/speed Disorders of written expression Reduced capacity for energy to write Inability to hear instruction Inability to “see” slides or board	Peer note taker Smart pens Audio recording Video podcast Integrative note-taking app
Reader Assistive technology and alternate-format text (electronic, large print, and so on)	Slowed or interrupted reading Inability to see materials Slowed processing speed	Human reader ^a Screen-reading software Software or equipment to increase font, change visual contrast Provision of written materials in accessible formats

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Table 5.2 Other Standard Accommodations for the Didactic Setting
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ACCOMMODATION	POTENTIAL DISABILITIES OR FUNCTIONAL LIMITATIONS	IMPLEMENTATION OF ACCOMMODATION(S)
Flexibility in Participation	Flare of Symptoms Temporary hospitalization Processing difficulties Communication difficulties	"Seat time" ^b attendance modification Read-and-respond method ^c Virtual attendance (limited) ^d Student-led responding ^e
Podcasts and video	Any functional limitation that involves processing of information or attendance	Web-based posting of lecture material. Students who are Deaf or hard of hearing will require transcripts and captioning
Interpreters, CART, audio amplification	Deaf or hard of hearing Auditory processing difficulties	ASL, cued speech, or oral interpreters Live CART provider Captioned podcast Transcript FM or infrared amplification system
Need to collect or document information differently	Limited or no use of hands Processing disorder Broken wrist, fingers Visual disability Auditory disability	Scribe (A person who takes dictation of student's words) Visual describer (A person who gathers visual-related information for the student) A combination of scribe/visual-describer Voice-recognition software

^aReader should be able to correctly pronounce medical terminology but should not have enough knowledge to inadvertently provide cues via changes in tone or enunciation of items.

^b"Seat time" is an expression used in many medical and other schools to denote the amount of time a student must be physically in class.

^c"Read and respond" refers to having the questions in advance and allowing all students to respond to them in writing on a shared space such as an online discussion forum, as opposed to cold-calling during class.

^dLimited (short-term) virtual attendance via video conference or another alternative format. Generally used only for flare-ups or short-term disabilities.

^e"Student-led responding" refers to students volunteering to respond to questions instead of being called on. A set number of responses may be required to achieve expected participation levels.

ASL, American sign language; CART, communication access real-time translation; FM, frequency modulation.

ACCOMMODATIONS IN THE LABORATORY SETTING

General Laboratory Access and Concerns

Instruction in the lab setting is an essential part of all health sciences programs. As such, lab accessibility is critical (e.g., physical space, tools and equipment, safety and protective gear for all participants). The majority of anatomy and skills labs across health science programs focus on identification of physical structures. Some labs, such as technical and simulation labs, focus on clinical skills. This can include manipulation of instruments and hands-on clinical skills like suturing or joint manipulation. No matter the lab setting, the preferred mode of accommodation is through adaptive or assistive devices that allow students to independently perform the required tasks in the same or similar amount of time and manner as their peers (see Chapter 7 for examples). In some cases, however, students will require additional accommodations to access labs.

Personal Assistants or Intermediaries in the Lab

There are times when students with certain disabilities (e.g., visual disabilities, chemical sensitivities, dexterity or mobility issues) require a personal assistant or an intermediary as an accommodation. These assistants operate much like a scribe in the exam setting or a medical assistant in the clinical setting; they assist the student with a disability without making clinical or research judgments. The personal assistant may be a non-peer student or other individual hired to follow the explicit instructions of the student with a disability during certain lab or clinical activities. Student partners are an alternative to personal assistants and may assist by occasionally manipulating sensitive instruments or chemicals. At all times, the student with the disability must maintain a directive role by giving direction and recording results—ensuring that the competencies measured in the lab are fulfilled by the student with a disability. When considering approval of a personal, lab assistant, or intermediary, the DRP must ensure that the program's technical standards are not compromised (see Scenario 5.1).

Chemical Sensitivities or Allergies

Chemical sensitivities and allergies to lab-related items (such as latex gloves) might warrant the need for accommodations in the laboratory setting. Additionally, some chronic medical conditions, such as multiple chemical sensitivities (MCS), are exacerbated when exposed to chemicals. Chemicals used in anatomy courses and other labs can also act as barriers for a student with allergies or asthma. In each of these scenarios, students may need specialized equipment (e.g., respirators, protective gloves, eyewear, and clothing)

SCENARIO 5.1 Graduate Student Who Needs Lab Accommodations

Issue: A graduate student with spina bifida who has limited ability to reach and grip very small items is enrolled in a research lab involving mice.

How it impacts the lab work: The lab requires that students use instruments and equipment to conduct research on the mice. This also requires that the student secure an individual mouse by holding the mouse's tail.

Goal: The lab environment should be designed and organized to ensure that the student can participate to the greatest extent possible.

Resolution: When necessary, the student's lab partner or personal assistant can hold the mouse by the tail or assist with instrumentation while the student conducts her research.

to avoid exposure to chemicals or when working with chemically enhanced items (e.g., cadavers and tissue). If all students are provided with standard laboratory gear, this lab-specific equipment should be provided by the school as an accommodation. Some individuals with MCS choose to wear personal air purifiers on a daily basis and in all domains, not just in laboratory environments. These would be considered a personal item and would not be provided by the disability office.

Although protective gear can remove the disability-related barriers for most students with MCS in the lab setting, some students are simply unable to tolerate the chemicals due to higher sensitivity levels, making any interaction with them dangerous. In certain, limited situations, participation in a *virtual* lab may allow the student to demonstrate mastery of a lab skill, without having contact with preservative chemicals. However, the DRP should pay careful attention to the program's technical standards to ensure that a virtual lab results in the same learning outcomes as the standard lab environment. When virtual labs are determined to be reasonable and effective, they should occur in the same building and at the same time as the other labs, allowing the student access to key personnel during instructional time. In some cases, institutions have set up cameras or used video conference platforms to allow the student real-time access to the team and the lab. Some programs have successfully used iPads on portable stands for students to engage with the team via video conference from an alternative location (perhaps an isolated room near the lab).

Equipment and Ergonomics

In labs, students must demonstrate academic and practical knowledge. Students with disabilities may do so with adaptive equipment (e.g., talking thermometers

and calculators, light probes, tactile timers, tactile or non-glass pipettes, large monitors attached to a microscope, a head lamp or loupes with light, and voltmeters). In addition to tools and equipment, students may also require adaptive or ergonomic furniture. Students with physical disabilities or injuries often require specialized seating or tables that allow them to participate in the lab or clinic, such as a height-adjustable table, an ergonomic chair, a chair with more cushion or back support, or a kneeling chair. In cases where a student requires specialized equipment due to a repetitive stress injury, a proper ergonomic evaluation by a qualified specialist is warranted to ensure the student's environment is adjusted appropriately. Finally, students who use mobility equipment such as motorized scooters should be provided a designated parking location in or very near the lab that is safe, secure, and easily accessible.

Safety

The safety of every participant in the lab is imperative, and there are times when faculty may express safety concerns about an accommodation requested by a student, such as having a motorized wheelchair or service animal in the lab. When considering whether to allow an accommodation, the Americans with Disabilities Act (ADA) requires schools to carefully consider whether concerns about safety constitute true safety issues.¹ The Supreme Court has held that "the risk assessment must be based on medical or other objective evidence."² In order to proactively address potential safety concerns, DRPs should collaborate with lab faculty to determine the least restrictive environment for a student who requires specialized equipment or a service animal and orient the student to the lab prior to the first day of class. DRPs should also conduct a walk-through of the lab with the instructor to identify any barriers or specialized equipment and arrangements that may be necessary. A student with a visual disability may require formal orientation and mobility training to ensure their ability to locate workstations and equipment and to determine the best paths of travel within the lab.

Exam Considerations in Laboratory Settings

DETERMINING EXTRA TIME

As with all decisions about exam accommodations, determining additional time for practical exams in the lab environment requires the DRP to consider two key components before determining accommodations: (a) the purpose and structure of the exam and (b) the barriers experienced as a result of the

¹ U.S.C. § 12182(b)(3).

² *Bragdon v. Abbott*, 524 U.S. 624 (1998).

student's functional limitations. For example, an anatomy instructor assigns students a two-part exam that contains a paper-and-pencil section and an oral-identification portion. Depending on the student's circumstances, extra time may be appropriate for only one portion of the exam. Take a student with dyslexia, they may require time-and-one-half as an accommodation for the written portion of the exam only, while a Deaf or hard of hearing student might only receive extra time during the oral-identification portion to allow for an interpreter to receive, process, and voice the student's responses. In another example, a student with a processing disorder may require extended time on both sections in order to provide sufficient time to process the information and formulate an answer.

When determining whether extra time on a practical exam constitutes a fundamental alternation of the course, programs may wish to review the 2014 Office of Civil Rights letter to the Kent State University College of Podiatric Medicine. Programs should not add any restrictions or additional requirements for students with disabilities that are not in place for their nondisabled peers. As noted in the Office of Civil Rights letter to the Kent State University College of Podiatric Medicine³, the students had multiple complaints about the process for affording extra time on the anatomy exams (See: Case Example 5.1).

CASE EXAMPLE 5.1 OCR Letter to Kent State University College of Podiatric Medicine⁴

Kent State told students in their podiatry program that "accommodations for laboratory exams, as well as certain types of quizzes (such as those that involved case studies or those that the instructor labeled "fun activities"), were not permitted because they were "clinical" in nature.

OCR noted that in order to establish fundamental alteration, a school must be able to demonstrate that the task is "essential to the instruction being pursued by such student or to any directly related licensing requirement" and that an appropriate deliberative process to establish whether there was a fundamental alteration must involve a group of people "*trained, knowledgeable, and experienced in the relevant area.*" Programs facing this question must engage in a deliberative process and "consider a series of alternatives" before denying such requests outright.

The testing conditions were also part of the complaint "*The students with disabilities then got a set, consistent amount of extra time to complete their exams, with no individual variations based on each student's disability-related needs.*"

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³OCR letter to Kent State University, Case No. 15-14-2153 (2014).

⁴OCR letter to Kent State University, Case No. 15-14-2153 (2014).

CASE EXAMPLE 5.1 OCR letter to Kent State University College of Podiatric Medicine (*continued*)

In addition, the instructor assigned individual TAs to follow each student around as he or she moved from station to station throughout the laboratory. The students reported that this made it difficult to concentrate, as they felt they were being watched and followed. From each student's assigned starting station, students were permitted to use the extra time however he or she would like. For example, a student could use all 10 minutes on one question or split it between multiple stations to work on a number of questions. However, students could move only forward in the rotation, not backwards, and they could not move to a station occupied by another student. Thus, if a student needed to use extra time on a particular station and another student was occupying that station for the entire 10 minutes, the student had no opportunity to see that station. Additionally, there were no rest stations in use during the extra 10 minutes." Programs must ensure that students receive the assigned amount of extra time for each question and that any proctoring is equivalent across disabled and nondisabled students.

