Effective Clinical Decision Support Team & Nursing Informatics

Barb Bungard, Manager of IT Regulatory Operations

Akron Children's Hospital, Akron, Ohio

Akron Children's Hospital

Clinical Decision Support (CDS)

"A key functionality of health IT and certified EHRs that provides health care providers and patients with general and person-specific information, intelligently filtered and organized at appropriate times, to enhance health and health care" ---www.cms.gov

Why do we do CDS?

- Clinical decision support provides timely information, usually at the point of care, to help inform decisions about a patient's care.
- Clinical decision support can effectively improve patient outcomes and lead to higher-quality health care.

Reference: Agency for Healthcare Research and Quality: Advancing Excellence in Health Care

Benefits of CDS

- Patient Safety
- Lower costs
- Reduce patient inconvenience
- Promote Use of Evidence Based Practice
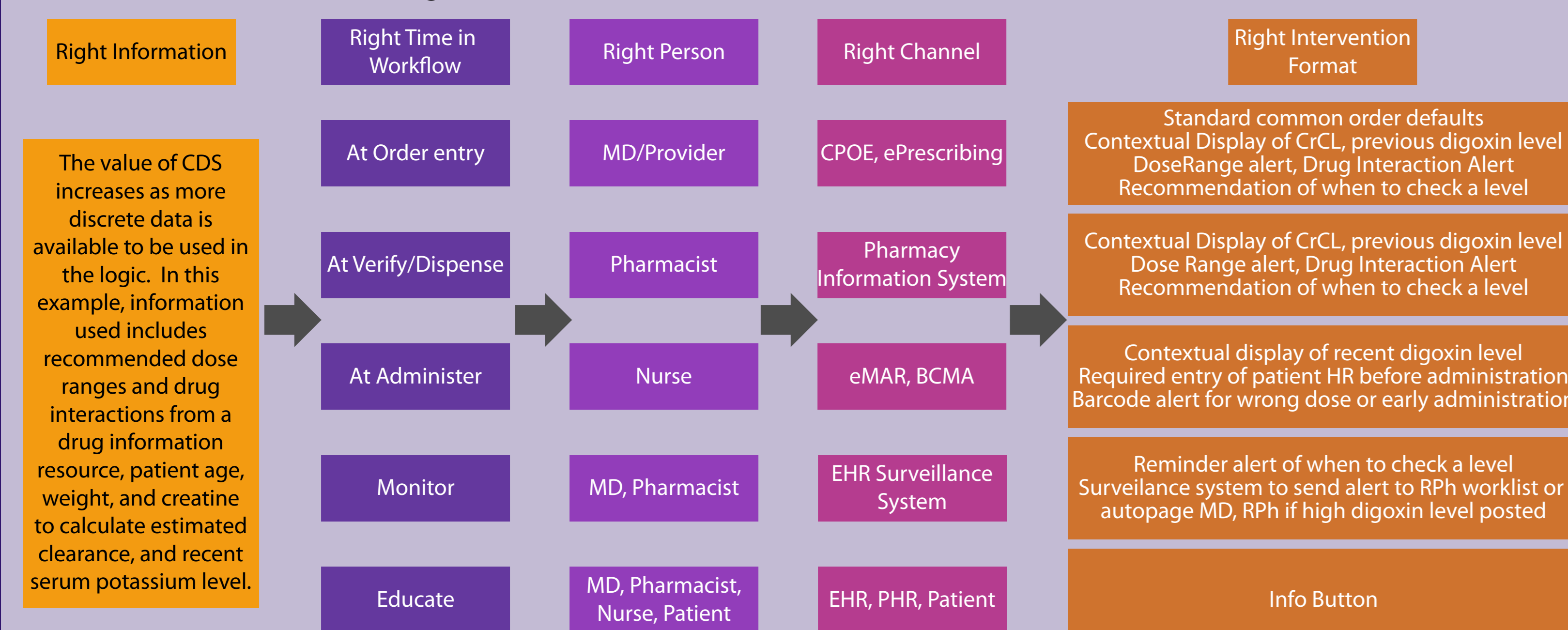- Improve efficiency

Ten Commandments of CDS

- Speed is Everything
- Anticipate Needs and Deliver in Real Time
- Fit in the Users Workflow
- Little Things Can Make a Big Difference
- Recognize the Physicians will Strongly resist Stopping
- Changing Direction is Easier than Stopping
- Simple Intervention Works Best
- Ask for Additional Information Only When you Really Need It
- Monitor Impact, Get Feedback and Respond
- Manage and Maintain Your Knowledge-based Systems

Reference: Ten Commandments for Effective Clinical Decision Support: Making the Practice of Evidence-based Medicine a Reality, Journal of the American Medical Informatics Association Volume 10 Number 6 Nov / Dec 2003, pages 523-529

5 Rights of CDS

- Deliver the Right information
- In the Right CDS intervention format
- At the Right Point in workflow
- To the Right person
- Through the Right channel

