

# Decision Support for Quality Improvement

Unit 6c: Alerts and Clinical Reminders

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## Objectives

 Analyze the benefits and shortfalls of alerts and clinical reminders

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### **Reminders and Alerts**

"...the burden of reminders and alerts must not be too high...or alert fatigue may cause clinicians to override both important and unimportant alerts, in a manner that compromises the desired safety effect of integrating decision support into CPOE."

Van der Sijs, et. al., 2006

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### Alerts and Reminders

### Nuisance Alert

 "...provides little perceived benefit to the prescriber at the time of the alert"

### Alert Fatigue

 "...arise when clinicians, either consciously or unconsciously, begin to systematically bypass CDS alerts without regard to their importance, enabling the possibility that a clinically important alert is missed"

Chaffee, BW (2010)

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# Responses to Clinical Reminders Tendency to perform an action when a warning system instructs the user to do so Tendency to refrain from performing an action when the warning system does not indicate that it is necessary Tendency to refrain from performing an action when the warning system does not indicate that it is necessary

# Responses to Clinical Reminders • Clinician performs an action even when not prompted by the reminder system • Clinician refrains from performing an action due to a perceived threat to professional autonomy

# Four Types of Alerts/Reminders Drug Alerts Practice Reminders Lab Test Alerts Administrative Reminders Component 12' Unit 6 Practice Reminders Administrative Reminders

# Basic Drug Alerts Drug allergy warnings Drug-drug interactions Duplicate medication or therapeutic duplication alert Basic medication order guidance

# Advanced Drug Alerts Drug-Lab alerts Drug-Condition interactions Drug-Disease Contraindication alerts Drug-condition alerts aimed at appropriate prescribing

## **Advanced Drug Alerts** Drug-age alerts Drug-formulary alerts Dosing guidelines Complex prescribing alerts Health IT Workforce Curriculum Version 2.0/Spring 2011 Component 12/ Unit 6 **Evidence to Support Drug Alerts** • Systematic review examined 20 studies that evaluated the impact of efficacy of computerized drug alerts and prompts - 23 of 27 alert types identified demonstrated benefit • Improving prescribing behavior · Reducing error rates - Greatest potential for affecting prescribing · Drug-drug interaction alerts · Drug-disease contraindication alerts · Dosing guidelines based on age Component 12/ Unit 6 Health IT Workforce Curriculum Version 2.0/Spring 2011 Improving Adoption of Drug Alerts Shah & colleagues studied improving clinician acceptance of drug alerts in ambulatory care Designed a selective set of drug alerts for the ambulatory care setting using a criticality leveling Minimized workflow disruptions by designating only critical to high-severity alerts to be interruptive to clinician workflow

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1: clinician could not proceed with the prescription without eliminating the contraindication;
2: clinicians could proceed if provided an over-ride reason
3: alert displayed at top of screen in red; did not

Alert levels:

hinder workflow

# Basic Laboratory Alerts Drug-laboratory alerts Duplicate laboratory testing alert Basic laboratory test order guidance Public health situational awareness

## **Evidence to Support Lab Alerts**

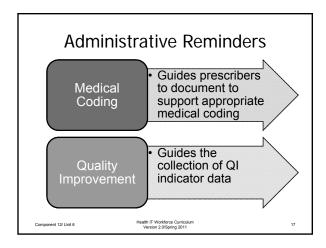
- Research examined the impact of a CDDS that generated reminders of previous lab test results
- Found that the proportion of unnecessarily repeated tests dropped significantly
- Features of the Alert
  - Alert was automatically prompted and was part of the clinician workflow
  - User could not deactivate the alert output
  - Most recent laboratory result for viral serology test an its date was automatically retrieved from the patient's EHR
  - Alert was displayed at the time and location of decision making (before the user ordered an unnecessarily repeated test

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# Practice Reminders Guiding • Provides recommended treatment • Checks prescriptions against clinical practice guidelines • Helps provider follow the patient • Component 12/ Unit 6

# Practice Reminders Challenges Incorrect guidelines Too generic guideline Patient data inconsistency Inappropriate action Potential Risk



# Success Factors: Alerts Specificity • Alert clinically important for the patient Sensitivity • Alert generated in all dangerous cases van der Sijs, et. al., 2006

### Success Factors: Alerts

### Information Content

- Clear, concise, unambiguous
- Justification noted
- Further information accessible
- · Alternative actions presented

van der Sijs, et. al., 2006

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### Success Factors: Alerts

### Workflow

- Directed to right person at right time
- Specialty-specific; Knowledge-specific
- Avoid repetition

### Safe, efficient handling

- •High threshold
- •Reasons for non-compliance
- Promotes action
- •Speed; Screen design; minimize work

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## **Summary**

- Alerts/reminders have the potential to improve patient safety
- Types include: drug and lab test alerts, practice reminders, and administrative reminders
- Nuisance alerts provide little perceived benefit to the prescriber at the time of the alert, causing clinician frustration and alert fatigue
- Successful alerts are specific, sensitive, clear, concise and support clinical workflow, allowing for safe, efficient responses.

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