

Technical Standards and Deaf and Hard of Hearing Medical School Applicants and Students: Interrogating Sensory Capacity and Practice Capacity

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Abstract

Applicants to medical schools who are deaf and hard of hearing (DHoH) or who have other disabilities face significant barriers to medical school admission. One commonly cited barrier to admission is medical schools' technical standards (TS) for admission, advancement, and graduation. Ethical values of diversity and equity support altering the technical standards to be more inclusive of people with disabilities. Incorporating these values into admissions, advancement, and graduation considerations for DHoH and other students with disabilities can contribute to the physician workforce being more representative of the diverse patients it serves and better able to care for them.

Introduction

People who are deaf and hard of hearing (DHoH) are increasingly entering health care fields [1]. Yet, despite the fact that more than 15 percent of the general population experiences trouble with hearing loss [2], medical students with hearing loss represented a mere 0.01 percent of United States medical school graduates during the years 2001-2010 [3]. This statistic shows that DHoH medical students still face barriers to matriculation and graduation. One common barrier that DHoH and other candidates with disabilities face is the medical school technical standards (TS). The TS specify minimum abilities not necessarily related to acquisition of medical knowledge, including sensory and motor capabilities, thought by some to be necessary to function as a physician [4]. Candidates who are unable to demonstrate these requirements can be disqualified from matriculation and graduation. Because medical schools set their own TS, they differ widely both in the actual capacities required and how students can demonstrate them. Therefore, the importance of the TS cannot be underestimated, as it is difficult to predict how schools will interpret their own TS and how these interpretations might affect whether DHoH applicants are able to matriculate and receive any necessary accommodation.

The inherent difficulty in interpreting the TS when reviewing candidates for matriculation and graduation raises ethical issues concerning equity for individuals and diversification of medical school cohorts. However, some programs use alternative TS that enable DHoH and other matriculants with disabilities to become successful physicians-in-training by incorporating inclusive language, such as explicit provisions for using accommodations, and by eliminating the unrealistic and outdated concept of the "undifferentiated physician" to better reflect the availability and technological capacity of accommodations and the larger roles of technology and specialization in health professions training.

Variations in Medical Schools' Technical Standards

The Association of American Medical Colleges (AAMC) published guidelines for the TS in 1979 [5] in response to Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of handicap [6]. The guidelines called for "certain minimal technical standards for physicians that must be examined and enforced in the admissions process" that would enable physicians "to function in a broad variety of clinical situations and to render a wide spectrum of patient care"

[7]. The report described the MD degree as “a broad *undifferentiated* degree attesting to the acquisition of general knowledge in all fields of medicine and the basic skills requisite for the practice of medicine” [8; italics added]. The AAMC subsequently published a handbook on students with disabilities in 2004 to encourage medical schools’ compliance with the Americans with Disabilities Act of 1990 (ADA) [9], which expanded protections for people with disabilities by requiring programs receiving federal funding to provide reasonable accommodations or to make reasonable modifications to its policies, practices, or procedures [10].

Despite issuance of the AAMC handbook on students with disabilities, the AAMC guidelines left it up to schools to design their own institutional TS. For example, the AAMC 2005 TS guidelines [11] do not specify the skills required, merely stating that “technical standards should include those skills and abilities that are essential to the completion of the educational program” [12]. Moreover, the guidelines do not specify accommodations to be provided, stating, for example, “Institutions are afforded flexibility in how to provide auxiliary aids as long as students are not denied access to materials” [13]. Unsurprisingly, the TS are not consistent across institutions. In a 2014 review, Sandhouse concludes that there are no universal TS in any health care field [14]. Moreover, in a 2010 survey, 38.4 percent of medical schools reported having last revised their TS between 2001 and 2005 [3]. These findings highlight the challenge of using TS that might not have been updated in accordance with the AAMC guidelines for candidates with disabilities, including those who are DHoH. As a result, candidates with disabilities might not be able to gauge whether a medical school will, in fact, be willing to allow them to fulfill the technical standards using accommodations as intended by the ADA. In what follows, some institutions’ TS were selected to briefly illustrate variations in the formulations of technical standards as well as in the allowed accommodations. These posted TS might not reflect the actual current practices of each medical school in admission and accommodation provision.