Reference: J Healthc Inf Manag. 2009 ; 23(4): 38–45

| Right Information	Right Time in Workflow	Right Person	Right Channel	Right Intervention Format
The value of CDS increases as more discrete data is available to be used in the logic. In this example, information used includes recommended dose ranges and drug interactions from a drug information resource, patient age, weight, and creatine to calculate estimated clearance, and recent serum potassium level.	At Order entry	MD/Provider	CPOE, ePrescribing	Standard common order defaults Contextual Display of CrCL, previous digoxin level DoseRange alert, Drug Interaction Alert Recommendation of when to check a level
	At Verify/Dispense	Pharmacist	Pharmacy Information System	Contextual Display of CrCL, previous digoxin level Dose Range alert, Drug Interaction Alert Recommendation of when to check a level
	At Administer	Nurse	eMAR, BCMA	Contextual display of recent digoxin level Required entry of patient HR before administration Barcode alert for wrong dose or early administration
	Monitor	MD, Pharmacist	EHR Surveillance System	Reminder alert of when to check a level Surveillance system to send alert to RPh worklist or autopage MD, RPh if high digoxin level posted
	Educate	MD, Pharmacist, Nurse, Patient	EHR, PHR, Patient	Info Button

One of the important aspects of identifying a target outcome is understanding where the errors are coming from and brainstorming to understand all potential failure points. Most targets will require numerous CDS interventions at multiple points in the workflow to "plug all the holes in the swiss cheese." The flowchart above is an example of one outcome, the prevention of a digoxin overdose or toxicities related to digoxin.

Beware of CDS

- Poorly designed interventions can be:
  - Distracting and disruptive,
  - Lead to frustrated providers
  - Unintended consequences
- Overuse of CDS causes user dissatisfaction & ignoring the CDS tools
- Inadequate planning, resources, and communication about CDS interventions being planned leads to failure
- Requires continuous quality improvement.

Reference: http://www.himss.org/library/clinical-decision-support/what-is
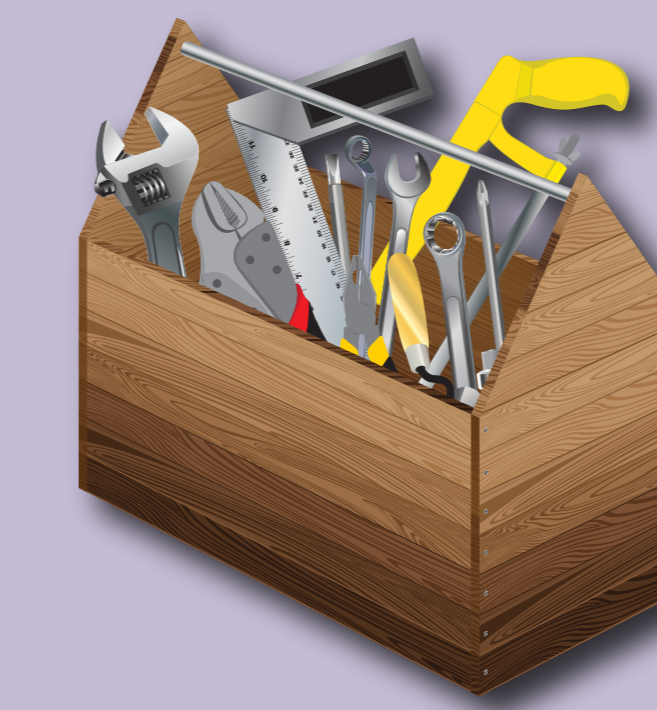
CDS Tool Kit

- Order Sets
- Health Maintenance
- Changes to Patient Header
- Navigators
- Scoring Systems
- Recommended Alternatives
- Alerts
- Banners
- Medication Warnings and Alerts
- Preference Lists
- Required Documentation

## Roles of Informatics Team

- *Subject Matter Experts (SME)*
  - Submit Request
  - Provide Evidence Based Practice
  - Cheerleader
  - Validate Workflow & Content
  - Champion
  - Sign Off on CDS Tool

- *Physician Informaticist (PI)*
  - Liaison between SME and Build Team
  - Create/On-Going Support CDS Standardization Naming, Format
  - Basic knowledge of EHR functionality

- *Application Build Analyst*
  - Review CDS tool request with PI
  - Understand functionality within the EHR to build the correct tool to meet the "ask"
  - Build out the request
  - Test and Validate build, first with team and then with PI
  - Utilize standard format & naming conventions

- *Report Writers/ Analytical Analyst*
  - Work with PI & Build team related to metrics
    - Baseline
    - Ongoing maintenance
    - Identify discrete data for reporting

- *Clinical Informatics Role*
  - Understand the "ask"
    - What is the requestor attempting to achieve?
  - Translate "ask" into the best tool within the EHR
    - Order set, banner, alert, etc.
  - Where in end users workflow and EHR most appropriate for the tool to exist
    - Opening chart, writing orders, admission/discharge, etc.
  - Appropriate testing – positive & negative
  - Collaboration with analytic analysts around metrics/data gathering
  - Evaluation if meeting intended goal

