

AMAZING
THINGS
ARE
HAPPENING
HERE

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Disclosures

- None



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Background — The Current State of Imaging Consultation

- PACS technology and current fee-for-service payment models limit direct consultation activities.
- Added value of such activities is rarely documented.
- Direct consultation improves education, communication, and patient care.



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Background — Traditional Imaging Consultation



Radiologist
works side-
by-side with
radiologist

Telephone

No windows,
separate room,
separate area



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Background — Imaging 3.0 in Action Case Studies

- - After intervention: “Show referring clinicians you care about their opinion by *travelling to their work site and listening to their feedback*...in order to improve communication.”
 - After intervention: “We are solving more day-to-day issues for clinicians seeking our services. All of this is very good for us *demonstrating value* to our colleagues and patients.”
- - Before intervention: “From the physician’s perspective, all radiologists do is read images and, for that reason, would be *easy to replace*.”
 - After intervention: “At our hospital, our radiologists are among *the strongest physician leaders*, and they actively participate in many groups.”



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Background — Purpose

- As healthcare moves towards a bundled payment system, we must increase the awareness of the value of the radiologist.
- Radiology residents can provide essential consultation services without significantly disrupting attending workflow.
- Resident-driven clinical imaging rounds (CIR) allow radiologists-in-training to actively and directly participate in clinical management.
- Consultation activities take considerable time and effort. Demonstrating their value impacts future implementation.



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Background - Purpose

- Retrospective review of survey data determined the qualitative and quantitative effects of CIR on clinical management, communication, and education of referring providers and radiology residents.
- With results, CIR will be modified to better serve patients and providers.
- By documenting its organization and effectiveness, CIR can be adopted at other institutions to improve patient care and the radiologists' role in the larger medical community.



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Methods

- The initial ten months of Clinical Imaging Rounds (CIR) were evaluated in a retrospective study.
- CIR format:
 - Schedule: Four 30-minute sessions were held weekly on the clinical wards.
 - Case Submission: Via email 24 hours before the scheduled CIR time
 - Rounds format:
 - Medicine team presented the relevant patient history.
 - Radiology resident demonstrated relevant imaging findings, clarified imaging related questions, and discussed management options and recommendations with the referring service.
 - Documentation: Residents documented their CIR communication in a standardize note.



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Methods

- An anonymous survey to determine the perceived usefulness of CIR as a form of consultation given to:
 - radiology residents
 - internal medicine attending physicians
 - Internal medicine residents
 - medical students.
- Qualitative and quantitative analysis of survey responses was performed to demonstrate the impact of CIR on patient care and education.



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Results

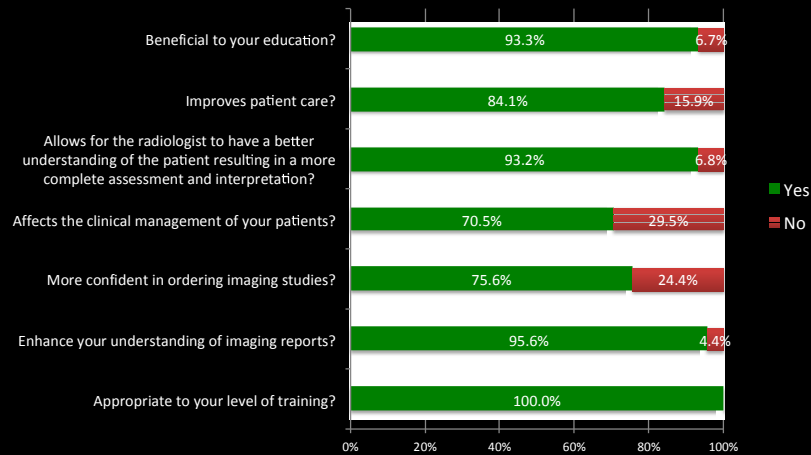
- Approximately 20 radiology residents and 150 internal medicine physicians and medical students participated in imaging rounds.
- 85% of radiology resident participants completed the survey (N=17).
- Approximately 30% of internal medicine participants completed the survey (N=45).



