Curriculum Development
Centers Program

Awardee of The Office of the National Coordinator for
Health Information Technology

Component 6- Health Management Information Systems

Unit 5-2

Clinical Decision Support Systems

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Objectives

- Identify the challenges and barriers to building and using CDSSs.
- Discuss legal and regulatory considerations related to the distribution of CDSSs.
- Describe current initiatives that will impact the future and effectiveness of CDSSs.

CDSS Challenges

- Achievement of the five rights of clinical decision support
  - Requires communicating the
    - Right information
    - To the right person
    - In the right format
    - Through the right channel
    - At the right time

http://healthit.ahrq.gov/images/mar09_cds_book_chapter/CDS_MedMgmnt_ch_1_sec_2
_five_rights.htm

CDS Five Rights Model

- Right information
  - Evidence-based, suitable to guide action, pertinent to the circumstance
- To the right person
  - Considering all members of the care team
- In the right format
- Through the right channel
- At the right time

http://healthit.ahrq.gov/images/mar09_cds_book_chapter/CDS_MedMgmnt_ch_1_sec_2_five_rights.htm

Challenges in Designing or Selecting CDSS

- Whose decisions are being supported?
- What information is presented?
- When is the information being presented?
- How is the information being presented?

http://healthit.ahrq.gov/images/jun09cdsreview/09_0069_ef.html

User Control

- User presentation
  - Automatically
  - On demand
- User reaction

CDS Intent and Key Issues

CDS Intent	Match to User's Intention	Key Issues
Reminder of actions user intends to do, but should not have to remember (automatic)	High	Timing
Provide information when user is unsure what to do (on demand)	High	Speed and ease of access
Correct user's errors and/or recommend user change plans (automatic or on demand)	Low	Automatic: timing, autonomy and user control over response On demand: speed, ease of access, autonomy and user control over response

http://healthit.ahrq.gov/images/jun09cdsreview/09_0069_ef.html

Challenges in Building CDSS

- Impact on Care Process and Patient Health Outcomes
  - Match of CDS to user intentions
  - User control, disruptiveness, and risk
  - Integration of CDS into work processes
- Impact on Structure

http://healthit.ahrq.gov/images/jun09cdsreview/09_0069_ef.html

Barriers to Using CDSS

- Acquisition and validation of patient data
- Modeling of medical knowledge
- Elicitation of medical knowledge

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Barriers to Using CDSS

- Representation of and reasoning about medical knowledge
- Validation of system performance
- Integration of decision-support tools

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Legal Barriers

- Lack of detailed case laws for CDSS
  - Which category of law
    - Negligence law
    - Product liability law

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Legal Barriers

- Liability borne by
  - Physicians
  - Developers of systems

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Regulatory Barriers

- Prerelease regulations of medical software
- Data privacy and security

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Legislative and Regulatory Efforts

- Better align efforts across various stakeholders
- Explore options to establish or leverage a public-private entity to facilitate collaboration
- Accelerate CDS development and adoption though federal government programs and collaborations

http://www.himss.org/content/files/CDSFactSheet3-17-09.pdf

Future Directions for CDSS

- ONC initiatives
- IOM studies
- Meaningful use objectives and measures

ONC Initiatives

- Major activities
  - Development of a Roadmap for National Action on Clinical Decision Support
  - Created CDS recommendations
  - Sponsored a Clinical Decision Support (CDS) Workshop
  - CDS Government Collaboratory
    - "Advancing CDS" contract
  - IOM study

IOM Studies

- 1999 IOM study
  - To improve safety, health IT systems should be designed to make it "easy to do the right thing."
- 2010
  - Launch of a new study on ensuring the efficacy of information technology in improving healthcare safety

To err is human: building a safer health system.
http://www.nap.edu/openbook.php?record_id=9728

Stage 1 Meaningful Use

- ARRA/HITECH
  - Regulations
    - Meaningful Use Objectives
      - » Eligible Professional
      - » Hospital

Summary

- Challenges and barriers in building and using clinical decision support systems
- Legal and regulatory barriers in the distribution of these systems
- Future directions for clinical decision support systems