Global Evidence Summit

Streamlining Systematic Reviews: Using Machine Learning to Enhance Screening Efficiency

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Using evidence. Improving lives.

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I have no actual or potential conflict of interest in relation to this presentation.

Karen Robinson has a non-financial affiliation with PICO Portal that could be perceived as an indirect conflict of interest in the context or content of this presentation.

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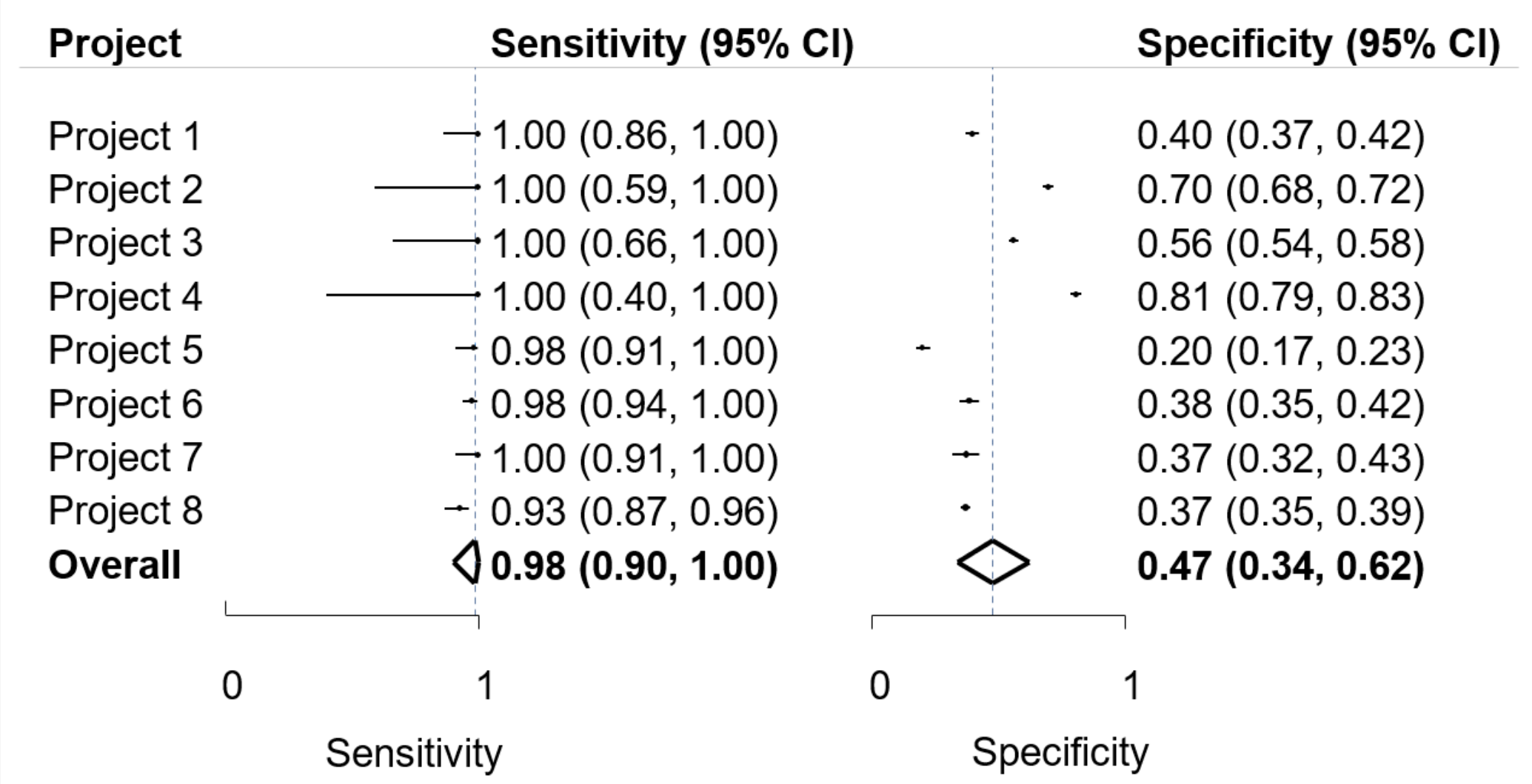
Objectives and Methods

