# Effective Clinical Decision Support Team & Nursing Informatics

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## 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
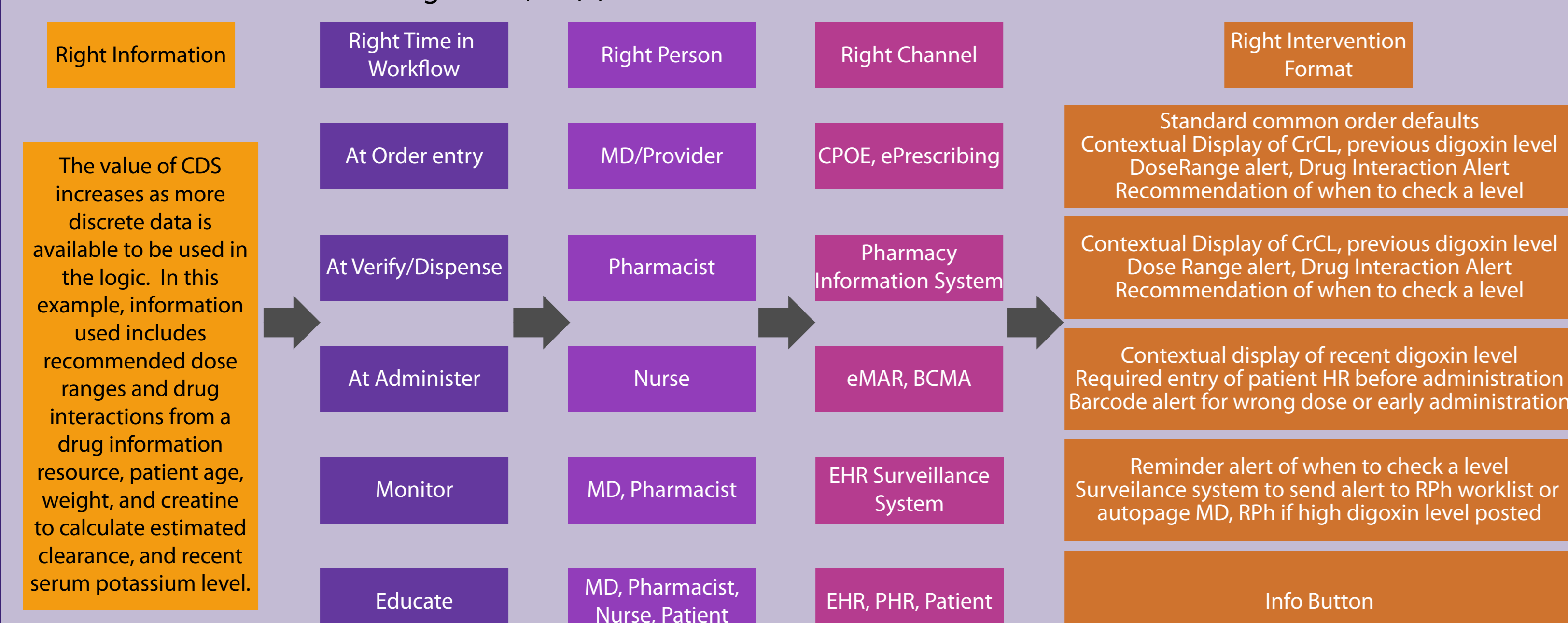- Improve efficiency

## 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
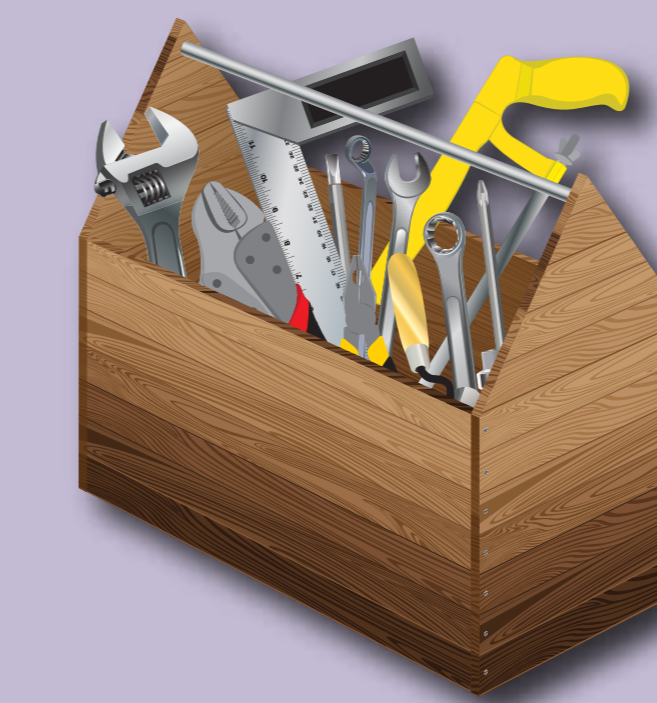
## CDS Tool Kit

- 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

## CDS Worksheets



## Sample Best Practice Advisory (BPA)



**CDS is what differentiates an EMR from a very costly 'pencil'