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

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Disclosures:

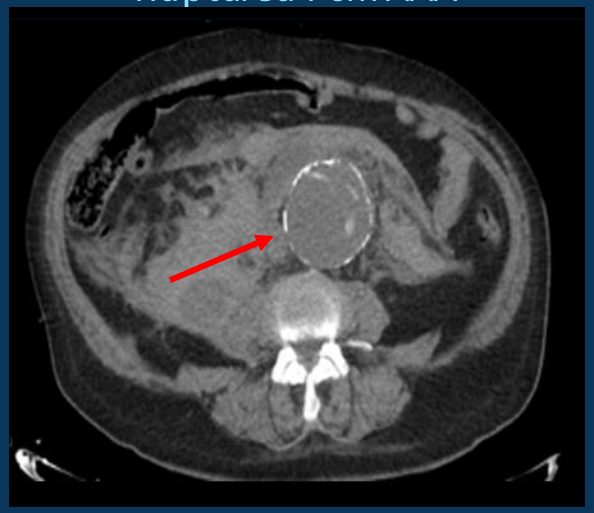
None of the authors nor their immediate family members have a financial relationship with a commercial organization that has a direct or indirect interest in the content.

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.

Clinical Impact of Evidence-Based Guidelines

Present
Ruptured 7cm AAA



70 y/o male presented to the ED with back pain. CT demonstrated a ruptured 7cm AAA.

4 years prior
Original 4.3 cm 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)

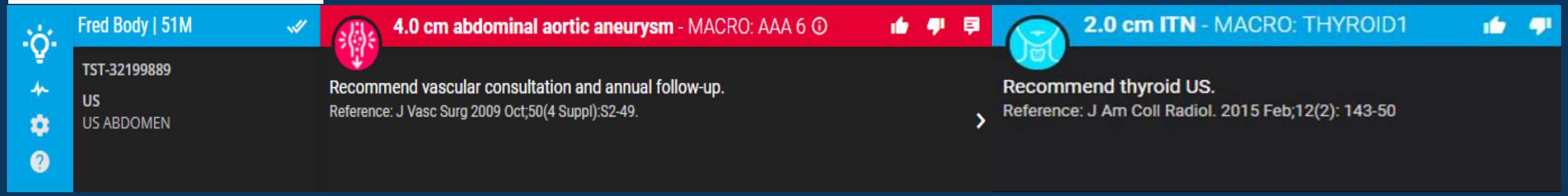
- Using natural language processing (NLP) and manual review, a total of 30,298 reports were classified as adherent or deviating from evidence-based guidelines.

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

Best Practice	Baseline Adherence	AI-Enabled Adherence with recoMD®	Performance Improvement
Abdominal Aortic Aneurysms	12%	75%	6.3x
Incidental Adnexal Cysts	24%	62%	2.6x
Incidental Lung Nodules	44%	70%	1.6x
Incidental Thyroid Nodules	35%	78%	2.2x

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.