

**STATE OF THE SCIENCE****OUTCOMES**

# Disability inclusion in medical education: Towards a quality improvement approach

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**Abstract**

**The Issue:** The shift to a more diverse workforce that includes physicians with disabilities has gained considerable international traction. Indeed, disability inclusion is experiencing a renaissance in medical education. However, the philosophy of disability inclusion must be adjusted from one where disabled trainees are viewed as problematic and having to 'overcome' disability to one where institutions anticipate and welcome disabled trainees as a normative part of a diverse community.

**Observations:** Most trainees with disabilities will enter an unregulated, uninformed system leaving them vulnerable to under-accommodation, systems barriers and lack of informed support. Further, the perception of the super human good doctor creates disincentives for candidates to disclose their disability, creating structural barriers that the system needs to address. A less often discussed contributor to health care inequities is the inadequate training of health professional educators on disability rights and disability competencies. Indeed, the lack of education, coupled with minimal exposure to disability outside of the hierarchical patient-provider relationship, perpetuates to stereotypes and biases that impact clinical care.

**Approach:** Disability inclusion has not been reviewed through the lens of quality improvement. To close this gap, we examine the state of the science through the lens of disability inclusion and offer considerations for a quality improvement approach in medical education that addresses the global revised trilogy of World Federation for Medical Education standards of quality improvement at all three levels of education, training and practice.

**Conclusion:** We propose a vision of systems-based disability-inclusive, accessible and equitable medical education using 9 of Deming's 14 points as applicable to medical education.

## 1 | INTRODUCTION

The shift in focus to a more diverse workforce that includes physicians with disabilities has gained considerable international traction.<sup>1,2</sup> Indeed, disability inclusion is experiencing a renaissance in medical education. Across the globe, medical education associations, regulating bodies and programmes espouse the value of disability inclusion and are calling for systems change, including removing systemic

barriers to qualified trainees with disabilities and strengthening inclusive practices.<sup>3-7</sup>

## 2 | MEDICAL ASSOCIATION GUIDANCE

In recent years, five medical associations have provided significant guiding documents that directly call for action in medical education

**TABLE 1** Deming's points for quality management applied to disability inclusion

W. Edwards Deming's 14 points		Where applicable in medical education
1.	Create constancy of purpose towards improvement	BME/PME/CPD
<b>Recommendation: Build long-range disability inclusion QI into the institutional planning.</b>		
2.	Adopt the new philosophy.	BME/PME
<b>Recommendation: Adopt a new philosophy that disability diversity results in stronger, more capable and innovative systems and that physicians with disabilities add value to health care and should be celebrated.</b>		
3.	Cease dependence on inspection to achieve quality.	BME/PME
<b>Recommendation: Build quality into the system by removing barriers to access found in physical space, curriculum, policy, technical standards, disability service, licensure and accommodation request.</b>		
4.	Move towards a single supplier for any one item. (Standards to minimise variation/interpretation)	BME/PME
<b>Recommendation: Provide specialised disability resource providers to assist with disability inclusion and regulate the requirement for this position.</b>		
5.	Improve constantly and forever every process for planning, production, and service	BME/PME/CPD
<b>Recommendation: Develop a task force to consistently and quickly respond to new disability related barriers and to proactively recommend changes that improve access for all.</b>		
6.	Institute training on the job.	BME/PME/CPD
<b>Recommendation: Provide staff and faculty training on disability justice, disability competency and consciousness.</b>		
7.	Adopt and institute leadership.	BME/PME
<b>Recommendation: Leadership must communicate the commitment to disability inclusion and must create actionable steps to reach their goals.</b>		
8.	Drive out fear.	BME/PME
<b>Recommendation: Fear must be driven out through two mechanisms; creating a safe place for trainees to disclose and educating institutional stakeholders about the success of physicians with disabilities.</b>		
14.	The transformation is everybody's job.	BME/PME/CPD
<b>Recommendation: Communicate to the training community that access is an organisational commitment and that each stakeholder has a specific role.</b>		

Abbreviations: BME: Basic Medical Education; CPD: Continuing Professional Development; PME: Postgraduate Medical Education.

including: Accessibility, Inclusion, and Action in Medical Education: Lived Experiences of Learners and Physicians With Disabilities (Association of American Medical College, 2018),<sup>3</sup> Welcomed and Valued: Supporting disabled learners in medical education and training (General Medical Council, UK, 2018),<sup>4</sup> Inclusive Medical Education:

Guidance on medical programme applicants and students with a disability (Medical Deans Australia and New Zealand Inc, 2021),<sup>5</sup> A Study to Evaluate Barriers to Medical Education for Trainees with Disabilities (American Medical Association, Council on Medical Education, 2022)<sup>6</sup> and Disability in the Medical Profession (British Medical Association, 2020).<sup>7</sup> While these publications call for greater disability inclusion, they also unveil global barriers and ongoing challenges for qualified trainees across the medical education continuum.

