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Creative Approaches to the Inclusion of Medical Students with Disabilities

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It has been suggested that "*the most dramatic learning can come when it is a peer who is disabled, rather than a patient.*[1]" The sentiment of Shakespeare, Iezzoni, and Groce are evident in Jauregui and colleagues' innovations report. In this Invited Commentary, the authors discuss how the team at The University of Washington moved beyond the legal mandates of the ADA to capture the spirit of inclusion. We examine the benefits of training doctors and clinical researchers with disabilities and the potential impact on the health care system. We build on Jauregui's work, applying their educational approach to an employment model and demonstrate, through our own case report, how these models can be scaled in clinical practice providing benefit to the medical education pipeline. We conclude with a review of the promising practices and contemplate the promise of "crowd-sourcing" shared experiences toward creative approaches to the inclusion of medical students with disabilities.

The value of disability

There is incredible value in the message from Jauregui and colleagues. In sharing their experiences, and the multiple benefits of their model, they encourage a robust conversation about what *is* possible. Providers and researchers with disabilities remind us not to assume functionality or ability based solely on appearance or stereotype.[2,3] Through Jauregui's manuscript and other first-hand accounts there is an increased realization that the inclusion of individuals with disabilities in the biomedical workforce is valuable for health care through several mechanisms including increased empathy, increased rapport with patients, and informed care for individuals with disabilities that result in enhanced responsiveness to clinical recommendations[4-12].

One might hypothesize that this is due, in no small part, to their experiences as a patient and a person who experienced the health care system as a consumer and provider of services. This unique lens brings a dual perspective on health care services and gives the provider insight into the barriers to navigating health care as a person with a disability. We know, for example, that many providers are not aware of the Americans with Disabilities Act, nor their responsibility for providing accessible care.[13] Yet, failure to understand the law is only part of the problem. Legal mandates do not diminish stereotypes, which often fuel the assumptions about people with disabilities that lead to disparate care and health outcomes.[14-22] Stereotypes about disability often lead to misperceptions about the ability of physicians with disabilities to practice and affect the satisfaction and quality of care received by patients with disabilities.[15, 23-27] For example, the belief that women with physical disabilities are non-sexual leads to poorer health outcomes through attitudinal and clinical barriers, including lack of preventative services..[28-32]

Thinking about disability differently

Researchers and clinicians have proposed that the inclusion of physicians with disabilities would activate advanced understanding, increase empathy, reduce stereotypes of people with disabilities, improve communication and spur technological advances for improved care.[26,33-41] This increased knowledge of disability may be activated through the framework of Contact Theory. Contact Theory suggests that negative attitudes and stigma stem from lack of personal and positive contact between groups.[41-42] According to Allport, this interaction, must occur in a situation whereby the individuals maintain an equal status relationship, socioeconomic status is equalized, members of the two groups share common goal and are working together to accomplish the same goal, and where the interaction is part of the social norm.[41] Jauregui and colleagues' approach meets all of the aforementioned criteria.

Given this, increased visibility and direct interactions with people with disabilities in health care *as health professionals* may significantly reduce negative stereotypes. Interactions between physicians, health care providers, and researchers with disabilities in the health care workforce might correct assumptions about disability that are critical to reducing the health care disparities caused by stigma and stereotype. If this occurs, it could create a positive outcome pathway [see figure 1.0].

[Figure 1]

Creative Inclusion

Medical education is becoming more inclusive, with schools revisiting their previously restricted views of what it means to be a physician with a disability. This is no doubt sparked, in part, by the increased national and international focus on disability inclusion, and the sharing of personal accounts and successes by physicians, trainees and students with disabilities.[43-51]

Jauregui and colleagues demonstrate the relative ease of inclusion when teams work together and are creative in their solutions for removing barriers. In this case, a student with a physical disability was faced with barriers in the environment that impacted his ability to take notes, and meet standard clinical requirements. This model leveraged existing students in a creative manner that also provided educational benefits to second year students. An unintended, but impactful benefit of this model was the opportunity for close interaction with a person with a disability, potentially reducing stereotypes through shared experiences and peer-to-peer and student-to-faculty contact through the pathways mentioned above.