OCR, Office for Civil Rights; TA, teaching assistant.

Case Example 5.1 serves as a reminder about several things to avoid when implementing anatomy lab accommodations. First, blanket statements about not accommodating a portion of any part of the curriculum or any policy of the institution should not be made—each determination requires an individual interactive process (see Chapter 4). In addition, disabled and nondisabled students must be afforded equivalent experiences, access, and oversights. Here, additional measures were taken to monitor the students with disabilities that did not occur with their nondisabled peers. Although given extra time, the accommodated testing procedure did not equate to equal access for the students with disabilities, as there was no opportunity to rest between stations and additional time was not allotted for each station: allowing students to take “as much time” as needed at any station potentially blocked other students from revisiting the station. These actions indicate a lack of understanding about disability and its impact on assessment and hint at an assumption that anyone with extra time may require additional monitoring for cheating.

SCHEDULING EXTRA TIME

Implementing extended time accommodations for practical exams can present challenges for program administrators. In the case of anatomy exams, for example, students usually begin at a specific station and then rotate through each station. All students have the same amount of time at each station and finish together. Faculty might argue that the extra time afforded students with accommodations (1 additional minute on a 2-minute station) would not make

a big difference in performance, stating that you either “know the information or you do not.” This thought process, however, is incomplete. The student may need extra time to fully process and respond to the question in order to demonstrate their knowledge. Meeks and Jain (2017) discuss two mechanisms for accommodating anatomy exams, where the format of the exam requires a rotation through stations and suggest two approaches to extending time on anatomy exams (see Scenario 5.2).

WHEN EXTRA TIME IS NOT APPROPRIATE

There are some practical exams for which extended time may not be appropriate, as with some patient simulations or specific portions of clinical skills exams (see Practice Recommendation 5.2 and Scenario 5.3). DRPs must evaluate each type and distinct portion of an assessment independently to determine the appropriate accommodations for that setting.

SCENARIO 5.2 Accommodating Anatomy Exams. (Adapted from Meeks and Jain [2017]).

1. Students with and without disabilities rotate together through the final testing group of the day. At the end of the standard time, all students are dismissed and students requiring extended time receive a 5-minute break. This break allows all students to exit the lab together, reducing the possible identification of students receiving accommodations. Students with extended time return to the lab after the break and rotate through *all stations* again to receive their allotted extended time (e.g., 2.5 additional minutes per station).
2. Students with disabilities requiring extended time rotate through the exam as the final group of the day, with all stations timed on the 1.5x schedule (e.g., 7.5 min/station). For students receiving additional extended time (e.g., double time), the procedures in option 1 can be followed to allow the additional 2.5 minutes.

Practice Recommendation 5.2 Extended Time for Practical Lab Exam (Dental procedures)

When practical exams are conducted on actual patients rather than standardized patients or manikins, the length of the exam is often a critical factor.

In most dental procedures, local anesthetic is used to block the nerves so that the patient does not feel any discomfort. Anesthetic is time-sensitive and wears off. Extending time to complete the procedure in these cases would not only pose a threat to the patient's comfort, but might require additional doses of anesthetic to finish the procedure, which can have a negative impact on the patient's health.

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Practice Recommendation 5.2 Extended Time for Practical Lab Exam (Dental procedures) *(continued)*

When determining whether a dental student should receive extended time on an exam that includes a live patient, the DRP should collaborate with faculty to determine the nature and purpose of the exam elements. For example, if the purpose of an exam is for students to demonstrate their ability to fill a cavity—a procedure that requires anesthetic—extra time is not appropriate for the reasons listed above, but allowing the student additional time to work on a manikin, building and refining their skills until they are able to perform the procedure within the required time on a live patient, may be a reasonable accommodation.

Alternatively, if the assessment is evaluating the student's ability to do a dental exam but does not include procedures, additional time may be appropriate.

DRP, disability resource professional.

SCENARIO 5.3 Deaf Student Nurse in a Practical Lab Exam

A Deaf student nurse who uses an interpreter and is taking a practical exam with both a written and patient-interaction portion will likely not require an accommodation of extra time for reading or typing clinical notes. However, it would be appropriate to allow the student some additional time to complete the patient interaction portion, to compensate for the additional time necessary for the interpreter to facilitate the student-patient dialogue.

VISUAL AND AUDITORY ACCOMMODATIONS IN LAB AND PRACTICAL EXAMS

For students with visual disabilities, visual aids to enhance specimen size or contrast (e.g., histology slides) may be needed. This can be accomplished with magnification or by connecting microscopes to monitors that allow students to get a larger view of the item. Providing high-contrast printed versions of the specimen next to the microscope allows all students the option of utilizing alternative visual resources. Alternatives to auditory alerts (e.g., alarms, buzzers) may be needed for DHOH students in situations where auditory alarms are utilized. Not all accommodations are technology based. A common adjustment for lab and practical settings is the opportunity to rest. Stools or resting stations can be proactively set up for all students, allowing those with disability-related needs to rest in between stations or while working for long periods of time in the lab.

DRPs can and should work proactively with faculty to enact UDI principles whenever possible. These changes would reduce the need for specific accommodation and improve learning for all students, regardless of disability status.

SIMULATION LAB ACCOMMODATIONS

Health science programs often utilize learning environments known as simulation labs (SIM labs). These settings provide students with applied learning opportunities through the use of human patient “manikins” that replicate basic to complex clinical scenarios in a simulated environment. SIM labs provide students with an opportunity to practice and hone their clinical skills in a formative manner. Disability accommodations can and should be provided in these settings, even if they are not formally evaluated, as these practical experiences are designed to better prepare all students for real clinical situations. Students with disabilities, therefore, require equal access to these experiences. Accommodations to consider include extended time or additional trials when conducting procedures or use of assistive devices or strategies.

Simulation labs must be designed for physical access, with height-adjustable patient tables, computer stations, and equipment that is stored at a level accessible for all students. SIM labs can also be the perfect setting to identify barriers a student may experience in the clinic and to try out possible accommodations (see Scenario 5.4).

SCENARIO 5.4 Student With Low-Vision and CVD Needing SIM Lab Accommodation

A nursing student has low vision and CVD, or “color blindness.” Color-coded items can create a barrier for this student. This issue becomes salient in the SIM lab when the student struggles to differentiate the various lines, tubes, catheters, monitors, and equipment in the mock ICU setting, which are often color coded.

Possible accommodations include the labeling of the various items by name to accurately identify items until the student becomes familiar with the various shapes/sizes, which will ultimately inform the student’s work in real clinical settings. The student could practice in the simulation setting until comfortable enough to enter the ICU.

CVD, color vision deficiency; SIM, simulation.

SCENARIO 5.5 Student with Physical Disability in Preparing for Clinicals

A nursing student with a partial amputation in one arm needs to configure an alternative approach to injections and blood draws. Working together with the DRP and simulation coordinator in a simulation setting, the student can attempt multiple approaches to both competencies

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SCENARIO 5.5 Student with Physical Disability in Preparing for Clinicals (*continued*)

in a safe and effective manner. Once an alternative approach that is equally safe and effective is identified, clinical faculty can be brought in to assess the alternative approach and clear its use in the clinical setting. Students with partial or complete amputations have developed safe and effective techniques in nursing, physical therapy, and medicine.⁵

DRP, disability resource professional.

SCENARIO 5.6 Student Struggling in Clinical Environment

A medical student with a visual disability is struggling to meet the competencies of the clinical rotation. The student suggests the struggle is disability-related, while the clinical instructors note deficits in clinical knowledge. To determine (a) whether the current accommodations are effective, (b) if the student requires additional accommodations, and (c) if there is a fund-of-knowledge deficit, the team (clinical preceptor, director or coordinator of simulation, and DRP) develops a series of patient simulations. By using the simulation room, standardized patients, and working as a team, they are able to identify additional accommodation needs and items that require remediation.⁶

DRP, disability resource professional.

Source: Adapted with permission from “Using a diagnostic OSCE to discern deficit from disability in struggling students,” by Patwari et al. (2020). Copyright 2020 by Academic Medicine.

Clinical Skills Exams (Objective Structured Clinical Examinations)

Programs are often confused as to whether students should receive accommodations on standardized patient or “practical” exams (also known as OSCEs, objective structured clinical examinations) believing that accommodations on these assessments are unreasonable given the transferability of skills in the clinical setting. The OSCEs are clinical skills exams used to assess clinical acumen with a *standardized patient* (an actor who portrays the same symptoms/responses for all students) instead of a real patient. OSCEs may also include interaction with clinical materials such as models, radiographs, and lab test results. Because the standardized patient’s condition and presentation are

⁵NONDNurses (2015, November 29). *Onehanded Injection IM*. <https://www.youtube.com/watch?v=tBeg05ipgSY>

⁶Using a diagnostic OSCE to discern deficit from disability in struggling students,” by Patwari et al. (2020). Copyright 2020 by Academic Medicine.

the same for all students, faculty can more objectively assess each student's applied knowledge and performance on clinical skills (e.g., taking a history and physical and developing a differential diagnosis). These exams may be *summative* (i.e., graded) or *formative* (i.e., for review and clinical development). Regardless of the purpose of the exam, students with disabilities may encounter barriers in these settings and require accommodations (Meeks and Jain, 2016).

It is important to engage in the interactive process for all disability requests, including those with a clinical component. As with all assessments, it is critical that the DRP understands the assessment, including what is being measured and how it is being measured (see Chapter 4 for more information about the interactive process). Clinical skills exams usually consist of multiple stations with discrete timed tasks and generally include the following components:

- a reading portion, often referred to as “door notes,” during which the student has a specified amount of time to read through initial information about the patient he or she is about to see (e.g., the patient's primary concern, lab results);
- a patient interaction in which the student examines and questions the patient; and
- writing a case note summarizing the encounter or an oral presentation wherein the student reports his or her findings to a faculty member.

DETERMINING ACCOMMODATIONS FOR A CLINICAL SKILLS EXAM

Because the OSCEs constitute different types of tasks, they may require multiple accommodations. In order to determine what accommodations are necessary, DRPs must consider each section of the exam and identify if a barrier is present for the student on that specific portion of the exam. Then they must determine what, if any, accommodation is reasonable for each section of the exam, depending on the purpose of the assessment and the barriers experienced (see Scenarios 5.7 and 5.8).

