What We Have Learned About Peer Review & Peer Learning

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Disclosures

• Chair, ACR GRID Committee
• Member, ACR Q&S Planning Committee

• I just check the box on peer review
Overview

• **Features of score-based peer review**
• Experience with scoring-based peer review
• The idea of peer learning
• Practice experiences with peer learning
1999

2000

ABMS: MOC

1. Professional standing (eg, licensure status)
2. Lifelong learning
3. Cognitive expertise (eg, standardized tests)
4. Performance in practice

Core concept:
Each follow-up interpretation is a peer review
Apply scoring & tabulation
Voilà: Compliance!

| Table 3. RADPEER Scoring System (Effective May 2016) |
|-----------------|-----------------|-----------------|
| Score | Meaning | Optional |
| 1 | Concur with interpretation | |
| 2 | Discrepancy in interpretation/ not ordinarily expected to be made (understandable miss) | a. Unlikely to be clinically significant b. Likely to be clinically significant |
| 3 | Discrepancy in interpretation/ should be made most of the time | a. Unlikely to be clinically significant b. Likely to be clinically significant |

### Features of RadPeer

- Culture of compliance
- Randomized case selection
- Single reviewer
- Score-based
- Not anonymized
- Feedback to radiologist?
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General Limitations

Rating systems are flawed:

• Skewed miss rates due to disease prevalence/demographics on reading lists
• Case selection and sampling error (when cases reported by radiologists)
• Influence of clinical factors (access to histories)
• Inter-observer rating variation
• Truth in diagnosis and verification

Class I (nondiagnosable)
Class II (very difficult diagnosis)
Class III (should be diagnosed most of time)
Class IV (should almost always be diagnosed)
misdiagnoses

Score-based Review Issues

• Discoverability
• Being graded
• Use for decredentialing
• Not anonymous
• Lack of vendor system integration
Low Inter-Rater Agreement

Kappa < 0: Poor
Kappa 0.01-0.2: Slight
Kappa 0.21-0.4: Fair
Kappa 0.41-0.6: Moderate
Kappa 0.61-0.8: Substantial
Kappa 0.81-0.99: Perfect

Bender LC, Linnau KF, Meier EN, Anzai Y, Gunn ML. Interrater agreement in the evaluation of discrepant imaging findings with the Radpeer system. AJR Am J Roentgenol. 2012 Dec;199(6):1320-7
Statements about Peer Review

“Waste of time”

44%

“Merely done to meet hospital and regulatory requirements”

58%
“If peer review and routine peer feedback software were available, specified by radiologists and tailored to their needs, it would beneficially change the attitude of the radiologists towards such activity. They would engage willingly by choice and for interest, rather than often deeming it a pointless, potentially threatening, and time-wasting necessity only undertaken to comply with guidelines for administrative reasons.”

“In this single institutional retrospective analysis, integrating peer review in PACS resulted in a fivefold increase in reported significant discrepancies. These results suggest that peer review data are influenced by the design of the tool used including PACS integration, randomization, and blinding.

Yacoub JH, Obara P, Bova D. Integration of Peer Review in PACS Results in a Marked Increase in the Discrepancies Reported. AJR Am J Roentgenol. 2019 Dec 17:1-5.
Lack of Learning Yield

“A workstation-embedded random radiology peer review program had a very low yield in identifying learning opportunities and declining usage over time.”

Trinh TW, Shinagare AB, Khorasani R. Yield of Learning Opportunities From a Radiology Random Peer Review Program. AJR Am J Roentgenol. 2018 Sep;211(3):630-634.
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Key Elements of Peer Learning Theory

1. Scoring-based peer review does not result in improvement, is painful, and is toxic to the culture

2. Peer learning can utilize peers to reinforce and improve the culture, improve processes, provide a better experience to the radiologists, and results in real learning

Improvement Opportunities

- **Improvement:**
  - Encourage the Use of RADPEER in Practice Quality Improvement Projects
  - Ensure Notification of Correct Interpretation

- **Culture:**
  - Create a Culture of Acceptance
  - Establish an Appeals Process
  - Define Which Cases Will Be Reviewed
  - Decide If Outside Radiologists Will Be Reviewed
  - Eliminate Incentives

## Learning Points & Outcomes

### Learning and outcome

<table>
<thead>
<tr>
<th>Discrepancy</th>
<th>Reporting discrepancy</th>
<th>System discrepancy</th>
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<tbody>
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### Learning points:

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### Agreed outcome/further actions:

1. Communication to clinician: done/required/not necessary
2. Communication to patient: done/required/not necessary

### Note:

The categorisation should:

- Include both primary findings and incidental findings on the imaging study
- Include both misses and overcalls as appropriate.