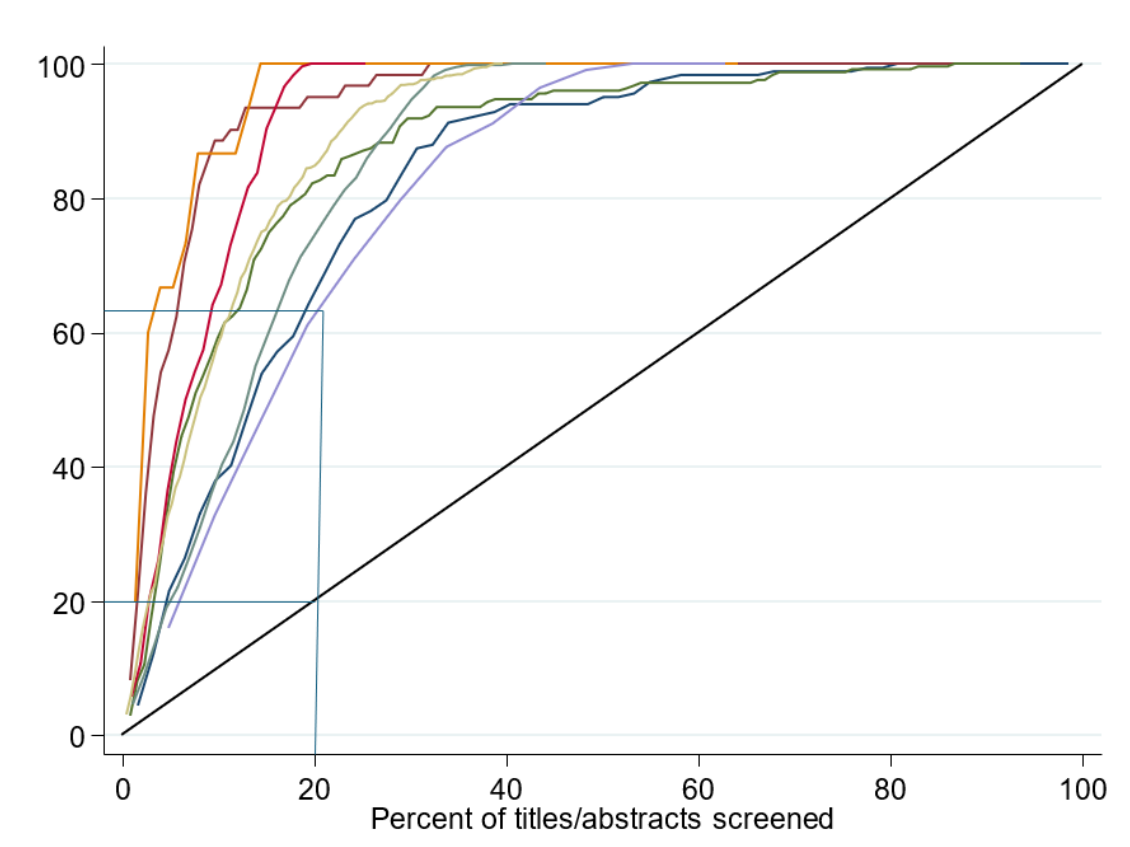
- To assess machine learning-assisted screening, including appropriate thresholds for stopping screening
- Case series of 8 systematic reviews focused on treatment options for people with chronic kidney disease
- Used ML-assisted screening provided in PicoPortal
  - Two reviewers screened titles and abstracts
  - Citations were re-ranked daily based on ML predictions for full-text eligibility
  - Stopped abstract screening at 95% recall for full-text screening