In clinical skills exams, an electronic health record (EHR) simulation may be used for students to extract patient information and report clinical impressions (e.g., a SOAP note⁷). These systems must be vetted for accessibility in advance. When these systems are not accessible, for example, if the EHR simulation software does not have a mechanism for enlarging text or is not compatible with assistive technology software, a work-around solution may be necessary (see Chapter 7, Learning in the Digital Age: Assistive Technology and Electronic Access, for more information regarding EHR accessibility).

⁷The SOAP note (an acronym for subjective, objective, assessment, and plan) is a method of documentation employed by health care providers to write out notes in a patient's chart.

SCENARIO 5.7 OSCE Accommodations for a Student With Low Vision

A student with low vision and difficulty sustaining visual focus is scheduled to take an OSCE. The exam consists of 10 stations that include a combination of reading, writing, and standardized patient components. All students are allotted 3 hours to complete the exam.

The DRP discusses the format of the exam with the faculty member and determines that the written portions of the exam will be administered on a computer with magnification software (ZoomText) to enlarge the font. Use of this software can result in slowed reading speed due to the slightly cumbersome navigation of the magnified screen. Generally, the student has required 25% additional time for other assessments requiring reading, so the DRP and faculty agree that 25% additional time is a reasonable accommodation for the OSCE to address the barrier posed by reading written materials with ZoomText.

Because the student can experience eyestrain during periods of intense focus, an additional accommodation of “stop-the-clock” breaks of 5 minutes are provided after every third station to allow for eye rest.

DRP, disability resource professional; OSCE, Objective Structured Clinical Examination.

SCENARIO 5.8 OSCE Accommodations for a Student With Multiple Disabilities

A student with one arm, who also has a learning disability that affects reading fluency, is taking her first OSCE. She has two disability-related needs: (a) the need for extra time to process written information and (b) the need to use specialized equipment or receive assistance for the patient exam. The DRP analyzes each section of the OSCE separately to determine if accommodations may be needed for that section.

Door Notes: The student may require extra time and/or reading software to read and process the door notes, as well as to account for the increased typing time.

Patient Interaction: The student may require an assistant or may need specialized equipment to perform a patient exam (e.g., automatic blood pressure machine), if doing so will not interfere with the program’s technical standards.

Written Report: The student may require speech-to-text software to dictate the written report to accommodate for slowed typing speed.

Oral Report: Student would not require any accommodations for oral reporting of patient.

DRP, disability resource professional; OSCE, Objective Structured Clinical Examination.

ACCOMMODATIONS IN THE CLINICAL SETTING

Accommodations in clinical settings require advanced planning and a team approach. The DRP must understand the required clinical rotations for each program and the different types and locations of clinical placement sites. This knowledge can be gained through in-depth collaboration with partners in the clinical setting, including the clinical faculty, the clinical placement coordinator, and clinical program directors; by shadowing students or faculty in clinical placements; and by requesting feedback from students about their experiences. This knowledge, coupled with an understanding of the student's disability, will assist the DRP to identify barriers in the clinical environment, informing accommodation needs.

Accommodations for Clinical Site Placement

Students with disabilities may need accommodations specific to their clinical placement site. This occurs when something about a site presents as a barrier for a student with a disability. This may be due to distance or lack of public transportation, or to avoid clinical sites where the student had been a patient (particularly for psychiatric or other highly personal treatment). The DRP should have a good understanding of how each program determines its clinical placements in order to make informed and timely recommendations for accommodations (e.g., are clinical placements randomly assigned with the aid of computer programs or by a human coordinator? Do students rank desired placements, and what is the timeline for making placements?).

CLINICAL SITE LOCATION

The distance from a student's home to the clinical site can act as a barrier for students with chronic health conditions or mobility issues. These students may experience fatigue, making daily travel a barrier. Their symptoms may be exacerbated by the daily wear of a long commute, long clinical days, or the lack of efficient public transportation to the site. Removing the barrier may involve the accommodation of excluding clinical sites located outside a certain distance from the student's home or that are inaccessible via a reasonable public transportation route. In the event that sufficient clinical sites or those providing a unique learning experience central to the students' program cannot be accommodated with a distance restriction, individual transportation may be provided as an accommodation to allow a student who is otherwise qualified to complete the necessary rotation note that the cost for individual transportation is not the responsibility of the program. Programs will vary in their capacity to provide transportation.

Proximity of a clinical placement site to a student's established treatment team or health-care facility may also be an important consideration for students with disabilities, such as chronic health, mobility, or mental health conditions, who require regular treatment to maintain their health and wellness.

If a student placed at a distant clinical site is unable to arrange for temporary healthcare near the location of the placement or receive care remotely (e.g., via phone or video conference), these sites may need to be excluded from consideration. See “Time Off for Disability-Related Appointments” later in this chapter for further discussion about accommodations in the clinical setting for students with ongoing treatment needs.

PARKING AT THE CLINICAL SITE

Students who are able to drive but cannot walk long distances due to a disability should be provided with accessible parking access at the clinical site. Most students who qualify for this type of accommodation will have already established their eligibility for an accessible parking placard or license plate with the state, allowing them to use accessible parking spaces reserved for those with disabilities. However, not all students who may require parking accommodations will qualify for a formal parking placard. Permission to park at the placement site, removal of parking fees, or the ability to park in designated accessible parking spots are among the many parking accommodations to be considered.

SCHEDULING CLINICAL ROTATION ORDER

The order in which required rotations are completed is another accommodation to consider—especially for students with physical or chronic health disabilities who may experience fatigue, a flare-up of symptoms, or temporarily reduced endurance. Reordering of rotations requires forethought and an understanding of the different program requirements. Rotations can be strategically scheduled so that physically or cognitively taxing rotations do not occur back-to-back. For example, in medical education this might mean surgery, obstetrics, and gynecology (OB/GYN) and internal medicine are spread out to better balance the student’s clinical year. Other accommodations regarding the order of rotations could include allowing a student to sit out for a block or rotation to address a medical need or to provide extra breaks within the rotation. This is usually accomplished using a combination of vacation time and research electives, and may extend a student’s time to graduation.

There are other reasons that attention to the clinical schedule and order of specific rotations may be a warranted accommodation. Students whose disabilities vary temporally (for example, those with seasonal affective disorder or chronic health conditions that flare with changes in weather) may also require a strategically-arranged order for clinical rotations. For some students with psychological disabilities, time of year or the anniversary of a triggering event might be known issues that significantly impact their functioning. In these cases, DRPs should work with the student to identify and plan for known triggers. In these instances, strategic scheduling may also be necessary. Accommodations to allow for additional access to the student’s healthcare team (e.g., twice a week, vs. once a week therapy, acute medication management, increased physical therapy) may also be needed.

STUDENTS WHO RECEIVED PRIOR MEDICAL TREATMENT AT THE SITE

Placement accommodations may include the exclusion of a site at a hospital or clinic where a student has received treatment. This is especially true for students with psychological disabilities. The DRP, in consultation with the student, should determine whether or not this is a necessary exclusion. DRPs should also consider, where possible, excluding clinical sites (e.g., local emergency room, psychiatric hospitals, or sites) where a student would seek care should he or she experience a psychiatric emergency in the future—especially if the probability that such treatment is high (e.g., history of multiple admissions through the ED). Sometimes schools have a pre-existing plan to ensure their students receive psychiatric emergency care or addiction-related care at non-affiliated hospitals. DRPs should consult with their school's mental health teams to discuss any existing arrangements.

PHYSICALLY INACCESSIBLE CLINICAL SITE LOCATIONS

The ADA requires that medical facilities are physically accessible. Despite these federal laws, there may still be clinical sites that are not fully physically accessible to students with disabilities, such as community clinics and non-hospital birthing centers. If certain clinical sites are physically inaccessible, removing those sites from the list of potential placements for a student with a mobility disability is necessary. At the same time, schools have an obligation to ensure that students with disabilities are offered the same opportunities as their peers. Institutions should be extremely cautious about maintaining partnerships with clinical sites that are not compliant with federal laws. If a lawsuit is filed by a student who experiences an inaccessible rotation or where a clerkship site fails to provide reasonable accommodations or discriminates against a student, the school will almost certainly bear some of the liability for denying a student access, even if the program is not run by, nor the building owned by, the school.⁸

ATTITUDINAL BARRIERS

At times, certain clinical sites or certain personnel within a site, maintain a reputation for holding negative views of individuals with disabilities. Such *attitudinal barriers* are problematic and must be addressed through ongoing education and trainings. As with physically inaccessible sites, the school should seriously consider eliminating partnerships with sites known to discriminate against or provide unfavorable or unwelcome treatment of students with disabilities.

Accommodations Within the Clinical Setting

Some students will require accommodations in the clinical setting. Armed with this information, students can more effectively work with DRPs and

⁸OCR Letter to Thomas M. Cooley Law School, Case No. 15-08-2067 (2010); *Varlesi v. Wayne State University*, 643 Fed. Appx. 507 (6th Cir. 2016).

faculty before the rotation starts to formulate potential solutions or accommodations. Delayed implementation of accommodations may result in poor performance. DRPs should convey to students that last-minute requests for accommodation following poor performance may damage their relationship with clinical teachers and that implementation of accommodations does not erase prior poor performance. Therefore, students should seriously consider disclosing disability-related needs to the disability office and conveying approved accommodation information to the clinical site well in advance of starting the placement, to give the site time to prepare for any adjustments to current practices. DRPs should consider, however, that many students are uncertain what each clinical experience may entail, the barriers they may encounter, and the possible accommodations that could be provided. Advance discussions with students to explain the possibility for accommodations in clinical settings, what these might look like, and to reassure them that these accommodations are commonly used can be beneficial. Students may also benefit from speaking to peers who have used clinical accommodations and from visiting clinical settings to aid in their understanding of how clinical accommodations are implemented.

SCHEDULING A PRE-VISIT

To prepare for the clinical experience, it is beneficial for students to visit potential clinical sites and observe faculty to get a sense of the requirements and begin to determine, in advance, potential barriers (See potential clinical accommodations in Table 5.3). DRPs can work with students to determine the need for accommodation in the clinical placement site by arranging a site visit, reviewing clinical competencies, and checking the EHR system for accessibility. While the decision to utilize accommodations in the clinical setting is student driven, DRPs should be aware of the major barriers and be able to speak to the potential need for accommodation or specialized equipment. DRPs may wish to advise students of the dangers of delaying implementation of accommodations, as they are not made retroactively.

