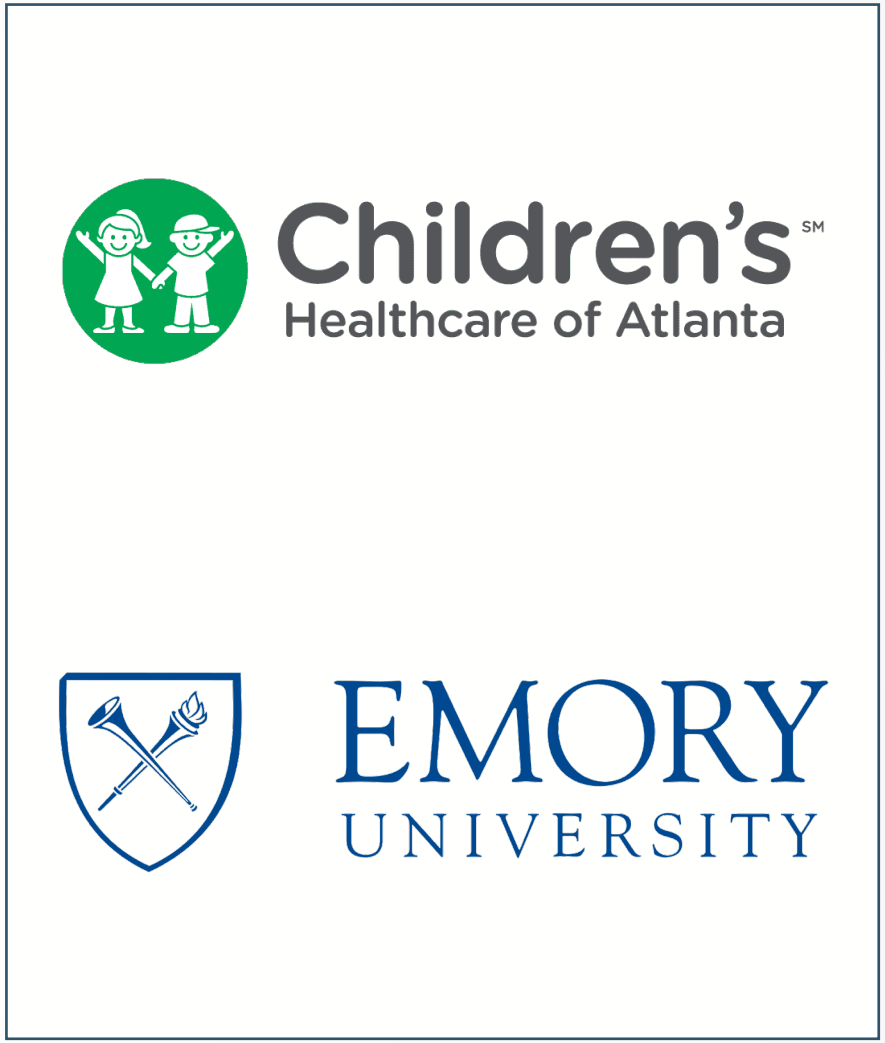
Revamping Feedback from Radiologists to Technologists

Presenter: Nadja Kadom, MD

Co-Authors: Palasis S, Lall N, Simoneaux S, Khanna G, Goehner M, Loewen J

Disclosures: None



Background

- ***Problem Description***: In our large, multihospital pediatric facility radiologists have used the electronic medical record system functionality to give feedback to technologists on image quality issues. The technologists perceived the feedback as not helpful and reported use of inappropriate language.
- ***Available Knowledge***: A literature search and an online radiology quality community query were conducted and provided limited existing information for designing a better feedback system.
- ***Purpose***: To develop a more effective feedback system from radiologists to technologists.

Methods

- ***Context and Intervention***: The study was performed in a pediatric radiology department with 38 radiologists at a free-standing pediatric academic hospital with 592 beds.
- ***Team***: A team of radiologists, technologists, educators, and the Quality Team developed a strawman list of feedback categories based on literature review and their own expertise

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Methods

- ***Survey***: Feedback on the strawman feedback category list was collected from our department faculty and staff
- ***Measures/Metrics***: Survey response rates and qualitative feedback.
- ***Improvements:*** Survey results informed acceptance versus further improvements
- ***Analysis***: Descriptive statistics were used to analyze survey responses.

Item #	Items Stem	Answer options
1	I am	a physician, a technologist, other
2	I am rating this for the following modality	CT, Fluoroscopy, MRI, Nuclear medicine, Radiography, Ultrasound
3	The proposed new buttons are appropriate	Yes, No
4	The proposed education for radiologists seems appropriate	Yes, No
5	The proposed education for team leads/supervisors seems appropriate	Yes, No
6	The proposed education for technologists seems appropriate	Yes, No
7	The proposed handling of inappropriate feedback content seems appropriate	Yes, No
8	Any comments?	[Open text]

The materials for items 3-7 were provided in a ppt file that was included with the survey invitation

Results

- The survey was sent to 40 members of the department and there were 33 responses inclusive of all imaging modalities, the response rate was 83%.