### 3 | LACK OF REGULATION

Despite known barriers, little regulation exists to protect trainees with disabilities. Accrediting bodies, which usually regulate trainee support, offer little guidance on disability inclusion beyond legal requirements for non-discrimination and reasonable accommodation.<sup>8</sup> While disability-focused regulations are absent, some accreditation bodies do require schools to engage in Quality Improvement (QI) efforts.<sup>9,10</sup>

Given the calls for disability inclusion by medical associations,<sup>3-7</sup> coupled with the prevailing lack of regulation, models of quality improvement may hold material benefits for guiding disability inclusion and service efforts. In this commentary, we offer considerations for quality improvement in medical education that address the globally revised trilogy of World Federation for Medical Education (WFME) standards of QI at all three levels of education (Basic Medical Education, BME), training (Postgraduate Medical Education, PME) and practice (Continuing Professional Development, CPD) (Table 1). We propose a vision of systems-based disability-inclusive, accessible and equitable medical education using key points from Deming's Points for Quality Management, designed to guide organisational practice and behaviour.<sup>11</sup>

### 4 | DEMING'S POINTS FOR QUALITY MANAGEMENT

Although initially designed for industry, Deming's models have been applied to the field of medical education.<sup>12,13</sup> Deming's model is especially applicable to the subject of disability inclusion. First, Deming's approach to improvement is specific to the system versus the individual. Disability inclusion has historically been viewed as an individual issue, problematizing the person,<sup>14</sup> without review of the system. Second, Deming's model recognises that the continued use of a flawed system will hinder a company's growth and calls for organisations to undergo fundamental change, throwing out historical theories of how work is accomplished, an approach supported by researchers focused on disability inclusion.<sup>15</sup> Next, Deming's theory calls for us to break down organisational and professional barriers as a necessary move for creating opportunities for people to generate new insights and ideas for improving service quality. Finally, Deming calls on leaders to minimise uncertainty and variability in executing service, a need endorsed in the literature.<sup>3,8,16</sup> Here, we apply 9 of Deming's 14-point quality

management theory to improve the inclusion of individuals with disabilities in medical education.

## 5 | DEMING'S POINTS AS APPLIED TO DISABILITY INCLUSION

### 5.1 | Deming point 1: Create constancy of purpose towards improvement

Using Deming's point 1, Albanese (1999) called for medical education to create an institutional culture that incorporates the long-range perspective with a focus on continual improvement of the learning environment—a key idea for disability inclusion.<sup>13</sup> Indeed, disability inclusion work in medical education is often school specific, spear-headed by one or two champions who advocate for disability inclusion in policy, practice and curricula. Given the 'champion' model, a change in faculty may result in a reduction in—or complete elimination of—disability inclusion work. Alternatively, if the entire medical education enterprise commits to a continuous improvement model, then disability inclusion remains a priority of the enterprise, regardless of changes in faculty or leadership.

### 5.2 | Deming point 2: Adopt the new philosophy

Deming suggested *adopting a new philosophy* for quality improvement. Historically, disability inclusion has been viewed as a compliance issue, with the primary goal of mitigating litigation risk. While training environments vary in their approach to disability inclusion, the social justice lens, which includes an avowed commitment to increasing diversity in all respects, is oft-forgotten when it comes to disability. In her work on disability inclusion, Jain calls for a 'transformative' approach, guided by the principles of intentional inclusion, where disability is viewed as a normal part of human variation and a valued social identity.<sup>17</sup> Under this approach, the training environment shifts to one that is intentionally designed to include all trainees, with universal design and flexibility built into the system.<sup>17,18</sup> Change is an ongoing process (see Deming point 5), with the goal of improving the environment for all trainees and the achievement of competency through multiple and diverse pathways.<sup>17</sup> Thus, a new philosophy would state that disability-diversity results in stronger, more capable and innovative systems. The prevailing mindset under this philosophy is that trainees with disabilities add value to health care and, therefore, should be celebrated.

