Do Reviewers Matter in Performing Effective Peer Review?
Results of a Pilot Study

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Presenters & Disclosure of Commercial Interest

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**Disclosures:**
None of the authors nor their immediate family members have a financial relationship with a commercial organization that has a direct or indirect interest in the content.
Purpose

Determine if the result of randomized peer review varies by reviewer; *is there a difference between reviewers in*:

- Number of variance detected
- Types of variances detected
- What variances are considered clinically significant
Methods & Materials

1. 4 general radiologists & 1 MSK specialist reviewed 134 random radiology exams at one site
   - Exams *excluded*: mammograms, fluoroscopy, and interventional studies

2. Names of reading radiologists were *not* blinded
   - However, reviewers *did not know* the reading radiologists, therefore they *did not* have personal bias

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### Methods, Materials & Results

#### Process:

1. Reviewers scored each exam using the ACR RadPeer scoring system.
2. Reviewers described any variance scored 2a or higher, and entered their review into a central database.
3. All reported variances were reviewed by a panel of three radiologists.
4. Data analyzed for any differences among reviewers.

#### Results:

- 12 individual significant variances scored 2b, 3b, or 4b were reported by the 5 reviewers:
  - Variance rate of 9% (12/134)
- Number of variances detected by each reviewer varied between 0 and 7/12
- 6/12 variances detected by MSK reviewer:
  - 4/6 (66%) were MSK-related, seen on plain x-rays and not detected by the 4 general reviewers
- Of the 5/12 variances seen by more than 2 reviewers, only 1 was scored the same.
### Results

<table>
<thead>
<tr>
<th>Significant Variances Seen</th>
<th>% Age</th>
<th># Rads Who Saw Variances</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>58%</td>
<td>Only seen by 1 rad</td>
</tr>
<tr>
<td>4</td>
<td>33%</td>
<td>Seen by 2 of 5 rads (1 scored the same by 2 rads)</td>
</tr>
<tr>
<td>1</td>
<td>9%</td>
<td>Seen by 4 rads (Scored differently by all 4 rads)</td>
</tr>
<tr>
<td>0</td>
<td>0%</td>
<td>Seen by 5 of 5 rads</td>
</tr>
<tr>
<td>12</td>
<td>100%</td>
<td>Total Number of Variances</td>
</tr>
</tbody>
</table>
Conclusion

Wide variation among reviewers in:

- Detection rate
- Type of variances detected by MSK specialist vs. general radiologists
- Scoring of variances

Although the number of exams reviewed is small and some differences were expected among reviewers, the wide extent of variation was unexpected.
Conclusion

• Results emphasize that the foundation of effective peer review rests on the reviewer

• Results suggest that the type of variances detected may vary by subspecialty expertise of the reviewer

• Results do not provide an answer as to the wide variation in detection rates and scoring
Conclusion

- More studies are needed to determine:
  - If the wide variability is less between reviewers of the same subspecialty
  - If the variability can be reduced by other reviewer selection criteria, such as years out of residency and speed of reviewing exams
  - If the variability can be reduced by coaching the reviewers
Next Steps

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