Accuracy

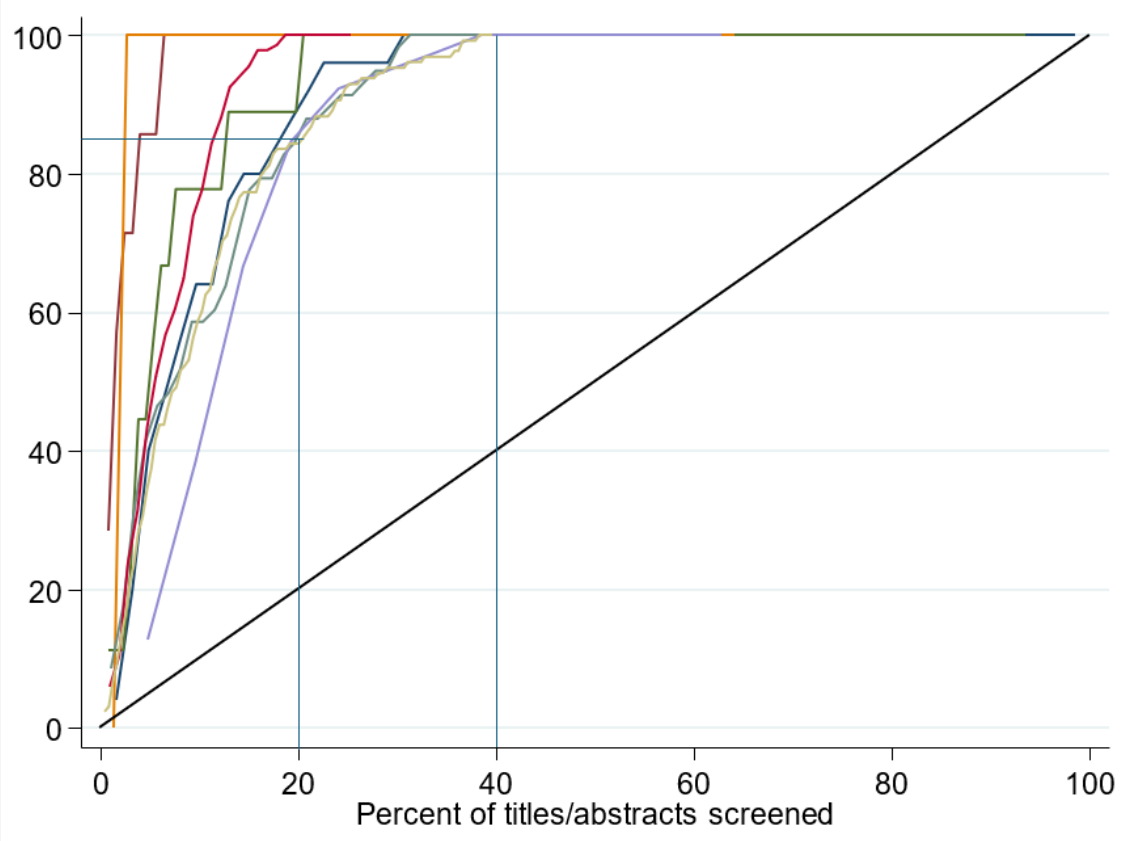

Project
Sensitivity (95% CI)
Specificity (95% CI)
Project 1
1.00 (0.86, 1.00)
0.40 (0.37, 0.42)
Project 2
1.00 (0.59, 1.00)
0.70 (0.68, 0.72)
Project 3
1.00 (0.66, 1.00)
0.56 (0.54, 0.58)
Project 4
1.00 (0.40, 1.00)
0.81 (0.79, 0.83)
Project 5
0.98 (0.91, 1.00)
0.20 (0.17, 0.23)
Project 6
0.98 (0.94, 1.00)
0.38 (0.35, 0.42)
Project 7
1.00 (0.91, 1.00)
0.37 (0.32, 0.43)
Project 8
0.93 (0.87, 0.96)
0.37 (0.35, 0.39)
Overall
0.98 (0.90, 1.00)
0.47 (0.34, 0.62)
0
1
Sensitivity
0
1
Specificity

When to Stop

% Included During Abstract Screening



% Included During Full-Text Screening



Project 1 Project 2 Project 3 Project 4 Project 5
Project 6 Project 7 Project 8 Random sampling

Thank you!

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Citation: Wilson LM and Robinson KA. Streamlining Systematic Reviews: Using Machine Learning to Enhance Screening Efficiency. Global Evidence Summit. 12 Sept 2024, Prague, Czech Republic.

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