1. I am (0 point)

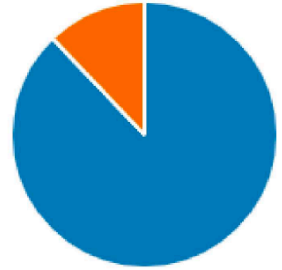
a physician	11
a technologist	13
other	9

2. I am rating this for the following modality (0 point)

CT	6
Fluoroscopy	2
MRI	7
Nuclear medicine	2
Radiography	9
Ultrasound	7

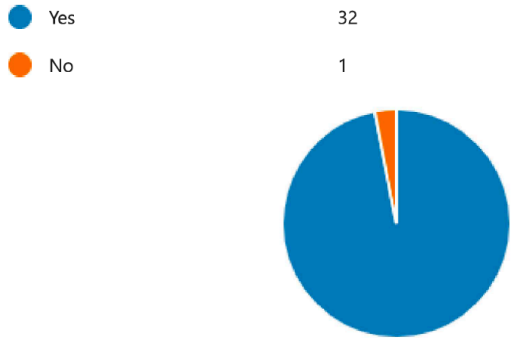
3. The proposed new buttons (page 1, gray table, 1st column labeled "Button") are appropriate

Yes	29
No	4



Results

5. The proposed education for radiologists (page 2) seems appropriate



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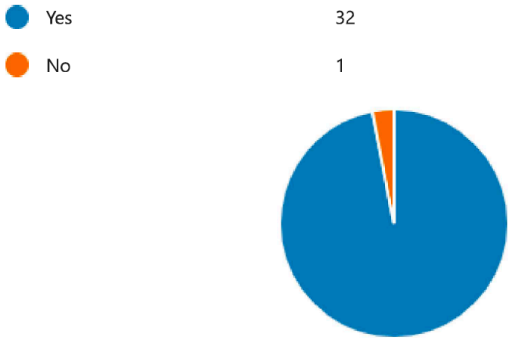
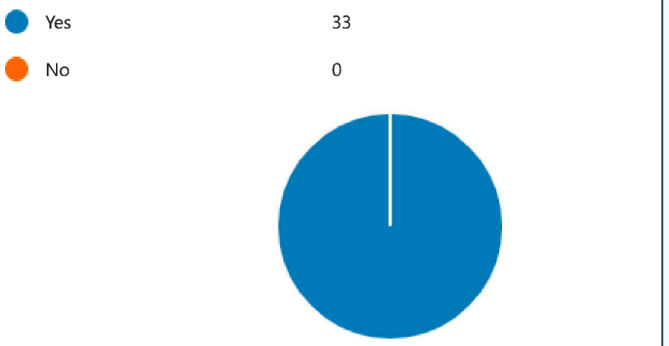
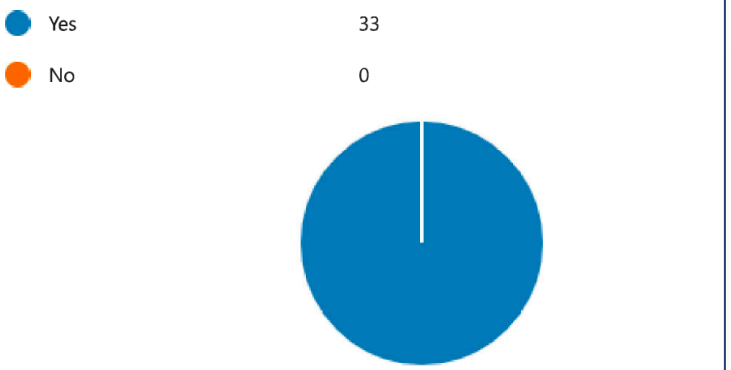


9. The proposed education for technologists (page 4) seems appropriate

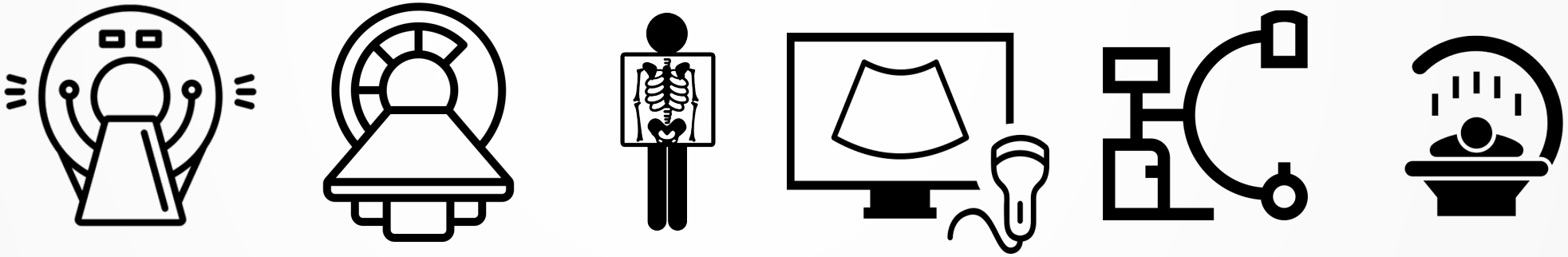


11. The proposed handling of inappropriate feedback content (page 5) seems appropriate



Results

- We received 8 qualitative suggestions for improvement that were incorporated in the final version of the feedback categories and explanations; otherwise respondents agreed with the proposed categories and explanations/examples.
- After incorporation of the suggestions from the survey, the final feedback system covers six modalities:



CT | MRI | Radiography | Ultrasound | Fluoroscopy | Nuclear Medicine

Feedback Categories & Examples

Modality	Feedback Categories	Examples
CT[1] & MRI[2]	[1]Image Quality	e.g., Motion, over-exposed, under-exposed, FOV issue, contrast delay, extravasation
	[2]MRI: Image Quality	e.g., Motion, FOV issue, contrast issue
	Marker	e.g., No lesion marker
	Communication	e.g., Mandatory image check with radiologist not done
	Protocol	e.g., Wrong protocol used, images not in correct order, missing image(s), post-processing issue (wrong/missing reformats, etc)
	Delay	e.g., Exam status issue in EPIC/PACS, images missing in PACS
	Safety	e.g., Wrong exam/wrong patient, side discrepancy, laterality issue
Radiography	Positioning	e.g., Suboptimal patient positioning
	Artifact	e.g., Clothing, jewelry
	Collimation	e.g., Suboptimal collimation
	Image Quality	e.g., Motion, over-exposed, under-exposed
	Labeling	e.g., Incorrect marker, no marker, rotation marker
	Communication	e.g., Mandatory image check with radiologist not done
	Protocol	e.g., Wrong protocol used, images not in correct order, missing image(s)
	Delay	e.g., Exam status issue in EPIC/PACS, images missing in PACS
	Safety	e.g., Wrong exam/wrong patient, side discrepancy, laterality issue, incorrect patient orientation
Ultrasound	Order	e.g., Wrong order, mismatch reason for exam and exam performed
	Image Quality	e.g., Motion, wrong transducer, missing still images, gain too high/low, artefact, incorrect FOV
	Labeling	e.g., Incorrect labeling, incorrect measurements
	Communication	e.g., Mandatory image check with radiologist not done, incomplete/missing study note
	Protocol	e.g., Need cine images, wrong protocol used, images not in correct order, missing image(s), post-processing issue
	Delay	e.g., Exam status issue in EPIC/PACS, still images/cine missing in PACS
	Safety	e.g., Wrong exam/wrong patient, side discrepancy, laterality issue, labeling error, possibly critical finding communicated to radiologist
Fluoroscopy	Order	e.g., Wrong order, mismatch reason for exam and exam performed
	Exam Technique	e.g., Artifact, patient positioning
	Post-Processing	e.g., Delay in end exam, no communication with radiologist, no contrast dose entered, no fluoro time entered
	Communication	e.g., No study note, Incomplete study note
	Delay	e.g., Exam status issue in EPIC/PACS, images missing in PACS
	Safety	e.g., Wrong exam/wrong patient, side discrepancy, laterality issue
Nuclear Medicine	Positioning	e.g., Suboptimal patient positioning
	Artifact	e.g., Clothing, jewelry
	Collimation	e.g., Suboptimal collimation
	Image Quality	e.g., Motion, over-exposed, under-exposed
	Labeling	e.g., Incorrect marker, no marker, rotation marker
	Communication	e.g., Mandatory image check with radiologist not done
	Protocol	e.g., Wrong protocol used, images not in correct order, missing image(s)
	Delay	e.g., Exam status issue in EPIC/PACS, images missing in PACS
	Safety	e.g., Wrong exam/wrong patient, side discrepancy, laterality issue, incorrect patient orientation
ALL Modalities	Excellent!	e.g., The images are of textbook quality, study completed despite difficulties, possibly critical finding communicated to radiologist
	Teaching Case	e.g., Great case for technologist teaching/learning

Conclusion

- We used an iterative inter-professional team approach to develop modality specific feedback categories and examples that can be implemented through our electronic medical record system.
- Each feedback category can be selected as a button, and an open comment box invites the radiologist to add more detail.
- Technologists felt strongly that the "Excellent!" feedback should be included, but should be defined more clearly, such as a "textbook image quality" or "technologist made a finding and alerted the radiologist"
- Our technologists requested that radiologists submit interesting learning cases for technologists.
- The new feedback categories and process reflect a change in our culture that emphasizes learning, coaching, and quality improvement. As a result, our departmental performance assessment policy for technologists was revised as well.

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Contact: Nadja Kadom, MD
nkadom@emory.edu
@nkpiano

EMORY UNIVERSITY