Section 3.5.5

Informatics Interventions

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Topic Focus:

- 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 to 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.