For example, some schools’ TS, like those of the University of Central Florida College of Medicine (UCF) and Dartmouth University Geisel School of Medicine, use inclusive language. In its TS, UCF states that candidates must be able to “perceive relevant non-verbal communications such as changes in mood, activity, and posture as part of a physical examination of a patient,” but the school allows that “accommodation through use of a trained intermediary or other communications aide may be appropriate when this intermediary functions as an information conduit” [15]. A candidate needs only “sufficient use” of the senses for physical examinations at UCF, and the TS do not specify which sense is to be used for which physical examination components. While UCF’s TS are broader, Dartmouth specifically names different possible accommodations for students to demonstrate essential capacities for matriculation and graduation [16]. For DHoH students at Dartmouth:

Some intermediaries that may be acceptable include sign language interpreters—provided the interpreters offer only translation, and do not perform selective, analytic, interpretive, or integrative functions for the student—or transcriptionists who provide a similar function. In this way, a deaf student is simply enabled to “listen,” but is still responsible for essential communication elements of the curriculum [16].

Inclusivity is demonstrated in both UCF’s and Dartmouth’s TS, as both explain the student’s responsibility to evaluate sensory input and are open to the use of accommodations for students to receive that input and thus demonstrating the capacity to evaluate it. Under these TS, a DHoH student may receive traditionally auditory information (e.g., the patient history, heart sounds) through different “conduits” and still assumes the responsibility for demonstrating the knowledge required to translate that information into good clinical practice.

These aforementioned TS models also reflect an evolution away from the concept of the “undifferentiated graduate” that was briefly introduced and problematized earlier. DeLisa and Thomas argue that given medicine’s increased specialization and the fact that inherent personal qualities can often be associated with medical specialties, some students might be simply better suited for certain specialties than others [17]. For example, a DHoH student who requires more communication accommodations might do less well in a fast-paced environment like the emergency department. Similarly, students with weaker hand-eye coordination might not naturally excel in surgery. Medical students tend to naturally gravitate toward specialties that augment their strengths and minimize their weaknesses, and those with disabilities are no different. While accommodations might enable students to train according to the ideal of an undifferentiated student and meet the TS, Van Matre and colleagues argue that students, with or without disabilities, will

choose specific specialties according to their aptitudes [18]. Therefore, the belief that students must somehow succeed equally across every rotation, an ideal embraced by many medical schools' TS, is less relevant as medical practices continue to specialize.

Conversely, many schools do not explicitly support accommodations [19], and some reject certain accommodations or have more exacting and exclusionary TS. For example, the University of Maryland School of Medicine (UMD) requires in their TS that candidates "must be able to ... hear adequately" for communication and auscultation and state that an intermediary is never appropriate [20]. This language is exclusionary because it could preclude DHoH candidates from matriculating. Similarly, Albert Einstein College of Medicine (AECOM) sets forth that "Under the law, a school need not approve any proposed 'accommodation' that may reasonably compromise patient health or safety" [21] and, more specifically, that "an impairment or disability may be such that despite reasonable accommodation the TS cannot be met" [21]. Furthermore, AECOM's TS penalize students for failing to report a "significant" disability:

Significant impairments or disabilities which are reasonably likely to affect a prospective student's capacity to satisfy the TS, or which represent a condition reasonably likely to prevent completion of the curriculum, may not be concealed or otherwise misrepresented. Doing so would be grounds for immediate suspension, dismissal, and/or other disciplinary considerations as per the by-laws [21].

