DEVELOPMENT OF A RELIABLE GRADING SCHEME TO UTILIZE WHEN EVALUATING RADIOLOGY RESIDENT REPORTS

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DISCLOSURES

- The authors have nothing to disclose.

INTRODUCTION

- At many centers the traditional method of evaluating medical residents is being replaced by a competency-based evaluation system.

- Competency based radiology training focuses on early and on-going evaluation of residents.

INTRODUCTION

- Residents begin generating reports soon after entrance with an expectation the reports become more structured, accurate and useful, as the resident becomes more knowledgeable of diagnoses and management of the many disease processes.

PURPOSE

- To develop an objective report grading system that could be used to:
  - Reliably assess radiology resident competence
  - monitor their progress

METHODS

- 11 residents at various levels of training dictated 10 selected pediatric radiology cases located in specific CBME folder on our PACS

- Dictation followed a structured report format

METHODS

- The radiologists used a mock report generated by consensus of 3 pediatric radiologists (8-25y experience) as a template for the grading

- Each resident report was graded by 3 radiologists (2 pediatric; 1 adult) as well as one senior resident

METHODS

- Cases graded were:
  - Slipped capital femoral epiphysis
  - Pneumothorax
  - Respiratory distress syndrome
  - Pneumonia
  - Supracondylar fracture
  - Vesicoureteral reflux
  - Umbilical vein catheter malposition
  - Malrotation
  - Germinal matrix hemorrhage
  - Tillaux fracture
- Each case had a specific number of available points

METHODS

- Grading was based on 4 principles:

A. Accurate/adequate description of findings - more senior resident should have more thorough knowledge of descriptors used and what negative findings are pertinent

B. Appropriate ddx/dx - more senior resident should have a more extensive list

C. Appropriate work-up/follow-up recommendation - more senior resident should have more exposure to usefulness of other imaging modalities and role of other subspecialists

D. Has the report helped advance the patient along clinical pathway?

A: Accurate/adequate description of findings

- Properly described primary observation: 3 pts (2 or 1 pts if incomplete)
- Associated important observation - positive or negative: 2 pts (1 if incomplete)
- Described observation not contributing to presenting pathology:1 pt
- Erroneous observation - minus 2 pts if affecting patient care
  - minus 1 pt if not affecting patient care

B: Appropriate dx/ddx

- Appropriate dx/ddx: 3 pts (2 or 1 pt if incomplete)
- Inappropriate dx/ddx: minus 1 pt

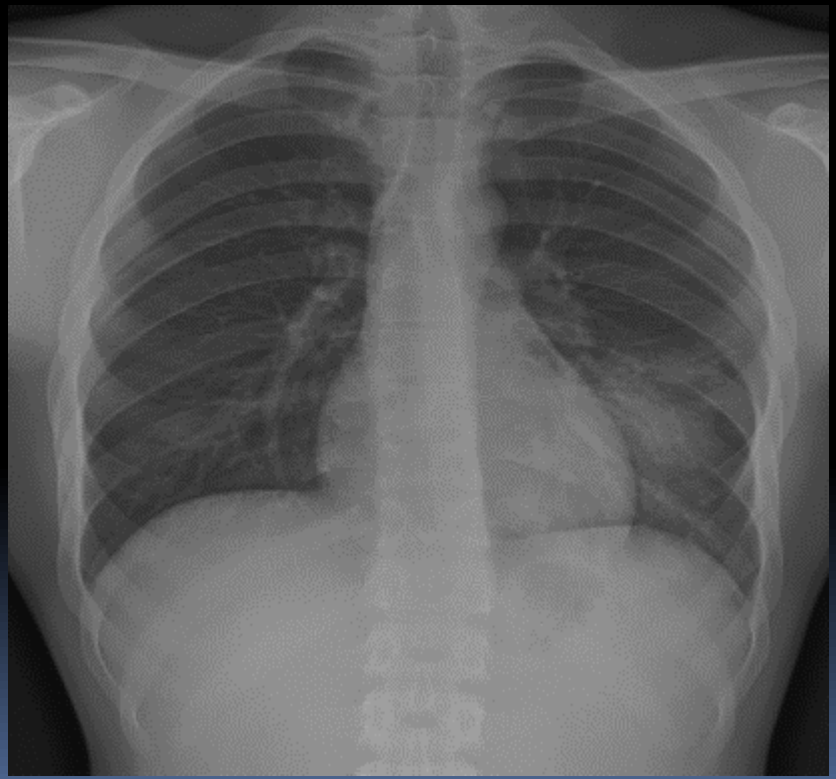
C: Appropriate work-up/follow-up recommendation

