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Competency-Based Curriculum Development to Meet the Needs of People With Disabilities: A Call to Action.

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Competency-Based Curriculum Development to Meet the Needs of People With Disabilities: A Call to Action

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Abstract

People with disabilities constitute 22.2% of the population in the Unites States, and virtually all physicians have people with disabilities in their clinical practice across a wide range of diagnostic groups. However, studies demonstrate that people with disabilities are inadequately served by the health care system, leading to high costs and poor outcomes. The authors argue that this discrepancy is in part because medical students receive limited training in the care of people with disabilities and may therefore not be able to adequately meet the competencies that underlie the core entrustable professional activities for entering residency. To address these gaps, the authors present practical examples of integrating concepts of disability into the curriculum with minimal additional time requirements. A comprehensive disability curriculum is suggested to include active classroom learning, clinical, and community-based experiences. At institutions that do not have a comprehensive curriculum, the authors recommend adding disability-related knowledge and skill acquisition to existing curricula through modifications to current case-based learning, simulated patients, and objective structured clinical examinations. To facilitate curriculum development, they recommend that the World Health Organization International Classification of Functioning, Disability, and Health be used as a tool to build disability concepts into active learning. The goal of these recommended curricular changes is to enhance student performance in the clinical management of people with disabilities and to better train all future physicians in the care of this population.

Medical students need to be taught the skills necessary to take care of people with disabilities, as this disparate and varied group continues to be underserved by the American health care system.[1–3] Traditional medical school curricula do not fully address the needs of people with disabilities, and current curricular revisions offer an opportunity for inclusion of disability education. We advocate for inclusion of disability related topics in current undergraduate medical education student-centered learning tasks, with the expectation that these changes will allow for greater skill and competence in the care of people with disabilities. There are significant gaps in the education of physicians about disability that may contribute to health care disparities experienced by people with disabilities. Instituting our recommended changes will allow medical schools to successfully meet Liaison Committee on Medical Education (LCME) standards, and medical students to achieve success in required competencies, thus producing well rounded, multi-dimensional physicians who can appropriately care for people with disabilities.

Call to Action

We are an interested group of physician–educators and people with disabilities who assembled at the Association of Academic Physiatrists (AAP) annual meeting in Sacramento, California, in 2016 to form the Task Force on Disability Education for Medical Students to address the problem of insufficient medical education on disability. As physicians who care for people with disabilities, and hear their concerns, we were charged by the AAP board of directors to analyze the problem, find solutions through the lens of competency-based education, and advocate for the resolution of these unmet needs.

The Current State of Disability Education

Disability on the rise

People living with disability make up a substantial portion of our nation's population and contribute to its diversity.[4–8] Disability has been defined by the World Health Organization (WHO) as an "umbrella term for impairments, activity limitations and participation restrictions. It denotes the negative aspects of the interaction between the individual (with a health condition) and that individual's contextual factors (environmental and personal factors)."[9] Each individual lives with her or his unique experience of disability as it relates to contextual factors or life situation. Overall, 22.2% of adults in the United States reported some disability as of 2013,[4,5] including limitations in cognition, mobility, vision, independent living, or self-care. This prevalence is likely to continue to grow as the population ages[6,7] and as chronic conditions take their toll.[10] Furthermore, disability is included in the definition of diversity put forth by the Association of American Medical Colleges (AAMC) Group on Diversity and Inclusion, emphasizing the need for comprehensive medical student education on disability.[11]

People with disabilities are underserved

The U.S. health care system is insufficiently prepared educationally, structurally, and economically to recognize and address the needs of people with disabilities.[1–3] Recently, people with disabilities have reported more barriers when accessing care than those who are able bodied[4,12–14] and greater dissatisfaction with the health care that they receive.[12] In addition, despite having higher rates of contact with clinicians in every field of medicine due to the prevalence of secondary complications,[15–24] people with disabilities report higher levels of unmet health care needs than those without disability and are screened less frequently for preventable conditions.[12,14,25–27] Because all physicians will encounter people with disabilities in their

practices, it is important that every clinician can demonstrate comfort and competence in treating this patient population.[28] Studies have shown, however, that medical and health professions students and physicians may be uncomfortable treating, or harbor negative opinions regarding, people with disabilities.[29–33] Teamwork is essential for care of people with disabilities, and medical students have been historically inadequately prepared for interprofessional collaboration.[34–36] This lack of proficiency in patient and interprofessional communication contributes to omissions, ineffective interventions, and the occurrence of medical complications.[34–36] Therefore, medical students can have gaps in competency achievement in recognizing the sequelae of disability and applying principles of regular preventive care for this population.[36] Of note, people with disabilities are underrepresented in the physician workforce.[11,37]