This model reduced the need for a full-time scribe or intermediary, which resulted in significant cost savings. It also fostered a sense of community and connection, which has been shown to reduce burnout.[52] Jauregui and colleagues model, while applied to a specific rotation, holds promise for scalability to an entire clerkship year, residency, and into practice. Indeed, own case report shows how these models can be scaled in clinical practice providing benefit to the medical education pipeline (See case report).

Case Report of Resident with Physical Disability

A gastroenterology fellow sustained a C3-C4 incomplete spinal cord injury. As a wheelchair user with limited hand function, he sought a path to practice in a non-procedural specialty. With technological advances, such as Picture Archiving and Communications Systems (PACS), diagnostic radiology was increasingly computerized. Provided one could meet the ACGME core competencies, and pass the licensing exams, the essential tasks of viewing and reporting imaging examinations was within his ability.

While radiology appeared promising, the doctor would need to complete a new residency in radiology, four more years of training, and possibly an additional year of fellowship. The fellow matched into a residency in radiology. The program director worked closely with the him to create an environment and structure where the resident could thrive. He was not required to perform procedures, but was expected to know their indications, contraindications, complications, and to describe how to do them. The program created a strict schedule that allowed the resident to perform necessary self-care. In lieu of weeks of night call (night float), the resident took once weekly call from 5 PM until 10 PM. In this way, he completed approximately the same number of hours as his peers, but in a modified schedule. Finally, the resident was always on call with a second resident in the event that a procedure was required (e.g., ultrasound, place an IV, or do a fluoroscopic procedure). The resident utilized dictation software to record impressions and was able to review the same number of images as his peers.

Cautions when Creating a Model for Inclusion

There are several cautions for creating a model that includes students as scribes and assistants. First, language is a crucial equalizer, and careful attention should be paid to the terms used to describe disability and the position (see table 1).

Table 1. Language/Terminology to Frame Student Positions

Terms to Use	Term to Avoid
Student (Resident/Physician) with a disability or the person's preferred terminology	Student with special needs Student with special accommodations Student in wheelchair Handicapped student
Scribe Intermediary Facilitator	Special Assistant Care provider Medical Assistant (note, these are not medical

Volunteer	assistants, they are merely facilitating the intellectual work of the physician)

It is vital for attendings, preceptors, and others in positions of teaching to model respectful and inclusive behavior and to assume competence. Assuming competence is the idea that medical students are presumed to be competent to learn a skill or to provide basic care for patients. When working with a student with a disability, many faculty presume incompetence and ask or require that the individual with a disability prove their ability in advance of any instruction and in advance of the same expectations of their peer group. Faculty and administrators can model appropriate interactions with students by assuming competence and treating the student in an equivalent manner to their peers. Ensuring appropriate accommodations for students is also central to creating a model.

Scaling Jauregui and Colleagues Model

Programs may hesitate to attempt new models of inclusion at the undergraduate medical education (UME) level believing that the model is not scalable in training or practice. There is a concern that if a student graduates, they will face barriers in residency given the new responsibility of patient care, and that the model will not be sustainable in those settings. However, the resident from our case study created a model similar to Jauregui's. And is now an associate professor of Radiology at an academic health system and co-author of this paper (PP).

Working with volunteer Services, the faculty member created a model that addresses his professional needs for assistance in navigating the clinic, while also meeting two growing demands. First, the need for international medical graduates to engage with medicine while they study for boards and apply for residency in the US. Through this program, international medical graduates benefit from ongoing mentoring, exposure to the US medical system, assistance with the match and potential letter of recommendation for residency. This position also affords them the opportunity to study for their board exams, while staying connected to the hospital and medical care, keeping them engaged in the health care system. Second, this program afford an opportunity for up to ten pre-health students to log hours shadowing for a physician, gaining exposure to radiology, and obtaining letters of recommendation. In addition to scribing,

volunteers answer the telephone, help manage meals for the physician, and ensure accessible pathways. The volunteer services office chooses appropriate volunteers, maintains a formal description of the job duties and handles all of the paperwork and training.

