

The Myth of Meritocracy: Global Assessment of Applicants

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Disclosures

Dr. Jennifer Spicer has no relevant financial relationships with commercial interests and will not be discussing non-FDA approved uses of any drugs.

Gratitude



Wendy Armstrong



Varun Phadke



Zanthia Wiley



Ahmed Babiker

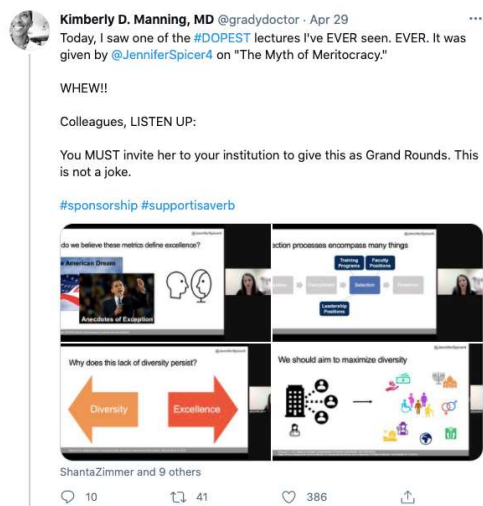
Gratitude



Wendy Armstrong



Kimberly Manning



Learning Objectives

- Recognize that diversity and excellence are intertwining rather than competing concepts.
- Explain why our current selection processes perpetuate inequity by promoting homogeneity.
- Describe individual- and system-level changes that can be made to promote equity in selection processes.

Disclaimer



Not a comprehensive overview.

Intended to start a discussion about current selection processes for programs, awards, and other opportunities.

Disclaimer



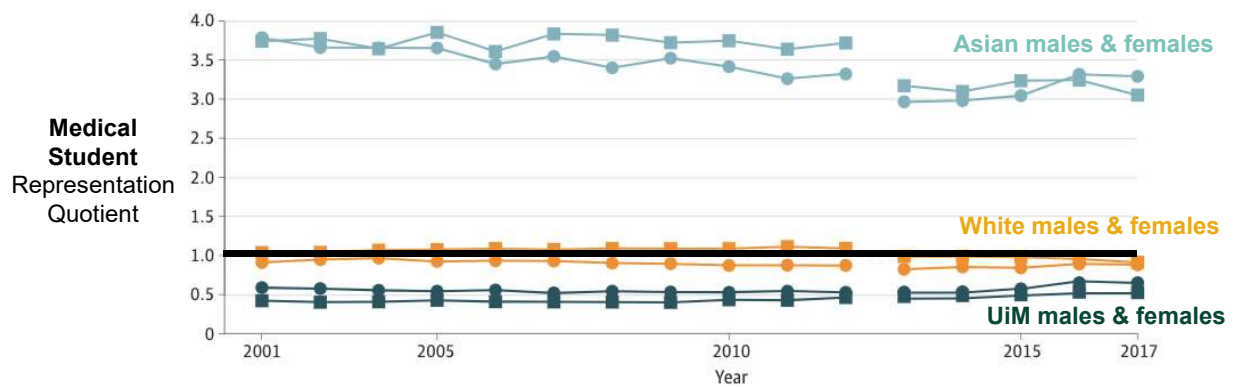
Outline



Outline



Racial inequity persists in medicine



UIM includes Black, Hispanic, American Indian and Native American, & Native Hawaiian and Pacific Islander

Figure 2B in Lett, L. A., Murdock, H. M., Orji, W. U., Aysola, J. & Sebro, R. Trends in Racial/Ethnic Representation Among US Medical Students. *Jama Netw Open* 2, e1910490 (2019).

As does economic inequity...

Figure 1. Parental income of first-year U.S. medical students by quintiles of U.S. household income, MSQ years 2007-17.

