MICHIGAN STATE UNIVERSITY

What are our blind spots?

Using peer-learning to create a case archive of common diagnostic errors

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SPECTRUM HEALTH

Introduction/Purpose

- Radiology departments are increasingly transitioning from an environment of retrospective peer review to one that promotes active, nonpunitive peer learning
- Many learning opportunities are frequently encountered during the daily workflow
  - Sharing these cases not just with the interpreting radiologist, but the entire division or department promotes continued practice improvement through shared feedback
  - If not actively collected, these opportunities for improvement are missed
- Active identification allows section leaders to review areas that need the most improvement and include cases with the most educational benefit in peer learning initiatives
- Encourages continuous practice improvement among radiologists and should provide improved service to patients and referring providers

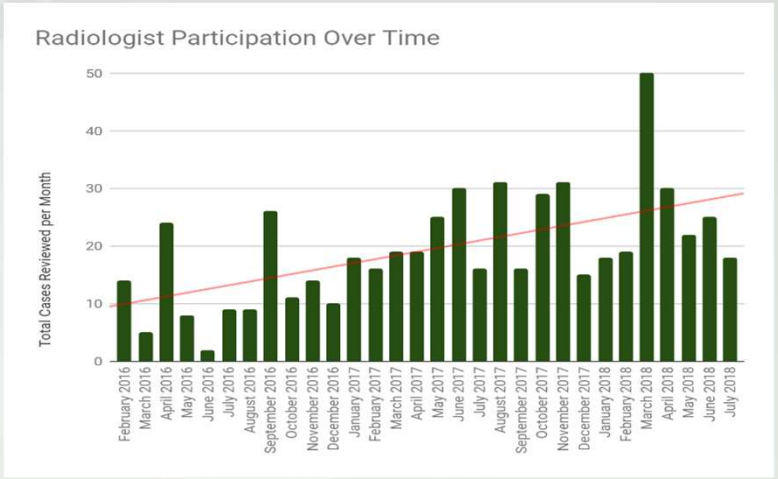
Methods

- We developed a peer learning case submission module for cases encountered during the daily workflow, multidisciplinary patient conference, requests from referring clinical service, and other clinical opportunities for improvement in interpretation/reporting and also identified “great call” cases separate from our traditional peer review

- Submitted cases were categorized by the radiology quality committee on basis of subspecialty, anatomy and type of pathology

Results

- 588 actively identified peer learning cases during the first 30 months of the program from January of 2016 to June 2018
  - Peer learning opportunities: 522 (89%)
  - Great calls: 65 (11%)
  - Receiving radiologists: 123
    - Average per radiologist: 4.7
    - Range: 1 to 30
  - Submitting radiologists: 63
    - Average per radiologist: 9.3
    - Range: 1 to 70

