



2022 LEAD Capstone Poster Session

Imaging Physics Rotation in Radiology Residency Program

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Objectives

- This project is to enhance physics education in radiology residency program by using an innovative teaching method.



Background Information

- How medical imaging works, so-called imaging physics, is an essential part of knowledge in radiology resident training.
- It is directly related to quality, patient safety, and regulatory compliance due to usage of ionizing radiation in medical imaging.
- Radiology Board Exam in physics shifted the focus from mechanically remembering knowledge of physics to purposeful application of the knowledge to solve clinical problems.
- However, the current physics curriculum and mindset of physics education do not match the importance of physics knowledge and the shifting focus of the exam.



Project Plan

- I propose to create a 1-week imaging physics rotation for first-year residents in radiology residency program.
- The rotation will combine introductory lectures and hands-on experiments on imaging equipment
- There will be before and after rotation quiz and survey to evaluate the knowledge and attitude change toward physics education.



Application of What You Learned at LEAD

- SWOT analysis can be applied in the project.
- Topic: The SWOT of physics education in radiology residency program
 - Strength: high quality lectures from exceptional physics faculty
 - Weakness: less engagement from residents possibly due to its difficulty and ignorance of its importance and direct application in practice.
 - Opportunities: need to improve the understanding of physics education in residency training and how it is related to clinical practice.
 - Threats: without knowing how to apply physics in practice could limit the future career growth as a radiologist or even cause professional liability issues.



Proposed Budget

- This program will need support from the residency program directors, education office for scheduling, physics division chief and all the faculty in the physics division. It also needs support from imaging services to schedule the machine downtime for the training.
- There is no direct monetary cost of this project.



Innovation and Significance

- It is expected that after the physics rotation, the residents will have a positive, at least neutral attitude toward physics education and find physics helpful in their practice by applying the knowledge.
- It is also expected that this will make the residents less stressed before the CORE exam and potentially achieve better scores.
- A long-term result could be an increase in residents' satisfaction with residency training and improving the rating and reputation of radiology residency programs.



References

- Zhang J, Hardy PA, DiSantis DJ, Oates ME. Hands-on Physics Education of Residents in Diagnostic Radiology. Acad Radiol. 2017 Jun;24(6):677-681. doi: 10.1016/j.acra.2017.01.015. Epub 2017 Mar 1. PMID: 28259605.
- American Board of Radiology, CORE Exam, <https://www.theabr.org/diagnostic-radiology/initial-certification/core-exam/studying-core-exam>