TIME OFF FOR DISABILITY-RELATED APPOINTMENTS

Some students with disabilities require ongoing treatment or regular therapy. Although treatment schedules can often be arranged around a student's academic schedule, this can be difficult in the intensive clinical-training phase. Students who need to attend regular appointments for treatment, including counseling sessions, may need to be released from clinic duties to attend them. In addition, the recovery time following treatment may affect the student's ability to participate in the clinical environment immediately after the appointment, and this should also be factored into the arrangement. For those students who do not need an in-person appointment, a reasonable accommodation may be to allow the student a private location within the clinic and sufficient time to have an appointment with a treatment provider via phone or video conference.

TABLE 5.3 Accommodations in Clinical Settings

ACTIVITY	POTENTIAL DISABILITIES OR FUNCTIONAL LIMITATIONS	IMPLEMENTATION OF ACCOMMODATION(S)
Rounds, clerkships, preceptorships	Physical barrier to writing Attentional issues Processing speed Dyslexia/reading disorder Disorders of written expression Chronic health conditions	Voice-recognition software or dictation system Reading software Scribe Audio recording Previewing of patient files Adjusted schedule Use of calculator or handheld spelling device
Cold calling	Communication disability (e.g., stuttering, expressive language disorder, and ASD) Processing disorder	Preview of questions or topic Written responses Oral responses at a later time Assistive device to facilitate speaking (e.g., iPad or smartphone with speech software)
Patient care	Physical disability Deaf or hard of hearing Chronic health conditions Anxiety Communication disability Learning disability	Use of intermediary ASL, cued speech, or oral interpreter CART Assistive listening system Reduced patient load (dependent on program and essential functions) Notetaker or smart pen during intakes ⁹ Digital or amplified stethoscopes ¹⁰ Automated blood pressure machine
Surgery schedule	Physical disabilities (e.g., limited range of motion, chronic pain, herniated disks) Chronic health conditions (e.g., fibromyalgia, chronic fatigue syndrome)	Modified schedule (e.g., no surgery over 4 hours in length, rest breaks during long surgeries) Chair or stool to sit periodically during procedures

(continued)

⁹ See: Serrantino, J., & Hori, J. (2017). Memory, retention, and retrieval: Using Livescribe smartpen as an accommodation. *Disability Compliance for Higher Education*, 23(2), 7–7.

¹⁰ <https://www.amphl.org/comparison-table>

TABLE 5.3 Accommodations in Clinical Settings (*continued*)

ACTIVITY	POTENTIAL DISABILITIES OR FUNCTIONAL LIMITATIONS	IMPLEMENTATION OF ACCOMMODATION(S)
Overnight on call	Chronic health conditions Sleep disorders Psychological disabilities	Modified schedule Reduction of overnight hours Hard stop (e.g., 10 p.m.) in clinic or on ward
Paging systems	Deaf or hard of hearing Blind or low vision	Visual, tactile, or vibrating paging devices Text pager Bed shaker in on-call room

ASD, autism spectrum disorder; ASL, American sign language; CART, communication access real-time translation.

Students should make up any missed clinical time such that they meet the same learning outcomes and clinical contact hours as their peers or as required by the program or accrediting agencies. Alternatively, programs may permit a student to complete assignments, such as readings, charting, or a weekend shift, to make up for missed time that results from early release.

PROGRAM MODIFICATIONS

For students with chronic health conditions that do not necessitate a leave of absence but may require additional absences from clinical rotations, a modification of the policy regarding “normal time to degree” can be an appropriate accommodation, allowing for an extension to the standard length of a clerkship to account for increased absences. Other possible program modifications include a reduced patient load for a student who, for example, requires additional time to write case notes, have a “hard stop”¹¹ on the wards, or experience a flare of their condition. In any instance of altering policy or adjusting time in clinic, it will be necessary to work with the clinical faculty and administration to determine reasonable accommodations without fundamentally altering the clinical education requirements as any adjustment to patient load may result in an extension of time to degree.

OVERNIGHT CALL

Requiring students to complete overnight call, or night float, is a standard practice in medicine and other health science programs. This practice exposes

¹¹ Hard stops are defined as a particular time where, regardless of clinic activity, the student would be released to go home, ensuring a pre determined amount of sleep each night. For example, for a student requiring 8 hours of sleep per evening who is on a rotation that begins at 7 a.m., the student would require a hard stop by 9 p.m. to allow for travel time and sleep. In a number of medical schools, the hard stop time is 10 p.m.

the student to a number of unique learning situations, for example, having an opportunity for more continuity of care or working with reduced resources, such as a smaller team. Students with certain disabilities, however, such as psychological disabilities, chronic health conditions, or neurological disabilities (e.g., epilepsy), often require good sleep hygiene to maintain wellness and may request an alteration or waiver of these requirements as an accommodation.

There is a relationship between poor sleep and increased symptomatology in several disabilities, such as bipolar disorder (Soreca, 2014), autoimmune disorders (Luyster, Strollo, Zee, & Walsh, 2012), and epilepsy (Ahmed & Vijayan, 2014). In addition to increased symptomatology, there is a clear negative relationship between total sleeping hours and academic performance in medical students, even without any additional barriers related to disability (Johnson et al., 2017 Abdulghani et al, 2012). Therefore, it can be argued that achieving healthy sleep on a nightly basis is essential for health sciences students with specific disabilities.

In such cases, the DRP should consider excusing a student from overnight call as an accommodation. The most common accommodation for these situations is to require the student to take daytime weekend call in lieu of overnight call; thus, the student experiences a similar working environment—reduced staffing, for example—but honoring the students need to maintain proper sleep hygiene. Another possible accommodation is to ensure the student has a private “on-call” room at the clinical site to aid in maintaining good sleep hygiene. When students have private rooms, they are better able to create an environment that is conducive to sleep (e.g., bedding, sound, temperature, and medical devices). For example, being able to sleep may require certain sounds (or lack thereof), specialized medical equipment (e.g., continuous positive airway pressure [CPAP] machine), or feelings of safety (e.g., for a student with post-traumatic stress disorder [PTSD] or anxiety).

ROUNDING AND COLD CALLING

In the clinical setting, students are often asked to respond to questions “on the spot” and in front of their peers and superiors. This is especially prevalent during rounds, where students have to present patient cases. During rounds, there is a predictable structure to the approach that students can expect. This allows students to prepare in advance for the presentations. For students who experience difficulty with presentations during rounds due to anxiety or disabilities that affect communication, advance practice and additional remediation can often address these concerns. Students who stutter or experience extreme anxiety may request that their patients to be presented are preassigned (e.g., the night before instead of the day of) so they can practice presenting the patient in advance (see Jain [2019] for further discussion on this topic).

Cold calling occurs when a senior member of the team or faculty member asks unplanned questions on any topic, in a group setting. This is usually practiced with one question per student, to multiple students, in a short period of time. Students with anxiety-related disabilities or communication disorders may experience difficulty responding to questions “on the spot.” In these instances, an accommodation might include written responses to questions within a specific period of time (e.g., by 5 p.m. the same day as rounds) in lieu of responding to cold-call questions. For some students (e.g., students who are Deaf or hard of hearing, who are nonverbal, or who stutter), using an assistive device can be an effective accommodation to ensure their participation. Students can write their response to share with the group, use text-to-speech technology, or communicate via an interpreter.

A more aggressive and targeted form of cold calling, sometimes referred to as “pimping” is standard practice for some medical school faculty. *Pimping* is a slang term used in medical education to describe a method of questioning that incites shame or that is used to humiliate the learner and maintain a power differential between the learner and the senior members of a team. Given the impact of these practices for all students, DRPs may wish to discuss with programs how limitations on aggressive questioning are instated in their clinical rotations. These practices can have a particularly negative impact on students with certain psychological disabilities, resulting in exacerbation of a student’s symptoms.

INTERMEDIARIES OR ACCESS ASSISTANTS

Students with disabilities, for example, those with limited hand or arm functioning or those with visual disabilities, may experience barriers to performing certain procedures during a patient interaction despite having the cognitive ability to comprehend the results and develop a differential diagnosis. In these situations, the student may request an intermediary, sometimes referred to as an access assistant. This is a person with some medical training who performs specific clinical tasks that facilitate the student’s ability to access clinical information. Intermediaries operate under the explicit direction of the student and do not interpret clinical findings or act independently. Beyond clinical procedures, intermediaries may provide students with additional, clinically insignificant assistance, such as opening doors, logging into computers, retrieving papers or other necessary items, or assisting with sanitizing hands prior to examining patients.

Intermediaries have been successfully utilized in health science programs. Indeed, schools have used various innovative models including hiring employees, near peers, and volunteers as intermediaries for medical students, residents, and physicians (Blacklock, 2017; Jauregui, Strote, Addison, Robins, & Shandro, 2019; Meeks, Poullos, & Swenor, 2019).

WHEN IS AN INTERMEDIARY APPROPRIATE?

An intermediary may be an appropriate accommodation for a student who can direct but not physically perform all aspects of a required procedure. The student may be able to conduct a procedure but may require assistance with medical tools or positioning the patient. In these situations, the DRP would review the program's technical standards and consult with faculty to determine the skill or competency being assessed. The technical standards of the program may not be a reasonable defense for rejecting the accommodations of an intermediary if the standards discriminate against an otherwise qualified person based solely on their disability or if the technical standards are arbitrary and lack grounding in actual accreditation or educational standards for completing the program.¹² When beginning the discussion, the DRP should obtain information about whether the intention of the learning outcome is to assess:

- cognitive understanding of the competency, or
- the ability to perform a procedure, coupled with the cognitive understanding of competency.

An intermediary is only appropriate if the learning outcome being assessed (i.e., cognitive understanding and/or ability to perform the procedure) is performed by the student. For example, a medical student with a limited upper-body range of motion may have to examine a patient's ear with the assistance of an intermediary holding an otoscope in place while the student visually examines the ear. In this case, the intermediary is holding the otoscope, but the student is demonstrating their competence to conduct the assessment. The student can examine the inner ear and make determinations independently. If, however, a physical therapy core competency required that a student demonstrate the ability to perform a particular physical manipulation on a patient, it may be that having an intermediary perform this skill would be unreasonable.

Given the complexity of health science education programs, determining whether an intermediary is reasonable takes time and a thoughtful approach. The DRP must have a good understanding of how procedures are performed in the clinic and who usually performs these. For example, is this a skill that students are typically expected to master but that another type of professional would usually perform in practice? Cooperation between the disability office and health science program is necessary to work through all possible scenarios. Exhibit 5.1 provides a non-exhaustive list of guiding questions DRPs can use to start this conversation. These questions will help the DRP and the

¹² *Palmer College of Chiropractic v. Davenport Civil Rights Commission*, 850 N.W.2d 326 (2014).

program come to a reasonable conclusion about the use of an intermediary for their program (See Scenario 5.9). All conversations, including attempts to identify alternatives and the logic of decision-making, should be carefully documented in the student's record.

