Data Driven Strategies for an Education Program to Improve Diversity, Equity, and Inclusion in Radiology

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Background

• Diagnostic radiology is the 9th most popular specialty for residency applicants¹
  • 17th for female representation
  • 20th for underrepresented minorities (URM) representation²

• Why?
  • Lack of preclinical exposure -> misconceptions and less interest in radiology³
  • Women: lack role models⁴, mentorship⁵ and perceive radiology as too competitive⁶
  • URM: lack of understanding of the field⁷
Purpose and Objectives

Apply a comprehensive framework to implement a longitudinal education and outreach program in radiology.

Increase knowledge, interest, and awareness of radiology as a specialty.

Collect quantitative and qualitative data for baseline evaluation, continued monitoring and improvement.

Increase the diversity of students applying to radiology residency.

Structured Framework for Radiology Education Programs: 5 C’s

Curriculum
- Approach to interpreting common imaging studies
- Basic understanding of different imaging modalities
  - Anatomy
  - Radiation risk and exposure

Coaching
- Mentorship
- Observerships
- Research
- CaRMS application and interview support

Commitment

Collaborating
- Understanding radiologist’s role on interdisciplinary teams
- Indications for imaging studies
- Knowledge of when to consult a radiologist

Career
- Day in the life of a radiologist
- Lifestyle and salary
- Job availability, outsourcing and teleradiology
- Occupational hazards
- Residency difficulty and fellowships
- Residency applications and competitiveness
Methods

POST-EVENT SURVEY

Demographics
- Subgroups: Male/Female, medical/undergraduate, school years, URM/nonURM

Previous Exposure
- Overall
- Subgroups

Feedback of Program
- Perceptions/misconceptions of radiology
- Interest in radiology
- Effectiveness of education program

Data Analysis: Two-Tailed T-Test Comparison

Events

Radiology Skills Workshops
- Systemic approaches to interpret imaging in a case-based format.
  - CT A/P (2 events)
  - CT Head (2 events)
  - Chest X-Ray (2 events)
  - Which Tests to Order

Procedure Workshops
- Simulations teaching skills of US-guided biopsy, vascular access, basic trocar drainage catheter placement, IVC filters, and mechanical thrombectomy. (3 events)

Outreach and Career Advising
- Radiology as a career choice and how to prepare an application for residency.
  - Women and URM in Radiology Panel
  - What is Radiology? Outreach Presentation to Undergraduate Students (2 events)
  - M4-led Post-Match Radiology Panel (3 events)
  - Faculty-led Career Advising Session (4 events)

Shadowing and Mentorship Programs
- 1:1 radiology mentorship initiatives
  - Mentors Program
  - Shadowing

Intersectionality within Radiology
- Events highlighting contemporary topics and inclusivity of the field.
  - AI and Radiology
  - Imaging Care of Transgender Patients

24 events held since 2022
Demographics

247 attendees with a 49% survey completion rate (122 responses)
- 46 additional responses since last year
Results

Session Modality
- **Misconceptions**: Procedure workshops significantly* less effective than other modalities for addressing misconceptions
- **Quality**: Procedure workshops rated significantly* highest quality modality

Women and URM
- **Trend**: greater positive impact on increasing interest in radiology and promoting the work-life balance in women than men
- **Trend**: greater positive impact on increasing interest in radiology in URM than non-URM

Quality of Procedure vs. Career Advising Session Modality

Male vs. Female: Effectiveness in promoting work-life of Radiology

Non-URM vs. URM: Effectiveness in increasing interest in Radiology
Results: Perceptions and Attitudes

- Undergrad sessions significantly* peaked radiology interest more than graduate sessions

- **Undergraduates**
  - significantly* increased interest, promoted work-life balance, and addressed misconceptions in undergraduates compared to medical students
  - **M1/M2 (Preclinical) vs M3/M4 (Clinical)**
    - No statistical difference
    - **Trend:** greater positive impact on addressing misconceptions in clinical medical students compared to preclinical medical students

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M1/M2 vs M3/M4: Effectiveness in addressing misconceptions in Radiology

- **Undergrad sessions significantly peaked radiology interest more than graduate sessions.**
- **Undergraduates** significantly increased interest, promoted work-life balance, and addressed misconceptions in undergraduates compared to medical students.
- **M1/M2 (Preclinical) vs M3/M4 (Clinical)**
  - No statistical difference
  - **Trend:** greater positive impact on addressing misconceptions in clinical medical students compared to preclinical medical students.
Discussion

• Our program: equally effective in increasing the interest of all students, regardless of race or gender.

• **2022 --> Present**
  • While well-received, interactive procedure workshops were less effective than other modalities in addressing misconceptions.
  • **Undergraduate outreach** events significantly increased students’ interest, promoted work-life balance, and addressed misconceptions compared to medical student outreach events.

• **Undergraduate outreach = key pipeline**
Conclusion & Next Steps

• Intersectionality in radiology matters
  • *Visible* inclusivity can help retain interested students
  • Our event on Imaging for Transgender patients was equally well-received and effective at promoting interest in radiology as skills and interactive procedure workshops.
  • Women and URM in Radiology panel -> increased interest in radiology for both respective groups
  • Event this semester = AI and Radiology

• Future Directions
  • Exploring intersectionality in radiology events
  • Targeted outreach to undergraduate students
  • Virtual events
    • More accessible, especially to those at distant campuses
References