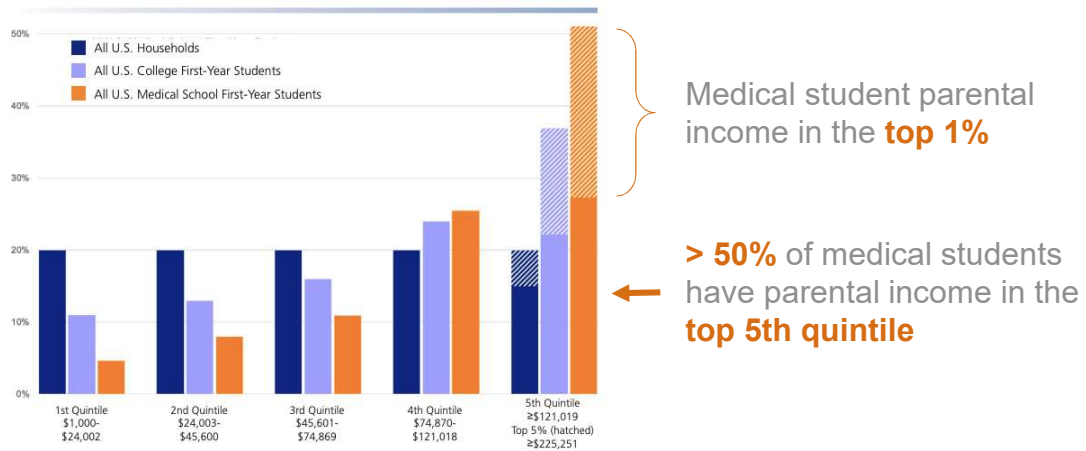


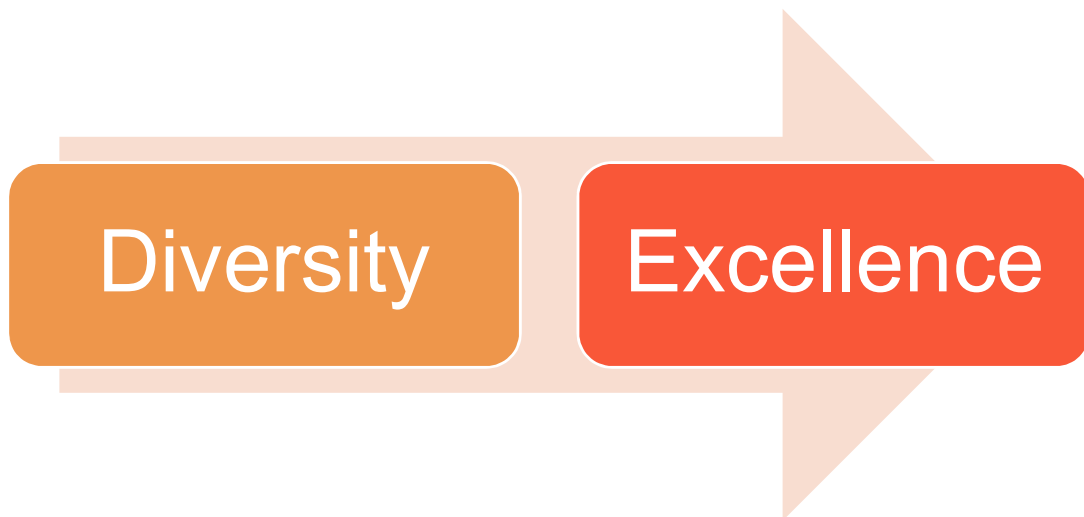
Figure 1 in Youngclaus J, Roskovensky L. An Updated Look at the Economic Diversity of U.S. Medical Students. AAMC Analysis in Brief. 2018;18(5). Available at: <https://www.aamc.org/media/9596/download>

Why does this lack of diversity persist?



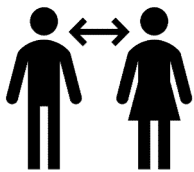
Razack S et al. Seeking inclusion in an exclusive process: discourses of medical school student selection. *Med Educ* 49, 36-47 (2015).

Diversity leads to excellence



Razack S et al. Seeking inclusion in an exclusive process: discourses of medical school student selection. *Med Educ* 49, 36–47 (2015).

Diversity improves outcomes in many areas



Patient outcomes



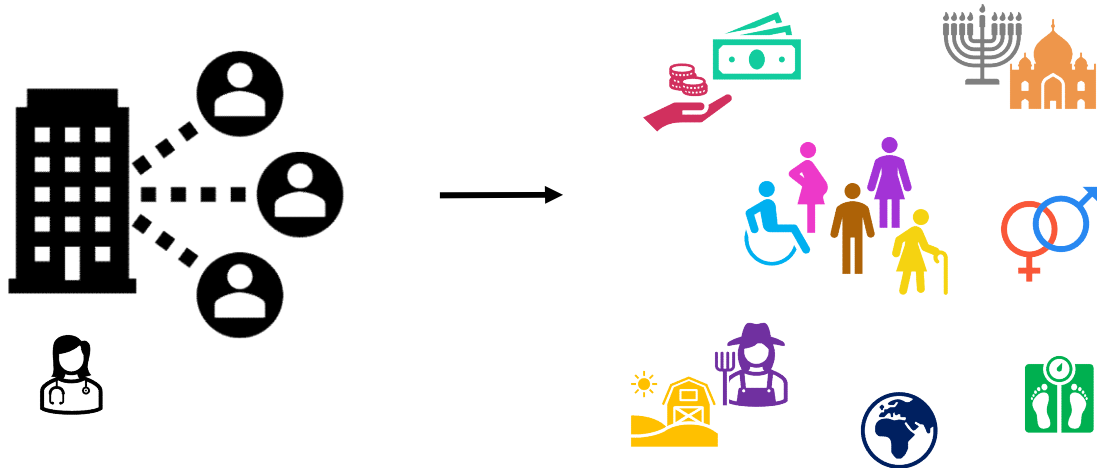
Innovation



Publication #

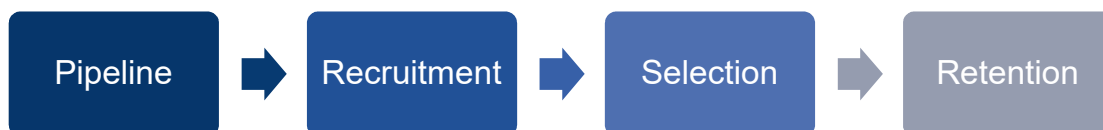
Swartz, T. H., Palermo, A.-G. S., Masur, S. K. & Aberg, J. A. The Science and Value of Diversity: Closing the Gaps in Our Understanding of Inclusion and Diversity. *J Infect Dis* 220, S33–S41 (2019).

