The Implementation and Impact of a Medical Student Reading Room Assistant Program

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Background- Productivity

- Radiologist image interpretation workflow is frequently interrupted– one study reported interrupting calls every three to ten minutes[1].

- Many academic institutions utilize a call system in which one to two residents are the sole physicians in the hospital and are responsible for interpreting a high volume of images[2].

- Interruptions during busy after-hour shifts are increased, lengthening turn-around time and error rate[2,3].

- Further, selection of appropriate scanning techniques (protocolling) often is delayed which can result in problems with insurance reimbursement[4].

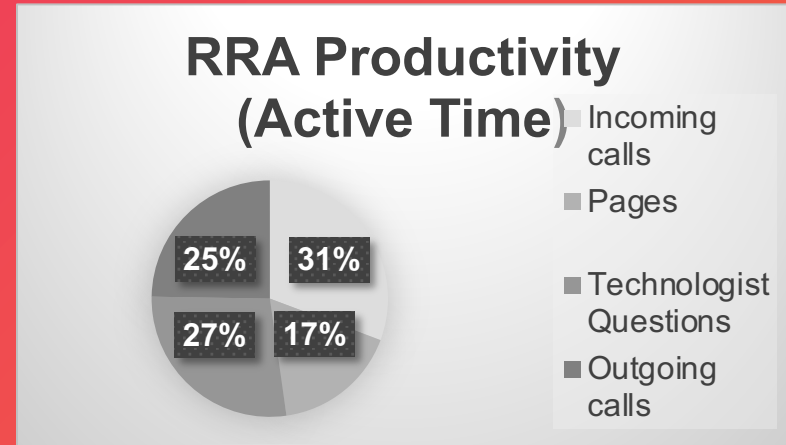# Background- Medical Student Experience

- Medical students were identified as motivated individuals who had the potential to make drastic contributions in the reading room.

- Additionally, studies have found that medical students desire increased exposure to radiology and that many are unsatisfied with the amount of radiology experience they receive in undergraduate medical training[5,6].

- By triaging pages and protocolling select non-contrast CT and MRI imaging, medical students could have the opportunity to further explore and experience radiology first hand and to assist in the reading room.
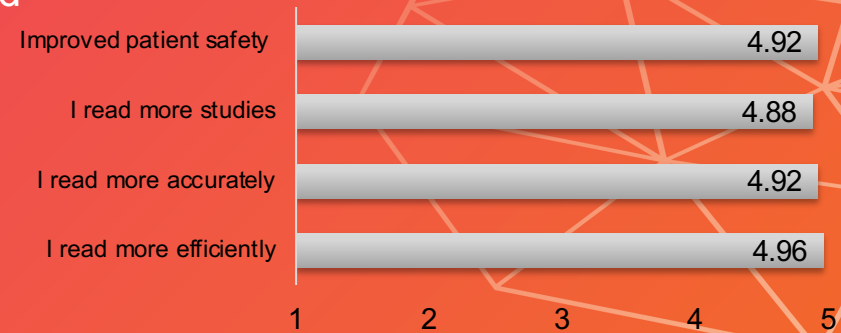
Methods

- Interruptions to radiology residents were documented and quantified over a six-month period.

- A reading room assistant (RRA) position was then created and training modules were put together.

- Medical students were notified of position availability, applied, and six were selected for the position and trained.

- RRAs worked 5-hour shifts during weekend call shifts and data was collected on the position over a subsequent 10-month period.

- Interruptions, scans protocolled by RRAs, and medical student RRA feedback was collected in a survey at the end of each RRA shift. Further feedback on the position was collected from the RRAs 10-months into the program. Data and responses were analyzed.

- In this study, we report the results of nearly two years of the implementation and utilization of this position at our institution.

Results- Resident Productivity

- At our institution, on-call residents were interrupted an average of 10.3 times per hour by incoming pages, clinician calls, technologist questions, protocol requests, and outgoing pages.

- **Down time: RRAs protocolled 3681 chest CTs, 145 neuro MRIs, and 169 abdominal CTs.**

- Per resident survey responses, 100% reported being better physicians while working with an RRA and preferred the RRA program to continue.

RRA Productivity (Active Time)

- Incoming calls
- Pages
- Technologist Questions
- Outgoing calls

25% | 31%
27% | 17%

Resident Response to RRA Program

Improved patient safety	4.92
I read more studies	4.88
I read more accurately	4.92
I read more efficiently	4.96

1   2   3   4   5

Results- Medical Student Survey

- The majority of medical student RRAs reported in a survey being "extremely likely" to apply to radiology residency positions following involvement with the program.

- Respondents reported the most valuable aspects of the program to be exposure to radiology, learning the flow of the reading room, and getting to know the residents.