This model serves a need in the community for students and international graduates in the pipeline to health professions school and residency, while simultaneously serving the needs of the physician to navigate his clinical day. Similarly, to the unintended benefits experienced by Jauregui, this model provides multiple points of contact with a person with a disability that serve as opportunities to combat stereotype. Importantly, the contact is between the physician with a disability and the students and residents who will enter the healthcare field and ultimately oversee the care of patients with disabilities. Through the tenents of contact theory and the pathway for positive outcomes (Figure 1), it may be that this early contact with a high functioning physician with a disability reduces stereotypes and assumptions about the abilities of individuals with disabilities.

Crowd Sourcing Creative Inclusion

The authors applaud Jauregui and colleagues for their innovation, commitment to supporting the student, and their commitment to sharing this case in the literature. Through this "crowdsourcing" of information (including models for accommodation), we can collectively move towards greater inclusion. The inclusion of students in medical education necessitates not only informed processes and policies, awareness of law, and a desire for diversity; it requires creative thinking and a willingness to do things differently as displayed by Jauregui and colleagues and the University of Washington. When medical educators are committed to inclusion for qualified learner, and their actions match the spirit of the ADA, the solutions are often limitless.

Conclusions

To achieve greater inclusion of persons with disabilities in medicine, creative approaches to inclusion and accommodations are needed. Jauregui and colleagues have highlighted an innovative approach to accommodations during medical training, which leverages a dynamic model that benefits the student and their near peers. Additional innovative and successful examples of disability inclusion in medical settings are needed, as these approaches highlight

opportunities for enhanced inclusion and the potential for medicine to shift broader societal paradigms about disability.

References

1. Shakespeare T, Iezzoni LI, Groce NE. Disability and the training of health professionals. The Lancet. 2009 Nov 28;374(9704):1815-6.

2. Gupta R. I solemnly share. Jama. 2018 Feb 13;319(6):549-50.

3. Adashek J. Invisibly Disabled. JAMA oncology. 2016 Oct 1;2(10):1265-6.Gupta R. I solemnly share. Jama. 2018 Feb 13;319(6):549-50.

4. Weed MA. A cure for the empathy gap? Experience and perspective of a chronically ill and disabled medical educator. Archives of Ophthalmology. 2012 Feb 1;130(2):263-4.

5. Herzer KR. Moving from disability to possibility. Jama. 2016 Nov 1;316(17):1767-8.

6. Swenor B. Losing Vision and Gaining Perspective. Jama. 2019 Feb 5;321(5):455-6.

7. Schwarz CM, Zetkulic M. You Belong in the Room: Addressing the Underrepresentation of Physicians With Physical Disabilities. Academic Medicine. 2019 Jan 1;94(1):17-9.

8. Silver JK, Bean AC, Slocum C, Poorman JA, Tenforde A, Blauwet CA, Kirch RA, Parekh R, Amonoo HL, Zafonte R, Osterbur D. Physician Workforce Disparities and Patient Care: A Narrative Review. Health equity. 2019 Jul 1;3(1):360-77.

9. Steinberg AG, Iezzoni LI, Conill A, Stineman M. Reasonable accommodations for medical faculty with disabilities. JAMA. 2002 Dec 25;288(24):3147-54.

10. Fergus KB, Teale B, Sivapragasam M, Mesina O, Stergiopoulos E. Medical students are not blank slates: Positionality and curriculum interact to develop professional identity. Perspectives on medical education. 2018 Feb 1;7(1):5-7.

11. Stergiopoulos E, Fernando O, Martimianakis MA. “Being on Both Sides”: Canadian Medical Students’ Experiences With Disability, the Hidden Curriculum, and Professional Identity Construction. Academic Medicine. 2018 Oct 1;93(10):1550-9.