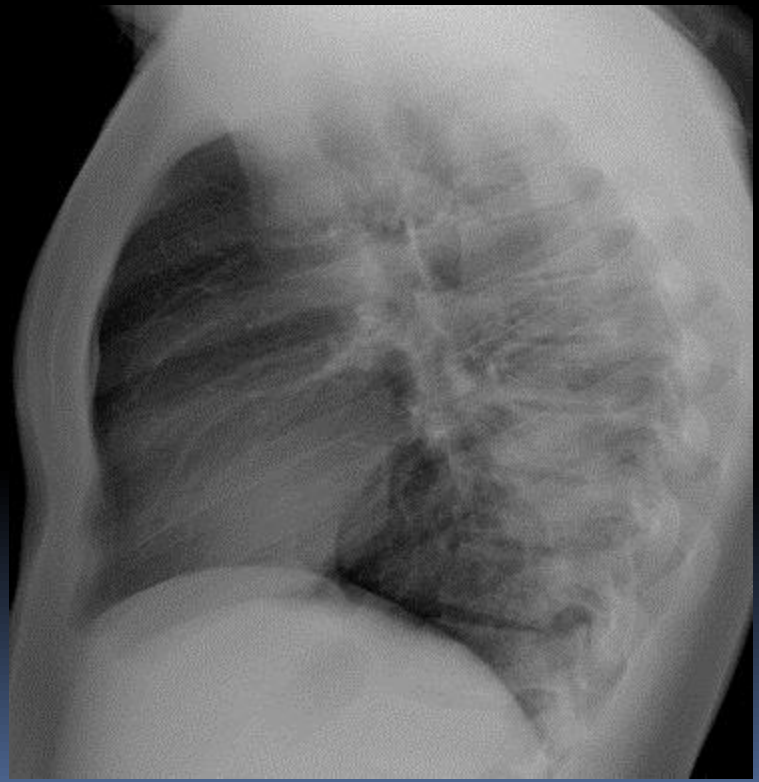
- Appropriate work-up suggested
  - 2 pts (1pt if incomplete)
  - minus 1 pt (if inappropriate)

D: Has the report helped advance the patient along clinical pathway? 2pts

- Patient presentation moved to ddx or dx, or
- Patient has ddx moved to dx, or
- Patient dx moved to complications of dx or improved vs. worsened or
- Patient guided to appropriate care

Example: Left lower lobe pneumonia





Mock Report

A. There is patchy ill-marginated opacity within the LLL: 3 pts
   - There is no significant pleural effusiion: 2 pts
   - Cardiac, mediastinal and hilar contours within normal limits: 2 pts
B. Impression: findings in keeping with an infectious process in the LLL: 3 pts
C. Recommendation: none – no pts
D. Moved patient along spectrum: 2 pts (moved from symptom to dx)

Case total points: 12

Resident Report

Chest XRay

Lung parenchyma – Focal area of consolidation projecting over the left lower lobe, which may represent infectious or inflammatory etiologies. Correlate with clinical features. 3 +3

Heart- cardiac silhouette and contours are unremarkable

Mediastinum – contours are within normal limits

1

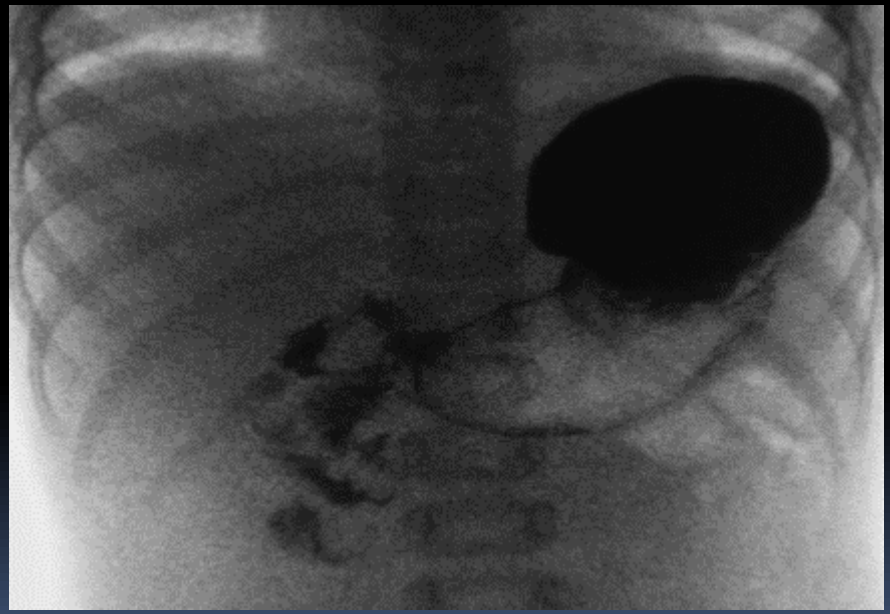
Pleural space – no significant pleural effusion/thickening or evidence of pneumothorax 2

