Intellectual and Developmental Disabilities

Medical Student Choices Regarding Ventilator Allocation for People with Disabilities

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Abstract:	In the Covid-19 pandemic, concerns exist that ventilator triage policies may lead to discrimination against people with disabilities. This study evaluates whether pre-clerkship medical students demonstrate bias towards people with disabilities during an educational ventilator-allocation exercise. Written student responses to a triage simulation activity were analyzed to describe ventilator priority rankings and to identify themes regarding disability. Disability status was not cited as a reason to withhold a ventilator. Key themes observed in ventilator triage decisions included life expectancy, comorbidities, and social worth. Although disability discrimination has historically been perpetuated by health care professionals, it is encouraging that pre-clinical medical students did not demonstrate explicit bias against people with disabilities in ventilator triage scenarios.

Abstract

~~Introduction:~~ In the Covid-19 pandemic, concerns exist that ventilator triage policies may lead to discrimination against people with disabilities. This study evaluates whether pre-~~clerkship~~ clinical medical students demonstrate bias towards people with disabilities during an educational ventilator-allocation exercise. ~~Methods:~~ Written student responses to a triage simulation activity were analyzed to describe ventilator priority rankings and to identify themes regarding disability.

~~Results:~~ Disability status was not cited as a reason to withhold a ventilator. Key themes observed in ventilator triage decisions included life expectancy, comorbidities, and social worth.

~~Conclusions:~~ Although disability discrimination has historically been perpetuated by health care professionals, it is encouraging that pre-clinical medical students did not demonstrate explicit bias against people with disabilities in ventilator triage scenarios.

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Medical Student Choices Regarding Ventilator Allocation for People with Disabilities

As Covid-19 cases continue to increase in the United States, so does the potential for invoking hospital ventilator triage protocols, so-called crisis standards of care. Many in the disability rights community have voiced concerns that these triage protocols may disproportionately disadvantage patients with disabilities (Savin & Guidry-Grimes, 2020; Solomon et al., 2020), and the U.S. Office of Civil Rights has resolved a number of complaints lodged against state government policies (Auriemma et al., 2020). In general, bias against individuals with physical and intellectual disabilities by health professionals is well-documented (Johnson, 2016). However, in medical students, scores on disability bias assessment tools such as the Attitude Toward Disabled Persons (ATDP) scale demonstrate largely positive attitudes (Tervo et al., 2002). This difference may be attributed to recent efforts to educate medical students about disability (Iezzoni & Long-Bellil, 2012; Symons et al. 2014; Tervo et al., 2002).

Despite this progress, how students exhibit disability bias and the extent to which it affects their clinical decision-making remains largely unknown. The potential manifestations of disability bias are particularly critical during public health crises, when minority groups are more likely to be overlooked (Quinn & Kumar, 2014). This study describes how pre-clinical medical students participating in a triage simulation activity considered disability in ventilator allocation decisions. We assessed the triage rankings of individuals with disabilities and identified key disability-related themes in triage considerations. Understanding how disability bias applies to triage decisions is critical to ensure equitable care for patients with disabilities during and after the pandemic and has implications for medical education.

Methods

Study participants were pre-clinical medical students (n=153) who have not yet undergone hospital rotations, organized into groups (n=18 groups) at a single institution. Students received a case vignette describing five individuals with Covid-19 needing ventilator support (~~see Appendix~~ Table 1). The assignment did not include any statements about disability other than two patients having disabilities: a 59-year-old man with sepsis, multi-organ failure, lymphoma, and T-10 paraplegia, and a 25-year-old woman with Down syndrome and no significant comorbidities. Two months earlier, students ~~had~~ participated in a week-long educational series on health disparities ~~that included~~ including a 2-hour large-group session on the history of disability rights, disability culture, and how persistent bias contributes to health outcomes for people with disabilities.

For the ethics case vignette, students were asked to decide which of the five individuals should receive intensive care including mechanical ventilation. Groups were asked to develop written consensus answers and note dissenting opinions. In this research study, the authors used the student groups' written responses to determine the frequency of ventilator allocation for the individuals with disabilities, and an average priority ranking between 1-5, with 1 being highest priority and 5 lowest, was calculated for each patient. We documented instances of person-first versus non-person-first language (where person-first was defined as occurrences where the individual is referenced before their condition or disability). Lastly, key disability-related themes were noted after all researchers independently reviewed responses. Any disagreement between researchers in themes or coding was discussed as a group until consensus was reached.

