Integrating the Doctor Evidence Technology Platform into Kaiser Permanente Guideline Development Processes

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Kaiser Permanente: Largest Non-Profit Health Care Program in the United States

- Founded in 1945
- 8 regions in 9 states and District of Columbia
- 8.6 million members (as of 12/09)
- 15,129 physicians (as of 12/09)
- 164,098 employees (as of 12/09)
- KP Care Management Institute (CMI)
- KP National Guideline Program (NGP)
Doctor Evidence: Overview

- Founded in 2002
- The Doctor Evidence mission is to improve clinical outcomes by finding, delivering, and making relevant and readable medical evidence that enables clinicians to support informed decisions
- Doctor Evidence clients include leading healthcare providers, payers, academic institutions & manufacturers
- Distinctive competencies are integrating leading EBM methodologies into one unified technology platform

Challenges in Systematic Review (SR) & Clinical Practice Guideline (CPG) Development

- CPGs not transparent to clinicians
  - Evidence basis not always explicitly linked
  - Difficult to assess rigor of development
- Very resource-intensive
  - Infinite needs - Finite resources
  - Balance between efficiency versus rigor
  - Investment in developing expertise & infrastructure
  - Updating SRs & CPGs
    - Every 2 years?
    - Dynamic updating, based on evidence & impact?
- A robust technology platform can help address these needs
Learning Objectives

After this session, attendees will be able to:

- Describe the challenges in developing SRs and CPGs and how a technology platform can help address them
- List five factors that are required for success in integrating a technology platform
- Explore the pros and cons of integrating a technology platform supporting SR and CPG development in their own systems

Desired Outcomes For Technology Platform

- Improved SR & CPG development processes
  - Efficiency
  - Transparency
  - Rigor
- Devote more energy to CPG implementation
  - Embedding practices into standard workflows
  - Clinical Decision Support in Electronic Health Record
  - Collaborate with performance metric developers
- Collaborate with other SR & CPG developers
  - Share data extractions?
Kaiser Permanente National Guideline Program: Process & Methodology

Clinical Question (CQ) Evidence Summary

Kaiser Permanente National Guideline Program: Process & Methodology

New Clinical Issue
Scheduled Update

Clinical Question (CQ)

Existing Guideline?

CQ Match?

Assess Guideline Acceptable?

Evidence Search

Quantitative/Qualitative Synthesis

Evidence Summary

Rationale

Recommendations

Assess Implementability of Recommendations

GDT Approval

Internal Review

GQ, NGD Approval

National Guidelines

Implementation

Key to Abbreviations:

- CQ Clinical Question
- SR Systematic Review
- GDT Guideline Development Team
- GQ Guideline Quality Committee
- NGD KP National Guideline Directors

ADAPTE

AGREE

AMSTAR

GRADE

Study Selection Interface

Efficiency
Transparency
Rigor

Export to Reference Manager® or Excel®

Rate as Relevant, Maybe Relevant, or Not Relevant
Administrator Capabilities to Collate and Adjudicate Responses

Access to Full Text and Abstract

Document Reasons for Inclusion/Exclusion
Automated Production of QUOROM* Flow Diagram

Efficiency

Transparency

Robust quality control
Discrepancies with other extractor’s entries are flagged in red

**QUOROM Flow Diagram**

*Quality Of Reporting Of Meta-analyses*  
*LANCET* 1999
### Data Extraction Adjudication

<table>
<thead>
<tr>
<th>Group: Placebo</th>
<th>OUTCOME: Stroke, Fatal, 11 years</th>
<th>Is Primary Outcome</th>
<th>+ note</th>
<th>Efficiency</th>
<th>Transparency</th>
<th>Rigor</th>
<th>Use Value</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Use Value</td>
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</tbody>
</table>

**Adjudication between discrepant extractions is included in the final template.**

### Data Extraction Into Reusable Database: User View

- **Efficiency**
- **Transparency**
- **Rigor**

#### Detailed study-specific descriptions of characteristics and outcomes are exposed by hovering.
Although the result was not considered statistically significant (p > 0.05), the evidence (10 studies, 9218 participants) shows that Myocardial Infarction, 4 weeks to 47 months was 6% less likely in those that used Statins compared with those who were using Usual Care.

Filter studies by Baseline Characteristics for Subgroup & Sensitivity Analyses

Preliminary evidence summary statement

Detailed study- and outcome-specific descriptions of Cochrane Risk of Bias are exposed by hovering

Select and de-select studies and recalculate for sensitivity analyses
Meta-Analysis Results: Forest Plot

- Efficiency
- Transparency

Meta-Analysis Results: Funnel Plot

- Efficiency
- Transparency
Meta-Analysis: Adding Custom Data

- Efficiency
- Transparency
- Rigor

Ability to add custom data to current meta-analysis

Customizable, Automated Evidence Table Generation

<table>
<thead>
<tr>
<th>Study Name (Author/Year)</th>
<th>Outcome</th>
<th>Intervention</th>
<th>Comparator</th>
<th>Events</th>
<th>Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>Outcome A</td>
<td>Intervention A</td>
<td>Comparator A</td>
<td>Event 1</td>
<td>Participant 1</td>
</tr>
<tr>
<td>Study 2</td>
<td>Outcome B</td>
<td>Intervention B</td>
<td>Comparator B</td>
<td>Event 2</td>
<td>Participant 2</td>
</tr>
</tbody>
</table>

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Wiley Chan, MD
Doctor Evidence Functionality in Development

- **GRADEpro Replication**
  - Summary of Findings tables
  - Evidence grading across outcomes
  - Strength of recommendation
- **Virtual Collaborative Work Space**
  - Integrate all SR & CPG activities into a single platform
  - Manage & track assignments & workflows
- **“Late Binding” to an Ontology**
- **Cost-Benefit Calculator**
- **Network Meta-Analysis**

Elements for Successful Integration Client

- **Strong sponsorship from Senior Leaders**
  - Commitment to Evidence-Based Medicine (EBM)
  - Willingness to fund innovative projects
- **Technical skill**
  - Experience in SRs and EBM
  - Vision for platform requirements
- **Strong focus on implementation**
  - Full intention to use the platform in operations
  - Prioritization of development of new functionality
### Elements for Successful Integration

**Client**

- **Potential for multiple users outside EBM**
  - Pharmacy
  - Purchasing
  - New Technology Assessment
  - Center for Effectiveness & Safety Research
- **Commitment to excellence**
  - Willingness to commit substantial energy & resources for potential future gains

### Elements for Successful Integration

**Vendor**

- **Strong sponsorship from Senior Leaders**
  - Commitment to Evidence-Based Medicine (EBM)
- **Technical skill**
  - Existing, robust platform
  - Ability to quickly transform client’s requirements into functionality in the platform
- **Flexibility & enthusiasm to enhance the platform**
- **Commitment to excellence**
  - Willingness to commit substantial energy & resources for potential future gains
Conclusions: Integrating a Technology Platform for SR & CPG Development

- A well-constructed technology platform can address many of the critical challenges in SR & CPG development

- Successful implementation requires:
  - Operational needs to be addressed
  - Strong sponsorship from Senior Leaders
  - Good technical skills
  - Commitment to excellence
  - Flexible, cooperative client-vendor relationship

Integrating a Technology Platform for SR & CPG Development

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