

Radiology Report Content Assessment

A Different View of Peer Learning and Report Quality Improvement

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Background

- Traditional score-based peer review and newer peer learning concepts often focus on the diagnostic accuracy and diagnostic learning opportunities of radiology cases.
- For several years, our practice has incorporated a separate “report content assessment” option that allows radiologists to provide feedback to peers on the structure, readability, and perceived clinical usefulness of radiology reports examined during peer review and peer learning processes.
- These ratings are distinct from the RADPEER-based numeric score and peer-learning classifications

Background

- The ratings attempt to evaluate how radiology reports are used to communicate diagnostic information to referring providers and patients.
- Initially, the ratings used the same 4-point scale as the original RADPEER numeric system and subsequently a structured list of for the “content assessment” was developed to replace numeric scoring.
- This study examines trends in this peer reported data to evaluate for areas of potential improvement and the effect of a transition from numeric scores to structured qualitative statements.

Methods

- The subjective 4-point score for “Report Content Assessment” was initially designed to address the readability and “usefulness” of a report
 - Higher scores indicated greater severity/number of content errors or ambiguity
 - After selecting the numeric score, secondary structured options that could be selected to provide more information to the original radiologist and more than one option could be selected (Figure 1a).
- After 2 years, this system was modified to remove the numeric scores and to provide only a list of structured comments, listed alphabetically, in addition to an “other” choice for free-text comments (Figure 1b).

Report Rating:*

- 1 Accurately and clearly conveys findings and interpretation.
- 2 Difficult to follow, adequately conveys findings and interpretation.
- 3 Difficult to follow, does not adequately convey findings and/or interpretation.
- 4 Inconsistent and/or clinically misleading report.

- a This report does not answer the clinical question posed by the order.
- b PQRS requirements are not documented.
- c Word salad is present.
- d Were you aware that prior studies were available?
- e Typos or grammatical errors are present.
- f Be more specific about whether (or not) to follow up.
- g The report contains ambiguity.
- h There are laterality discrepancies present.
- i Other – See Review Comments

Report Content Assessment:*

- No Suggestions Needed
- Clinically relevant prior studies were not utilized/mentioned
- Does not answer the clinical question
- Findings/Impression are not clinically useful
- Out of Context Words/Phrases – Single
- Out of Context Words/Phrases – Multiple
- PQRS/QPP requirements were not addressed
- Report ambiguity – Mild
- Report ambiguity - Severe
- Other - Write comment.

Figure 1: Original 4-point score for “Report Content Assessment” (Figure 1a, left) with secondary structured options. Subsequent update with structured comments, listed alphabetically, in addition to an “other” choice for free-text comments (Figure 1b, right).

Results

- Total number of report reviews examined: **83,012**
 - 35,582 (43%) in the pre-period: 48,087 report content ratings
 - 47,430 (57%) in the post-period: 47,436 report content ratings
- Each case in both periods had at least one content rating, however there were more comments per report in the pre-period (1.35) with the modified numeric scores and structured pull down options compared to the post-period (1.00) showing only structured text options.

Results

- Focusing on the post-implementation structured comments, the most common reports where “no suggestions needed
- The report content assessment was compared to RADPEER peer-review scores for the same report

*Reports could have more than one content assessment category

Report Content Assessment Options	Total	(%)
No Suggestions Needed	46073	95.81
Other - Write comment.	1198	2.49
Out of Context Words/Phrases – Single	311	0.65
Clinically relevant prior studies were not utilized/mentioned	192	0.40
Report Ambiguity - Mild	179	0.37
Out of Context Words/Phrases – Multiple	39	0.08
Findings/Impression are not clinically useful	34	0.07
Does not answer the clinical question	28	0.06
PQRS/QPP requirements were not addressed	21	0.04
Report ambiguity - Severe	12	0.02
Grand Total	48087	100.0%

Results

Report Content Assessment Options	1		2		3		4		Total	(%)
No Suggestions Needed	44924	96.26%	1078	82.54%	68	64.76%	3	37.50%	46073	95.81
Other - Write comment.	1037	2.22%	134	10.26%	23	21.90%	4	50.00%	1198	2.49
Out of Context Words/Phrases – Single	299	0.64%	12	0.92%	0	0.00%	0	0.00%	311	0.65
Clinically relevant prior studies were not utilized/mentioned	161	0.34%	23	1.76%	8	7.62%	0	0.00%	192	0.40
Report Ambiguity - Mild	144	0.31%	33	2.53%	2	1.90%	0	0.00%	179	0.37
Out of Context Words/Phrases – Multiple	36	0.08%	3	0.23%	0	0.00%	0	0.00%	39	0.08
Findings/Impression are not clinically useful	24	0.05%	9	0.69%	1	0.95%	0	0.00%	34	0.07
Does not answer the clinical question	16	0.03%	10	0.77%	2	1.90%	0	0.00%	28	0.06
PQRS/QPP requirements were not addressed	19	0.04%	2	0.15%	0	0.00%	0	0.00%	21	0.04
Report ambiguity - Severe	8	0.02%	2	0.15%	1	0.95%	1	12.50%	12	0.02
Grand Total	46668	100.00%	1306	100.00%	105	100.00%	8	100.00%	48087	100.0%

Discussion

- The change in the report content assessment option from numeric scores to structured text labels resulted in slightly fewer content assessment feedback categories provided to the original radiologist
 - This may have decreased the opportunity to improve overall report quality
 - Natural language processing or manual review of comments may be helpful to identify larger trends and areas of improvement among this curated data
- There was no statistically significant trend among increased numeric RADPEER score and the structured report content assessment feedback
 - A higher percentage of higher RADPEER scored reports did have “Other” free text comments provided to the original radiologists