

Embracing Neurodiversity in Medicine—Building a More Inclusive Physician Workforce

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Advancing physician workforce diversity is a vital objective for medical schools, residency and fellowship training programs, and medical institutions. The benefits of diversity have long been recognized with respect to persons with minoritized racial and ethnic backgrounds, women, persons who are LGBTQ+, and others, and there has been a wide range of efforts to increase the representation of these individuals among physicians. Currently, however, these same programs and institutions do not similarly prioritize neurodiversity, the range of developmental neurocognitive differences that underlie individual variation in thinking, learning, and behavior.

The term *neurodiversity* broadly describes the breadth of neurocognitive variation in a group or population, similar to variation along any other axis of diversity. However, in an organizational context, it frequently refers to the inclusion of minoritized “neurodivergent” individuals who identify as having 1 of a range of neurodevelopmental conditions (eg, autism, attention-deficit/hyperactivity disorder [ADHD], Tourette syndrome, learning disabilities such as dyslexia or dyscalculia). Although typically considered disabilities, neurodevelopmental conditions are not all-or-nothing phenomena; rather, the degree of symptoms and associated disability in these conditions vary from minimal to profoundly life altering. Because of this variation in traits and abilities, some neurodivergent individuals are able to function well at home, school, or in the workplace, despite—and in some cases because of—their neurocognitive differences.

To better understand the value of enhancing neurodiversity in medicine, it helps to consider ways in which diversity benefits the field in general. Converging lines of evidence show that work environments that are more diverse and inclusive often outperform homogeneous ones¹ because greater diversity of backgrounds and lived experiences creates a wider range of perspectives with which to address shared challenges. This notion can be extended readily to individuals who are neurodivergent, who bring a wide array of unique perspectives and cognitive experiences. Additionally, certain neurodivergent individuals have mental skills and predilections that are conducive to aspects of science and medicine. For example, some persons on the autism spectrum are prone to highly systematized thinking, uncommon depth of focus, pattern-seeking, or a meticulous eye for detail, which could serve them exceptionally well in certain clinical or scientific contexts; therefore, it is not surprising to find neurodivergent persons represented among the ranks of the most accomplished physicians and scientists in the US and globally.²

A second important benefit of diversity in medicine is that patients have an easier time developing trusting relationships with clinicians who share similar backgrounds. Although the positive effect of patient-clinician concordance has largely been studied with respect to racial and ethnic identity, similar benefits may exist for

neurodivergent individuals. Persons who are neurodivergent may often find it easier to communicate with others who share their diagnosis or lived experience, a finding that has anecdotally been true for Z.J.W. (who identifies as neurodivergent, with diagnoses of autism spectrum disorder, ADHD, obsessive-compulsive disorder, and Tourette syndrome) when working with others who have diagnoses of autism, ADHD, or Tourette syndrome.³ The ability to interact effectively with neurodivergent patients is essential because neurodevelopmental conditions are highly prevalent, representing an estimated 15% to 20% of the world's population.⁴ Therefore, it will be to the detriment of patient care if the physician workforce fails to represent this critical aspect of those it serves.

A third major benefit of physician workforce diversity is that diverse teams experience greater ease in engaging with diverse populations and are more likely to perceive when discriminatory actions are being intentionally or inadvertently perpetrated.⁵ Like other marginalized groups, neurodivergent individuals are frequently stigmatized, and their behaviors are often met with discomfort, avoidance, or fear. Evidence indicates this is true in the field of medicine, wherein neurodivergent physicians often are uncomfortable disclosing their status and experience negative consequences regarding their self-worth and mental health.⁶ This stigma is situated in a broader culture of ableism in medicine, wherein physicians are often reluctant to reveal conditions that might be perceived as a disability for fear of being mistreated in the workplace or jeopardizing their ability to practice. The inability of neurodivergent physicians to be open about their status compounds the struggles many of them already experience in navigating common workplace dynamics with peers. An inclusive culture that promotes and affirms neurodiversity would help to elevate sensitivity to biases against neurodivergent individuals, which, left unchecked, are likely to negatively affect not only neurodivergent physicians but also the delivery of care to neurodivergent patients.