We should aim to maximize diversity



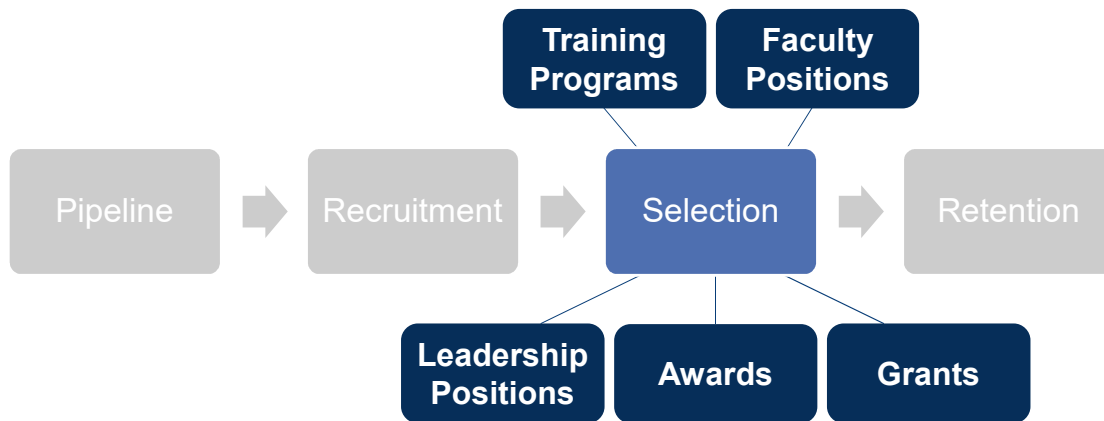
Young, M. E. *et al.* Calling for a Broader Conceptualization of Diversity. *Acad Med* 87, 1501–1510 (2012).
Page, KR *et al.* Assessing the Evolving Definition of Underrepresented Minority and Its Application in Academic Medicine. *Acad Med* 88, 67–72 (2013).

Steps required to achieve diversity in medicine



Gonzaga AMR *et al.* *Acad Med*. 2020;95(5):710–716. doi:10.1097/acm.0000000000003073

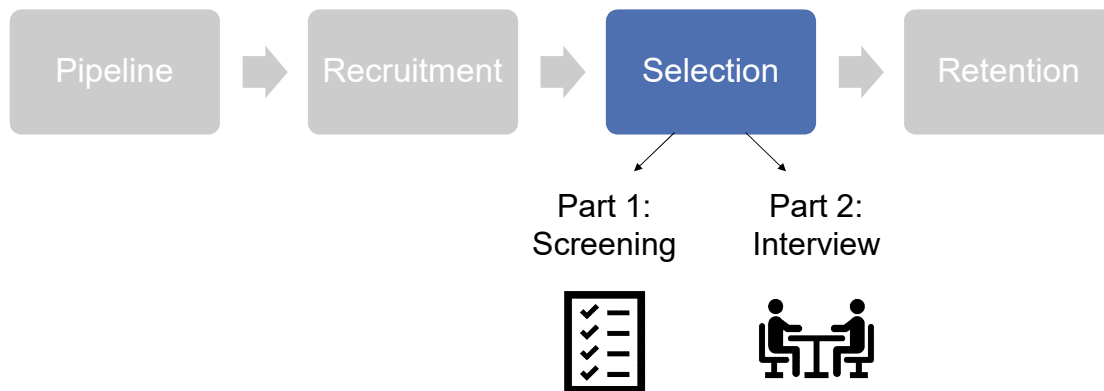
Selection processes encompass many things



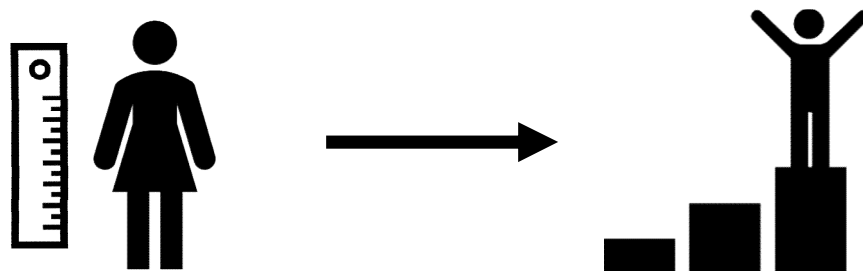
Outline



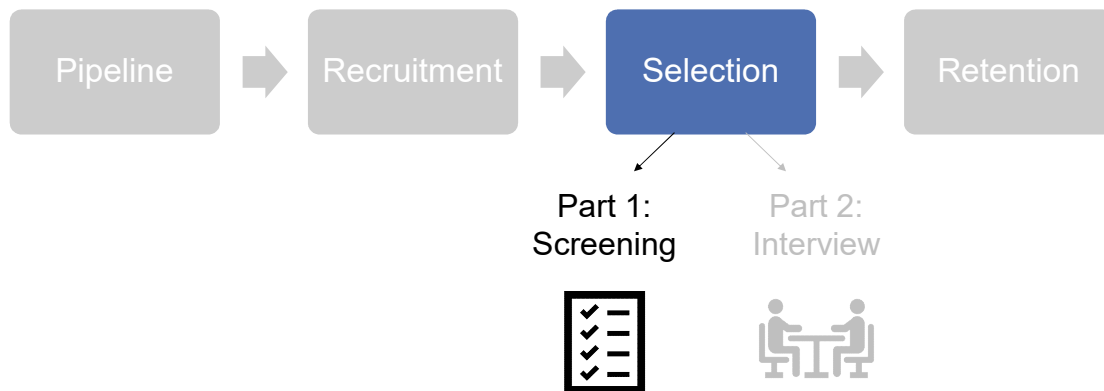
Steps in the selection process



Selection processes are meant to promote **meritocracy**



Steps in the selection process



Ask yourself the following questions



How do you define a "successful" applicant?



