Adapting Clinical Guidelines for the Digital Age: A Multi-Stakeholder Approach

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Objectives

- Understand the limitations with the current clinical guidelines process
- Review the outcome of a CDC-led multi-stakeholder Kaizen event
- Solicit participant feedback on our approach to solving the defined problem
Limitations of the current approach to clinical guidelines
IMPLEMENTATION, MONITORING, & EVALUATION

CLINICAL DECISION SUPPORT

CLINICAL QUALITY MEASUREMENT

CLINICAL GUIDELINES DEVELOPMENT

DESIRED CLINICAL / ACTIONS
GOAL of the GUIDELINES:
Ensure most up-to-date scientific evidence is followed AND results in desired outcomes
Problem

Takes too long to apply research knowledge to patient care (average of 17 years)

No feedback loop back to researchers & guidelines developers

Clinical Decision Support & The Telephone Game

Guidelines $\rightarrow$ Translation $\rightarrow$ CDS tools $\rightarrow$ Translation $\rightarrow$ Patient Care

- Narrative guidelines must be translated into actionable formats before integrated into tools
- Risks associated with translation process:
  - Additional lag time
  - Inconsistent, variable, potentially inaccurate interpretation and application
Risk of Ad Hoc Transformation

- Knowledge engineers at 3 sites were asked individually to create CDS tools from guidelines for workup of breast tumor.
- Submitted standardized patients to clinical decision support tools.
- Outcome: Different recommendations were given for the same patient.
## Levels of Knowledge

<table>
<thead>
<tr>
<th>Knowledge Level</th>
<th>Description</th>
<th>Example</th>
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<tbody>
<tr>
<td>L1</td>
<td>Narrative guideline</td>
<td>Published guideline for a specific disease that is written in the format of a peer-reviewed journal article</td>
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<tr>
<td>L2</td>
<td>Semi-structured</td>
<td>Flow diagram, decision tree, or other similar format that describes recommendations for implementation</td>
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<tr>
<td>L3</td>
<td>Structured</td>
<td>Standards-compliant specification encoding logic with data model(s), terminology/code sets, value sets that is ready to be implemented</td>
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<tr>
<td>L4</td>
<td>Executable</td>
<td>CDS that is implemented and used in a local execution environment (e.g., CDS that is live in an electronic health record (EHR) production system)</td>
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Adapted from: Boxwala, AA, et al.. A multi-layered framework for disseminating knowledge for computer-based decision support. *J Am Med Inform Assoc* 2011(18) i132-i139.
Guideline released

Clinicians hear about guideline

Additional/conflicting guidelines?

Convene internal clinical workgroup

Determine which guideline (and which part(s)) to implement

Search existing CDS tools

Conduct workflow analysis

Exists & Usable

Does Not Exist

Create CDS tool

Release CDS tool into production system

Monitor CDS tool for issues & monitor for updates to guidelines

Multiple system tests

Implement CDS tool in test system

Test within workflow with actual users

Adjust CDS as needed

NOTE: This process is repeated for EACH guideline

ASSUMPTION: Health system will implement the guideline
Adapting Clinical Guidelines for the Digital Age

**Problem:** Long Lag Time

Average of 17 years for scientific evidence to apply in patient care

**Reason:** Playing the “Telephone Game”

Translating guidelines for practice can be slow, inaccurate, or inconsistent

**Solution:** Developing Tools and Guidelines Together

Can help evidence apply to patient care more easily, quickly, accurately, and consistently

https://www.cdc.gov/ophss/WhatWeDoACG.html
CDC’s Kaizen Event on Adapting Clinical Guidelines for the Digital Age
Leadership Buy-In

- **Executive Sponsor: Chesley Richards**
  - CDC Deputy Director for Public Health Scientific Services
  - Director of the Office of Public Health Scientific Services (OPHSS)