EXHIBIT 5.1 Questions to ask when determining appropriateness of an intermediary

1. What are the clinical procedures that a student must be able to perform?
 - a. For each rotation/clerkship, obtain a list of procedures that must be performed by the student (be sure these must be performed, not just observed).
 - b. What is being measured? Is the student assessed on the actual performance of the procedure or the analysis of the information learned by doing the procedure?
 - c. Is this a skill that students must master but that another type of professional would usually perform in practice? If so, is it reasonable to adjust an existing requirement so that students perform the skill to allow students to instead demonstrate understanding and ability to direct the skill? (See discussion about *Palmer College of Chiropractic v. Davenport Civil Rights Commission* in Chapter 3.¹³)
 - d. Is there a way to allow the student to perform the procedure if they had nonclinical assistance, like that of a medical assistant in a clinical setting?
 - e. Is there a way for the student to perform the procedure using an adaptation such as changing their body positioning, or with the use of a modified or assistive device? Assess this in a skills or SIM lab with the assistance of an OT and a faculty member.
 - f. For any of the procedure requirements, can these be performed in a simulation lab? Some health science programs, as part of their accreditation standards, have restrictions on the percent of clinical skills that can be assessed (to confirm competency) via simulation. The DRP will need this information to determine how many competencies can be met in this alternative manner.
2. What do the technical standards say about the ability to perform basic life support? Is the student capable of performing basic life support with or without accommodations (in lieu of an intermediary)? Again, assess any alternatives using a SIM or skills lab with the assistance of an OT.
3. Has there ever been a waiver of procedures in the program? If so, what were the circumstances?
4. What occurs if a student is temporarily injured and cannot perform a procedure during a clerkship? Is there a policy on completing a percentage of procedures via simulation?
5. How do students meet the competency in cases where there are not enough patients needing the procedure (therefore, not enough opportunities for all students)?

DRP, disability resource professional; OT, occupational therapist; SIM, simulation.

¹³ *Palmer College of Chiropractic v. Davenport Civil Rights Commission*, 850 N.W.2d 326 (2014).

SCENARIO 5.9 Request for Intermediary in Clinical Portion of Program

A student who uses a wheelchair and has limited upper body and arm strength requests an intermediary to perform certain patient care tasks including transferring patients from bed to bathroom, inserting a catheter and feeding tube, and taking vital signs, under her direction. The student explains that she will direct the intermediary at each step. The intermediary would follow her orders, and she would be evaluated on her knowledge and direction to the intermediary.

Prior to making an accommodation determination, the DRP needs to know if, according to written program requirements or technical standards, the student must perform the tasks or if directing the procedures meets program requirements.

In this example, it may be that certain tasks, such as taking vital signs and transferring patients to bed or chair, are appropriate activities for an intermediary to perform. These are duties often completed by paraprofessionals (e.g., medical assistants, nurses' aides, and so on). Importantly, they do not represent any clinical decision-making. Other tasks, such as inserting feeding or catheter tubes, require specialized clinical knowledge and training and may not be a reasonable request depending on a few items, including an evaluation of who usually performs this duty in the setting and whether or not another medical professional can perform the procedure under the student's direction, exempting the student from the physical part of the competency.

The DRP should investigate with the program whether the use of adaptive equipment or strategic positioning could allow the student to perform the procedure on a patient or in a simulated setting. Consulting with an occupational therapist is quite helpful in these situations.

Depending on the findings, the student's inability to perform tasks that are core competencies of the program and determined to be clinically necessary skills for professional practice could mean they are not qualified to complete the program.

If the procedures are not core program competencies or if demonstrating understanding and directing the procedure is sufficient to meet competency, then the student may be assessed on the cognitive subroutine of the task. This means that the student demonstrates their understanding of how to do the task and why, but they may be exempt from physically performing the task in clinical or assessment settings.

A student's need for an intermediary may arise after they have matriculated into the program, for example, following an accident. When this happens, it is important to document the competencies that the student achieved prior to the need for the intermediary. This way the remaining competencies can be reviewed during the process to determine the reasonable nature of using an intermediary (see Jauregui et al., 2019; Scenario 5.10).

Some schools may hesitate to allow the use of an intermediary, falsely believing that it will reduce a student's opportunities for further training after completing the program, such as residency or employment. Many health professionals who became injured and acquired a physical disability during their careers have retained their positions or retrained in other specialties within the health-care industry using various forms of intermediaries (Meeks, Poulos, & Swenor, 2019). Indeed, in the example used by Meeks and colleagues (2019), the healthcare provider used intermediaries during residency retraining and practice. The provider's need for intermediaries proved to be mutually advantageous, as the intermediaries received an opportunity for shadowing and

SCENARIO 5.10 Request for Intermediary After Injury During School

A student sustains an accident in the 4th year of medical school. After the injury, the student now uses a power wheelchair and has approximately 50% hand-functioning. Prior to the injury, the student completed all graduation requirements except one, a final rotation in pediatrics. The student requests an intermediary to assist with any equipment or patient-exam needs.

To review this request, the program will consider a few issues:

First, if the student can no longer fulfill all the program's technical standards, will the student still be allowed to graduate? In most cases, if the student had successfully completed all course and clinical work prior to the injury and, at that time, successfully met the requirements, graduation would be allowed.

Second, what accommodations might the student need in the final clerkship? In this example, the final clerkship is a pediatric rotation. In pediatrics, very few procedures are done; therefore, most of the work is intellectual. The patient examination aids the student in making their diagnostic assessment. An intermediary who assists the student in accessing the information (e.g., holding the otoscope or stethoscope up to the patient) is merely assisting access, without any need for clinical judgement. In this case, an intermediary for those needs is likely a reasonable accommodation.

mentorship, a benefit for pre-health professions students and international medical graduates.

TRAINING INTERMEDIARIES

Depending on the scope of duties, intermediaries will likely need some level of training in the areas of patient privacy and general patient interaction (typically required of all employees). DRPs, as the facilitators of the intermediary-student relationship, should provide explicit training in the scope of the work intermediaries can and cannot perform (Blacklock, 2017). In the example provided by Jauregui et al. (2019), the disability office and medical school jointly developed the job description, in consultation with the student (see Jauregui et al., 2019, for their job description). In this model, they recruited 2nd-year medical students to serve as intermediaries. (See Jauregui et al., 2019, for a detailed description of hiring and scheduling near peers.)

BLANKET STATEMENTS IN THE TECHNICAL STANDARDS ABOUT EXCLUDING INTERMEDIARIES

Office for Civil Rights (OCR) has repeatedly stated that blanket prohibitions on specific accommodations circumvent the required interactive process between students and schools.¹⁴ Therefore, technical standards should never include a statement that totally forbids the use of an intermediary to perform specific skills. As with any other accommodation request, a request for an intermediary should be met with a thoughtful and good faith interactive process to determine whether or not the request is reasonable.

Adjustments to Attendance and Timeliness Requirements

Students with disabilities may experience exacerbations of their disability that impacts their ability to be present or arrive on time. Determining whether missing class, clinical, or lab experiences is reasonable depends on a number of individual circumstances, specific to each setting and student. Although it can be difficult to evaluate these adjustments or put aside our personal expectations about attendance needs, the assessment about attendance and tardiness must be made through a robust interactive process to determine reasonable accommodations. This will require the institution to examine each course and clinical experience independently. A response that suggests a program “never” allows for modification to an attendance or late arrivals, for example, is not in keeping with the requirement for an individual inquiry. Programs wishing to make a statement about attendance should ensure that the statement includes information about the process for requesting accommodations (see Practice Recommendation 5.3).

¹⁴OCR Letter to Gateway Community College, Case No. 18-16-2199 (2017); OCR Letter to Calhoun Community College, Case No. 04-14-2353 (2016); OCR Letter to Rose State College, Case No. 07-15-2240 (2016); and OCR Letter to Simmons College, Case No. 01-16-2113 (2017).

Practice Recommendation 5.3 Sample language regarding accommodation requests for attendance or late arrivals

Accommodation requests for excused late arrivals or absences from a course, clinical experience, laboratory exercise, simulation exercise, guest lecture, or small group will be evaluated on an individual basis and may or may not be reasonable depending on the course content or learning experience. Students whose disability-related needs may include absences should work with [insert name of disability office] prior to matriculation or as soon as possible to determine whether such requests are a fundamental alteration of the essential elements of a course, experience, or assessment. Please note that the majority of clinical programs maintain strict attendance policies as an essential element of the learning experience.

MEETING PARTICIPATION REQUIREMENTS THROUGH ALTERNATIVE MEANS

Navigating absences or late arrivals is tricky in health science programs for several reasons. Clinical programs rely on experiential learning, and depending on the program, the accreditation requirements may require a specific number of clinical hours in order to graduate. As well, many of the learning experiences require attendance and are negatively impacted by the absence of a team member. For example, small group discussions, structured clinical exams, and participatory classroom experiences may be difficult to “recreate” later for a student who was absent.

However, the program may still be able to find creative ways to allow a student to meet the attendance requirement of a didactic course through alternative means. The OCR has suggested that accommodations such as audio recording class lectures or being permitted to take exams at home may be reasonable ways to allow students to participate remotely.¹⁵ For more hands-on learning, substitutions such as performing clinical skills in a SIM center, participating in online simulated patient-based learning, or using Anatomage tables instead of cadavers can allow a student to access the content. Other options for remote participation (e.g., contributing to small group discussions while not physically being present) include recording small group sessions, or using a mobile phone or video chat platform to “remote” into the group. These exceptions would need to be determined on a case-by-case basis and ideally in advance of the start of the course.

For clinical structured exams, recreating the exam for one student who is absent can represent logistical challenges. However, preplanning an alternative date in case of emergency for any student provides an option for a student with a disability who, due to an acute flare, is unable to take the exam on the original date. For example, with anatomy lab exams, faculty can take photos or video record each station to allow students who miss the exam to go through the experience in an alternative manner. For any and all adjustments or make-up exams, it is in everyone’s best interest to preplan as much

¹⁵ citation

as possible and determine in advance the level of flexibility available within a course before adjustments render it a fundamental alteration of the program.

In spite of a long-held belief in academia that in-person experiences are fundamental to the educational process, the recent COVID-19 pandemic and ensuing shift of didactic and clinical experiences of students to online platforms taught us a great deal about what is truly essential. Within a very short time, course content previously offered in-person was made available to all students remotely, and graduation requirements such as mandatory board exams and direct patient care were adjusted to allow students who met the requirements alternatively through online content to complete their programs.