12. McKee MM, Smith S, Barnett S, Pearson TA. Commentary: What are the benefits of training deaf and hard-of-hearing doctors?. Academic medicine: journal of the Association of American Medical Colleges. 2013 Feb;88(2):158.

13. Agaronnik ND, Pendo E, Campbell EG, Ressalam J, Iezzoni LI. Knowledge Of Practicing Physicians About Their Legal Obligations When Caring For Patients With Disability. Health Affairs. 2019 Apr 1;38(4):545-53.

14. Chapman EN, Kaatz A, Carnes M. Physicians and implicit bias: How doctors may unwittingly perpetuate health care disparities. J Gen Intern Med. 2013;28:1504–1510.

15. Iezzoni LI. Eliminating health and health care disparities among the growing population of people with disabilities. Health affairs. 2011 Oct 1;30(10):1947-54.

16. Peacock G, Iezzoni LI, Harkin TR. Health care for Americans with disabilities—25 years after the ADA. New England Journal of Medicine. 2015 Sep 3;373(10):892-3.

17. Iezzoni LI, Wint AJ, Smeltzer SC, Ecker JL. “How did that happen?” Public responses to women with mobility disability during pregnancy. Disability and health journal. 2015 Jul 1;8(3):380-7.

18. Iezzoni LI, Wint AJ, Smeltzer SC, Ecker JL. Effects of disability on pregnancy experiences among women with impaired mobility. Acta obstetricia et gynecologica Scandinavica. 2015 Feb;94(2):133-40.

19. Iezzoni LI, Kurtz SG, Rao SR. Trends in mammography over time for women with and without chronic disability. Journal of Women's Health. 2015 Jul 1;24(7):593-601.

20. Wu J, McKee K, Meade M, McKee M, Sen A. Contraceptive use among women with visionor hearing loss: a secondary analysis of the National Survey of Family Growth, 2011–2013.Contraception, 2016;94(4), 431.

21. McKee, MM, Winters PC, Sen A, Zazove P, Fiscella K. Emergency Department utilizationamong Deaf American Sign Language users. Disabil Health J, 2015;8(4):573-8.

22. McDoom MM, Koppelman E, Drainoni ML. Barriers to accessible health care for Medicaid eligible people with disabilities: a comparative analysis. Journal of Disability Policy Studies. 2014 Dec;25(3):154-63.

23. Aaberg VA. A path to greater inclusivity through understanding implicit attitudes toward disability. Journal of Nursing Education. 2012 Sep 1;51(9):505-10.

24. Breslin ML, Yee S. The Current State of Health Care for People with Disabilities. National Council on Disability. 2009 Sep 30.

25. Breslin ML, Goode TD, Havercamp SM, Horner-Johnson W, Iezzoni LI, Krahn G, Education DR. COMPOUNDED DISPARITIES: Health Equity at the Intersection of Disability, Race, and Ethnicity.

26. McKee M, Case B, Fausone M, Zazove P, Ouellette A, Fetters M. Medical schools' willingness to accommodate medical students with sensory and physical disabilities: ethicalfoundations of a functional challenge to "organic" technical standards. AMA J Ethics. 2016;18(10):993-1002.

27. Meade MA, Mahmoudi E, Lee SY. The intersection of disability and healthcare disparities: a conceptual framework. Disability and rehabilitation. 2015 Mar 27;37(7):632-41.

28. Wu J, McKee K, Meade M, McKee M, Sen A. Contraceptive use among women with visionor hearing loss: a secondary analysis of the National Survey of Family Growth, 2011–2013.Contraception, 2016;94(4), 431.

29. Signore, C. (2016). Reproductive and sexual health for women with disabilities. In S. E. Miles-Cohen & C. Signore (Eds.), *Eliminating inequities for women with disabilities: An agenda for health and wellness* (pp. 93-113). Washington, DC, US: American Psychological Association

30. Mitra M, Long-Bellil LM, Smeltzer SC, Iezzoni LI. A perinatal health framework for women with physical disabilities. Disability and health journal. 2015 Oct 1;8(4):499-506.