### 5.3 | Deming's point 3: Cease dependence on inspection to achieve quality by building quality into the product in the first place

Albanese (1999) argued that in applying Deming's step 3 to medical education, assessment should be for the purpose of helping students

identify where they need to improve with the focus on high-quality education and early problem detection so that remediation can be applied.<sup>13</sup> However, high-quality trainee assessment may be absent when it occurs within a barrier-laden, ableist environment.<sup>15</sup>

Within medical education, disability is often problematized as a threat to the system.<sup>14</sup> Indeed, *medicalization*, or the 'tendency of a medical institution to deal with diverse, non-conforming human conditions and behaviors entering the realm of biomedical knowledge' as *problems* to be cured, is an oft-report issue.<sup>19</sup> The 'State' of disability inclusion can be measured by systemic barriers to access, which lead to disparate outcomes for trainees with disabilities compared to their non-disabled peers.<sup>20</sup> These barriers are present in several domains, including: admissions,<sup>3,21,22</sup> instruction,<sup>18</sup> process,<sup>16</sup> access to accommodation in medical training and licensure exams,<sup>23,24</sup> lack of knowledge regarding reasonable and appropriate accommodation/adjustments<sup>3,16</sup> and discriminatory practices for physician licensure.<sup>24,25</sup> In the context of an ableist and historically hostile environment.<sup>15</sup> The need to self-identify a disability will also result in an underreporting of disability and a cadre of trainees who are silently suffering, never truly having full access to our programmes and never reaping the benefits of feeling included in the medical community.<sup>25</sup> The policy support for US-based trainee-driven disclosure and request is partially informed by the law.<sup>26</sup> In this case, it prohibits institutions or organisations from pre-emptively determining that a person is disabled and offering accommodation. Despite legal restrictions on pre-inquiry, organisations can and should engage in proactive approaches to access by utilising mechanisms of Universal Design of Instruction, making the learning environment accessible to all learners through the creation of teaching and learning products that are designed for all trainees to the fullest extent possible.<sup>18</sup> To date, no system-wide requirement to remove barriers to disability inclusion exist, leading us to Deming's point 4.

### 5.4 | Deming point 4: Move towards a single supplier for any one item (standards to minimise variation/interpretation)

Deming strongly urges manufacturers to develop a relationship with a single supplier.<sup>11</sup> The original goal is to raise the quality and reduce the variability of the materials that come to the manufacturer. In medical education, there is no consistent process for supporting a trainee once a disability disclosure is made.<sup>8</sup> Indeed, most will enter an unregulated, uninformed system leaving them vulnerable to persistent ableist beliefs about their ability to become physicians and under-accommodation or outright denial of accommodation due to lack of specialised support.<sup>16</sup> Disability inclusion efforts are often left to the individual institutions, sans best practice or regulation, leading to inconsistent decision-making and highly varied trainee experiences.<sup>16</sup> While suggested 'structures' exist<sup>3</sup> and are designed to reduce bias, avoid conflicts of interest and enhance proximity and expertise to the process, these structural recommendations are not regulated.<sup>16</sup> The literature consists of multiple calls for a specialised disability resource

professional as an expert touch point for access.<sup>3,6,8,16</sup> This 'single supplier' approach points towards the best practice of having a single disability resource provider so that trainees with disabilities have access to a confidential, non-evaluative leader with expertise in disability inclusion and accommodation in medical training. This 'single supplier' reduces the need for multiple negotiations across the system, allows for a centralised and confidential space for holding sensitive disability documentation and provides support to faculty or administrators who require interpretation of an accommodation.<sup>16</sup> It also reduces disparate treatment that can sometimes occur when evaluators are unaware of their disability-based biases. If regulating bodies were to require this role across medical schools, similar to how they require mental health providers, medical education would move closer to Deming's point 4 and *minimise variation/interpretation*.<sup>8</sup>

### 5.5 | Deming's point 5: Improve constantly and forever every process for planning, production and service

Deming highlighted that to be truly responsive to growing needs, an organisation must focus on continuous improvement. As more trainees with disabilities enter and inform the system, new barriers will be identified and opportunities for greater inclusion uncovered. A constant commitment to improving allows the system to be nimble, identify barriers, and respond quickly, evolving the system to meet the needs of many trainees through universal design, curricular changes or enhanced flexibility within a system to allow for completion of a medical degree in non-standard time.

