PEER LEARNING IS BOTH PREFERABLE AND LESS EXPENSIVE THAN SCORE-BASED PEER REVIEW: INITIAL EXPERIENCE AT A TERTIARY ACADEMIC CENTER

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PURPOSE AND BACKGROUND

To examine radiologist experiences and perceptions during a transition from score-based peer review to a peer learning program, and to assess differences in time-cost efficiency between the two models of quality improvement.

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<th>Score Based Peer Review (Old)</th>
<th>Shortcomings</th>
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<td>• Previously interpreted studies randomly reviewed by peer radiologists in the subspecialty of interest.</td>
<td>• Score-based peer review model focused on individual error rates and had not been shown to improve performance or change practice patterns&lt;sup&gt;2&lt;/sup&gt;.</td>
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<td>• Cases determined to be concordant or discordant, scored via the ACR RADPEER scoring approach&lt;sup&gt;9,10&lt;/sup&gt;.</td>
<td>• Viewed mostly as a means to meet regulatory requirements.</td>
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| • Cases reviewed at monthly conference  
  • Clinical Context  
  • Discordant finding  
  • Severity of finding/Final score | • Fostering culture of shame, anxiety |
|                               | • Increased risk of underreporting errors, limiting value<sup>2,3</sup>. |
2015 Institute of Medicine (IOM) report acknowledged the prevalence of diagnostic error in medicine and highlighted the importance of creating a non-punitive organizational culture to promote open communication and learning with the overarching goal of reducing diagnostic error\(^1\).

**Peer Learning Program (New)**

- Previously reported studies selected in an ad-hoc manner, encouraged to submit five cases per quarter.
- Accessed from within existing PACS, 8-part form.
- Cases mostly identified from consultation with referring clinicians, review of comparison studies, multi-disciplinary conferences.
- Selection of both discrepant cases as well as “good-calls”

*Figure 1. Peer Learning submission form*
INTERVENTION: PEER LEARNING CONFERENCE

• Used anonymized cases, emphasize EBM, learning opportunities for the team as a whole.
• Transition of selection criteria from discordance to potential for greatest learning opportunity
• Changes in language
  • Discourage problematic: (“negligence”, “malpractice”)  
  • Encourage supportive: (“good call”)  
• No scoring system
CONFERENCES LED BY SECTION CHIEF, ALL SECTION RADIOLOGISTS INVITED TO SUBMIT CASES AND ATTEND CONFERENCE

CLINICAL CONTEXT, LEARNING OPPORTUNITY VS. “GOOD CALL” IDENTIFIED

COGNITIVE, COMMUNICATION, PERCEPTUAL, AND/OR TECHNICAL FACTORS AS WELL AS POSSIBLE DOWNSTREAM CLINICAL IMPLICATIONS INVOLVED

CRITICAL LEARNING POINTS SUMMARIZED, ADDITIONAL QUESTIONS/CONCERNS ADDRESSED AS A GROUP

PERTINENT ACADEMIC RESOURCES
Faculty radiologists (N = 27) were requested to anonymously complete identical 5-point Likert scale surveys prior to and 1-year following the transition to the new peer learning programing.