This global experience was a learning opportunity which will no doubt alter the way that institutions consider future requests for remote participation as a disability accommodation, as well as how distance learning is offered to all students. The ability to teach and learn remotely and offer flexibility in permitting students to meet requirements through multiple means—as long as students satisfy the core competencies of a program—benefits everyone, including students with disabilities.

ATTENDANCE AND TIMELINESS AS A FUNCTION OF PROFESSIONALISM

Clinical programs include professionalism in their technical standards, and attendance and timeliness are key competencies within the domain of professionalism. These competencies are also often part of the essential functions of a course. Therefore, tardiness or excessive absences can legitimately contribute to failure in a course or dismissal from a program. For this reason, it is critical that any student with a disability that may impact these areas meet with the disability office to discuss the potential for accommodations in advance of absence or tardiness. A student who chooses not to disclose a disability or request accommodations and is subsequently tardy multiple times can and likely will be held to the professionalism standard and could be dismissed from the program.

ATTENDANCE

Determining whether an attendance accommodation may be appropriate begins with a review of the current policy on attendance, the structure of the course, and the course's essential experiences. Requests for accommodations that would fundamentally alter the course (i.e., change the intended educational outcome or format) cannot be implemented, so the course requirements help the DRP and the program determine if an attendance-related accommodation is appropriate. The OCR offered guidance on the types of questions that should guide decisions about whether additional absences in a course are reasonable (see: Practice Recommendation 5.4). The goal for the DRP is to make a good faith effort to understand *why* attendance is critical, *how* and *if* work can be remediated in an alternative manner, and to *be clear* about these requirements with the student so that if the student misses the allotted number of absences, all parties understand the impact (retake the course, withdrawal from the course, and so on).

Practice Recommendation 5.4 Determining if disability-related absences are reasonable

The OCR¹⁶ has provided guidelines to be used in considering whether attendance is an essential element of a course. Among the questions a program might ask include:

1. Is there classroom interaction between the instructor and students and among students?
2. Do student contributions constitute a significant component of the learning process?
3. Does the fundamental nature of the course rely on student participation as an essential method for learning?
4. To what degree does a student's failure to attend constitute a significant loss to the educational experience of other students in the class?
5. What do the course description and syllabus say?
6. Which method is used to calculate the final grade?
7. What are the classroom practices and policies regarding attendance?

OCR, Office for Civil Rights.

WHEN ATTENDANCE MODIFICATIONS ARE NOT REASONABLE

Schools must make a good faith effort to engage in the interactive process and thoroughly consider a student's request for a modification to attendance standards as a disability accommodation. Sometimes that investigation will lead a school to determine that the accommodation request cannot be granted. Generally speaking, missing multiple days of the clinical portion of a health science program would result in excessive amounts of learning and would not be considered reasonable. It may also be not practically possible to provide alternate options to make up missed experiences. When trying to flex to provide a student alternate learning opportunity, programs may find that schedules are tightly packed with little to no downtime, leaving little flexibility to allow the time needed for make-up experiences.

However, for students who must be absent, programs should do all they can to provide alternative opportunities for participation. Although a leave of absence is usually available, given the lock-step nature¹⁷ of most health science programs, taking a leave means not only the financial cost of delaying graduation, but also the social cost of losing the support network developed with their cohort peers.

DISABILITY ACCOMMODATIONS FOR FLEXIBLE START TIMES (LATE ARRIVALS)

A disability-related request for late arrivals should be evaluated separately from a request for additional absences. The ability to arrive at a prescribed time is generally considered a necessity in a clinical program. Arriving on time is possible for most individuals with disabilities with advanced planning.

¹⁶ OCR Letter to Cabrillo Community College, Case No. 09-96-2150 (1996).

¹⁷ Lock-step means that each course relies on knowledge from a previous course and are ordered, such that a student cannot skip a course in the sequence.

However, DRPs may need to coach students as they transition to health science programs, as they may not have needed to manage their symptoms to meet the demands of a time-limited schedule prior to entering the program.

It is possible that in the event of a disability flare, most individuals can arrive on time by adjusting the time their day begins. Many students with disabilities have to adjust their personal schedules to account for and mitigate the impact of their disability on their educational responsibilities and eventually in the workplace. For example, a student with lupus, who experiences a flare of symptoms that include swelling in the joints, may need to wake up earlier to stretch, take a longer than average hot shower to manage pain, and may need to adjust their method of transportation to work (as needed) to avoid wear and tear on the joints. Similarly, students with migraines may need to wake up early to manage their symptoms, including determining whether or not they need to take medication that may delay their functioning and hence the start of their day. Collectively, these compensatory skills mitigate the impact of the disability and allow the student to remain in the program and meet the technical standards and core competencies, including arriving on time for classes and clinical experiences.

Other disability accommodations can and should be considered to help mitigate the impact of the disability on the ability to function in the mornings, such as schedule modifications to allow for good sleep hygiene (see other sections in this chapter, including placement accommodations, hard-stop, no overnight call). A student may also need to have a temporary accommodation of late arrivals while adjusting to a new medication or other new routine. Once these other accommodations are in place, a student, with few exceptions, should be able to attend and engage in the curriculum.

SCENARIO 5.11 Nursing Student with a Disability Who May Experience Disability Flares During the Program That Require Her to Remain at Home

A student has a disability that involves occasional flares of symptoms. She is in a nursing program that is lock-step in nature, meaning each course must be completed before entering a new course. These flares are not easy to predict, and when they occur, she may miss up to a week of the program. Each course is 6 weeks long. During the flare, she is limited in the manner in which she can participate in the curriculum due to the nature of her disability. She often feels lethargic, requires a series of physical therapy appointments, and needs to sleep more often. The student wishes to make up her missed experience upon return to the program. To make an accommodation decision across the various domains of the program, the DRP will need to understand the format and content of the program's various settings, what might be appropriate in each context, and the learning outcomes for each.

Request: To miss up to 5 days of the program and make up work upon return.

Barrier: Need to participate in class and clinical experiences

EXHIBIT 5.2 Evaluation of Scenario 5.10 Nursing student accommodation request

In the didactic setting: Depending on the amount of missed work, the student may be able to make up coursework during non scheduled class times (e.g., in the evening, during the weekends). Many programs include audio or video recorded lectures for all course content via institutional lecture capture. For those who do not, through a video recording by a fellow student or the use of notetakers the student may be able to continue to maintain their connection to the course and complete the work while being away from the classroom.

In small group settings: Depending on the severity of the flare and the format of the small group, she may be able to participate in writing or attend via video chat or by calling into a group meeting. Given the student's limited ability to engage with the curriculum during these flares, it is uncertain that a request for this accommodation in small group settings would be reasonable. To assess this request, the DRP would need to understand how small group work is conducted, what its purpose is, how often it occurs, and how often the student anticipates having flares. The DRP would also need to know if alternative assignments could be utilized to make up and accommodate missed group work. For example, is it acceptable to allow for additional online posts or a solo project that is comparable? The number of potentially missed sessions for the entire course should be discussed in advance of starting the class. This way, the student, the faculty, and the DRP are in agreement about the requirements for small group attendance.

In an anatomy lab: Working with cadavers can sometimes limit the ability to conduct a "make up" lab or exam, but as described in the text, faculty can take video or photos of stations for future use. In labs where faculty use Anatomage tables or similar virtual representations instead of cadavers, a makeup exam may be easier to schedule. Makeup lab exams could also be scheduled on a future day when the student can return to campus. Lab classes are not likely to occur each day, so the student, even in the event of a flare, may not actually miss a scheduled lab. If they do, it may not be consequential. DRPs should work with faculty to understand the number of labs that occur over the entirety of the semester, how many absences are generally allowed for all students, and to what extent students are able to make up missed lab classes.

Clinical time: Compared with missed classroom, lab, or small group sessions, it can be more difficult to make up clinical time. The DRP will need to understand if the student has met most of the clinical competencies for the course and if not, which competencies remain. They will also need to understand if there are any clinical hour requirements that are mandated by the state or accreditation agency. When DRPs have good working knowledge of program requirements, they are better suited to respond to acute accommodation requests. Accommodations for completing work in a simulation lab at a later time may be reasonable and, depending on the structure of the program, there may be time to remediate any missed clinical teaching. However, in other programs, especially those that are lock-step in nature, or if the disability-related flare occurs early in the rotation, the student may need to repeat the rotation.

Charting and Clinical Record-Keeping Accommodations

Charting and clinical record keeping are critical functions and essential tasks in any health sciences program. Essentially, all clinical sites use or are transitioning to EHR systems to maintain patient records. For students who need assistive technology to use computers, such as students with learning disabilities (e.g., dyslexia, written expression), visual disabilities (e.g., low vision, blind), and physical disabilities (e.g., limited use of hands), EHRs may not be accessible due to incompatibility between the system and the assistive technology. Widely varying software products and systems are available that allow individuals with disabilities to access EHRs (see Chapter 7 for a discussion about how to make EHRs more accessible).

Surgery and OB/GYN Clerkships

Surgery clerkships can be physically and emotionally challenging. The lack of sleep, the long days, and the urgency and intensity of the work all contribute to the demanding nature of this rotation. In an undifferentiated medical degree program that prepares medical students to enter any medical specialty after graduation, surgical clerkships are mandatory. Within the clerkship, students are called upon to either “learn” or “demonstrate” a skill. Although learning and communicating knowledge about the topic can be done without physical effort, demonstrating a skill often requires the ability to perform a taxing physical procedure on a patient (e.g., to demonstrate a thorough, diagnostic abdominal exam).

An essential portion of the surgical clerkship is spent in the operating room (OR). The OR is a dynamic setting where professionals from multiple disciplines work together. The setting requires students to learn and follow an additional set of rules and regulations, both written and unwritten (Tahiri & Liberman, 2013). Navigating this nuanced environment is difficult for all students—and particularly difficult for students with physical, psychological, or communication disabilities.

Preparation is of central importance for students with disabilities entering surgical clerkships. Students should be orientated to the techniques of scrubbing and gowning and to the sterile field Moreland et al, 2020., which may require modified techniques or include the use of assistive devices. Practicing their skills (e.g., stapling, suturing, and tissue handling) in a skills lab will likely reduce anxiety or trepidation concerning performance in the OR (Tahiri & Liberman, 2013). For students who require specialized equipment (e.g., infrared system, stand-up wheelchair, auto-retractor, specialized instrumentation, or other adaptive technology), time should be set aside in advance of the clerkship to test the equipment and orient the student and staff in the OR (see also Chapter 8 for more guidance concerning communicating with treatment teams about clinical accommodations).