Medical students are undereducated

Despite the pervasive presence of people with disabilities in our health care system, lack of awareness of variety, lived experience, and prognosis with intervention continues to be a challenge in medical education. A decade ago Holder and colleagues used a national survey to estimate that only 20% of medical schools in the United States included disability awareness in their curricula.[3] A survey of curriculum deans conducted in 2015 demonstrated improvement and explored specifics of disability education in the context of each medical school's curricular design.[38] Fifty-two percent of responding deans (39/75) reported a disability awareness program. Of the schools that did not have a disability awareness curriculum, the most common reason for its absence was that no one was advocating for its inclusion.[38] In addition, a query of the AAMC Curriculum Inventory and Report (CIR) from 2015–2016 demonstrated that many medical schools did not explicitly address disability in their curriculum (23/134 schools lacked elements

addressing disability).[39] Training programs without current disability education identified the following content areas, ranked by importance, as ideal for addition to the curriculum: communication skills, examination skills, health care disparities, disability ethics, personal experiences with people with disabilities, legal rights, community resources, and sexual health.[38] Education in disability concepts remains underdeveloped, yet sought out, as clear needs have been identified. The addition of such content has few barriers other than lack of advocacy for inclusion in curriculum revisions. Proposed criteria exist for the expected knowledge, skills, and attitudes of physicians caring for people with disabilities; however, the best methods for integrating these concepts still need to be identified.[40]

Disability curricula often lack modern educational strategies

We conducted literature searches and reviews of academic medical institution websites and consulted via monthly video teleconferences (between February 2016 and December 2017) to establish focus and synthesis of how to address this problem in medical education. Previously completed literature searches of the electronic databases MEDLINE, OVID Healthstar, PsychINFO, Journals@OVID, Scopus, and Google Scholar for educational literature published between 1990 and 2014 using the medical subject headings "disabled persons" and "chronic disease" had been conducted by other researchers in October 2013, March 2014, and January 2016.[41] These collections were supplemented with additional literature review by the task force members in 2016 for current and relevant articles. We discussed the literature in the context of creating curricular recommendations for medical schools, including the standards from the LCME and the AAMC core entrustable professional activities for entering residency (core EPA) initiative.[42] The move toward competency-based education is epitomized by the AAMC's core EPA pilot program, which describes patient care activities that incoming interns are entrusted to

perform on day one of residency.[42] All of the core EPAs have foundational competencies that support students' ability to perform the activity at an entrustable level for a patient with a disability.

Our analysis indicates that the current undergraduate medical education system does not adequately train students to provide care for people with disabilities.[3,43] We noted that most educational methods recorded in the literature were passive instructional methods, such as lectures or patient panel discussions. This conclusion is confirmed in the AAMC CIR report analysis. Of the schools in the report that include disability education in their curriculum, based on the AAMC CIR report, the most common teaching method is lecture format.[39] Learning via lecture exemplifies the capability of "knows" on Miller's pyramid, a recognized model of adult learning using a hierarchy of capabilities starting with knowledge ("knows") and progressing to competence ("knows how"), performance ("shows how"), and does ("spontaneous action").[44] A focused effort toward integration of disability related concepts and a more active method of learning at the performance level is needed to address these known deficits in medical education and improve the skills of the future physicians who will care for people with disabilities.