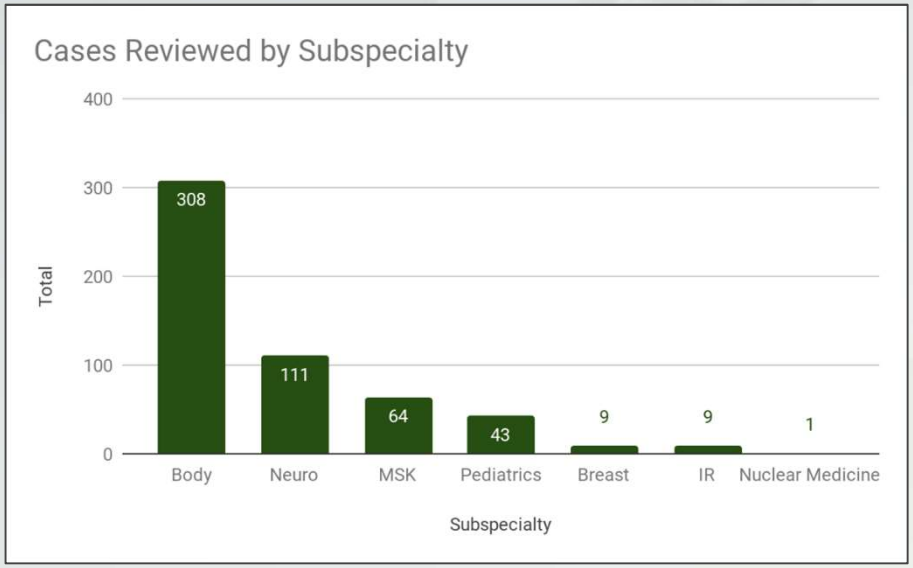


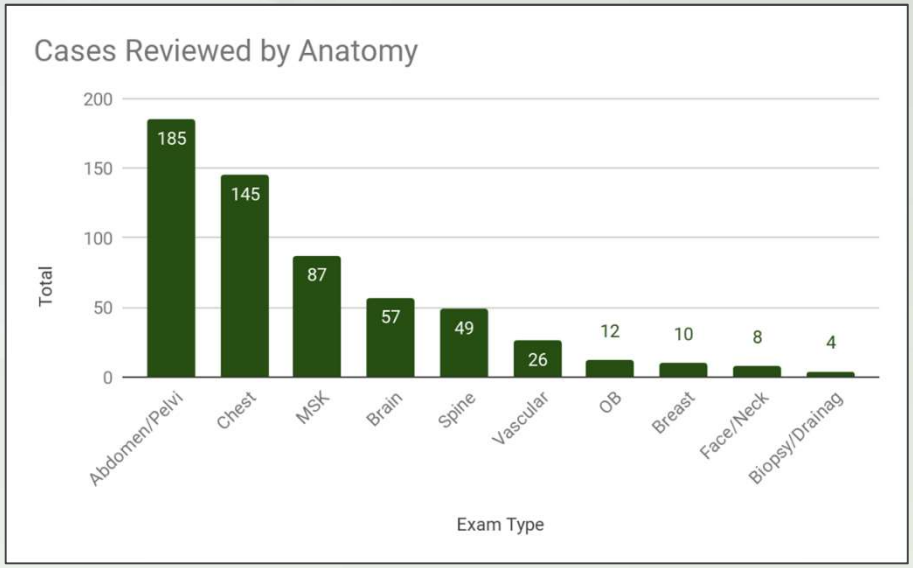
- Increased participation by radiologists:
  - 401 cases in the first 2 years after system implementation for an average of 17 cases per month
  - 182 cases in the most recent 6 months for an average of 30 cases per month

Subspecialty and Anatomy

- 77% of cases were Body and Neuro
- Breast, Interventional Radiology and Nuclear Medicine were the least reviewed

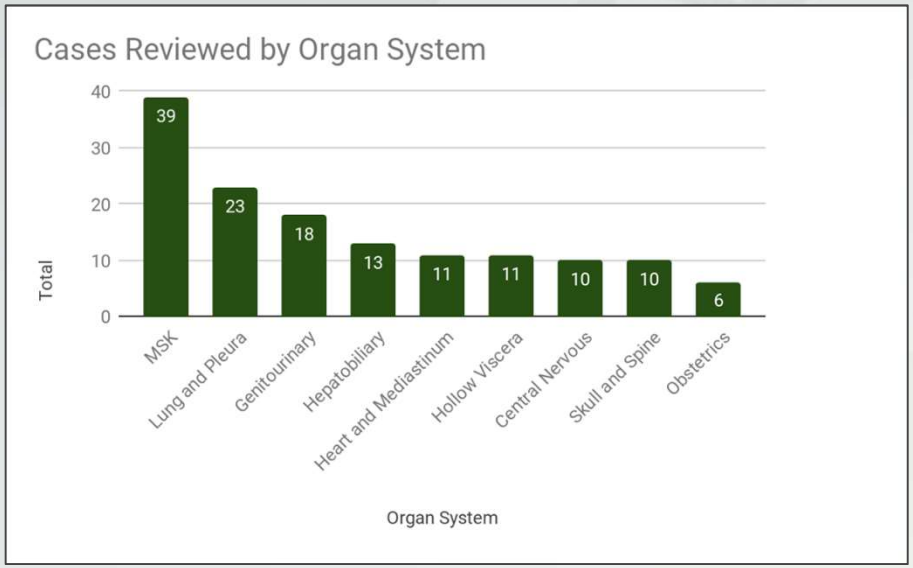
- Abdomen/Pelvis (31.7%), chest (24.9%) and musculoskeletal (14.9%) had the most identified cases for peer learning