What is understood by "significant" disability, however, can vary from person to person; one admissions committee might deem a specific disability to be significant, while another does not. This potential variation in interpretation of the TS leaves applicants at the mercy of each committee's definition of impaired capacity and reasonable accommodation, since standards are not consistently drafted or interpreted. Thus, programs with such noninclusive stipulations, like UMD and AECOM, might be perceived by DHoH applicants as unwelcoming, and possibly intimidating; these institutions' TS might deter DHoH and other persons with disabilities from applying.

Hearing Loss and Technical Standards

Hearing loss is currently the most common physical and sensory disability encountered in medical school [3], and, in one survey, respondent schools reported providing accommodations for students with hearing loss almost as frequently as accommodations for students with motor and learning disabilities [3]. Once admitted, most DHoH medical students require at least one accommodation. The most commonly requested accommodation is a special stethoscope that allows either amplified or visual auscultation of heart and lung sounds, but other accommodations have included sign language interpreters, note-taking services, and modified surgical masks [1]. Hearing loss represents a wide spectrum of severity and accommodation needs for different language modalities, including spoken English, American Sign Language, or mixed modalities. DHoH students and health care professionals potentially benefit from access to a unifying organization, the Association of Medical Professionals with Hearing Losses (AMPHL) [22], which gives legitimacy and support to those who are DHoH and are aspiring health care professionals or in related fields.

Despite the commonality of hearing loss in medical school and requests by DHoH students for accommodations, many DHoH applicants to medical schools have shared personal stories of being "cautioned" by schools to evaluate the TS to ensure that they could meet the TS. These stories were shared with AMPHL members at conferences and on now-defunct online forums. For students without disabilities, signing a TS compliance agreement is a formality. For DHoH students, it begins a conversation with the school and possibly the legal system about whether they will qualify for admission or graduation and whether necessary accommodations will be provided. If that conversation becomes adversarial, or if the school uses a "caution" or the TS as a de facto warning not to apply or matriculate, then it puts the applicant at a disadvantage before beginning medical school. Students subsequently feel pressured to not disclose their disability early in the process, which might cause medical schools to feel that the student has matriculated dishonestly.

Case Law

There are several [legal cases of alleged disability discrimination](https://journalofethics.ama-assn.org/2016/10/hlaw1-1610.html) (https://journalofethics.ama-assn.org/2016/10/hlaw1-1610.html) by medical schools involving TS in which a federal court decision permitted the plaintiffs to continue their training with

accommodations [23, 24]. Although some survey participants have voiced concerns that DHoH applicants pose a danger to patient safety or a financial burden on medical schools and health systems [4, 17, 19], these concerns have not stood up to legal scrutiny [1, 11]. Two cases are especially notable as the plaintiffs were medical students. *Featherstone v Pacific Northwest University* held that safety concerns were unfounded given the long history of successfully practicing DHoH health care professionals and the routine presence of interpreters in the health care setting [23]. *Argenyi v Creighton* concluded that accommodations must be provided in order for the DHoH student to have the same educational access as peers without disabilities and that cost cannot be a factor given the overall operating budget of the university [24].

Inclusivity and Service to Patients as Goals of Medicine

After thoughtfully considering the effects of the TS on enrollment and how students with disabilities can demonstrate their capacities, several commentators on the TS have focused on [promoting inclusivity](https://journalofethics.ama-assn.org/2016/10/msoc1-1610.html) (https://journalofethics.ama-assn.org/2016/10/msoc1-1610.html). These commentators have encouraged taking steps to promote enrollment of students with disabilities because of the perceived benefits of representative physicians [17, 25]. In 2004, Jordan J. Cohen, then serving as president of the AAMC, called upon medical schools to increase the enrollment of students with disabilities with the understanding that, like ethnic and racial minorities, physicians with disabilities are more likely to provide care in their own communities [26]. Moreover, evidence supports the preference of DHoH patients for [concordant clinicians](https://journalofethics.ama-assn.org/2016/10/msoc2-1610.html) (https://journalofethics.ama-assn.org/2016/10/msoc2-1610.html) because of shared empathy, culture, and communication [26-28]. However, if the TS require DHoH students, without the use of accommodations, to conform to standards for students without disabilities, then the opportunities for DHoH applicants to be seriously considered for admission to health care training programs and to serve their own communities remain limited.