31. Iezzoni LI, McCarthy EP, Davis RB, Siebens H. Mobility impairments and use of screening and preventive services. *Am J Public Health.*2000;90:955-961

32. Lagu T, Iezzoni LI, Lindenauer PK. The axes of access—Improving care for patients with disabilities. N Engl J Med. 2014;370:1847–1851.

33. Iezzoni LI. Why increasing numbers of physicians with disability could improve care for patients with disability. AMA journal of ethics. 2016 Oct 1;18(10):1041-9.

34. Kirschner KL, Curry RH. Educating health care professionals to care for patients with disabilities. Jama. 2009 Sep 23;302(12):1334-5.

35. McKee M, Smith S, Barnett S, Pearson T. Commentary: What are the benefits of training Deaf and hard-of-hearing doctors? Acad Med, 2013;88(2):158-161.

36. Mogensen L, Hu W. "A doctor who really knows…": a survey of community perspectives on medical students and practitioners with disability. BMC medical education. 2019 Dec;19(1):288.

37. Meeks LM, Herzer K, Jain NR. Removing barriers and facilitating access: Increasing the number of physicians with disabilities. Academic Medicine. 2018 Apr 1;93(4):540-3.

38. Iezzoni LI, Long-Bellil LM. Training physicians about caring for persons with disabilities:"Nothing about us without us!". Disability and health journal. 2012 Jul 1;5(3):136-9.

39. Swenor B, Meeks LM. Disability Inclusion—Moving Beyond Mission Statements. New England Journal of Medicine. 2019 May 30;380(22):2089-91.

40. Burke C. Diversity and Inclusion: Addressing Underrepresentation of Students With Disabilities in Health Care Education. The Journal of Physician Assistant Education. 2019 Mar 1;30(1):61-3.

41. Allport, G. W. (1954). *The nature of prejudice*. Cambridge/Reading, MA: Addison-Wesley.

42. Pettigrew, T. F. (1998). Intergroup contact theory. *Annual review of psychology, 49* (1), 65-85.

43. Meeks LM, Liao P, Kim N. Using Twitter to promote awareness of disabilities in medicine. Medical education. 2019 May;53(5):525-6.

44. Meeks LM, Jain N. Accessibility, Inclusion, and Action in Medical Education: Lived Experiences of Learners and Physicians With Disabilities.

45. Singh SA. Medical Council of India's new guidelines on admission of persons with specified disabilities: Unfair, discriminatory and unlawful. Indian journal of medical ethics. 2019;4(1):29-34.

46. Meeks LM. The new normal: Disability inclusion in health science education. Disability Compliance for Higher Education. 2019 Apr;24(9):1-4.

47. Jain NR. Political disclosure: resisting ableism in medical education. Disability & Society. 2019 Aug 8:1-24.

48. Meeks LM, Herzer KR. Prevalence of self-disclosed disability among medical students in US allopathic medical schools. Jama. 2016 Dec 6;316(21):2271-2.

49. Zazove P, Case B, Moreland C, Plegue MA, Hoekstra A, Ouellette A, Sen A, Fetters MD. US medical schools' compliance with the Americans with Disabilities Act: findings from a national study. Academic Medicine. 2016 Jul 1;91(7):979-86.

50. Kezar LB, Kirschner KL, Clinchot DM, Laird-Metke E, Zazove P, Curry RH. Leading Practices and Future Directions for Technical Standards in Medical Education. Academic Medicine. 2019 Apr 1;94(4):520-7.

51. General Medical Council of the United Kingdom. Welcome and Valued Report. Retrieved September 30th from https://www.gmc-uk.org/-/media/latest-welcomed-and-valued-full-guidance.pdf.

52. Sinsky CA, Willard-Grace R, Schutzbank AM, Sinsky TA, Margolius D, Bodenheimer T. In search of joy in practice: A report of 23 high-functioning primary care practices. *Ann Fam Med*. 2013;11(3):272-278.

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Figure 1.0 Pathway to Positive Outcomes