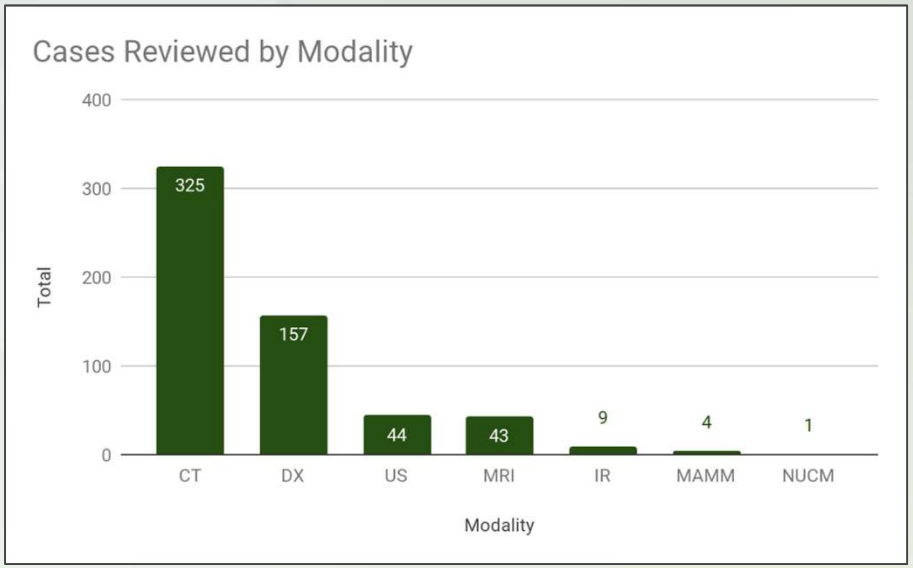


Organ System and Modality

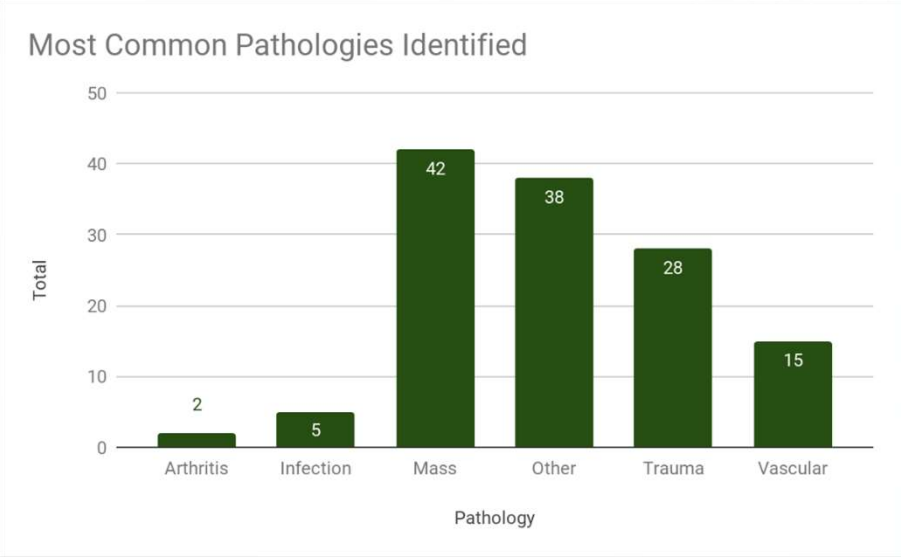
- Organ system classified on 3/6/2018
- MSK was most common when organ classification combined all modalities



- More peer learning opportunities were identified on CT (56%) and radiograph (23%) examinations



Pathology



- Added as a category 3/8/2018
- 130 cases classified

- Most cases involved a mass, fracture, vascular or categorized as “other”

- “Other” category was wide ranging in the submitted comments and included:
  - Reporting error such as a typo or discrepancy between the “findings” and “impression” sections
  - Prior examinations not referenced in the report that would impact diagnosis or management

Anatomy and Pathology by Modality

Anatomy	CT	DX	IR	MAMM	MRI	NUCM	US	Grand Total
Abdomen/Pelvis	144	14	-	-	5	-	22	185
Chest	87	57	-	-	-	-	1	145
MSK	9	71	-	-	6	1	-	87
Brain	42	-	-	-	15	-	-	57
Spine	19	14	3	-	13	-	-	49
Vascular	19	-	2	-	-	-	5	26
OB	-	-	-	-	-	-	12	12
Breast	-	-	-	4	3	-	3	10
Face/Neck	5	1	-	-	1	-	1	8
Biopsy/Drainage	-	-	4	-	-	-	-	4
Grand Total	**325**	**157**	**9**	**4**	**43**	**1**	**44**	**583**

Pathology	CT	DX	IR	MAMM	MRI	NUCM	US	Grand Total
Arthritis	-	2	-	-	-	-	-	**2**
Infection	4	-	-	-	1	-	-	**5**
Mass	28	8	-	-	3	1	6	**46**
Other	19	13	-	1	1	-	5	**39**
Trauma	11	14	-	-	3	-	-	**28**
Vascular	12	1	1	-	-	-	3	**17**

DX = radiographs; MAMM = mammography; NUCM = nuclear medicine

Discussion

- The new peer learning system has been widely used since its implementation
- Areas of identified greatest educational need include
  - Department/Subspecialty: Body and Neuroradiology departments
  - Body Part: Abdomen/Pelvis, Chest and MSK
  - System: Genitourinary, Lung and Pleura
  - Pathology: Mass identification, trauma cases, other (needs improved classification)
- CT and Radiographs made up the majority of modalities in which we encounter errors
- Most common topics/pathology were mass, trauma, vascular or other
  - Most masses involved the genitourinary system and most commonly missed on CT
  - Most trauma involved fractures and most commonly missed on DX or CT in polytrauma
- This new system provides learning opportunities for our entire radiology department, including radiologists, residents, visiting trainees and technologists
- Aims to eliminate punitive peer evaluation by creating an environment of peer learning with the end goal of improving patient care and service
- Resulted in increased motivation and participation by radiologists evidenced by increased number of case reviews as the program progressed
- Should reassure referring providers and other stakeholders that radiology cases with learning and improvement opportunities prospectively identified during clinical workflow are addressed

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