Recommendations

Incorporate the WHO International Classification of Functioning, Disability, and Health

Our literature evaluation reinforced the need for development and incorporation of disability education for medical students to ensure competence of skills. Standard 7 of the LCME discusses recommendations for curricular content and includes societal and cultural competence.[45] One method to integrate disability-focused training into an existing curriculum to meet this standard is to implement the biopsychosocial model of care.[46] Such a model can help students understand the experience of the patient with a disability from multiple perspectives.[47–51] The WHO

International Classification of Functioning, Disability, and Health (ICF) (Figure 1) is a model focused on function that considers both medical diagnoses and functional impairments. Use of this model can improve one's understanding of the ways an individual (with multiple complex medical conditions and comorbidities) interacts with the individual's contextual factors (including personal and environmental factors that affect function).[6,9,49–51] The ICF in particular represents a "merg[ing] of the biomedical and holistic paradigms" across a number of different disabilities.[52] The ICF model is designed to be used as a tool for measuring function in the home and community, no matter what diagnosis contributes to a person's impairment.[53] The ICF thus moves the focus from illness to the level of functioning and, in doing so, creates a system that can demonstrate how there can be person-centered life participation despite severe deficits in activity attainment. The ICF mainstreams the experience of disability and recognizes functioning and disability as a universal human experience.[9] Using the ICF model enables a paradigm shift in the understanding and teaching of disability concerns; educators and students can recognize disability independent of a diagnosis or medical specialty. We advocate for the incorporation of the ICF in the process of case development, as well as teaching it as a conceptual framework for the students, as this can expand the detail and depth of cases by providing a vocabulary and structure to broaden collaborative, interprofessional, whole-person goal setting and treatment plans (Figure 2).[35]

Include people with disabilities

Symons and colleagues reported the outcomes from a comprehensive integrated disability curriculum at the State University of New York at Buffalo.[54,55] Medical students were introduced to disability topics and people with disabilities in their first year. The first session was introduced with a lecture and "encounters" with people with disabilities and their families. Discussions were

fostered about positive and negative interactions with the health care system. In their second year, specific clinical encounters were integrated into students' learning. In the third and fourth years, additional time was spent with people with disabilities during clerkships, workshops, and additional elective time. The outcome measures used included a questionnaire and self-reported reactions to clinical vignettes. The students who participated in the curriculum reported being more comfortable interacting with people with disabilities than the students in the control group. However, the assumption that improved attitudes lead to better patient care has not been yet established and requires further exploration. Disability curricula require thoughtful evaluation of their efficacy in regard to patient outcomes.

Integrate disability topics into existing skills training and assessment

A fully integrated disability curriculum that includes active classroom learning, clinical and research activities, and community-based experiences would be ideal.[53–58] However, we recognize such a curriculum requires significant resources to implement. Given that learning tasks such as objective structured clinical examinations (OSCEs) can be used to ascertain skill level of students caring for people with disabilities,[36] we created case examples to guide curriculum developers. For the initial implementation of a disability curriculum, we advocate for the modification of cases already being used in established student-centered learning tasks (e.g., case-based learning, problem-based learning, or team-based learning) and OSCE formats, as outlined in Table 1. Table 1 provides examples of opportunities to introduce disability elements into existing curriculum components by core EPA.[42] These learning activity examples allow for the learner to achieve the higher capabilities of Miller's pyramid and achieve proficiency in understanding and caring for people with disabilities, which is necessary to meet the core EPAs. Such activities can be applied at any level of training throughout undergraduate medical

education in both clinical and pre-clinical years.[47] The proposed changes would not add significant extra time to a school's curriculum. Attitude assessments alone do not measure the individual student's skills in data gathering related to disability, nor the ability of the student to recognize the implications of disability on patient management.[59] However, in student-centered learning tasks, cases can be made more complex by the inclusion of disability, bringing the patient's level of function into discussions of case learning objectives and student assessment. OSCEs can assess students' recognition of critical disability issues through history taking, physical examination skills, and problem definition.[48,60] These learning activities also provide students the opportunity to demonstrate application of the biopsychosocial model of care. Collection of outcome data can further strengthen curricular changes by providing insight into which aspects are most effective with regard to future application of the taught principles.