| Standard 1 | Regular participation, 50% attendance rate, public |
| Standard 2 | Meet every 2 months |
| Standard 3 | Formal recording: (1) Consensus discussion, (2) Learning/action points, (3) Critical communication |
| Standard 4 | Shared summary to department |
| Standard 5 | Formal process for confidential feedback |
| Standard 6 | Bi-annual report of key learning points/recurrent error patterns |
| Standard 7 | Formal process for electing meeting convener |

### Table 2

**Important Cultural Values for Continuous Learning Health Care Systems, as Set Forth in the IOM Report**

<table>
<thead>
<tr>
<th>Value</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celebration of success</td>
<td>If excellence is to be pursued with vigor and commitment, its attainment needs to be valued within the organizational culture.</td>
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<tr>
<td>Absence of complacency</td>
<td>Learning organizations value innovation and change—they are searching constantly for new ways to improve their outcomes.</td>
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<tr>
<td>Recognition of mistakes as</td>
<td>Learning from failure is a prerequisite for achieving improvement. This requires a culture that accepts the positive spin-offs from errors, opportunities to learn</td>
</tr>
<tr>
<td>Belief in human potential</td>
<td>It is people who drive success in organizations, by using their creativity, energy, and innovation. Therefore, the culture within a learning organization values people and fosters their professional and personal development.</td>
</tr>
<tr>
<td>Recognition of tacit knowledge</td>
<td>Learning organizations recognize that individuals closest to processes have the best and most intimate knowledge of their potential and flaws. Therefore, the learning culture values tacit knowledge and shows a belief in empowerment (the systematic enlargement of discretion, responsibility, and competence).</td>
</tr>
<tr>
<td>Openness</td>
<td>Because learning organizations try to foster a systems view, sharing knowledge throughout the organization is one key to developing learning capacity. “Knowledge mobility” emphasizes informal channels and personal contacts over written reporting procedures. Cross-disciplinary and multifunction teams, staff rotations, on-site inspections, and experiential learning are essential components of this informal exchange.</td>
</tr>
<tr>
<td>Trust</td>
<td>For individuals to give their best, take risks, and develop their competencies, they must trust that such activities will be appreciated and valued by colleagues and managers. In particular, they must be confident that should they err, they will be supported, not castigated. In turn, managers must be able to trust that subordinates will use wisely the time, space, and resources given to them through empowerment programs—and not indulge in opportunistic behavior. Without trust, learning is a faltering process.</td>
</tr>
<tr>
<td>Looking outward</td>
<td>Learning organizations are engaged with the world outside as a rich source of learning opportunities. They look to their competitors for insights into their own operations and are attuned to the experiences of other stakeholders, such as their suppliers. In particular, they are focused on obtaining a deep understanding of clients’ needs.</td>
</tr>
</tbody>
</table>

Feedback, Leaning, Improvement

New definition of Peer Learning:

• **Primary goal:** Improvement
• **Culture:** Sharing knowledge with peers
• **Process:** Constructive, non-judgmental, timely
• **Outcomes:** Improving diagnosis & interpersonal relations

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• **Practice experiences with peer learning**
Group Consensus Peer Review

- Emphasis on group learning
- Recent cases
- Real-time feedback
- Includes good performance

Meaningful Ratings

Group Discussion of Learning Points

- Emphasis on group learning
- Recent cases
- Real-time feedback
- Includes good performance
- Better elucidate sources of error
- BUT: Random case selection

Fig 2. Source of discordance for cases resulting in report should change outcome, by division.

Peer Learning: Higher Engagement

• Participating radiologists increased from 5.0 to 35.2
• Submissions increased from 3.0 to 36.0
• Monthly learning opportunity increased from 18 to 352
• Monthly CME credits earned increased from 7.7 to 50.6

Non-Randomized: Higher Learning Yield

“The overall PLT report **addendum rate** was 11.2% (23 addenda/206 reports) versus 0.27% (13 addenda/4861 reports) for SBPR ($p = 0.03$), a **41-fold difference** (11.2/0.27).

The potential **learning opportunity** rate for PLT was 50.0% (206 clinical follow-up alerts among 412 total alerts) versus 0.53% (26 scored 3 or 4 among 4861 reports reviewed) for SBPR ($p = 0.00003$), a **94-fold difference** (50/0.53)”


Multi-Institutional Web-Based

- Participants reported presenting the following cases:
  - “Great call" 32/48 (66.7%)
  - Learning opportunity 32/48 (66.7%)
  - New knowledge 41/49 (83.7%)
  - “Zebras” 46/49 (93.9%)
  - Procedural-based 16/46 (34.8%)
- **100% of responders reportedly gained new knowledge**

Features of score-based review

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- Randomized case selection
- Single reviewer
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- Anonymized?
- Feedback to radiologist?
Thank you.

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