Curriculum Development
Centers Program

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

Decision Support for Quality Improvement

Unit 6b: Clinical Decision Support
Systems that Help
Improve Quality

This material was developed by Johns Hopkins University, funded by the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology under Award Number IU24OC000013.

Objective

- Compare decision support tools that help improve quality.

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Clinical Decision Support (CDS) Meaningful Use

"…advanced EHR systems with CDS functionalities have the potential to offer numerous benefits to the safety and quality of patient care…While the promise of CDS is great, trials of CDS have produced mixed results and a number of challenges in implementing CDS remain unresolved. Nevertheless, the potential of CDS to improve health care outcomes affirms that truly meaningful use of electronic health records includes the meaningful use of effective CDS."

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Types of CDS

- Relevant data displays
- Smart documentation forms
- Order facilitators (order sets, order consequents, order modifiers)
- Extended-time guideline & protocol followers
- Targeted reference, including contextually relevant medical references or info buttons
- Reactive alerts

Types of CDS

- Task assistants for tasks such as drug dosing and acknowledging laboratory results
- Diagnostic suggestions
- Patient summaries for clinician hand-offs
- Procedure refreshers, training, and reminders
- Performance dashboards with prompts for areas needing attention
- Tracking and management systems that facilitate task prioritization and whole-service management

CDSS that Support Quality Patient Safety

Meaningful Use: Improve Quality, Safety, and Efficiency.

IOM: Health Care Should Be Safe

- Drug-Drug Interaction
- Drug-Allergy Interaction
- Drug-Diagnosis Interaction
- Weight-based dosing
- Physiology-based dosing
- Age-based dosing

CDSS that Support Quality Effectiveness

Meaningful Use: Improve Quality, Safety, and Efficiency.	• Preventive care reminders • Medical Formula Calculators • Clinical guideline repository • Medical image repository • Intelligent algorithm-guided order sets • MEDLINE access • Reference texts
IOM: Health Care Should Be Effective	

CDSS that Support Quality Patient Centeredness

Meaningful Use: Improve Quality, Safety, and Efficiency.	• Rules based on language, gender, race, sex, ethnicity • Translation of medical language into patient friendly language • Rules that create clinical patient summaries based on documented information • Rules that minimize patient identification errors
IOM: Health Care Should Be Patient-Centered	

CDSS that Support Quality Timeliness

Meaningful Use: Improve Quality, Safety, and Efficiency.	• Reminders of drug doses due • Appointment reminders • Follow-up testing reminders • Rules that reschedule medications based on new information
IOM: Health Care Should Be Timely	

CDSS that Support Quality Efficiency

Meaningful Use: Improve Quality, Safety, and Efficiency.

IOM: Health Care Should Be Efficient

- Rules that trigger alerts for high cost drugs and suggest lower cost alternatives
- Duplicate testing alerts
- Rules that support medical coding
- Algorithms that calculate risk and generate preventive recommendations

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CDSS that Support Quality Equity

Meaningful Use: Improve Quality, Safety, and Efficiency.

IOM: Health Care Should Be Equitable

- Rules that identify vulnerable populations so that disparities can be monitored
- Clinical decision support applied regardless of patient sex, age, race, ethnicity, or socioeconomic status

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Unintended Consequences of CDS

- Content
  - Elimination or changing of roles of clinicians and staff
  - Currency of CDS content
  - Wrong or misleading CDS content
- Presentation
  - Rigidity of systems
  - Alert fatigue
  - Sources of potential error

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Summary

- Meaningful use of EHRs must include meaningful use of CDS.
- CDS supports quality, safety, efficiency, effectiveness, timeliness, and equity of care.
- Examples of CDS that support patient safety include: rules that alert the prescriber to harmful interactions and rules that support weight-based, physiology-based, and age-based dosing.
- There may be unintended consequences of CDS that relate to both content & presentation.

Component 12/Unit 6

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