Identify resources and champions within the community

In medical schools with a paucity of curricula devoted to concepts of disability, the faculty does have the ability to integrate these concepts into existing elements. Since the clinical concerns of people with disabilities span multiple disciplines, many clinicians have the background to address these deficiencies in the curriculum, including but not exclusively specialties such as developmental pediatrics, family medicine, physical medicine and rehabilitation, psychiatry, neurology, geriatrics, and palliative care. The creation and implementation of disability education is not restricted to particular specialties, as the principles are practical and relevant in a variety of clinical settings. There also may be non-traditional resources to create curriculum at medical schools. In a recent survey of curricular deans, contributors to disability awareness programs included allied health providers (54%), community group representatives (51%), family members of people with disabilities (35%), and medical students (19%).[38] Many of the

authors have collaborated with other faculty at their medical schools by recommending changes to the current student-centered learning tasks. For example, disability education was integrated into a problem-based learning case of a person with chronic pain via functional disability scores, interprofessional management, and additional environmental and personal factors added to the history.

Summary

We advocate for disability focused changes to be made to current student-centered learning tasks to highlight specific learning objectives related to the care of people with disabilities. As a task force, we have mapped sample learning objectives to core EPAs, because we recognize that achievement of these core EPAs cannot be complete without specifically addressing care for people with disabilities. In addition, if the numbers of medical students with disability are increased, we feel confident that students will gain perspective from their peers on treating people with disabilities as well.[37] It is particularly important that all medical school graduates demonstrate competence in caring for people with disabilities, as this population will likely make up a significant portion of their clinical practice regardless of their eventual specialty.

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Figure Legends

Figure 1

The World Health Organization ICF model. Functioning is an umbrella term that denotes the positive interactions between the individual and their contextual factors (personal and environmental). Disability is an umbrella term that denotes the negative interactions between the individual and their contextual factors. Activity and participation refer to tasks the individual does for themselves and involvement in life situations, respectively. The level of activity limitation or participation restriction can be looked at through the lenses of capacity and performance. Capacity refers to what the individual can do in the idealized setting without environmental barriers, where performance refers to their current function in their own environment. Through this lens, it is clear that impairments and activity limitations do not necessarily lead to disability as they can be compensated by environmental and personal factors to lead to improved function.[9]

Abbreviation: ICF indicates International Classification of Functioning, Disability, and Health.

Figure 2

A sample World Health Organization ICF assessment sheet filled out for a sample patient with a stroke. The ICF model allows for development of patient-centered goals by identifying impairments and addressing activity limitations and participation restrictions that are modified by a patient's personal and environmental factors. In the outlined case, a patient who has significant impairments and activity limitations from a health professional's standpoint has few activity limitations or participation restrictions from their own perspective when taking into account adaptive devices, positive personal facilitators, and a supportive environment.[9,61–63]

Abbreviation: ICF indicates International Classification of Functioning, Disability, and Health.

Table 1

Sample Case Modifications, Mapped to Core EPAs to Include Issues Related to Disability[a]

Core EPA	Teaching methods	Example of a case	Sample learning objectives
1. Gather a history and perform a physical examination	OSCE modification or case modification (CBL, PBL, or TBL) to highlight issues pertaining to disability: strength impairment, prosthetic implants, and adaptive equipment.	65-year-old man with history of osteoarthritis, rotator cuff tear, left above knee amputation now with severe shoulder pain, recalcitrant to conservative treatment. Shoulder arthroplasty is recommended. *Before his shoulder pain worsened, he used a walker and an above knee prosthesis to ambulate, but he is currently using a wheelchair.*	Demonstrate functional history taking. Discuss access to preventive care for people with disabilities. Demonstrate appropriate physical examination techniques. Discuss relationship between assistive device use, above knee prosthesis, and shoulder pain.
2. Prioritize a differential diagnosis following a clinical encounter	OSCE modification to highlight issues pertaining to disability: central nervous system pathology and effect on bladder, activity limitation impacted by issues with voiding.	75-year-old man who *experiences frequent falls* presents to the emergency room with increased urinary frequency.	Demonstrate how careful functional history taking will improve differential diagnosis. Discuss interdependence of medical issues with functional activities.
3. Recommend and interpret common diagnostic and screening tests	Case modification (CBL, PBL, or TBL) to highlight issues pertaining to disability: bladder impairment.	35-year-old man *with history of spina bifida and a suprapubic cystostomy for neurogenic bladder* presents with recurrent urinary tract infections.	Discuss urinalysis and urine culture in the context of neurogenic bladder and indwelling catheter.
4. Enter and discuss problem list, orders and prescriptions	Case modification (CBL, PBL or TBL) to highlight issues pertaining to disability: motor impairments, activity limitations due to speech impairments. Modification of OSCE to include standardized patient with disability.	85-year-old man with history of diabetes mellitus, hypertension, coronary artery disease and hypercholesterolemia *and a left parietal stroke one year ago with residual speech impairment, presents with his daughter* for blood in the stool.	Discuss various communication techniques with emphasis on the physician addressing the patient first, and not the accompanying person.