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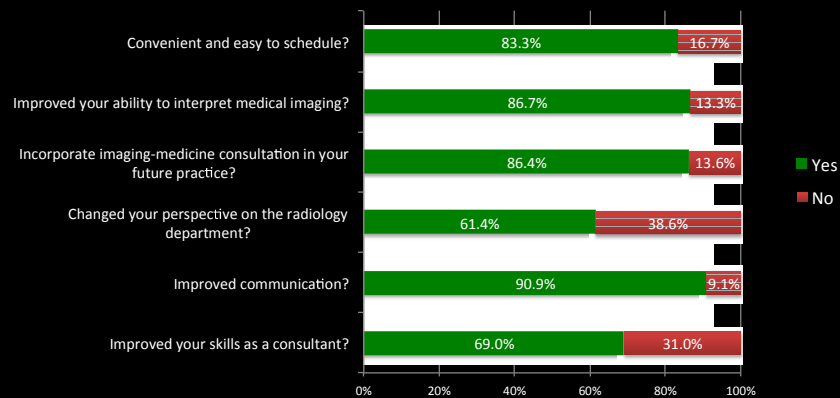
Results — Medicine Dept. (Attendings, Residents, and Medical Students)



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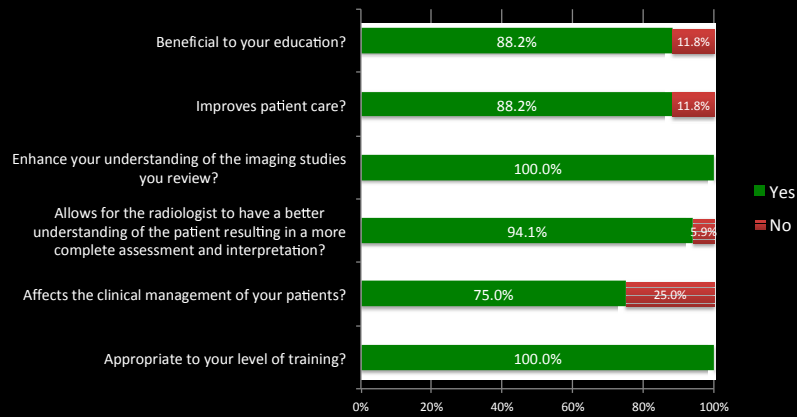
Results — Medicine Dept. (Attendings, Residents, and Medical Students)



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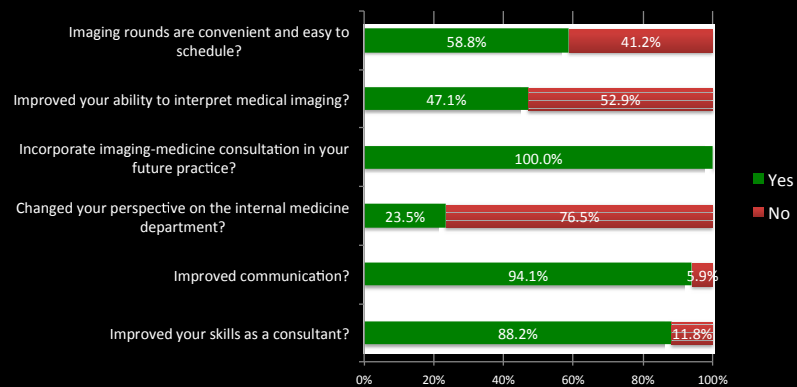
Results — Radiology Residents



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Results — Radiology Residents



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Legend: >75%

Results — Medicine Department

	(N=8)	(N=16)	(N=21)	Table 1. Medicine	Attending (N=8)	Medical Student (N=16)	Resident (N=21)	P- value
Is the discussion appropriate to your level of training?				n/a				
Yes	8 (100)	16 (100)	21 (100)		5 (71.4)	9 (60.0)	15 (75.0)	0.7446
No	0 (0)	0 (0)	0 (0)		2 (28.6)	6 (40.0)	5 (25.0)	
Does imaging rounds enhance your understanding of information contained within the report?								1
Yes	7 (87.5)	16 (100.0)	20 (95.2)	0.4485	7 (87.5)	14 (93.3)	19 (80.5)	
No	1 (12.5)	0 (0)	1 (4.8)		1 (12.5)	1 (6.7)	2 (9.5)	
Do you feel more confident in ordering imaging studies after participating in imaging rounds?				0.8978				0.1042
Yes	6 (75.0)	13 (81.3)	15 (71.4)		4 (57.1)	13 (81.3)	10 (47.6)	
No	2 (25.0)	3 (18.8)	6 (28.6)		3 (42.9)	3 (18.8)	11 (52.4)	
Does imaging rounds affects the clinical management of your patients?				0.1684				0.3733
Yes	6 (75.0)	13 (86.7)	12 (57.1)		6 (75.0)	15 (93.8)	17 (85.0)	
No	2 (25.0)	2 (13.3)	9 (42.9)		2 (25.0)	1 (6.3)	3 (15.0)	
Does imaging rounds allow for the radiologist to have a better understanding of the patient, resulting in a more complete assessment and interpretation?				0.2785				1
Yes	8 (100.0)	15 (100.0)	18 (85.7)		7 (87.5)	14 (87.5)	18 (85.7)	
No	0 (0)	0 (0)	3 (14.3)		1 (12.5)	2 (12.5)	3 (14.3)	
Do you think imaging rounds improves patient care?				0.1459				0.3561
Yes	8 (100.0)	14 (93.3)	15 (71.4)		8 (100.0)	11 (84.6)	16 (76.2)	
No	0 (0)	1 (6.7)	6 (28.6)					
Do you feel that imaging rounds is beneficial to your educational experience?				0.3962				
Yes	7 (87.5)	16 (100.0)	19 (90.5)		0 (0)	2 (15.4)	5 (23.8)	
No	1 (12.5)	0 (0)	2 (9.5)					