Standardized institutional self-certification procedures determined IRB approval was not needed. All data was de-identified. All researchers are of medical/academic training, none have

disabilities, three are students, and the other two are faculty responsible for teaching ethics. An advisory council of the institution's developmental disabilities center, which includes people with disabilities and family members, reviewed the methods and results of the study.

Results

No groups recommended the patient with paraplegia receive a ventilator; he received an average priority ranking of 4.5 out of the 5 patients in the vignette. Most groups attributed this ranking to poor prognosis, and three explicitly mentioned that decisions were independent of paraplegia. The patient with Down syndrome was designated by most groups to receive a ventilator (79%, n=11), with an average priority ranking of 1.8/5. Generally, groups referred to patients by name, but responses with person-first (n=4) and non-person first language (n=3) were noted (Table ~~1~~ 2).

We identified four key themes regarding disability and triage: life expectancy, comorbidity, social worth, and affirmative statements (Table ~~2~~ 3). Groups distinguished between chronological age and years left to live, and near-term survivability versus long-term life expectancy. For example, students discussed the shortened life expectancy of the patient with Down syndrome but acknowledged her youth and good prognosis if given a ventilator. Six groups appeared to consider Down syndrome in itself to be a comorbidity, for example by listing "no other comorbidities" for the patient with Down syndrome, as opposed to six other groups, who did not consider it a comorbidity ("no comorbidities"). Several groups noted comorbidities or complications associated with Down syndrome, including the repaired atrial septal defect described in the prompt as well as neurocognitive impairment or possible increased susceptibility to viral infection. Even if Down syndrome was classified by students as a comorbidity, no group named having the syndrome as a reason for denying a ventilator. Five groups noted the 'social

worth' of the patient with Down syndrome, referencing her participation in society, quality of life, and intrinsic value as a person. Six groups included explicit affirmative statements about disability, and five indicated that disability did not contribute to their triage decision.

Discussion

Overall, students' triage assessments did not demonstrate explicit bias against people with disabilities in the setting of ventilator triage. Furthermore, some students explicitly expressed their support for individuals with disabilities. Life expectancy, social worth, and quality of life did not appear to be used to discriminate against people with disabilities in the ventilator priority rankings made by students, as they were described and relevant for both the individuals with and without disabilities. Additionally, and most encouragingly, several groups explicitly denounced disability bias and made positive statements about the value and social contribution of the patient with Down Syndrome, unprompted by the activity instructions.

These results are promising. Often, medical students have the unique opportunity to serve as patient advocates on their clinical teams, given relatively low clinical responsibility and freedom to spend more extensive time with patients than busier superiors. This advocacy for individual patients, while sometimes a less-explicit part of medical education, is essential, particularly when it comes to working with vulnerable populations like people with disabilities. By participating in the educational triage simulation, the students in our study had the opportunity to not only consider their approach to triage decisions, but to also reflect on how to incorporate disability in those deliberations. Of note, these students also received an educational session on disability bias prior to the activity, which may have positively influenced their decisions. Such activities may be beneficial in preparing medical students to be advocates for

their patients with disabilities, while also potentially uncovering educational gaps regarding disability that can be addressed prior to reaching independent clinical practice.

While our results are encouraging, the study has several limitations. First, the educational triage exercise was not designed with the intention of directly assessing disability bias. The prompt lacked a true comparison of individuals where all other factors (age, sex, comorbidities, social role) were held constant except for a disability, so we cannot rule out the possibility that students' triage decisions may have ~~been different~~ differed if such a direct comparison had been included. Furthermore, the group associations of the individuals based on their names alone, as well as their occupations, may have independently contributed to priority rankings. Similarly, due to the various other severe medical issues in the patient with paraplegia, we were unable to draw many conclusions about the role of his physical disability in triage decisions. However, given that students were not directly instructed to consider disability in their decision-making, it is particularly interesting that our results demonstrate that even when unprompted, students were largely considerate and supportive of those with disabilities in their triage decisions. Other study limitations include that data come from pre-clinical students at a single institution and that we assessed only group consensus statements, which may not accurately reflect the variation in individual opinions. Future research is needed to extend these findings and address how student attitudes towards Down syndrome and paraplegia may change after completing clinical rotations (experiencing the "hidden curriculum" on the wards) (Hafferty et al., 2015). Finally, we did not include disabilities such those related to autism spectrum disorder or sensory impairments, and student attitudes may vary based on the specific disability.

