Impact of AI Enabled Workflows in Promoting Adherence to Evidence Based Guidelines

American College of Radiology 2022 Annual Meeting
Washington, DC
April 2022
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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

- Radiology reports frequently include recommendations for follow-up of specific findings.
- Recommendations should ideally be based on evidence-based guidelines.
- Due to increasing sub-specialization, it has become challenging for radiologists to stay up to date with all guidelines.
- There is significant variability in adherence to these guidelines.
- Implementation of technology in the radiologist workflow can result in significant improvement in adherence to evidence-based follow-up guidelines.
70 y/o male presented to the ED with back pain. CT demonstrated a ruptured 7cm AAA.

Previous imaging demonstrated a 4.3 cm AAA, correctly reported but no specific follow-up recommendations provided.

Our study demonstrated that 40% of AAA ruptures were seen on previous imaging but appropriate follow-up recommendations were not provided (Ahmed S et al. JACR)
Materials & Methods

• Multi-institutional study

• Tracked 4 conditions for appropriate follow-up recommendation adherence:
  • Incidental lung nodules (LN)
  • Abdominal aortic aneurysms (AAA)
  • Incidental thyroid nodules (ITN)
  • Incidental adnexal cysts (ADX)

• Using natural language processing (NLP) and manual review, a total of 30,298 reports were classified as adherent or deviating from evidence-based guidelines.
Materials & Methods

AI-Enabled Change Management Process:

- Evidence-based recommendations programmed into recoMD®, a proprietary artificial intelligence tool
- Radiologists educated on the clinical evidence-based follow-up recommendations
- Radiologists trained on the use of recoMD® using custom videos and one-on-one IT support
- Program launched
- recoMD® uses patient demographic information and NLP for real-time analysis of free context dictation to determine appropriate follow-up recommendation
- Radiologists review the recommendation and confirm if they agree
- recoMD® inserts recommendation and reference into Impression
AI-Enabled Workflow Solution

- Tool launches with voice recognition application
- recoMD® widget can reside anywhere on radiologist’s monitors
- Color-coded for clinical condition
- One click or voice command places recommendation and reference in the Impression
### Results

Adherence to Evidence-Based Follow-Up Recommendations in Final Radiology Reports

<table>
<thead>
<tr>
<th>Best Practice</th>
<th>Baseline Adherence</th>
<th>AI-Enabled Adherence with recoMD®</th>
<th>Performance Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdominal Aortic Aneurysms</td>
<td>12%</td>
<td>75%</td>
<td>6.3x</td>
</tr>
<tr>
<td>Incidental Adnexal Cysts</td>
<td>24%</td>
<td>62%</td>
<td>2.6x</td>
</tr>
<tr>
<td>Incidental Lung Nodules</td>
<td>44%</td>
<td>70%</td>
<td>1.6x</td>
</tr>
<tr>
<td>Incidental Thyroid Nodules</td>
<td>35%</td>
<td>78%</td>
<td>2.2x</td>
</tr>
</tbody>
</table>
Conclusion

Integrating artificial intelligence enabled tools directly into radiologist workflows is an effective way to improve consistent adherence to appropriate evidence-based guidelines in follow-up recommendations.