Results — Medicine Department

- There was no statistically significant difference in answers between medicine attendings, residents, and medical students.
- Across all three groups, there was an overwhelming positive review of imaging rounds.
- All three groups agreed imaging rounds improved education, communication, and patient care.

Results — Medicine v. Radiology Residents

Legend: ■
statistically significant

	(N=21)	(N=17)		(N=21)	(N=17)	
Is the discussion appropriate to your level of training?			n/a			
Yes	21 (100.0)	17 (100.0)				
No	0 (0)	0 (0)				
Does imaging rounds affects the clinical management of your patients?			0.2597			
Yes	12 (57.1)	12 (75.0)				
No	9 (42.9)	4 (25.0)				
Does imaging rounds allow for the radiologist to have a better understanding of the patient, resulting in a more complete assessment and interpretation?			0.6131			
Yes	18 (85.7)	16 (94.1)				
No	3 (14.3)	1 (5.9)				
Do you think imaging rounds improves patient care?			0.2575			
Yes	15 (71.4)	15 (88.2)				
No	6 (28.6)	2 (11.8)				
Do you feel that imaging rounds is beneficial to your educational experience?			1			
Yes	19 (90.5)	15 (88.2)				
No	2 (9.5)	2 (11.8)				
Since participating in imaging rounds, do you feel you have improved your skills as a consultant?			0.4165			
Yes	15 (75.0)	15 (88.2)				
No	5 (25.0)	2 (11.8)				
Do you think this activity has improved communication between the radiology and medicine departments?			1			
Yes	19 (90.5)	16 (94.1)				
No	2 (9.5)	1 (5.9)				
Has imaging rounds changed your perspective on the radiology /medicine department?			0.1812			
Yes	10 (47.6)	4 (23.5)				
No	11 (52.4)	13 (76.5)				
If feasible, would you want to incorporate imaging-medicine consultation in your future practice?			0.2381			
Yes	17 (85.1)	16 (100.0)				
No	3 (15.0)	0 (0)				
Has participation in imaging rounds improved your ability to interpret medical imaging?			0.0159			
Yes	18 (85.7)	8 (47.1)				
No	3 (14.3)	9 (52.9)				
Do you feel that imaging rounds are convenient and easy to schedule?			0.2521			
Yes	16 (76.2)	10 (58.8)				
No	5 (23.8)	7 (41.2)				



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Results — Medicine v. Radiology Residents

- While 47% of radiology residents felt imaging rounds improved their own interpretation skills, a whopping 86% of medicine residents believed their interpretation skills were improved.**
- >90% of residents felt that communication between departments was improved.

**statistically significant with p-value>0.05



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Results

Survey participants were given the opportunity to provide free text feedback to identify areas of improvement for CIR.



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Results – Free Response Questions

- What are the barriers you encounter during imaging rounds?
- What can be improved?
- What has been the most valuable aspects of imaging consultation?

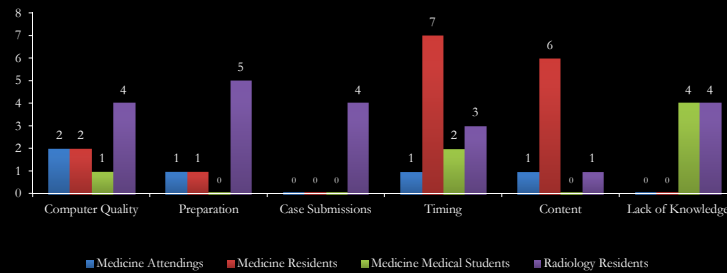


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Results

What are the barriers you encounter during imaging rounds?