Despite limitations, the findings of this study are encouraging, as they indicate a departure from past and present evidence of discrimination by health professionals against

people with disabilities. We believe that activities such as this can be useful in educating medical students about disabilities, and may provide a platform to introduce conversations about caring for individuals with disabilities. For medical educators wishing to replicate this work, we would encourage creation of characters to allow for more explicit discussion of the role of disability in triage (i.e. controlling all other attributes). A facilitated debriefing conversation following the exercise may also provide the opportunity for students to reflect on their own decisions and presence or extent of their biases.

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Table 1

Professionalism, Ethics and Legal Medicine (PELM) Case Vignette for Small Groups

Activity Prompt	Character Name	Character Description
Mr. Aguilar was one of many patients who needed a ventilator that day. After his diagnosis of cancer, he lapsed into multi-organ failure from sepsis and required immediate intubation and ventilator support. At the same time, dozens of patients infected with Covid-19 came to the hospital as the pandemic surge hit Miami. As hospitals across the county scrambled to find additional resources, physicians realized that there were only a few ventilators—and health care teams—left for the many patients who needed to be intubated. Among the following patients, to whom would you choose to provide palliative care, and to whom would you choose to provide a ventilator? Why? What reasons can you provide for your choice?	Mr. Anselmo Aguilar	59-year-old man with T-10 paraplegia who works as a stockbroker, and now has multi-organ failure from sepsis in addition to his underlying diagnosis
	Maite Pennyman	25-year-old woman with Down syndrome who works at Publix. No significant comorbidity except for an atrial septal defect repaired at birth
	Antonio Philippe Archetto	92-year-old male who still practices law and had a cardiac output before Covid-19 infection of less than 50%
	Dr. Aurelia Jimenez	45-year-old critical care physician infected with Covid-19 while working in the medical ICU
	Carlos Johnson	59-year-old mayor of Miami-Dade County; history of hypertension and Type 2 diabetes

Table ~~1~~ 2

Comparison of person-first and non-person first language examples

Person-first language	Non-person first language
"those with Down syndrome" "patients with Down Syndrome"	"the paraplegic who already has multi-organ failure" "debate between 25-year-old Down syndrome and 59-year-old-mayor"

Table ~~2~~ 3

Qualitative thematic content analysis results with key identified themes and quotations

Key Themes	Description	Quotation Excerpts
Life expectancy	Long-term survival considerations, years left to live, or life phases yet to be experienced	"Though she has Down's syndrome (which is known to often reduce lifespan and be accompanied by medical issues throughout life), our group decided that this should not be considered as a relevant factor in her case…" "Life expectancy may be slightly shorter (but still around 60ish)."
Comorbidity	Medical conditions which may affect patient prognosis	"No comorbidities" "No other comorbidities" "... she is also young with very few comorbidities and is likely to improve."
Social Worth	Contributions to society, ability to benefit others	"She is also an essential worker [works in grocery store] who

Key Themes	Description	Quotation Excerpts
		knowingly took a risk to help others."
Affirmative Statements About Disability	Specific instances of positive references toward disability or denouncing disability bias	"…many decisions might be based upon the typical biases of our society (ageism (92 y/o), ableism (Downs patient), elitism (mayor and critical care doctor). The most important takeaway is that there is actually no one variable that makes one more deserving of receiving life supporting care as all deserve this equally." "Intellectual disability does not mean her life is less valuable." "Factors we decided that should NOT be considered when allocating limited supplies: wealth/ status, insurance coverage, race, gender, or disabilities (unless they significantly impacted the patient's life expectancy within the next few years)."