

**STUDENTS IN THE DRIVER'S SEAT:
A Self-Contained Resident Administered PACS Simulator
Improves Radiology Medical Student Education**



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Disclosures

No disclosures.

BACKGROUND

Quadriceps

- rectus femoris
- vastus lateralis
- vastus intermedius
- vastus medialis

hamstring

Background: The Problem



Medical Students' Expectations

Background: The Problem



Medical Students' Expectations



Medical Students' Reality

Background: Shadowing

This passive, rather than experiential, learning approach is unique among senior medical student clinical rotations.

Unfortunately, students are rarely if ever able to interpret their own studies and actively hone their diagnostic imaging skills on real patients.

Why not?

- Technological obstacles
- Security blockades
- Medicolegal and ethical reasons



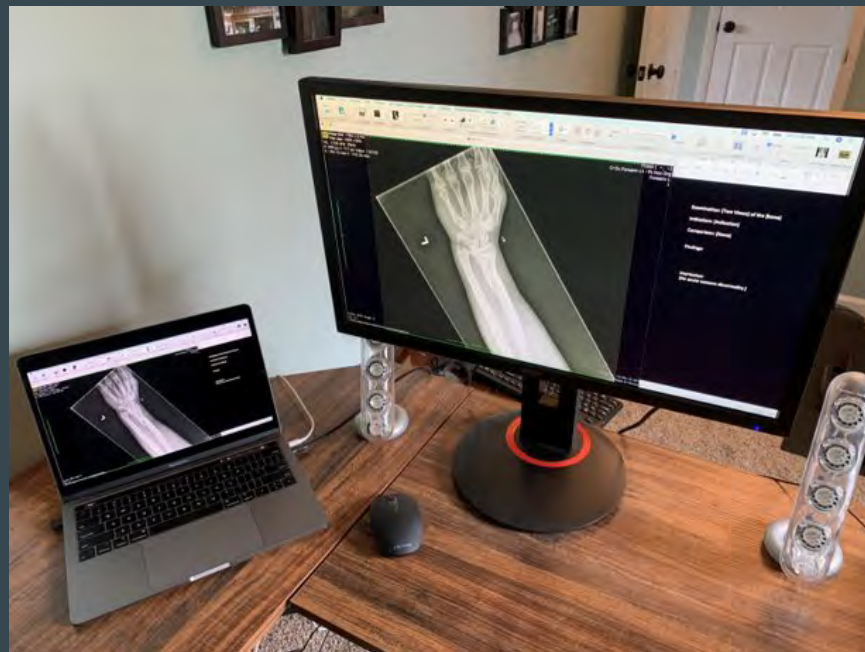
Purpose

- **Challenge:** Provide medical students with an engaging, hands-on experience in the practice of radiology.
- **Our Approach:** A self-contained resident administered PACS simulator (SCRAPS)
- **Hypothesis:**
Simulation of imaging interpretation within a formative Objective Structured Clinical Examination (OSCE) framework will provide an experiential experience and improve the medical student radiology rotation.

METHODS

Methods

- 13" MacBook Pro
 - Open-source PACS (Horos)
 - Dictation software (MS Word)
- HDMI connector for image mirroring to a larger display
 - Group discussions
- Mouse shortcuts similar to the hospital PACS
 - Zoom, pan, window, annotate
- Resident facilitators



Methods

- Beginning January 2020, medical students were invited to participate in SCRAPS on a voluntary basis during the second half of their rotation
- Groups of two or three students at a time
- Resident facilitator's role
- 10 to 15 minutes to examine pre-selected cases and dictate reports
- “Free dictate” vs standardized reporting template



Methods

- Cases were selected based on the Alliance of Medical Student Educators in Radiology's 2020 core medical student diagnoses.
 - Normal chest radiograph
 - Pneumothorax
 - Forearm fracture
 - Pneumoperitoneum
 - Avascular necrosis of the hip

Methods

- Each student dictated two to three cases during the session.
- Resident feedback after each case.
- Anonymous online survey via a QR code, which could be accessed via the students' smart phones.



Resident facilitator: Andy Perez MD



Methods

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
I enjoyed the activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This session provided a unique learning experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have had the opportunity to dictate reports before this session.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This activity gave me new insight into the process of dictating a radiology report.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a better idea now of what radiologists do compared to before the session.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This activity is valuable to my education.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

RESULTS

Results

- N = 63
 - Third-year students: 15
 - Fourth-year students: 48
- Those interested in pursuing a specialty *other* than radiology: 43 (69%)
- Case difficulty was “about right” across the board.

Results

- Survey Responses on a Likert Scale
 - 1 = Strongly Agree
 - 5 = Strongly Disagree

“I enjoyed the activity”	1.06
“This session provided a unique learning experience”	1.01
“I have had the opportunity to dictate reports before this session”	3.70
“This activity gave me new insight into the process of dictating a radiology report”	1.24
“I have a better idea now of what radiologists do”	1.41
“This activity was valuable to my education”	1.10

Results: Select Free-text Responses

“I would love to do this weekly or even daily.”

“I learned a lot more from this than from my daily shadowing.”

“It showed me how much thought goes into dictation [and] how to word your [report].”

“Dictation of cases is a more difficult skill than I thought, and it was great to practice!”

“This session was extremely helpful and one of the best experiences I've had.”

DISCUSSION

Discussion

What does SCRAPS add to the medical student experience?

- Take the lead role in diagnostic image interpretation
 - Commit to a diagnosis
 - Create a radiology report
- Open-ended answer vs multiple-choice based modules
- No grading rubric
- Direct feedback from the radiologist-facilitator

Discussion

What does SCRAPS add to the resident educator experience?

- Residents take a teaching role and hone their didactic skills
 - Self confidence
 - The best way to learn, is to teach
 - Help prepare for a career in academic radiology

Discussion

- Other advantages
 - Very little overhead
 - Portable
 - Nimble
 - Room for growth
 - Responsive to unforeseen educational complications
 - COVID-19 and vSCRAPS
 - COVID-20???

Discussion and Conclusion

- Successful application of a pilot dictation simulation program for a medical student radiology rotation.
- Students, most of whom do not plan to pursue radiology, enjoy the hands-on activity and feel it is worthwhile.
- A mobile and self-contained platform, able to be expanded with additional cases and imaging modalities to satisfy future didactic requirements.
- Future directions include online deployment and app development, assessment of the effect on summative evaluation performance, and the training and evaluation of the role of residents as educators.

Acknowledgments



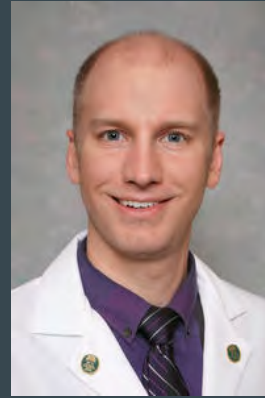
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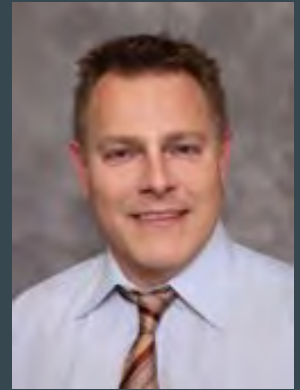
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