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Results

What are the barriers you encounter during imaging rounds?

Top Answers:

Medicine Attendings: Computer Quality

Medicine Residents: Timing

Medicine Med Students: Lack of Knowledge

Radiology Residents: Preparation



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Results

What are the barriers you encounter during imaging rounds?

“Availability of
.”

“There has been some instances where timing was inconvenient due to pending
.”

“
.” Radiologists have a tendency to move between images quickly and it would be helpful if the radiologist were to explain in a bit more detail how the imaging findings pertain to the clinical presentation.”

“
is key as it allows a thorough evaluation of the case, literature, and review with radiology attendings as needed.”

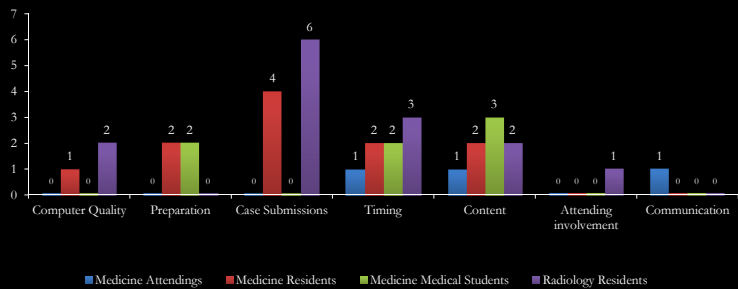


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Results

What can be improved?



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Results

What can be improved?

Both medicine and radiology residents believe that the case submission process, more than many other aspects of CIR, can be improved.



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Results

What can be improved?

“More flexibility in
that may have particular radiology
needs.”

“I think the processing of
could be improved. Also, I think it
would be great if we were able to
and show them their
imaging if they want to see it.”

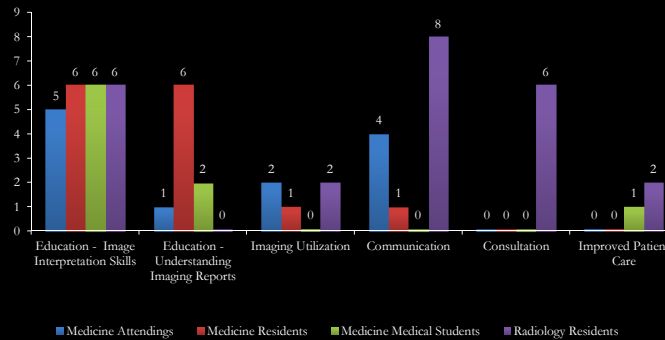


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Results

What has been the most valuable aspects of imaging consultation?



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Results

What has been the most valuable aspects of imaging consultation?

Top Answers:

Medicine Attendings:

Education – Image Interpretation

Medicine Residents:

Education – Image interpretation and utilization

Medicine Med Students:

Education - Image Interpretation

Radiology Residents:

Communication

Education – Image Interpretation



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Results

What has been the most valuable aspects of imaging consultation?

“Getting to discuss with imaging findings with radiologists to get a

.”

“I think these are wonderful sessions which help us to better understand

results and

.”

“Great interdisciplinary contact and

. Shared goal of

.”

“ with medicine, which is the team we work the most for but speak directly to the least.”



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Discussion

- Resident-driven imaging rounds provides a valuable opportunity to improve communication, education, and patient care.
- Our sustainable workflow:
 - Allows for direct and regularly scheduled imaging-medicine consultation.
 - Is valued by both radiologists and internal medicine physicians as an excellent educational experience.



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Discussion

- Areas for improvement:
 - Case submission process
 - Timing of rounds
 - Remote PACS access



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Discussion

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Limitations

- Survey was not mandatory – not all participants responded to survey, selection bias.
- Improvement in patient care analysis was subjective only, based on memory and opinion of survey takers.



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Future Directions

- A retrospective analysis of de-identified CIR patient information to determine:
 - consult patient demographics
 - nature of consultation
 - impact of specific clinical recommendations made during CIR
- Improvements in Web PACS.
- Incorporation of tablet use.
- Automated case submission system.



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References

1. Hassan, Amena. "Imaging 3.0 Case Study: Radiology's Open Door." American College of Radiology, May 2015. Web. 26 Oct. 2015.
2. Hobson, Chris. "Imaging 3.0 Case Study: The Value of Hard Work." American College of Radiology, August 2014. Web. 26 Oct. 2015.



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