Knowledge to action Des connaissances à la pratique

Section 3.5.5

Informatics Interventions

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Topic Focus:

Select, Tailor, Implement Interventions

- Introduction
- Role of Informatics Interventions in KT:
  - Education
  - Reminder systems
  - Clinical decision support systems
  - Presenting and summarizing data
- Areas of future research
- Summary

Introduction

- Knowledge translation (KT) consists of:
  - Collection
  - Summarization
  - Packaging
  - Delivery

  Of (research) **knowledge**
- Informatics interventions:
  - Same concepts, but for **information**
- These are natural partners in health care enhancement

How Informatics Can Enhance KT

- **Education**:
  - online interactive education, individually tailored education
- **Reminders**:
  - lessen “cognitive load” on clinicians
- **Summarizing and presenting data**:
  - useful, timely, variety of formats
- **Computerized decision support** systems:
  - support clinician decision making

Education

- Web-based continuing education and patient education: evidence on effectiveness lacking or at best shows weak positive effects
- Problem: static, one-size-fits-all educational modalities are ineffective
- Individualized education based on needs assessment ➡ more learning
- Informatics interventions can improve learning by providing tailored, “as-needed” content

Reminder Systems

- Reminder systems can reduce the cognitive load for clinicians
- Computers:
  - Efficiently check data against clinical rules
  - Provide prompts for patient and provider adherence (e.g. screening tests, drug interactions, etc.)
  - Reminder systems free clinicians to concentrate on the needs of each individual patient rather than sorting and processing data
  - Patient reminder systems promote self-directed care and hold promise as well

Summarizing and Presenting Data

- Computers can store, synthesize, and present data in a user-friendly format
- Can be used for:
  - online medical education
  - delivering knowledge embedded within information systems
  - individualization: tagging specifications for guidelines can match their content to individual patients in electronic medical records systems (EMRs)
- Hospital clinicians can use handheld computers for a similar point-of-care function
- Patients may also use electronic self-management tools directly to present data to physicians in real-time

Clinical Decision Support Systems

- Providers require “just-in-time” knowledge
- CDSSs:
  - match patient data to a computerized knowledge database
  - use software algorithms to generate patient-specific recommendations
  - address diagnostic, prevention or screening, drug dosing, or chronic disease management decisions
- Systematic review of the effectiveness of CDSSs: Garg, et al. reported improved practitioner performance in most studies

Patient Decision Aids

- Computerized decision aids are a type of CDSS that targets patients
- Present patients with evidence-based information about personally relevant options and outcomes
- Enable patients to participate in their own health care decisions

Future Research

- Needs to broaden the scope of KT informatics interventions

- Will require:
  - improved technology (e.g. improving information standards and enhancing system interoperability)
  - social sciences (understanding individual needs and characteristics → design easy-to-use interventions
  - business (managing system change with financial integrity)
  - decision makers, health care providers, and patients

  - Personal health records: area of potential - requires qualitative and quantitative interdisciplinary research

  - Future research must also address the effects of informatics and KT interventions on patient and wellness outcomes

Summary

- Many informatics applications can be effective KT tools, delivering evidence to professionals and patients
- Informatics interventions that speed KT can be found in:
  - patient and physician education
  - reminder systems
  - systems to summarize and present data
  - decision support
- These improve education, improve adherence through reminders, collect and present data from multiple sources, and support decision making
- Effects on health outcomes are less well demonstrated
- We have yet to harness the full potential of integration of the KT process with informatics applications