- **Buy-in Considerations:**
  - Data showing previous successful use of Kaizen method (CMS, ONC)
  - Having been a clinician, easily seeing the application to patient care and how much more effectively guidelines could reach practice
  - Receiving overwhelmingly affirmative feedback on the initiative from CDC Director, who immediately understood the potential positive impacts to patient care
  - Potential to dramatically increase uptake of CDC guidelines and decrease implementation time
Conceptual Graph of Potential Guideline Uptake
The Pre-Work

- **Agency-wide CDC CDS Workgroup** – Established September 2016
- **Request for Information (RFI)** – Issued December 2016 and Closed January 2017
- **Listening Session** at Health Information Management Systems Society (HIMSS) Annual Conference, February 19-23, 2017 in Orlando, FL

  - **Key Themes:**
    1. **Redesign** approaches to *developing and disseminating recommendations* and *incorporate feedback loops*
    2. **Develop a long term strategy** to for creating needed agency infrastructure and practices that *transcend siloes* & can apply to *emergency response and “routine” guidelines*

- **Pre-Kaizen Planning Session** – November 14-15, 2017
The Game Plan

- **Holistic Goal:**
  Make it easy for clinicians to do the right thing by applying guidelines in practice more easily, quickly, accurately, and consistently

- **High-level Steps:**
  - Completed [CDC multi-stakeholder Kaizen event](#) (February 5-9, 2018)
  - In Progress Post-Kaizen implementation (testing & refining)
  - Open Socialize and scale the resulting tested and refined process
CDC Kaizen Event: Stakeholder Groups

- Guideline authors
- Health IT developers
- Communicators
- Clinicians
- Patients / Patient Advocates
- Medical Societies
- Public Health Organizations
- Evaluation experts
- Standards experts
- Clinical decision support developers
- Clinical quality measure developers
- Policy or technical support for implementation
CDC Kaizen Event: Scope & Value Streams

SCOPE:
- **START**: Guidelines Creation / Summarizing the Evidence
- **END**: Evaluation

VALUE STREAMS (Focus Areas):
- Guidelines Creation / Summarizing the Evidence
- Informatics Framework for Guideline Translation
- Dissemination Tools and Communication Methods
- Translation and Implementation Support
- Evaluation
Summary of Kaizen Outcome

**CURRENT STATE**

- Guidelines
- CDS
- Informatics
- Implementation
- Evaluation

**PROPOSED FUTURE STATE**

- Guidelines
- Informatics
- Communications
- Implementation
- Evaluation

**Local Implementation**

- Concurrent guideline development and translation & upfront planning

**Patient Care**

- 10s-100s of translations
- 100s-1000s of translations
Applying to Guidelines: What Being a “Pilot” Means

<table>
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<tr>
<th>Core Pilot Activities</th>
<th>Guideline Creation/ Updates</th>
<th>Informatics</th>
<th>Dissemination &amp; Communication</th>
<th>Translation &amp; Implementation</th>
<th>Evaluation</th>
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<tr>
<td>Develop algorithm, flow diagram, or decision tree based on the narrative recommendation(s)</td>
<td>Codify each of the items within the algorithm, flow diagram, or decision tree</td>
<td>Planning up front on where CDS tools will be disseminated as well as identifying target audience(s), communication channels, etc. post-publication</td>
<td>Provide implementation insights as recommendations are crafted and codified as well as implement CDS tools at the local level</td>
<td>Plan evaluation in advance and ensure it is incorporated throughout each aspect of the process as well as across the overall process</td>
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<td>Heaviest involvement early in the process, including working side by side with scientists developing the recommendations if begin prior to guideline publication</td>
<td>Involvement throughout, but most heavily immediately prior to and after publication</td>
<td>Involvement throughout but most heavily in local pilot implementation</td>
<td>Involvement throughout, including creating feedback loops to guideline authors</td>
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ALL PERSPECTIVES REPRESENTED UP FRONT AND THROUGHOUT THE PROCESS
For questions or more information on Adapting Clinical Guidelines for the Digital Age, please contact:

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For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.