LIKELIHOOD OF APPLYING TO RADIOLOGY RESIDENCY RELATIVE TO RRA INVOLVEMENT
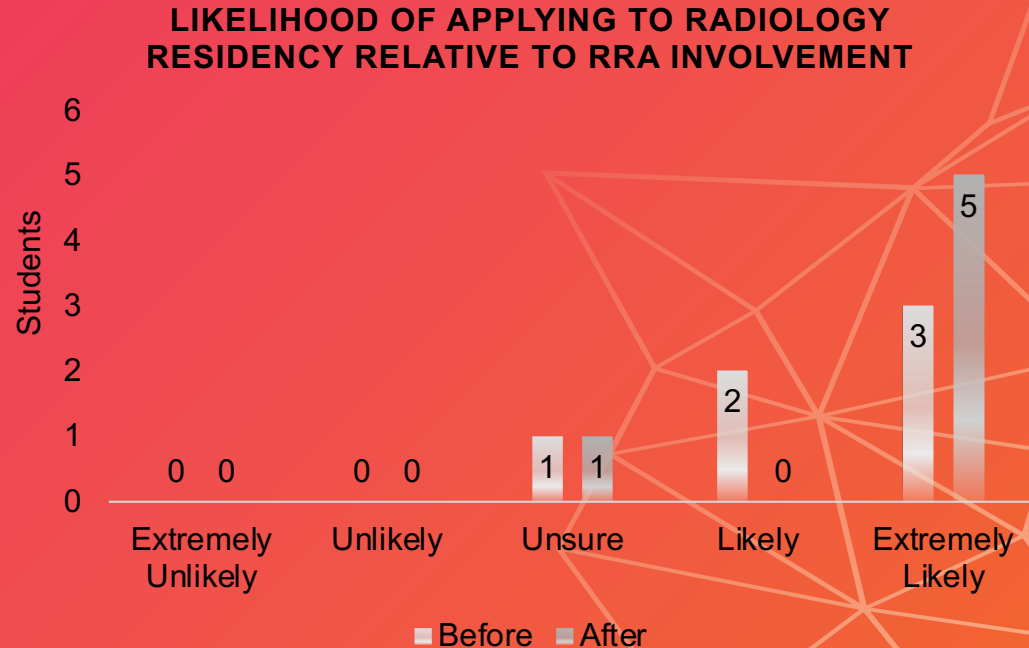
Discussion

- The implementation of the RRA program at our institution was successful.

- Medical student RRAs significantly decreased interruptions and protocolled thousands of non-contrast CT and MRIs.

- Residents reported improvement in both volume and quality of work.

- Medical student RRAs had the opportunity to explore their interest in radiology.

- Limitations included a small RRA student sample size and a single hospital/department implementation.

Conclusions

- Medical students can be trained as reading room assistants and can make a significant impact by reducing resident interruptions and increasing productivity and accuracy.

- This program has the added benefit of allowing medical students to get involved with radiology early in their training.

- Future directions may include expanding the role of the RRA with regards to studies protocolled as well as publishing the structure of our implementation to allow other institutions to create a similar workflow.
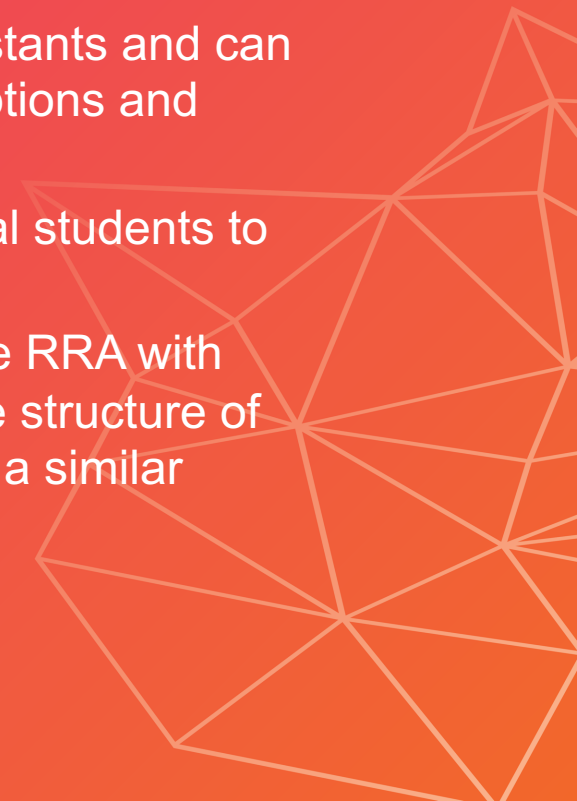
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