5. Document a clinical encounter in the patient record	OSCE case modification to highlight issues pertaining to disability: perceptual impairments, barriers to participation.	21-year-old woman with *history of autism who lives independently* presents after a seizure episode and refuses to take medication.	Document social history, including living situation and social support in the chart.
6. Provide an oral presentation of a clinical encounter	OSCE modification to highlight issues pertaining to disability: mobility impairments, interprofessional collaboration needs, barriers to participation.	54-year-old woman *with history of right middle cerebral artery stroke 8 months ago* presents to a neurologist with complaints of difficulty driving, along with increased difficulty walking over the last 2 months.	Demonstrate person first language, discuss patient's goals, and evaluate sensation, neglect, strength, range of motion and gait during a concise presentation of case to evaluator.
7. Form clinical questions and retrieve evidence to advance patient care	Case modification (CBL, PBL or TBL) to highlight issues pertaining to disability: mobility impairments, and participation in relationships.	16-year-old woman with *history of spina bifida presents to clinic in a wheelchair* complaining of vaginal discharge.	Discuss contraceptive use and safe sexual practices in patients with limited mobility and/or cognition.
8. Give or receive a patient handover to transition care responsibility	Case modification (CBL, PBL or TBL) to highlight issues pertaining to disability: importance of handoff in complex care, weight-bearing restrictions, modified diets.	85-year-old woman with history of hip fracture and operative reduction and internal fixation 2 weeks ago *presents from a rehabilitation hospital to the emergency department* with hypoxia, found to have aspiration pneumonia. *The initial transfer paperwork to the rehabilitation hospital did not include precautions or functional capabilities.*	Describe components of an appropriate interfacility handoff including physical restrictions and capabilities, dietary and eating modifications.
9. Collaborate as a member of an interprofessional team	Interprofessional case-based exercise that highlights issues pertaining to disability: cognitive impairment, interprofessional collaboration, activity limitations, barriers to participation.	42-year-old man with history of *mild traumatic brain injury* is brought in by family due to increasingly erratic behavior, now with a change in mental status. *He was fired from his job earlier this month. Case is designed with input from interprofessional educators to meet the needs of multiple disciplines.*	Understand the roles of various health care professionals. Demonstrate effective teamwork to problem solve. Execute appropriate consultation requests and discussions.

10. Recognize a patient requiring urgent or emergent care and initiate evaluation and management	Case modification (CBL, PBL or TBL) to highlight issues pertaining to disability: motor impairment, neurogenic bowel impairment, autonomic dysreflexia.	21-year-old man *with history of youth-onset T2 level paraplegia* who presents with blurry vision, persistent headaches and vomiting. Last bowel movement was 5 days ago.	Understand life-threatening secondary issues of spinal cord injury, including autonomic dysreflexia.
11. Obtain informed consent for tests and/or procedures	OSCE modification to highlight issues pertaining to disability: sensory impairment, adapted gait, referral to physical therapy.	70-year-old woman who consults with a hand surgeon for numbness and tingling in her hand presents for evaluation for possible surgery for carpal tunnel syndrome. *She uses a cane due to hx of osteoarthritis in her knees.*	Identify and demonstrate communication of functional considerations in the post-operative course that must be included in informed consent.
12. Perform general procedures of a physician	OSCE modification to include issues pertaining to disability: limb loss, visual perceptual impairments, activity limitations and assistive devices.	32-year-old man presents for venipuncture for routine lab draw. *He has a C7 spinal cord injury with spasticity and unable to transfer to the standard chair for the procedure.*	Demonstrate the responsibilities of physicians under the Americans with Disabilities Act. Modify the venipuncture procedure to accommodate positioning in his wheelchair. Demonstrate disability etiquette during the procedure.
13. Identify system failures and contribute to a culture of safety and improvement	Case modification (CBL, PBL or TBL) to highlight issues pertaining to disability: activity limitations, barriers to participation.	61-year-old woman admitted with a COPD exacerbation, her third admission in the past month. *She lives in a 2nd floor apartment with no elevator access and is exposed to second-hand smoke.*	Analyze non-adherence that includes factors such as family support and environmental barriers that affect function.