An earnest effort to enhance neurodiversity in medicine must address potential concerns. For instance, certain cognitive skills have traditionally been considered necessary, or at least greatly desirable, to practice clinical medicine. Among these skills are high levels of emotional intelligence and empathetic concern, the ability to both focus attention and distribute it among multiple competing goals (ie, multitasking), and the ability to digest large amounts of medical facts and patient information, often through reading; respectively, these cognitive skills can be challenging for persons with conditions such as autism, ADHD, and dyslexia. However, each of these conditions exists on a spectrum. Some neurodivergent individuals may indeed experience challenges that put them at a disadvantage in learning and practicing medicine, given these current “field standard” competencies. Others, however, may be adequate in their

areas of relative weakness and may exhibit other compelling strengths that recommend them for the practice of medicine. In some cases (eg, ADHD), this adequacy may be because treatments and workplace accommodations exist to help make symptoms more manageable. In other words, although many neurotypical physicians do well in their profession because they are well-rounded individuals, neurodivergent individuals may excel because they are “well lopsided,” with strengths that, on the whole, outweigh or compensate for their difficulties in certain cognitive areas. Another concern that must be addressed is fear of the legal repercussions of clinical errors made by neurodivergent physicians and, more broadly, by persons considered to have disabilities. Here it may be instructive to look to other areas in medicine in which similar concerns about legal liability are being navigated. For instance, there is an emerging culture of rehabilitation for physicians with substance use disorder wherein systems are put in place to monitor and support these often stigmatized individuals, ultimately empowering most to continue working in medicine and achieve career success.⁷

Although a comprehensive blueprint for how the entire field of medicine can embrace neurodiversity lies beyond the scope of this article, there are several ways in which neurodiversity could be enhanced in medical schools, an important step in diversifying the physician workforce. First, medical schools should focus on evaluating applicants' intellectual strengths and accomplishments holistically. Neurodivergent medical school applicants may not fit a cookie-cutter model of a typical medical student, but this does not mean that they cannot become excellent physicians. Schools must de-

velop approaches for taking into account applicants' specific cognitive strengths, unusual accomplishments, challenges, and resilience in the face of those challenges. They must seek stories of great future physicians that cannot be told solely through grade point averages and Medical College Admission Test scores. For example, applicants with dyslexia may struggle to meet a medical school's typical benchmarks with respect to test scores but may have a track record of excellent on-the-job technical skills that speak to their ability to master complex information and sophisticated procedures. Fortunately, many medical schools already engage in this kind of holistic review because it has been shown to be an effective way to increase other aspects of diversity.⁸ Destigmatization of neurodivergence should also be built into the structure of the medical school experience by proactively offering appropriate accommodations to students who identify as neurodivergent (which may require something other than additional time on tests) and by building more robust education about neurodiversity and developmental disability into the curricula for all students.

Diversity of all kinds drives excellence in medicine by allowing our profession to tap more fully into the richness of human experiences, perspectives, and abilities. Moreover, a workforce that better represents the diversity in our population is ultimately better equipped to serve it. It is time for our profession to avail itself of the full range of talents represented by neurodiversity and to address the biases our profession has toward neurodivergent patients and colleagues. Great things will be possible when our field finally starts to think differently about thinking differently.

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REFERENCES

1. Page SE. *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies (New Edition)*. Princeton University Press; 2007. Accessed July 15, 2023. <https://www.jstor.org/stable/j.ctt7sp9c>
2. Thorp HH. Science needs neurodiversity. *Science*. 2024;384(6694):365. doi:10.1126/science.adq0060
3. Woods SEO. Why we need more autistic health care professionals and how to support them. *Autism Adulthood*. Published June 18, 2024.

Accessed November 12, 2024. <https://www.liebertpub.com/doi/10.1089/aut.2023.0099>

4. Doyle N. Neurodiversity at work: a biopsychosocial model and the impact on working adults. *Br Med Bull*. 2020;135(1):108-125. doi:10.1093/bmb/ldaa021

5. Darling-Hammond L. Inequality in teaching and schooling: how opportunity is rationed to students of color in America. In: Smedley BD, Stith AY, Colburn L, Evans CH, eds. *The Right Thing to Do, The Smart Thing to Do: Enhancing Diversity in the Health Professions: Summary of the Symposium on Diversity in Health Professions in Honor of Herbert W. Nickens, MD*. National Academies Press; 2001. Accessed July 15, 2023. <https://nap.nationalacademies.org/catalog/10186/the-right-thing-to-do-the-smart-thing-to-do>

6. Shaw SCK, Fossi A, Carravallah LA, Rabenstein K, Ross W, Doherty M. The experiences of autistic doctors: a cross-sectional study. *Front Psychiatry*. 2023;14:1160994. doi:10.3389/fpsy.2023.1160994

7. McLellan AT, Skipper GS, Campbell M, DuPont RL. Five year outcomes in a cohort study of physicians treated for substance use disorders in the United States. *BMJ*. 2008;337:a2038. doi:10.1136/bmj.a2038

8. Urban Universities for HEALTH. Holistic admissions in the health professions: findings from a national survey. Accessed November 12, 2024. <https://www.aplu.org/wp-content/uploads/holistic-admissions-in-the-health-professions.pdf>