### Survey Questions Related to Former Peer Review or New Peer Learning

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<th>Positive vs. Negative</th>
<th>Survey Questions Related to Former Peer Review or New Peer Learning</th>
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<tr>
<td>Positive</td>
<td>The (former peer review) or (new peer learning) program is effective overall.</td>
</tr>
<tr>
<td>Positive</td>
<td>The (former peer review) or (new peer learning) program has improved our group’s practice.</td>
</tr>
<tr>
<td>Positive</td>
<td>The (former peer review) or (new peer learning) program has improved my practice as a clinician.</td>
</tr>
<tr>
<td>Positive</td>
<td>The (former peer review) or (new peer learning) program promotes trust, openness, and celebration of success among peers.</td>
</tr>
<tr>
<td>Positive</td>
<td>The (former peer review) or (new peer learning) program helps identify errors and develop strategies to avoid such errors.</td>
</tr>
<tr>
<td>Positive</td>
<td>The (former peer review) or (new peer learning) program encourages reporting of errors or discrepancies.</td>
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<tr>
<td>Positive</td>
<td>The (former peer review) or (new peer learning) program is worth the time I invest.</td>
</tr>
<tr>
<td>Positive</td>
<td>The (former peer review) or (new peer learning) program engages my colleagues.</td>
</tr>
<tr>
<td>Negative</td>
<td>The (former peer review) or (new peer learning) program is disruptive to my workflow.</td>
</tr>
<tr>
<td>Negative</td>
<td>The (former peer review) or (new peer learning) program has had a negative impact on me as an individual.</td>
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### Additional Questions
- Demographic Questions
  - Number of years post-training (0-5 years, 6-10 years, 11-15 years, 16-20 years, 21+ years),
  - Academic rank (assistant, associate, full professorship)

### Table 1. Pre- and Post-Intervention Survey Questions

- **Program preference** (former peer review; new peer learning; not applicable - I was not part of the former peer review program)
- **Free text responses**
  - What aspects of the peer learning program do you like more than the peer review program (if any)?
  - What suggestions do you have for improving the peer learning program?
Figure 2. Subspecialty training and experience characteristics of radiologists surveyed in this study. (a) Distribution of radiologists by post-training years. (b) Academic rank of surveyed radiologists. (c) Subspecialty training of surveyed radiologists.

Figure 3. Total and subtotal number of imaging studies performed by subsection in calendar years 2021 and 2022. Note that ER-acquired imaging is represented under the various other subsections and therefore a subtotal is unavailable.

Figure 4. Percent differences between expected and actual case submissions for each subspecialty section over the course of the study (Total Actual Case Submissions – Total Expected Case Submissions) ÷ (Total Expected Case Submissions) × 100%

Figure 5. Cases submitted per section through the peer learning program between January 2021 to December 2022.
RESULTS

- Respondents were generally neutral toward the peer review program with average Likert responses ranging from 2.1 (“The current peer review program engages my colleagues”) to 3.0 (“The current peer review program has improved our group’s practice”)
- All positive impacts were consistently rated higher for the peer learning program.
- "Worth investment" was the only significantly correlated variable and the one with the greatest effect on preference for the peer learning program ($\beta = 1.11, p = 0.02$
- 70.4% (19 of 27) of radiologists preferred the new program, 25.9% (7 of 27) preferred the old program, and 3.7% (1 of 27) did not respond.
- Ancillary benefits: Time/Cost savings
  - Peer Review (1.71 ± 1.84 hours, $N = 34$) vs Peer Learning (0.76 ± 0.45 hours, $N = 27$), $p=0.011$.
  - The direct time-cost saving from a productivity perspective was $3,469.39 per year per radiologist when utilizing the peer learning program.

Figure 6. 5-point Likert scale survey results between the peer review and peer learning programs before and after implementation of the peer learning program.

Figure 7. Hours per month spent for case submissions using the Peer Learning and Peer Review programs.
• One year after implementation, peer learning program rated consistently higher than the peer review program in all measures of positive impacts
• Significantly lower rating with respect to workflow disruption for the peer learning program which translates to time and cost savings.
• Results consistent with prior investigations into experience with peer learning programs\textsuperscript{4,23,24}
• Peer learning program is in line with 2015 IOM report goal to “adopt policies and practices that promote a nonpunitive culture that values open discussion and feedback on diagnostic performance.”
• Limitations: Subjectivity, Likert scale, short intervention period, alternative feedback avenues, sample size.
  • Further study is warranted regarding implementation and incentivization to address subspecialty disparities in engagement
• Expansion of learning programs with multi-institutional, multisociety, online case conferences may be promising.
REFERENCES