Healthcare professionals’ beliefs about using wiki-based reminders to promote best practices in trauma care

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Plan of the presentation

- Background and rationale
- Possible role of wikis in knowledge translation (KT)
- Results of two ongoing studies
- Future studies
Background

• EDs and ICUs are hostile environments to the implementation of best practices in trauma care

• Significant regional variation in the treatment and outcomes of common injuries

• 34% of fatal mistakes made in hospital are committed in the ED and 37% in the ICU

• Computer-based reminders are effective cognitive aids for fostering best practices

Rhodes M, et al. 1990
Nayduch D, et al. 1994
Copes WS, et al.1995
Cryer HG, et al. 1996,
O’Keefe GE, Jurkovich GJ, Maier RV, 1999
Gruen RL, et al., 2006
Sahota et al 2011
Shojania et al 2009
Computer-based Reminders

• A range of decision aids that support decision making
  • Order sets
  • Care protocols
  • Clinical pathways
  • Clinical Decision Support Systems
Barriers to the use of Computer-based Reminders

• Acute care professionals have rejected computer-based reminders because they are:
  • Slow
  • Incompatible with work processes
  • Unable to adapt to local practices
  • Difficult to access
  • Very costly to implement
  • Difficult and costly to update

Weingart et al 2003
Stiell et al 2007
Chan et al 2011
Wright et al 2010
Lang et al 2007
Black et al 2011
Holroyd et al 2011
Our overarching research question

• Can new social media applications like wikis help increase the use of computer-based reminders and improve care in the acute trauma care setting?
• What is a WIKI?
Wiki

- Webpage
- Content is
  - User-generated
  - Edited by whoever has access
- Open access
Use of wikis in healthcare

- 70% of young British physicians use Wikipedia each week for work.
- 50% of physicians (USA) use Wikipedia as a source of information at work to make decisions.
- 35% of pharmacists consulted Wikipedia (USA) for work-related questions.

Hughes et al 2009
Manhattan Research 2009
Brokowski et al 2009
Self-efficacy/empowerment

• Belief in an individual’s competence to perform a behavior
• Most important cognitive human factor in the adoption of a new behavior
• Wikis could improve our self-efficacy in the implementation of computer-based reminders
How could a wiki help empower clinicians?

• Create, share, and update their own reminders
• Allow local adaptation of external reminders
• Increase interprofessional collaboration
• Increase collaboration between academic centers and the community hospitals and rural hospitals
• Share tacit knowledge about best practices
• Decrease the cost of producing reminders
• Decrease the time to updating reminders
Figure 1. The Knowledge-to-Action Process and the proposed wiki action sites

Figure 2. Theoretical framework of the Theory of Planned Behavior


Note: Red circles identify potential wiki action sites in the KTA cycle;
Evidence for wiki use

• There is weak evidence about the potential benefit or harm of using wikis in healthcare
• There is a need to explore their impact and potential as a KT tool
• A research program to answer this question was recently funded by FRQ-S (4-year career scientist award)
Research program

• **Project A**: Wikis and collaborative writing applications in health care: a scoping review

• **Project B**: Health professionals’ intentions to use wiki-based reminders promoting best practices in trauma (mixed methods survey)

• **Project C**: Development of a theory-based intervention aimed at increasing the use of wiki-based reminders to promote best practices in trauma care

• **Project D**: Implementation and evaluation of a theory-based intervention promoting best practices in trauma: a pilot cluster randomized controlled trial
Project A

Wikis and Collaborative Writing Applications in Health Care: A Scoping Review Protocol

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http://www.researchprotocols.org/2012/1/e1/
Project A: Scoping review

• Funded by CIHR (knowledge synthesis program) in 2011
• Currently ongoing
• Objective: Synthesize current knowledge about the use of wikis and collaborative writing applications in healthcare
• 4437 citations reviewed
• 88 citations retained for full text analysis
• Weak evidence found about the impact of wikis on changing clinical practices (KTA)
Study design of included studies

- Case study/case report (n=36)
- Descriptive quality assessment of wiki content (n=21)
- Survey (n=20)
- Cohort/cross-sectional/case-control study (n=4)
- Randomised controlled trial (n=3)
- Controlled before-and-after trial (n=3)
- Controlled clinical trial (n=1)
Project B – Wiki survey