Abbreviations: Core EPA indicates core entrustable professional activities for entering residency; OSCE, objective structured clinical examination; CBL, case-based learning; PBL, problem-based learning; TBL, team-based learning; COPD, chronic obstructive pulmonary disease.

[a]For each core EPA, a typical case is presented, and the modifications that would ask students to consider disability related issues are presented in italics.[42] The type of modification (including which components of the World Health Organization's International Classification of Functioning, Disability, and Health [ICF] are used) is highlighted under teaching methods, and sample learning objectives are provided. This table is designed to provide a pattern of examples that will inspire curriculum developers as they adapt education to meet these demands at each unique institutional setting.

Figure 1

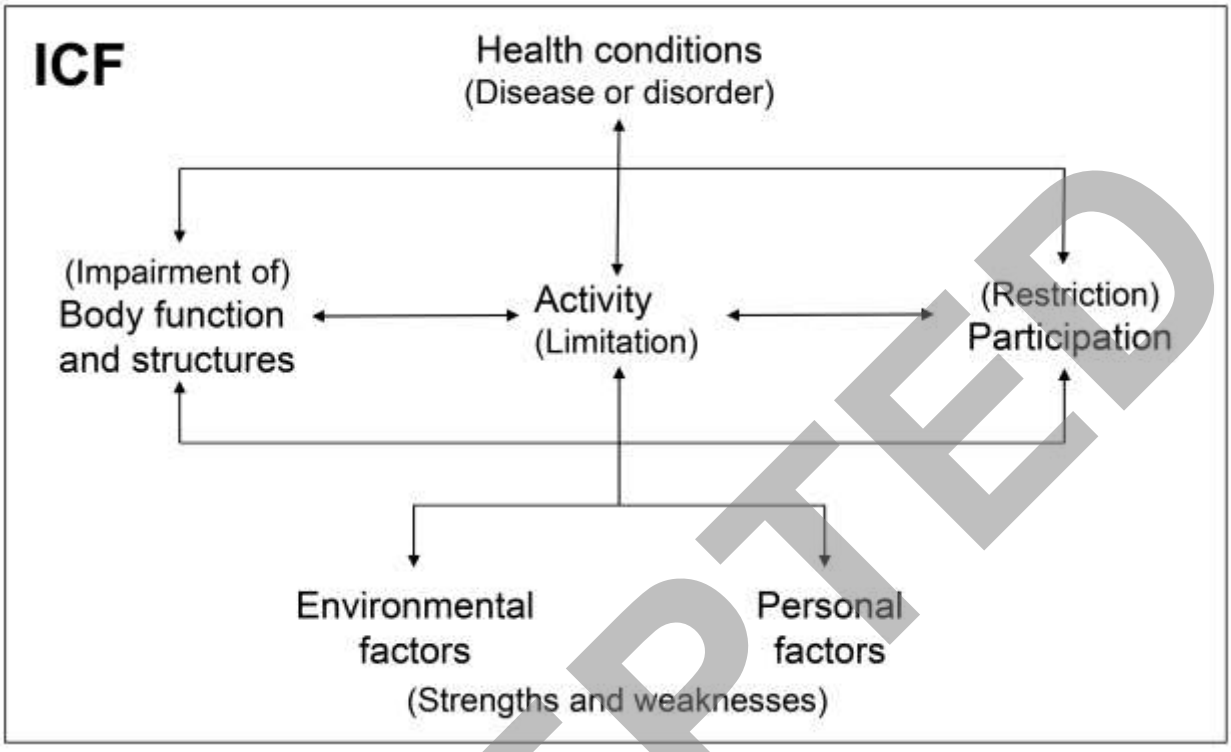

Figure 2