Finally, surgery is the clerkship that typically commands the longest days and overnight call and may require additional accommodations related to sleep (see previous section “Overnight Call”).

OB/GYN, like surgery, is a demanding clerkship that requires physical agility and typically commands longer hours, including overnight call. The physicality involved with labor and delivery is unlike that of other clerkships. In the course of the rotation, a student may be called upon to bear down on a mother’s belly, hold a patient’s legs, conduct pelvic exams, assist with a delivery, hold a retractor for a long period of time, tie a two-handed square knot, and deliver a baby. OB/GYN is also a surgical specialty, and students are usually required to assist during a cesarean section, drawing on the same surgical skills and rules described previously. Like surgery, OB/GYN can be an exhausting clerkship, both physically and emotionally, and students should prepare by using the same approaches that are listed in the previous discussion on surgery clerkships.

By addressing these items in a proactive manner, programs can support their students’ learning and overall well-being throughout the surgery and OB/GYN clerkships.

ADDITIONAL ACCOMMODATION CONSIDERATIONS PARTICULAR TO THE HEALTH SCIENCES ENVIRONMENT

Accommodations for DHOH Students in Clerkships

Clinical settings include many competing, distorted, inaudible auditory, as well as visual stimuli that can be both inaccessible and demanding, posing unique obstacles to DHOH students. Demands on the DHOH learner to process this information through visual or tactile channels at all times, without accommodations, can frequently cause burnout or a sense of isolation. For each DHOH student, the DRP should consider creative and individualized approaches to accommodations. DHOH students are indeed dynamically unique in their auditory, visual, and tactile abilities.

For all settings—didactic and clinical—a *Designated Interpreter (DI)*¹⁸ conveying information in sign language, cued speech, or in an oral (lip reading) mode is appropriate when the student’s preferred method of access to communication is visual.

For the clinical portion of training, other accommodations may also be required (see Table 5.4) and in some instances, dual accommodations (Booth 2007). For example, DHOH students have successfully used

¹⁸ A DI is an interpreter/s who will provide services through the duration of the DHOH medical education. These interpreters dedicate themselves to the language style of the DHOH individual, develop sign systems for complicated medical terminology, and become masterful in handling the nuances of the clinical environment such as procedures, regulations, and norms.

TABLE 5.4 Accommodations for Deaf and Hard-of-Hearing Students^a

SETTING	ACCOMMODATION	SPECIFICS
Lecture hall, classroom, or small group, surgical theaters	Amplification system (FM or IR)	Reduces background noise and maximizes listening by wirelessly broadcasting a speaker's voice, audio program, or simultaneous mix via FM or IR frequency delivered via a receiver or telecoil.
	Induction loop system	A "hearing loop" magnetically transfers a sound signal to hearing aids and cochlear implants that have a telecoil receiver.
	Transparent surgical masks	Allows student to read lips of colleagues. <i>(Prototypes in development—at press, not yet commercially available)</i>
OR, clinic, or isolation rooms	CART	Allows student to see real-time captioning of spoken information, transcribed by a trained stenographer.
	Handwritten notes	Written instead of spoken communication between parties for clarification.
	Pocketalker® PRO System or other personal assistive listening system	Amplifies sounds closest to the listener while reducing background noise. Ideal for clinic setting.
	Sign language interpreters or cued speech transliterators	Students who prefer manual communication will require interpreters/translitterators in the clinical environment.
	Oral interpreters	Can mouth words to the student that may not have been visible to the student when uttered by the speaker and alert the student to auditory signals from OR equipment.
	Infrared transmitter	Reduces background noise and maximizes listening by wirelessly broadcasting a speaker's voice via infrared frequency to a receiver. Ensures privacy, as broadcasted information does not travel beyond the room.
	Digital or amplified stethoscope	Visual display or amplification of patient vitals.

(continued)

TABLE 5.4 Accommodations for Deaf and Hard-of-Hearing Students^a
(continued)

SETTING	ACCOMMODATION	SPECIFICS
On-call room	Visual alarm/strobe	Alternative alarm notification.
	Bed shaker	When connected to phone or pager, will wake student when called.
Phone communication	Video phone, video relay service, or IP Relay	Allows student to use sign language, lip-read, or type to communicate by phone.
	Caption phone	Visually displays spoken information from telephone communication.
	Vibrating text-based pager	Allows student to communicate with other treatment team members without using phone.

^aSee Chapter 6.

CART, communication access real-time translation; FM, frequency modulation; IP, internet protocol; IR, infrared; OR, operating room.

communication access real-time translation (CART) in the OR, as well as in clinical environments (Meeks et al., 2018, 2015; Hori and Meeks, 2017; UC Davis Health System, 2011). CART providers can work on-site or remotely, by receiving audio from the OR or clinical site via a secure, Health Insurance Portability and Accountability Act (HIPAA) compliant internet connection. The attending surgeon, using a wireless high-quality lapel microphone underneath their sterile gown on the collar of their scrub top, transmits spoken dialogue to the CART provider. Dialogue is captured verbatim and displayed back to the student on an iPad or OR monitor using an intermediary using HIPAA-compliant software or platforms. In an OR setting, iPads often provide the student more mobility. A portable stand, such as an Intravenous therapy IV pole or Computer on Wheels (COW) should be considered to ensure the student is able to position it for accessible viewing, while working in the sterile zone, at the surgical site. The equipment and technology necessary for this accommodation in the OR should be thoroughly tested prior to use and should be introduced to the surgical team (circulating nurses, surgery techs, and so on) to ensure operating suite protocols are followed and to avoid any equipment mishaps, such as connection issues or radio frequency interference with OR equipment. Along these lines, "sign glasses" are a new technology that could be tested in the OR, that provides sign language interpreters within the vision glasses. This would allow views of both the interpreter and the surgical site.

DUAL ACCOMMODATIONS

Inherent challenges are present for both types of service providers, the DHOH student as well. The DI, who is free of the constraints of relying on Wi-Fi, technical devices, or being immobile, can most effectively provide seamless and instantaneous interpretation while also bridging the DHOH with their colleagues and patients in a more natural, intuitive, inclusive social model. However, the captioner may provide a more robust, immediate verbatim translation in situations such as didactics, rotations such as internal medicine that have lengthy discussions of the patient and disease process, and the surgical environment. The captioner may have restrictions on the types of clinical environments they can enter and may need to work remotely. Additionally, while it is useful for the DHOH student to refer to captions in real time and delayed time (allowing the student to validate what they thought they had heard or attending to more urgent matters such as the surgical site), the text is one-dimensional, which causes the DHOH student to miss the tone and stylistic elements of the conversation, clinical requests, or inferences such as implied meaning that happens naturally in our vernacular dialect.

In cases of clinical and surgical rotations, a multiplicity accommodation approach should be considered as an option for captioning and interpreting to be as effective as possible. Working together, the DI and captioner can mediate the aforementioned challenges that exist for each individually, resulting in a more streamlined end product for the DHOH student. The DI can also be a vessel to help the captions have mobility and context, by wearing the iPad that displays the captions, as well as being present in the room to set up the CART technology (which allows the DHOH student to prioritize their patient, preceptor, and overall medical education goals). The interpreter can interpret inaudible conversations commonly missed by a remote captioner, due to inadequate audio or other interfering sounds like speaker mumbling or loud machines such as vacuum suctioning. Thus, CART/Interpreting collaboration is commonly used for DHOH students who are not native American Sign Language (ASL) users and those who prefer more oral interpretation relying on English word-order; however, some native ASL users also find this effective for didactic curricula and managing other challenging clinical demands.

SELECTING DESIGNATED INTERPRETERS AND CAPTIONERS

DHOH student preference is fundamental in selecting qualified interpreters and captioners. The individual with the disability will best be able to judge the effectiveness of the chosen accommodation. Students should be included on the search and interview committee selecting the provider(s) that best match their needs. Still, some partnerships are not a perfect match, so parameters should be developed to monitor the success of the pairing. Additionally, service providers such as interpreters and captioners are not historically trained for these unique learning environments, and careful consideration should be applied when searching for candidates. Many find it effective to employ a consultant or agency to manage these specialized services from scheduling,

teaming, and supervision. Pairing is most effective when the interpreter and student are mutually compatible (Booth, 2017 Street Signs) in linguistic style and cohesive personality traits, due to the long-hours of medical education and shared emotional experiences in both inpatient and outpatient settings.

While it is important to engage the DHOH students in determining their preferred accommodations, be aware that for some DHOH students this may be the first time they have utilized services. These individuals may only be able to articulate what does not work by using the trial and error method. Although frustrating at times, this process eventually illuminates what *does* work. Shadowing experiences can provide additional support in determining solutions, as well as seeking out resources that address the specialized nature of accommodations in healthcare for the DHOH.

ADDITIONAL CONSIDERATIONS FOR DESIGNATED INTERPRETERS IN A CLINICAL SETTING

During clinical practicums, Designated Interpreters often work in teams of two or three to manage the inevitably complex, last-minute scheduling demands that arise. As each hospital has its own set of credentialing requirements, adequate time and pre-planning for the interpreter and captioner should be factored in for lengthy onboarding at each rotation site. It is recommended that a Lead Interpreter be assigned to facilitate the team's schedule and the student's preferences and work closely with administration to arrange badging, credentialing, parking, and orientations to the sites. Rotations that include semi-sterile and sterile procedures should arrange for the interpreter to attend the sterile training. While it is not overly common for interpreters to be in the sterile zone, they will at minimum need to know about such things as the gowning procedures and sterile requirements to ensure that safety protocols are followed.

If interpreters are used in the OR, they should be incorporated into the OR team. They may have to be fingerprinted (per hospital requirements) and will need an orientation to the OR. Interpreters sometimes scrub in for surgeries and need instruction about the sterile field. They are often given a specific place to stand in the room. These processes take time and need to be organized as early as possible, often beginning in the first year of the student's program. Incorporating interpreters ahead of time can alleviate concerns for healthcare teams that are new to sign language interpreting and communication styles with DHOH students.

CVD, or "Color Blindness"

Statistics suggest that one in eight individuals (mostly male) has CVD.¹⁹ Although this condition has historically not been regarded as a disability, in the context of the health sciences curriculum there are times when CVD places students at a significant disadvantage—for example, when identifying oral and throat lesions, icterus, and titration end points, as well as in tissue identification in surgical procedures (Meeks, Jain, & Herzer, 2016; Pramanik,

¹⁹ <http://ghr.nlm.nih.gov/condition/color-vision-deficiency>

Khatiwada, & Pandit, 2012). Therefore, DRPs may be called upon to identify accommodations for these students or work with faculty to implement differentiated practices for learning.