What criteria do you use when reviewing applicants?



How well do you think those criteria predict "success"?

What are their chances of acceptance to residency?



Medical School: Johns Hopkins University
USMLE Step 2 CK: 270 (96th percentile)
AOA status: Yes
Volunteering: many, + leadership
Publications: 3 first author publications
Letters: "Give my highest recommendation" from well-known full professor



Medical School: Medical College of Georgia
USMLE Step 2 CK: 235 (25th percentile)
AOA status: No
Volunteering: intermittent volunteering
Publications: 1 clinical vignette poster
Letters: "Recommend without reservation" from an assistant professor

Differing access to "capital" leads to systemic inequity



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Economic capital



Social capital



Cultural capital



Symbolic capital

The concept of meritocracy is a myth

Chosen by whom?

"A system, organization, or society in which **people are chosen** and moved into positions of success, power, and influence on the basis of **their demonstrated abilities and merit**"

Provided equal resources & opportunities?

Who decides the metrics?

Do the metrics predict what we want?

"a praiseworthy quality"

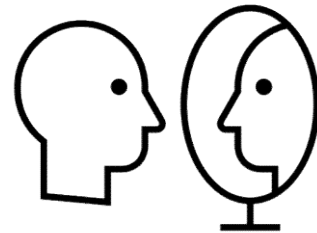
"meritocracy" and "merit". Merriam-Webster.com. 2021. <https://www.merriam-webster.com/> (21 April 2021)

Why do we continue to believe in meritocracy?

The American Dream



Anecdotes of Exception



Images from PxHere, CC0 Public Domain, free for personal & commercial use without attribution

How helpful are these metrics?



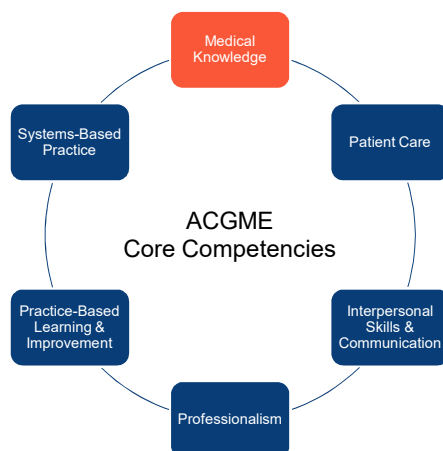
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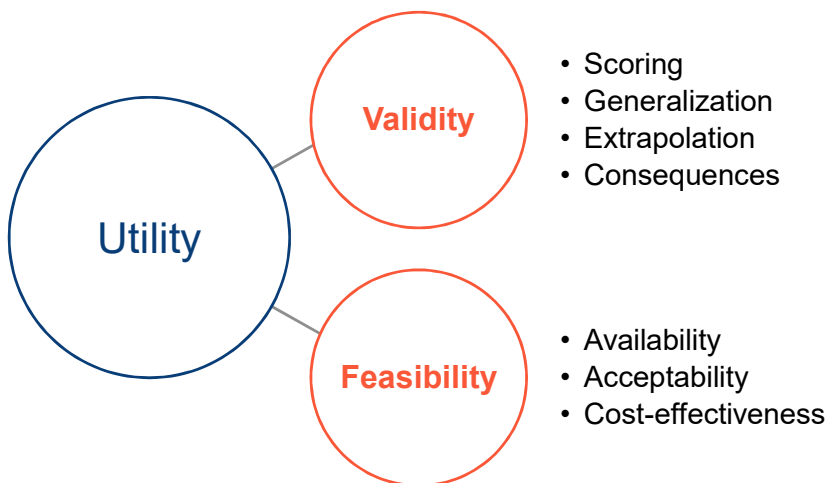
Metrics used are skewed toward a few competencies

| Criterion used by IM PDs in residency selection | Importance |
|---|------------|
| Required clerkship grades | 4.14 |
| No. Of clerkship honors | 3.77 |
| USMLE Step 2 CK | 3.75 |
| Step 2 CS Pass | 3.66 |
| Class rank | 3.59 |
| AOA membership | 3.53 |
| Recommendation letters | 3.51 |
| Grades senior elective in specialty | 3.48 |
| USMLE Step 1 | 3.41 |
| Medical school reputation | 3.27 |
| Medical student performance evaluation | 3.27 |
| Medical school academic awards | 3.17 |
| Grades in senior electives not in specialty | 2.80 |
| Grades in preclinical courses | 2.70 |
| Published research | 2.62 |



Adapted from Table 3 in Green M, et al. *Acad Med*. 2009;84(3):362-367. doi:10.1097/acm.0b013e3181970c6b

Many metrics are less useful than we think



Roberts C et al. Utility of selection methods for specialist medical training: A BEME (best evidence medical education) systematic review. BEME guide no. 45. *Med Teach*. 2017;40(1):1-17. doi:10.1080/0142159x.2017.1367375
Vleuten, C. P. M. V. D. The assessment of professional competence: Developments, research and practical implications. *Adv Health Sci Educ* 1, 41-67 (1996).

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Vleuten, C. P. M. V. D. The assessment of professional competence: Developments, research and practical implications. *Adv Health Sci Educ* 1, 41-67 (1996).

Letters of Recommendation (MSPE & AAIM template)

Does it predict what we care about?



Does it result in inequity?

