Diagnostic Accuracy of Radiographer Chest X-ray Reporting

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Why radiographer reporting?
Study design
Results
Implications for practice
Why Radiographer CXR Reporting

- Sustained increases in radiology activity
- Significant reporting backlogs
- Diagnostic capacity highlighted as barrier to improved care
- Promising initial research

Study Design

- 10 consultant radiologists & 11 reporting radiographers
- 106 adult chest x-rays with robust reference standard diagnosis
- Normal reporting conditions
- Free response methodology, analysed using jack-knife approach (JAFROC)
- Non-inferiority approach\(^1,2\)

1 – RCR & SCoR team working in clinical imaging 2012; 2 – Piaggio et al. JAMA 2012;308:2594
Results: weighted JAFROC

Radiologist average performance 0.79 (0.76 – 0.81)

Radiographer average performance 0.83 (0.81 – 0.85)

\[ t = 11.585; p < 0.0001 \]
# Weighted JAFROC: Experience vs. Current Volume

<table>
<thead>
<tr>
<th>Experience</th>
<th>Consultant Radiologists</th>
<th>Reporting Radiographers</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Volume</td>
<td>Volume</td>
</tr>
<tr>
<td>&lt; 5,000</td>
<td>0.809 ( n=2 )</td>
<td>0.839 ( n=1 )</td>
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<td>5,001 – 9,999</td>
<td>^</td>
<td>0.839 ( n=4 )</td>
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<tr>
<td>≥ 10,000</td>
<td>0.787 ( n=2 )</td>
<td>0.813 ( n=2 )</td>
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<tr>
<td>6 – 9 years</td>
<td>0.760 ( n=4 )</td>
<td>0.824 ( n=1 )</td>
</tr>
<tr>
<td>≥ 10 years</td>
<td>0.787 ( n=2 )</td>
<td>0.813 ( n=2 )</td>
</tr>
</tbody>
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Implications for Practice

- With appropriate postgraduate education, reporting radiographers are able to interpret chest X-rays at a level comparable to consultant radiologists.
- Sustainable & safe capacity increase.
- Opportunity for redesigned patient pathways, including lung cancer.
Questions?

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