Design and Impact of an Imaging-Based Health Disparities Lecture in the Medical Student Radiology Curriculum

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Disclosures

• None
Imaging-Based Health Disparities

- Recently there have been increased efforts within medicine to highlight and address health disparities
- Many of these disparities are rooted in imaging access and utilization, including examples such as:
  - Racial differences in utilization and efficacy of cancer screening
  - Lower quality imaging because of cultural barriers or disabilities
  - Less access to imaging due to economic and racial factors
- Imaging volumes have been increasing over time, and so these disparities are increasingly compounding on other health inequities
Why Focus on Medical Students?

- Trainee education is critical for improving long-term health equity.
- Currently, medical student radiology education revolves around anatomy and basic interpretive skills but is an appealing venue for promoting early recognition of imaging-based health disparities.
- Most medical students will become referring physicians rather than radiologists - if they are better able to recognize potential biases or gaps in imaging tests, they hopefully will be more conscientious about the imaging ordered for their patients.
Methods

• We developed a 45-minute PowerPoint-based teaching session focusing on sources and examples of imaging-based health disparities.
• To evaluate educational impact, pre- and post-session surveys are administered using a combination of multiple-choice or true/false questions and 5-point Likert scale questions to measure knowledge gain and improved student confidence with discussion of imaging-based disparities.
• Initially presented in March 2023 in a highly subscribed introductory diagnostic radiology clerkship elective in our medical school curriculum.
Lecture Structure

• General introduction including a slide on bias in artificial intelligence algorithms in-and-out of radiology

• Four “pillars” on different sources of inequity
  – Each of these four sections starts with an open-ended question soliciting examples students had witnessed, shows a real imaging case with in-depth discussion, and briefly reviews additional examples drawn from the literature

• Section detailing successful examples of interventions aimed at these sources of inequity

Outline

• Introduction
• Sources of inequity in medical imaging with case examples based on:
  – Race
  – Social, cultural, and economic factors
  – Sexual orientation and gender identity
  – Physical and mental disability
• What can be done to correct these disparities?
Survey Results: Comfort (n=27)

Distribution of student answers to the following question: “I can describe specific examples of how [specific source] can lead to imaging-based health disparities” with 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree. The number in the middle of each donut indicates the average response. *S/C/E = social/cultural/economic factors. All differences are significant.
Every student answered the same five questions (two regarding racial disparities, one of every other category) in the pre- and post-surveys. The percentage of correct answers was compared between the two surveys. *S/C/E = social/cultural/economic factors. Differences marked * are significant.
Discussion

• Following the session, students felt more comfortable discussing examples of imaging-based health disparities and improved their performance on the knowledge assessment questions across all four of our selected categories.

• Results are limited by small number of assessment questions and low sample size
  – The session is now being presented monthly, so we will have increasing results.

• Based on the success of this initial work, the session may be expanded to the resident curriculum.
THANK YOU