Demographic factors associated with biased language:

- **Race/ethnicity:** Black, Asian, Hispanic (fewer standout terms)
- **Gender:** women (compassion > ability)

Roberts, C. et al. *Med Teach* 40, 1–17 (2017). Kenny S. et al. *Med Educ* 47, 790–800 (2013).
Ross, D. A. et al. *Plos One* 12, e0181659 (2017). Rojek AE et al. *J Gen Intern Med* 34, 684–691 (2019). Klein R et al. *J Gen Intern Med* 34, 712–719 (2019).

Awards (AOA)

Does it predict what we care about?



Does it result in inequity?

Demographic factors associated with lower acceptance:

- **Race/ethnicity:** Asian, Black, Hispanic
- **Gender:** women

Factors NOT associated:

- Community service hours
- Leadership hours

Roberts, C. et al. *Med Teach* 40, 1–17 (2017). Kenny S. et al. *Med Educ* 47, 790–800 (2013).
Boatright D. et al. *Jama Intern Med* 177, 659 (2017). Wijesekera TP. et al. *Acad Med Publish Ahead of Print*. NA: (2018). Teherani A et al. *Acad Med* 95, 724–729 (2020).

Standardized exams (USMLE)

Does it predict what we care about?



Does it result in inequity?

Demographic factors predicting worse performance:

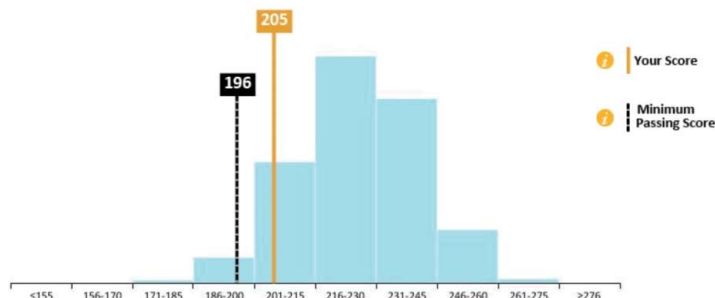
- **Race/ethnicity:** Asian, Black, Hispanic
- **Language:** English as second language
- **Citizenship:** US
- **Gender:** women
- **Age:** age above average

Roberts, C. et al. *Med Teach* 40, 1–17 (2017). Kenny S. et al. *Med Educ* 47, 790–800 (2013).
Rubright, JD et al. *Acad Med* 94, 364–370 (2019). McGaghie WC et al. *Acad Med* 86, 48–52 (2011). Edmond MB et al. *Acad Med* 76, 1253–1256 (2001).

The USMLE lacks discriminatory power

Your Performance Compared to Other Examinees

The chart below represents the distribution of scores for recent examinees from US and Canadian medical schools taking Step 3 for the first time. Reported scores range from 1–300 with a mean of 226 and a standard deviation of 15.



If you tested repeatedly under the same conditions on a different set of items covering the same content, without learning or forgetting, your score would fall within one standard error of the estimate (SEE) of your current score two-thirds of the time. The SEE on this exam is 8 points.

Your score +/- SEE: 197–213

"If you tested repeatedly...your score would fall within one standard error of the estimate of your current score two-thirds of the time. The SEE on this exam is 8 points."

Your score +/- SEE:
197-213

16-point difference
"statistically meaningful"

Screenshot from Bryan Carmody's blog "The Sheriff of Sodium": <https://thesheriffofsodium.com/2019/02/17/the-new-usmle-score-report/>
Data from USMLE Score report website: https://www.usmle.org/pdfs/transcripts/USMLE_Step_Examination_Score_Interpretation_Guidelines.pdf

If you want to learn more about the USMLE debate...



@jbcarmody



Sherrif of Sodium. (2020, August 4). The Rise and Fall of USMLE Step 1 [Video]. YouTube. Available at: <https://youtu.be/ly4NoT-yxpY>

Screening Criteria: The Bottom Line



Lack **validity**

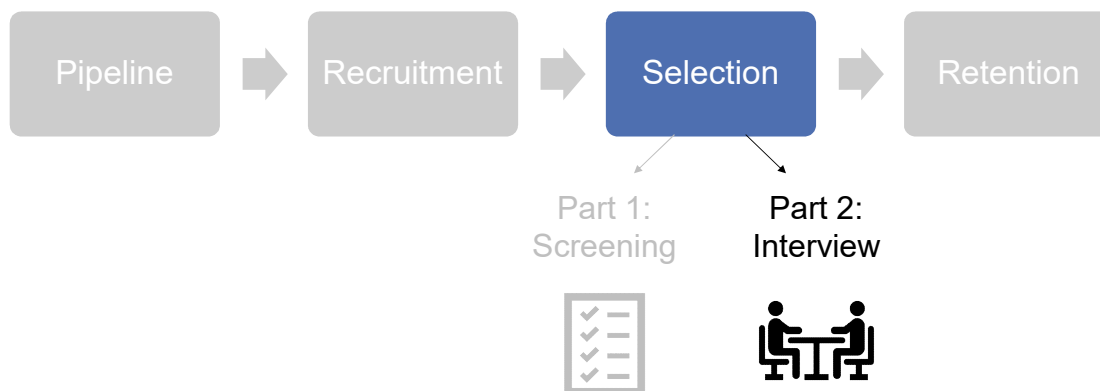


Lack **discriminatory power**



Perpetuate **systemic inequity**

Steps in the selection process



The predictive value of interviews is uncertain

REVIEWS

Use of the Interview in Resident Candidate Selection: A Review of the Literature

Alyssa Stephenson-Famy, MD
Brenda S. Houmard, MD, PhD
Sidharth Oberoi, BS

Anton Manyak, BS
Seine Chiang, MD
Sara Kim, PhD

Resident performance:

17 studies (n=1723) vs **11** studies (n=614)
Poor or absent correlation vs Moderate correlation

Our life experiences shape our beliefs and values

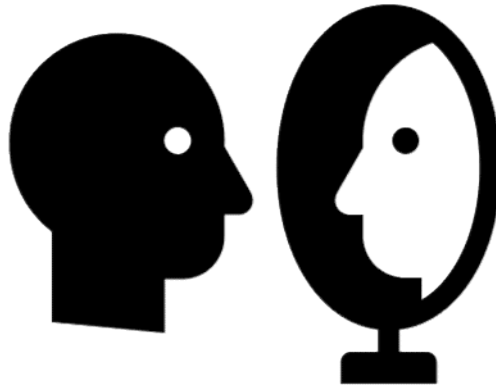


Implicit biases that impact our decisions



Emory Cardiology. (2020, October 13). Bias and Racism in Medicine [Video]. YouTube. Available at: https://www.youtube.com/watch?v=ZdQJ_LFF31Q

Likeness bias influences our interpretations



Outline



So, should we just have a lottery?

"...our current system for selecting medical students is strained by a **limited predictive ability**. In the search for good doctors, we lack meaningful, quantifiable, and comparable criteria. Partial or weighted admissions **lotteries can offer us an escape**. They have the potential to **reduce mental and financial burdens** on both applicants and medical schools, avoiding an **overemphasis on marginal differences** between applicants. Lotteries are also a simple way to address **persistent admissions disparities** by being truly non-discriminatory."



Mazer, B. L. Accepting randomness in medical school admissions: The case for a lottery. *Med Teach* 1–3 (2020) doi:10.1080/0142159x.2020.1832206.

@JenniferSpicer4

#1: Recruit a diverse committee to review processes

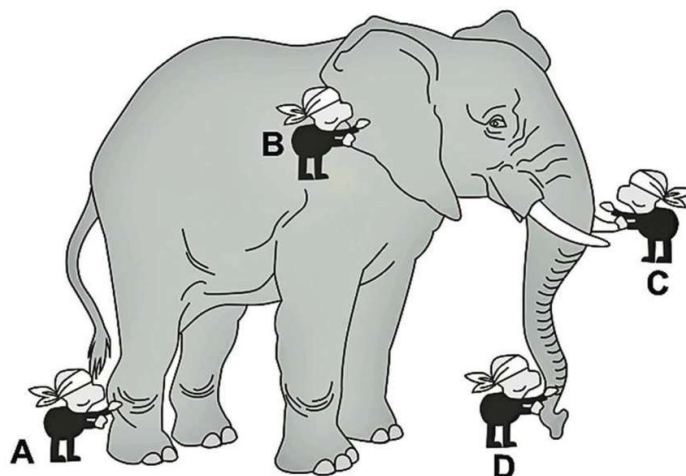
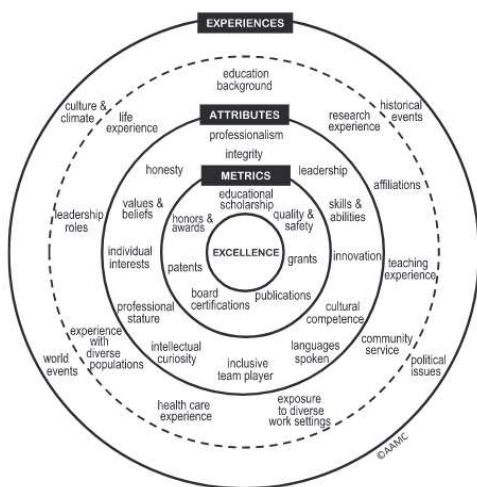


Image available as Figure 1 via Creative Commons Attribution 3.0 Unported license available at the link below:
https://www.researchgate.net/publication/318399245_Application_of_Morphometric_and_Stereological_Techniques_on_Analysis_and_Modelling_of_the_Avian_Lung



- **Holistic review:**
 - Experiences
 - Competencies
 - Attributes
 - Metrics
- Consider how criteria may impact diversity.

Figure 1 in Harris, TB et al. Advancing Holistic Review for Faculty Recruitment and Advancement. *Acad Med* 93, 1658–1662 (2018), image originally from *Roadmap to Excellence: Key Concepts for Evaluating the Impact of Medical School Holistic Admissions* (AAMC, 2013)

| ① Criteria | ② Importance of criteria to interview invitation | | | |
|---|--|--------------------|-----------|----------------|
| | Not important | Somewhat important | Important | Very important |
| Educational background | | | | |
| Community service/volunteer experience | | | | |
| Leadership roles | | | | |
| Experience with diverse populations | | | | |
| Research experience | | | | |
| Life experiences | | | | |
| Distance traveled | | | | |
| Professional associations | | | | |
| Healthcare experience | | | | |
| Experience living in a medically underserved area | | | | |
| | | | | |
| | | | | |

#2: Identify criteria that match your program's mission

Attributes

| ① Criteria | ② Importance of criteria to interview invitation | | | |
|---|--|--------------------|-----------|----------------|
| | Not important | Somewhat important | Important | Very important |
| Professional stature | | | | |
| Cultural competence/humility | | | | |
| Integrity | | | | |
| Intellectual curiosity | | | | |
| Proficiency in language(s) spoken by patient population | | | | |
| Team-minded / team player | | | | |
| Leadership | | | | |
| Interest in the desired specialty | | | | |
| | | | | |