In some cases, students with CVD may struggle with coursework, most notably during histology, due to difficulty differentiating between colored stains on slides. Although histology faculty often argue that size, shape, and contextual relationship cues are the key attributes for identification of any slides and in fact are the primary cues needed to distinguish tissues and structures—not color—research has shown that using high-quality grayscale versions of histological images has allowed students with CVD to “discern structures that would otherwise be obscured by surrounding cells or other tissue components” (Rubin, Lackey, Kennedy, & Stephenson, 2009).

Although the switch to grayscale is easily accomplished within a controlled environment, it is not available in the clinical environment. Some clinical observations in particular are difficult for individuals with CVD: widespread body color changes (pallor, cyanosis, jaundice, and cherry red); rashes and erythema of the skin; test strips for blood and urine; blood or bile in urine, feces, sputum, or vomit; ophthalmoscopy; otoscopy; and microscopy (Spalding, 1999).

Table 5.5 presents common concerns and challenges for health sciences students with CVD and potential accommodations. Students should carefully consider the specialty they are studying, as some are highly reliant on differentiating color in everyday tasks (e.g., histology, hematology, bacteriology, surgery, pathology, dermatology, anesthesiology, and retinal work in ophthalmology).

TABLE 5.5 Common Issues and Potential Solutions for CVDs

CHALLENGE	POTENTIAL SOLUTION/ACCOMMODATION
Histology slide reading, other microscopy	Use different color staining with colors student can see. Student works with faculty to develop nuanced ways to read slides (e.g., pattern recognition, pointing out configurations/indicators that are key). Provide high-quality, high-contrast grayscale photos of slides next to color slides to allow options for viewing in multiple ways (Rubin et al., 2009). Grayscale microscope (or attached monitor). Very high-resolution slide viewed in grayscale. AT that converts red, green, or blue parts of slides to an identifiable color, such as a Daltonizing algorithm. Specialized glasses, such as Enchroma. 15 minutes of extra time per hour for histology portion of exams. Color transparency overlays.

(continued)

TABLE 5.5 Common Issues and Potential Solutions for CVDs (*continued*)

CHALLENGE	POTENTIAL SOLUTION/ACCOMMODATION
Difficulty distinguishing fresh blood/hemorrhage; blood or bile in urine, feces, sputum, vomit	Measure and monitor blood/fluid level.
Drop in oxygen—color-related signs	Use appropriate monitors, especially pulse oximetry.
Identifying widespread body-color changes (e.g., pallor, cyanosis, jaundice, cherry-red) Missing “pink ear”	Close observation or cross-checking (looking, touching, doing special investigations, and attention to lighting). Ask for help from others. Give more attention to the patient history and report.
Dermatology/rashes/erythema of the skin	Diagnosis by color may be “superfluous” and can be done instead by pattern recognition (in some cases).
Reading charts, slides, prints, codes	Close observation or cross-checking (looking, touching, doing special investigations, and attention to lighting).
Test strips for blood and urine	Reliance on shade or tone rather than on color; use a color meter.
Ophthalmology: disc pallor, diabetic changes, hemorrhage vs. pigment, glaucoma, hemorrhage in anterior chamber, Kayser-Fleischer rings	Close observation or cross-checking (looking, touching, doing special investigations, and attention to lighting). Ask for help from others. Give more attention to the patient history and report.
Otoscapy: inflamed drum, wax vs. blood	Ask for help from others.
Mouth and throat conditions	Give more attention to the patient history and report.
Chemistry end points	Use color meters.
Color naming	Faculty should not ask for identification by color on exams; use other identifiers (arrows, numbers, or other descriptors).
Tissue identification (surgery)	Use other visual indicators.
Seeing arrows and pointers on lecture slides	Ensure all pointers and arrows are black.
Viewing laser pointers used by faculty during lectures	Use green instead of red laser pointers.

AT, assistive technology; CVDs, color vision deficiencies.

Autism Spectrum Disorders

The clinical portion of health sciences education is often the most challenging for students on the autism spectrum (Meeks, Brown, & Warczak, 2017). For these students in general, interpersonal communication is the greatest disability-related struggle (Wolf, Brown, & Bork, 2009). A clinician must be able to listen to a patient’s verbal descriptions of symptoms and understand a patient’s expression of pain or interpret body language. Patient communication often comes in the form of self-report and body language and provides the clinician with clues about feelings like fear, anger, or hopelessness, even if the patient is unable to verbalize these emotions. Recognizing these unspoken cues, as well as explaining complicated diagnoses or procedures to patients in lay terms, requires sophisticated interpersonal communication skills.

Students with ASD often need additional communication guidance in the form of coaching via peers, faculty, or standardized patients. As noted by Meeks and colleagues (2017), students with ASD may require more coaching on non clinical tasks in the clinic, such as contacting and communicating with other providers during transfer or consult. They may also struggle when transitioning between teams and clerkships, as many of the expectations are part of the unwritten curriculum.²⁰ Also, when communicating clinical or testing accommodations, students with ASD may struggle and require additional coaching about how to communicate their needs.

Visual cues are often very helpful for students on the spectrum. Placing information into a visual format (e.g., how to present a patient, understanding the hierarchy of medicine, scripts for everyday conversations) can help a student understand the concept in a more concrete manner and can be used as prompts later on (See Exhibit 5.3).

EXHIBIT 5.3 Prompts for presenting patients (can fit on the back of a badge)

Sample Badge

Key features of presentation:

Opening one-liner: Describe who the patient is, number of days in hospital, and the main clinical issues.

24-hour events: Highlighting changes in clinical status, procedures, consults, and so on. Subjective sense from the patient about how they are feeling, vital signs (ranges), and key physical exam findings (highlighting any changes). Relevant Labs (highlighting changes) and imaging.

Assessment and Plan: Presented by problem or organ systems, using many or few as relevant.

²⁰ This refers to the unwritten curriculum of health science programs, which include the unofficial rules, values, and expectations.

Critical to the success of any student—and specifically students with ASD—is specific and direct feedback on their performances. Video modeling can be used to teach a student with ASD about appropriate communication with a patient or superior in several ways. First, exemplar footage of graduated students engaging in OSCEs allows the student to view assessments similar to those that they will be taking. Videotaping faculty members in simulated clinical scenarios is another option. In both scenarios, video footage of the student can be used for comparison and deficits (and strengths) can be identified while reviewing the footage. Any remediation plan for a student with ASD should include both verbal and written feedback. Below are considerations for scaffolding the student’s skill set prior to entering the wards, considerations for clinical experience, and potential accommodations (See Boxes 5.1, 5.2, and 5.3).

BOX 5.1 Important Considerations Before Entering the Wards for the DRP

Assess the student’s self-awareness (help them identify strengths/weaknesses)

Review programs, professionalism standards, and competencies

Address the “Hidden Curriculum” in the ward or at the clinical site

DRP, disability resource professional.

BOX 5.2 Considerations for Improving the Student’s Clinical Experience

Review clinical skills exams as models of patient interaction (video modeling)

Remediate clinical skills in SIM lab or with standardized patient

Work with vocal coach-SIM director

Provide near-peer coaching

Make available scripts for addressing attendees, residents, and peers

SIM, simulation.

BOX 5.3 Accommodations for Students with ASD

Pre-Orientation to electronic health records for each location

Practice presenting rounds

Provide a badge with outline of reporting patients

Reduce number of patients seen on the ward—ramp up or preview

(continued)

BOX 5.3 Accommodations for Students with ASD (continued)

Allow for noise canceling headphones for resident/student lounge and nursing station
Match with coach on wards to give in-vivo feedback
Assign Mentor who meets with student once per week
Use video modeling
Minimize switching clerkship sites
Provide written weekly feedback (on wards), to include: <ul style="list-style-type: none">Clear descriptions of clinical competencies and measures of where students fall on pass/failVery specific feedback regarding any deficits, with clear examples and pathways to remediateClear and specific expectations for behavior and performance
Allow release of time from wards to engage in wellness appointments

ASD, Autism Spectrum Disorder.

Service Animals in Clinical and Lab Environments

Service animals are not considered an accommodation. It should be made clear that students do not need permission to be accompanied by their service animal, but there are a few items that may help administrators better understand the restrictions and guidance around service animals in the clinic.

Students who rely on a service animal should typically be permitted to bring that animal into most educational environments, including clinical and lab settings. Because service animals are not an accommodation, the ADA provides a presumptive right for disabled individuals to bring service animals with them into most spaces. Service animals should be thought of in the same way one thinks of a wheelchair. Information about what service animals are and how to distinguish them from other types of assistance animals, such as emotional support animals or therapy animals, has been published by the Department of Justice (U.S. Department of Justice, 2020).

An animal may be excluded where the facility can show it “poses a direct threat to the health or safety of others.”²¹ However, this determination “must be based on actual risks and not on mere speculation, stereotypes, or generalizations.”²² The U.S. Center for Disease Control and Prevention (CDC) includes a section on animals in its manual, *Guidelines for Environmental Infection Control*

²¹ 28 C.F.R. § 36.208.
²² 28 C.F.R. § 36.301(b).

in Health-Care Facilities. The manual describes animals present in healthcare facilities, whether serving employees, patients, or visitors, as follows:

No evidence suggests that animals pose a more significant risk of transmitting infection than people; therefore, service animals should not be excluded from such areas, unless an individual patient's situation or a particular animal poses greater risk that cannot be mitigated through reasonable measures. If health-care personnel, visitors, and patients are permitted to enter care areas (e.g., inpatient rooms, some ICUs, and public areas) without taking additional precautions to prevent transmission of infectious agents (e.g., donning gloves, gowns, or masks), a clean, healthy, well-behaved service animal should be allowed access with its handler. Similarly, if immunocompromised patients are able to receive visitors without using protective garments or equipment, an exclusion of service animals from this area would not be justified (CDC, 2019, n.p.)

Service animals should therefore be allowed in most places in a health-care facility, including patient rooms. Based on the CDC's guidance, the recommended practice for drafting a service animal policy for healthcare facilities is to describe *circumstances* under which dogs cannot enter a space, rather than creating a list of particular spaces where dogs are banned.²³

CONCLUSION

Developing accommodations for health sciences students requires creativity, detailed analysis, innovation, and collaboration. It calls upon DRPs to actively pursue a clear understanding of the unique culture, curriculum, and requirements of each health sciences program. In addition, DRPs must understand the standard policies and procedures for all students, so that reasonable and effective accommodations are quickly identified and implemented. The health sciences environment is ripe for creative and innovative solutions to ensure students with disabilities have equal access to the curriculum.

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²³Tamara v. El Camino Hospital, 964 F.Supp.2d 1077 (2013).

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