• **Title**: Health professionals’ intentions to use wiki-based reminders promoting best practices in trauma

• **Objective**: To identify the theory-based determinants (TPB) of emergency and critical care professionals’ use of collaborative writing applications in the context of their critical care practice

• **Phase I**: Identification of salient beliefs
• **Phase II**: Construction of TPB questionnaire
• **Phase III**: Validation of questionnaire
• **Phase IV**: Survey

**Funding:**
- KT Canada
- Université Laval
- CSSS Alphonse-Desjardins
Results of phase I for ED professionals

Health Care Professionals’ Beliefs About Using Wiki-Based Reminders to Promote Best Practices in Trauma Care

- A validated questionnaire is being developed for ED professionals (MDs and AHPs)

Study based on the Theory of Planned Behavior

Adapted from Ajzen, 1988

- Advantages and disadvantages
- Positive and negative referents
- Barriers and facilitators
Study Population

• N=50
  • 25 MDs
  • 25 Allied health professionals
    • RNs: 15
    • RTs: 7
    • Pharmacists: 3
# Demographic information

<table>
<thead>
<tr>
<th>Variables</th>
<th>MD (n=25)</th>
<th>AHPs (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>Mean (ET)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>42 (9)</td>
<td>38 (10)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>Men: N (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>23 (92)</td>
<td>7 (28)</td>
</tr>
<tr>
<td><strong>Years of experience</strong></td>
<td>Mean (ET)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 (10)</td>
<td>14 (9)</td>
</tr>
<tr>
<td><strong>Previous wiki use</strong></td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 (80)</td>
<td>15 (60)</td>
</tr>
<tr>
<td><strong>Previous use of Wikipedia</strong></td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14 (56)</td>
<td>8 (32)</td>
</tr>
<tr>
<td><strong>Previous editing of a wiki</strong></td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 (4)</td>
<td>1 (4)</td>
</tr>
<tr>
<td><strong>Internet access in the ED</strong></td>
<td>N(%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 (100)</td>
<td>25 (80)</td>
</tr>
<tr>
<td><strong>Internet access in resuscitation room</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes: N(%)</td>
<td>17 (68)</td>
<td>9 (36)</td>
</tr>
<tr>
<td>No: N (%)</td>
<td>4 (16)</td>
<td>3 (12)</td>
</tr>
<tr>
<td>I don’t know : N (%)</td>
<td>4 (16)</td>
<td>13 (52)</td>
</tr>
</tbody>
</table>
Control Beliefs for ED AHPs

The chart illustrates the percentage of respondents who mentioned the belief for facilitating factors and barriers.

Beliefs

- Facilitating factors
- Barriers
Behavioral beliefs for ED physicians
Behavioral beliefs for ED AHPs

- Gives rapid access to protocols
- Improves quality of care
- Standardizes practices
- Centralizes information and protocols
- Promotes team work
- Provides a new tool for teaching
- Allows sharing of information
- Less exposure to severe head injuries
- Gives access to information on medication
- Gives access to expert opinion
- Saves paper
- Saves money
Normative beliefs for ED physicians
Normative beliefs for ED AHPs

Beliefs
- Physicians
- Respiratory therapists
- Nurses
- People less comfortable with computers
- People resistant to change
- The trauma team
- Quality of care promoters
- Pharmacists
- Administration
- Isolated/less exposed centers
- Older adults
- Patients
- Specialists
- Paramedics
- People who do not want to share information
- People who do not trust information

Percentage of respondents who mentioned the belief

Favorable referents
Unfavorable referents
Discussion: new beliefs related to wikis

- Many new specific beliefs concerning the use of wikis
  - Standardizes care
  - Supports teamwork
  - A new teaching tool
  - Gives access to up-to-date protocols
  - Information that might change too fast
  - MDs and RNs name themselves as important referent
  - The younger generation is another referent
  - Isolated centers and rural hospital
Future projects

• Develop a wiki-based reminder system and a theory-based intervention based on results from project A and B
• To determine the impact of the theory-based intervention on the use of wiki-based reminders in trauma care
• To obtain a first estimate of wikis’ effect on health professionals’ adoption of best practices in trauma care.
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