- *CMIO*

Skills Utilized

- Analysis
- Knowledge of Data and Data structures
- Evaluation
- Human Computer Interaction
- Design & Development
- Change Management
- Validation
- Collaboration

BPA Style Guide

- **Make it clear what the provider should do.**
  - Add data to help make decisions (lab, hyperlink, etc.)
- The display text should permit **glance triage**.
  - Limit to 2-4 **bold** CAPITAL words.
  - "Caution:", "Warning:", etc. may be added
  - Determine background color based off key
- Informational text should be solid black bullets.
  - Each sentence should be on a different line.
  - Avoid referring to "this patient", "the patient".
  - *Italics* are generally to be avoided.
  - Hyperlinks should be in blue and at the end
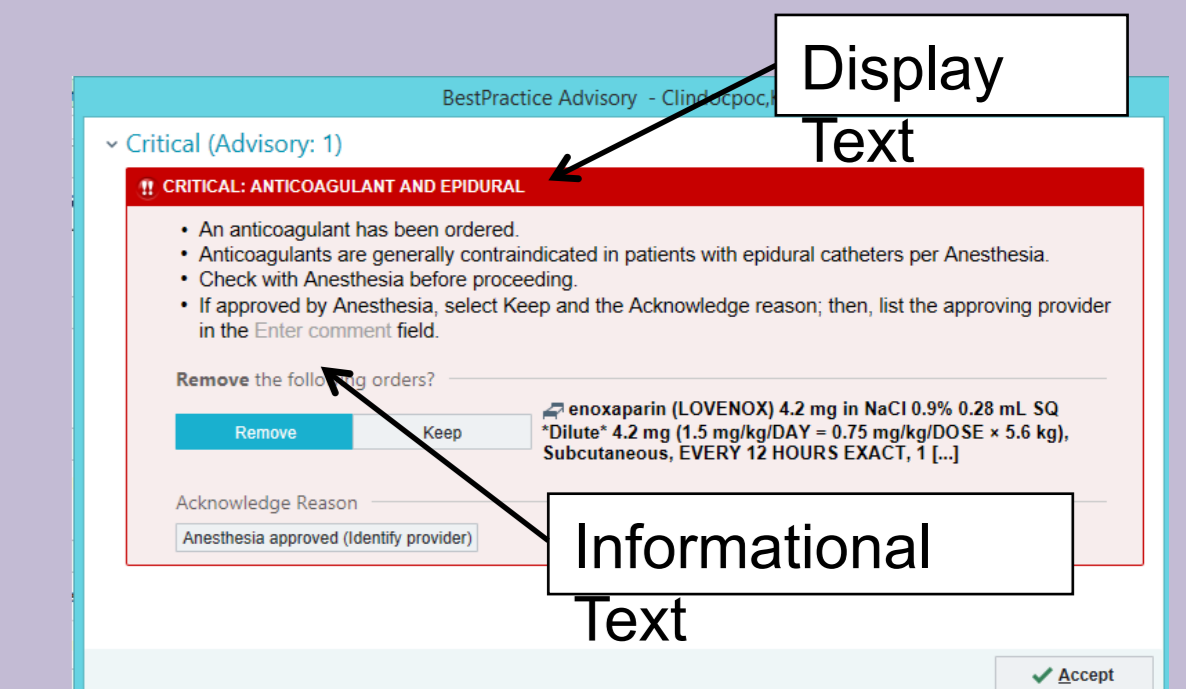
TITLE	COLOR	COLOR ID	COLOR NAME
CRITICAL		#FF0000	Red
WARNING		#FFA500	Orange
IMPORTANT/CAUTION		#FFFF00	Yellow
NOTE		#008000	Green

Banner Style Guide

- Naming:
  - IP, AMB
  - ACH global
- Placement:
  - Master print group
  - Navigator section
- Display:
  - See key

Clinical Notifications
CAUTION: Diagnostic assessment (90791) already billed this year
CAUTION: Diagnostic assessment (90792) already billed this year
CAUTION: HIGH FALL RISK
NOTE: Patient is overdue for a well visit

DANGER: Text of banner
WARNING: Text of banner
CAUTION: Text of banner
NOTE: Text of banner

Grouper Criteria

- Include in Prefix type
  - Diagnosis, Medication, Department, Procedure
- Include source of data – example SNOMED, ICD-10, etc
- Name include basic information for purpose
- Description to include for medadata
  - Name of the person who developed the grouper (Content Owner)
  - Name of the person who validated
  - Date it was validated
  - Date it was approved by the Physician Informaticist committee
  - Purpose of Grouper
  - Determine if included in Slicer Dicer
  - Revision Date/History if applicable

Build Checklist

- ☐ Meet with Analytics (Michelle) _____
- ☐ Present to Clinical Informatics _____
- ☐ Turn on as ghost _____
- ☐ Review data 48-72h later _____
- ☐ Ongoing meeting with analytics _____