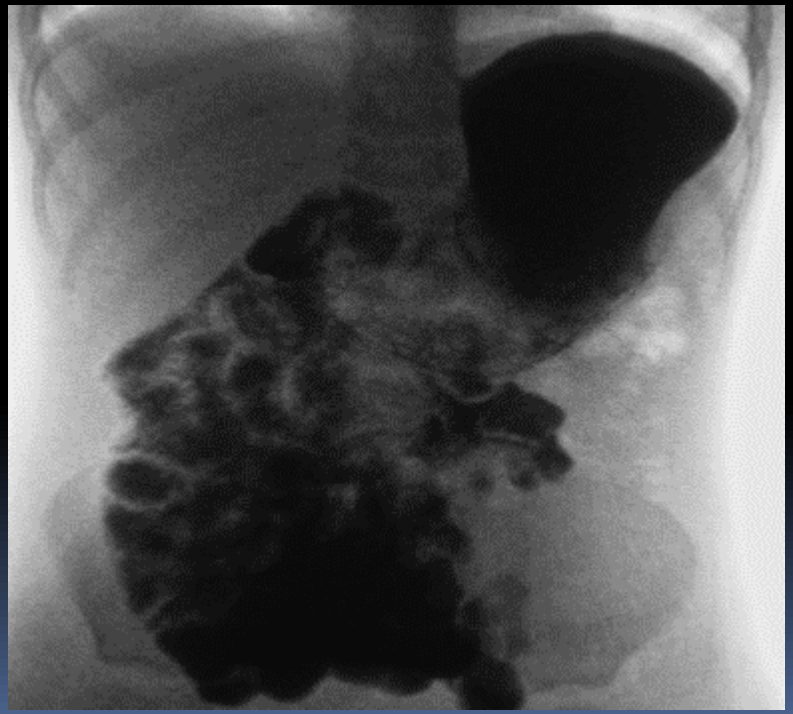
Thoracic cage/bony structures – unremarkable

2

Resident total points: 11

Example: Malrotation





Mock Report

A. There is abnormal position of the DJ flexure, which is located to the right of the midline: 3 pts
   - The small bowel loops are abnormally located to the right of the midline: 2 pts
B. Impression: findings in keeping with midgut malrotation: 3 pts
C. Recommendation: surgical consultation: 2 pts
D. Moved patient along spectrum: 2 pts (moved from symptom to dx)

Case total points: 12

Resident Report

UGI

There was normal distensibility of the esophagus with no fixed areas of narrowing.
The gastric and small bowel mucosal pattern is abnormal, with nodularity throughout in keeping with innumerable small polyps. The differential for small bowel polyposis includes Peutz-Jeghers syndrome, familial adenomatous polyposis, Cowden syndrome, and Cronkhite-Canada syndrome. -2 -1
Recommend referral to GI. -1
The D-J flexure lies in a normal location to the left of the L1 pedicle.

Resident total points: minus 4

RESULTS

- Overall agreement between radiologists

Scale	n	Intraclass Correlation	95% Confidence Interval
Descriptive	96	.849 .852	.796, .891 .805, .891
Diagnosis	60	.890 .892	.838, .929 .845, .928
Recommendation	70	.782 .827	.697, .850 .764, .880
Advancing patient	95	.767 .624	.692, .830 .533, .710

p<0.001 for all comparisons

RESULTS

- Resident performance

Scale	n	Mean (SD)	
Descriptive	96	41.2 (33.4)	42.9 (31.5)
Diagnosis	60	58.3 (46.2)	58.7 (42.9)
Recommendation	70	22.1 (37.8)	22.0 (37.9)
Advancing patient	95	74.9 (36.6)	78.6 (32.0)

CONCLUSION

- The grading scheme provided an objective, reliable and consistent method to monitor resident competence and improvement during residency.

THANK YOU

COMPETENCY-BASED MEDICAL EDUCATION: DEVELOPMENT OF A PEDIATRIC RADIOLOGY TESTING MODULE

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METHODS

summary