Holistic Review Primer for Program Directors. "Activity 1: Applicant Criteria Identification & Prioritization". From: <https://www.aamc.org/services/member-capacity-building/holistic-review>

#2: Identify criteria that match your program's mission

Competencies

| ① Criteria | ② Importance of criteria to interview invitation | | | |
|---|--|--------------------|-----------|----------------|
| | Not important | Somewhat important | Important | Very important |
| Interpersonal and Communication Skills (ICS) | | | | |
| Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds | | | | |
| Communicate effectively with physicians, other health professionals, and health related agencies | | | | |
| Work effectively as a member or leader of a health care team or other professional group | | | | |
| Act in a consultative role to other physicians and health professionals | | | | |
| Maintain comprehensive, timely, and legible medical records, if applicable. | | | | |
| | | | | |

Holistic Review Primer for Program Directors. "Activity 1: Applicant Criteria Identification & Prioritization". From: <https://www.aamc.org/services/member-capacity-building/holistic-review>

#2: Identify criteria that match your program's mission

Metrics

Note: If these metrics are not available to you, please edit, delete, and/or add any alternatives.

| ① Criteria | ② Importance of criteria to interview invitation | | | |
|--|--|--------------------|-----------|----------------|
| | Not important | Somewhat important | Important | Very important |
| Publications | | | | |
| Scholarly Presentations | | | | |
| USMLE Step 1 score | | | | |
| USMLE Step 1 pass on first attempt | | | | |
| USMLE Step 2CK score | | | | |
| USMLE Step 2CK pass on first attempt | | | | |
| USMLE Step 2CS | | | | |
| USMLE Step 2CS pass on first attempt | | | | |
| Alpha Omega Alpha | | | | |
| Gold Humanism Honor Society | | | | |
| Grants | | | | |
| Medical school GPA | | | | |
| Performance in core clerkships | | | | |
| Clerkship performance in desired specialty | | | | |
| Honors in curriculum | | | | |
| MSPE | | | | |
| Letters of recommendation | | | | |

Holistic Review Primer for Program Directors. "Activity 1: Applicant Criteria Identification & Prioritization". From: <https://www.aamc.org/services/member-capacity-building/holistic-review>

#3: Clearly define the selected criteria

Part 1: Resident Selection Criteria

| | |
|-------------|--|
| EXPERIENCES | 1. Criterion: |
| | Definition: How do you define it? |
| | Assess: What evidence will satisfy this requirement? Do my current recruitment and selection materials allow me to assess this criterion? What, if any, changes are needed? |
| | 2. Criterion: |
| | Definition: How do you define it? |
| | Assess: What evidence will satisfy this requirement? Do my current recruitment and selection materials allow me to assess this criterion? What, if any, changes are needed? |

Developing clear, unambiguous definitions mitigates implicit bias

...but make sure they predict what we care about

Associations between residency selection strategies and doctor performance: a meta-analysis

Stephanie Kenny, Matthew McInnes & Vivek Singh

Kenny S, et al. Associations between residency selection strategies and doctor performance: a meta-analysis. *Med Educ* 47, 790–800 (2013).

Holistic Review Primer for Program Directors. "Activity 2: Applying Holistic Review to Resident Selection". From: <https://www.aamc.org/services/member-capacity-building/holistic-review>

#4: Only provide relevant data to interviewers/committee

Part 1: Resident Selection Criteria

| | |
|--------------------|--|
| EXPERIENCES | 1. Criterion: |
| | Definition: How do you define it? |
| | Assess: What evidence will satisfy this requirement? Do my current recruitment and selection materials allow me to assess this criterion? What, if any, changes are needed? |
| | 2. Criterion: |
| | Definition: How do you define it? |
| | Assess: What evidence will satisfy this requirement? Do my current recruitment and selection materials allow me to assess this criterion? What, if any, changes are needed? |



Photos



Exam Scores

Capers, Q. How Clinicians and Educators Can Mitigate Implicit Bias in Patient Care and Candidate Selection in Medical Education. *Ats Scholar* 1, 211–217 (2020).

#5: Ensure your interviewers are diverse

Student Body



Committee



#6: Create a standardized interview process

Interview

Structured, behavioral interview



Multiple mini-interviews (MMIs)



Rating Form

Leadership skills

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|

Poor Excellent

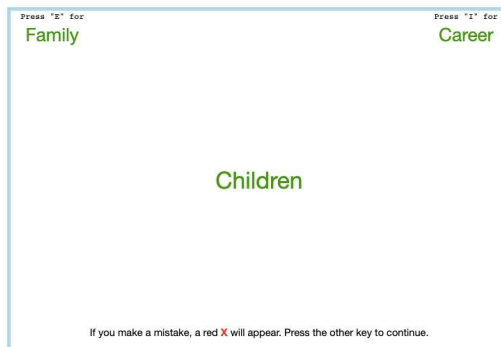
| | | |
|-----------------|---------------|-----------------|
| 0 activities | 1 activity | > 1 activity |
|-----------------|---------------|-----------------|

Roberts C et al. *Med Teach* 40, 1–17 (2017). Patterson F et al. *Med Educ* 50, 36–60 (2016). Marcus-Blank B et al. *Acad Med* 94, 378–387 (2019).

#7: Increase individuals' awareness of their biases

Require training, including the implicit association test (IAT):

- Race
- Gender
- Sexuality
- Religion
- Age
- Weight
- Disability



Implicit.harvard.edu



Project Implicit. (2011). *Take a Test*. Project Implicit. <https://implicit.harvard.edu/implicit/selectatest.html>

#7: Increase individuals' awareness of their biases



Who do you select for opportunities?