Ethical Implications of the TS's Sensory Capacity Assumptions

Equity is a concept that transcends the liberal value of equal opportunity to encompass outcomes [29]. In the more than 25 years since its passage, the ADA has enabled many students with disabilities to gain admission to and accommodations at institutions of higher learning. However, people with disabilities, including members of the DHoH community, continue to be underrepresented in the health professions, including medicine, because of the disconnect between the intention of the ADA to expand equality of opportunity and some medical schools' TS, which create inequities. Although DHoH persons can apply to any medical school, not all programs are fully accessible because of the various ways in which the TS are written, interpreted, and administered.

Pollard encourages the development of ["functional" TS](https://journalofethics.ama-assn.org/2016/10/medu1-1610.html) (https://journalofethics.ama-assn.org/2016/10/medu1-1610.html), which focus on the outcome of tasks rather than on the organic process by which they are accomplished [4]. A classic example is the need to evaluate heart sounds. "Organic" TS require a DHoH student to have the capacity to hear heart sounds, which rests on the erroneous assumption that hearing is the only way to assess heart sounds [4]. By contrast, functional TS, such as those employed at Dartmouth and UCF, require a DHoH student to be able to evaluate the heart but allow the use of different accommodations, including an amplified stethoscope, a visual stethoscope, or ultrasound, to do so. Under this model of TS as functional rather than organic, DHoH applicants could be treated equitably, and, if provided access to training with accommodations, they would help diversify the physician workforce and bring a wider diversity of clinicians' strengths, aptitudes, and life experiences to the clinical care of patients. A commitment to equity involves removing educational inequalities and barriers to admission—for example, by modifying the TS to allow accommodations and draw focus to functional outcomes. Such modifications in policy and practice would likely increase enrollment and graduation of DHoH candidates.

Recommendations for Increasing Enrollment of Students with Disabilities

DeLisa and others have made a number of recommendations about how to increase the enrollment of students with disabilities, several still unheeded [17, 25]. In the interests of equity, I put forth several recommendations here. First, the

AAMC graduation questionnaire routinely collects information regarding social demographics but currently does not include disability information [17]. Including this information would provide annual data on the number of graduates with disabilities and help illuminate institutional attitudes toward disabilities through the concordance or discrepancy between student questionnaire responses and their written TS. Second, a committee—possibly under the AAMC—could develop universal functional TS that allow for appropriate accommodations for students with disabilities, applicable across all schools. These TS would specify the minimum necessary capacities in medical schools in the current age of practice. Given the expanding availability of technology and appropriate accommodations, medical students with disabilities might be able to demonstrate these necessary capacities. Third, an ethical and legal inquiry into what constitutes reasonable accommodations in the medical setting, involving disability specialists, ethicists, student representatives, and legal consultants or lawyers, could be initiated. Such an inquiry might be an ongoing process given the evolving nature of legal rulings and technology (for both disability accommodations and medical practice). Fourth, the AAMC or disability organizations like AMPHL could offer training to admissions committees that would facilitate their understanding of and appreciation for the differing educational stories of applicants. DHoH health care practitioners have all benefited from institutions that have been compassionate in their assessments, recognizing the benefits that we have to offer an underserved population and appreciating the challenges specific to hearing loss and their impact on our educational and social opportunities. For instance, a DHoH applicant might not gain the same experience from shadowing physicians if communication accessibility is unavailable and instead engage in extracurricular activities to compensate. If these recommendations are pursued, DHoH applicants and matriculants will continue their ascendancy in higher education and professional fields. In return, many of us will serve DHoH patients or in organizations to bolster the advancement of the DHoH [1, 21]. Only then can the physician workforce truly represent our patient population and show equity in the opportunities seized, not merely available, to applicants.

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