### 5.6 | Deming's point 6: Institute training on the job

Medical education's social accountability implies a commitment and ability to respond to the requirements of patients and health care systems on a national and global scale.<sup>27</sup> Despite the Convention on the Rights of Persons with Disabilities in 2006, and the World Report on Disability in 2011 emphasising institutions to ensure disability training based on human rights principles, it has not percolated down in principle.<sup>28-31</sup>

There is a growing need for physicians to realise that disability is a social construct, and be it in teaching or practice, disabilities must not be taken as a legitimate ground for the denial or restriction of human rights. On this account, researchers have been calling for disability cultural competencies within health care settings to implement justice and autonomy and statutory bodies writing to accreditation bodies to mandatory include it in the BME and PME. Yet, more often than not, the onus lies on a few passionate disability rights activists to bring change through judicial activism to ensure disability competencies are a mandatory part of medical education.<sup>32-37</sup> To realise Deming's philosophy of *institute training on the job*, and to fulfil legal obligations, there must be mandatory training of medical educators on

disability rights as disability competencies as well as an aspiration to teach disability consciousness,<sup>38</sup> which draws on Deming's Points 5 and 6; to consistently and continually aim to grow in our understanding of disability in context. In addition, the philosophy of disability inclusion must be adjusted from one where disabled trainees are viewed as having 'overcome' disability to one where institutions anticipate and normalise disabled trainees as part of the community of diverse learners.

### 5.7 | Deming's point 7: Adopt and institute leadership

Despite calls to action on disability inclusion across medical associations, there exists a failure to translate these calls into actionable steps and to create environments that welcome, support and foster growth in the disabled population. Indeed, continued reports of inaccessibility in training stand as evidence that the aforementioned guidelines are not widely adopted.<sup>39-41</sup>

Researchers have suggested best practices to move beyond mission statements.<sup>3,42</sup> If we are to excel at disability inclusion, all stakeholders in the system must be committed to the purpose, especially leadership. Deming's philosophy of *institute leadership* can only be achieved; however, if institutions embrace quality inclusion throughout the organisation and where the highest levels of leadership are committed to bringing about measurable change, informed by the disability community. They must act in line with the disability inclusion mantra, 'nothing about us, without us' and communicate to the community their commitment to the cause and an actionable plan to reach the goal.

### 5.8 | Deming's point 8: Drive out fear

For medical educators and leaders, and students, fear may stall disability inclusion. From the trainee perspective, the application process for medical school entry retains restrictive views of a good applicant. Trainees report that their programmes view the good doctor as someone who is not unwell. The ideal medical applicant and future medical trainee is someone who 'juggles rigorous academic demands with active social commitments while maintaining excellent evaluations'.<sup>41</sup> Given the competitive nature of medical school admissions, many trainees are driven by fear of disclosure and may be encouraged not to share information that might be considered a deficit, like a disability. The admissions process itself may prove burdensome, with inaccessible formats for application, lack of access to accommodation on medical school entry examinations, inequitable access to physician shadowing and lack of anti-ableist training for admissions committees.<sup>15,21,22</sup>

Conversely, admissions committees, faculty and administrators may fear the unknown, and may falsely believe that individuals with disabilities are not well suited for a career in medicine. In order to encourage disability inclusion, fear must be driven out of learners

through trust and a clear understanding that the programme is a safe space to disclose and request accommodations. For training programmes, sharing success stories of physicians with disabilities in practice can help directly drive out fear.

## 5.9 | Deming's point 14: The transformation is everybody's job

Despite calls to action, we lack global guidance on disability inclusion in medical education and disability curriculum within medical education. Each person in the institution plays a role in disability access and should understand how they fit into the larger picture of institutional access. Disability access must also be disability informed. Equal access for disabled trainees, will not be achieved until and unless we address the needs of the world's largest minority—people with disabilities—both as patients and providers. These deficiencies [errors] must be seen as learning opportunities, per Deming. As transformation is everyone's job, the recent launch of the International Council for Disability Inclusion in Medical Education<sup>43</sup> and its work on producing disability accommodations internationally is a welcome move and needs active participation from the WFME regional associations to reach out to nations with no guidance.<sup>1,2,44</sup>

## 6 | CONCLUSION

WFME has given the trilogy of Global Standards for Quality Improvement. We provided multiple points where QI intervention can be used to improve the quality of disability inclusion. Viewing disability from the human rights perspective, providing standardised access and understanding of reasonable accommodation and providing training to all stakeholders in the system may result in humanising the culture and climate towards disability inclusion. A more diverse health professional workforce can improve health outcomes, mitigate health disparities and lead to disability-inclusive, accessible and equitable health profession education, training and practice.

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### CONFLICT OF INTEREST

None.

### ETHICS STATEMENT

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### AUTHOR CONTRIBUTIONS

Both authors contributed equally under the ICJME four criteria.

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