- How diverse are your mentees?
- Who co-authors papers with you?
- Who have you sponsored for talks?
- Who have you recommended for awards?



Are there systematic differences in your ratings?

- Do clinical evaluation ratings differ?
- Do narrative comments differ?
- Do interview ratings differ?
- How do your ratings compare to other raters?

#8: Have interviewers “check” biases before decisions

Consider the opposite

- Re-review data looking for evidence to support opposing impression

Counterstereotypical exemplar

- Think of individual you admire from the same demographic group

Common identity formation

- Search for common identities to reduce negative implicit bias

Perspective taking

- Empathize with individual by “walking in their shoes”

Evidence
Summary



#8: Have interviewers “check” biases before decisions

How do your ratings compare to your average?

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|

Poor

Excellent

Have you used any biased language?

Gender-bias calculator

This calculator is derived from [the version made by Thomas Forth](#) which was, in turn, inspired by this [AWIS blog](#) post on gender biases in recommendation letters. The blog post and [the scientific paper](#) it is based on also explain why this gender bias is important. Thanks to [Dr. Karen James](#) for the inspiration. Privacy note: no content you test here will leave your browser as all the calculation is done in this page.

Try an example!

Write or paste your recommendation letter here. Words that are more often associated with women will be added to the female list. Words that are more often associated with men will be added to the male list.

Female-associated words | Male-associated words



UCSF Faculty Guide for avoiding bias and stereotypes in evaluations

Screenshot of the gender bias calculator available at <http://slowe.github.io/genderbias/>

Outline



AOA Selection

| | Clerkship-driven metrics (2016 & earlier) | Holistic selection (2017 & later) |
|-----------------------------------|--|--|
| Committee membership | Faculty (course/clerkship directors) Medical school leaders | Faculty (diverse educators) Medical school leaders Senior resident |
| Selection criteria & training | Academic No reviewer instrument No training | Academic + professional + reviewer instrument + training |
| Student eligibility & application | Top 25% of class eligible | All students with >50% weeks of honors grades eligible |
| Blinded review of applications | No | Yes |

UiM eligible **10%** → **29%**
 UiM selected **7%** → **21%**



Teherani, A., Harleman, E., Hauer, K. E. & Lucey, C. Toward Creating Equity in Awards Received During Medical School: Strategic Changes at One Institution. *Acad Med* 95, 724–729 (2020).

Pediatric residency program

| Individual & Interpersonal | Systems |
|--|---|
| <ul style="list-style-type: none"> • Mandatory training • Case discussions • DEI discussions w/ applicants • Small ranking teams • Standardized interview questions • No photos during ranking | <ul style="list-style-type: none"> • Revised rubric to avoid reliance on grades, AOA, etc. • Explicit scoring guidelines • Shared mental model of qualities • Expanded ranking committee • Set explicit goals for recruitment • Discuss UiM applicants early in ranking meeting |

UiM interns **15%** → **45%**
 2017-2018 2019-2020



Marbin, J. et al. Improving Diversity in Pediatric Residency Selection: Using an Equity Framework to Implement Holistic Review. <https://meridian.allenpress.com/jgme/article/13/2/195/461706/Improving-Diversity-in-Pediatric-Residency> (2021).

Faculty recruitment for surgery

| | Traditional hiring | Inclusive recruitment |
|-----------------|---|--|
| Advertisement | Limited | Broad through non-traditional venues & organizations focused on UiM individuals |
| Applicant pool | No formal criterion or minimum | Requirements for diverse pool |
| Participants | Department leaders Prospective division partners | Department leaders Prospective division partners Diverse division-wide committee (rank, gender, race, specialty) |
| Interview | Individual "get to know you" | Individual "get to know you" Group interview with standardized, behavior-based questions |
| Hiring decision | Department leaders | Department leaders based on recommendation by committee |

UiM **33%** Women **50%**



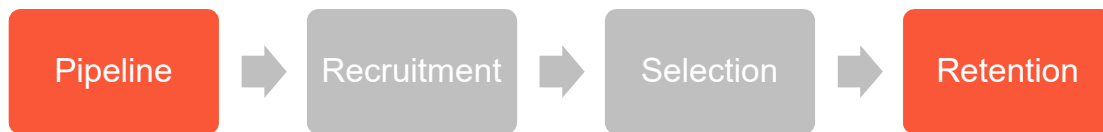
Adapted from Table 1 in Dossett, L. A., Mulholland, M. W., Newman, E. A. & Research, M. P. W. G. for F. L. Building High-Performing Teams in Academic Surgery. *Acad Med* (2019).

To ensure diversity, we must collect data



applied
interview offered
interview accepted
job offered
job accepted

Selection processes aren't the only solution



Additional Reading

COMMENTARY

Selecting trainees: Too much focus on predictive metrics, not enough on holistic review

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Take Home Points

- Diversity drives excellence. It is not a competing concept.
- We need to ensure that selection metrics are valid & equitable.
- Combine individual bias training with better selection processes.
- Changing our processes can increase diversity.

We can't eliminate all bias but
we CAN mitigate SYSTEMIC bias.

Resources:

Additional Reading



Homework:

Create a concrete plan

Mitigate

- What is one thing that you can do to start examining & mitigating your own biases?

Propose

- What is one concrete proposal that you can make to a selection process that you participate in?