

# Safety Enhanced Design Brief

## Clinical Decision Support

Clinical decision support (CDS) systems bring relevant information to the clinician at the point of decision making.

Implementing CDS systems presents many challenges such as:

- Complex system constraints
- Complex nature of information to be displayed
- Challenging human-computer interaction design
- Organizational and change management to ensure system adoption

CDS is one of the most complex sub-systems available in EHR systems. This document reviews guidelines to *design useful and usable CDS interventions*.

### 1 To create useful, consistent and reliable communication of support material to the user

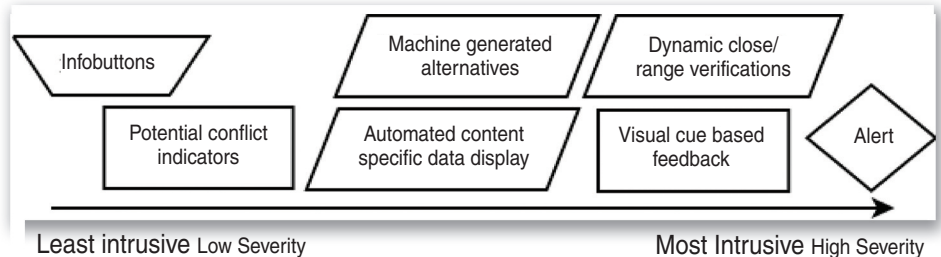
- Ensure your CDS system is capable of identifying preventable errors and informing the user of potential clinical hazards
- Adapt CDS interventions to the clinical workflow and not the opposite
- Create a system that supports human decision making rather than corrects it (e.g. give feedback on entered data as opposed to changing it automatically)

- Clearly differentiate alerts and interventions according to their type
- Show decision support elements near corresponding data entry fields or buttons
- Classify decision support elements (e.g. rules and alerts) by severity levels
- Incorporate insurance coverage information into the CDS scope
- Match the intrusiveness of the CDS intervention to the severity level of the problem

### 2 To prevent alert fatigue, provide support beyond alerting

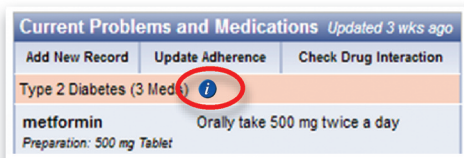
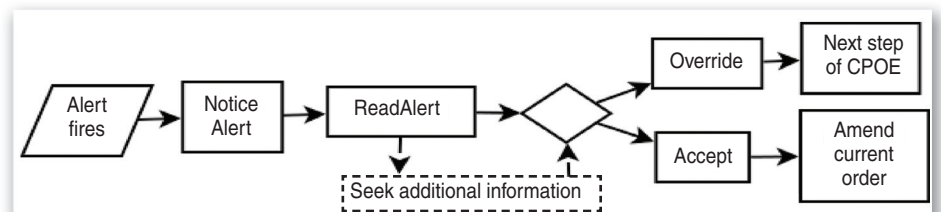
- Use indicators to signal potential conflicts before triggering an alert
- Provide reduced lists of options based on context (e.g. a short list of clinically appropriate painkillers is presented when pain is entered as the chief complaint)

- Consider including automated machine-generated information views and automatic context-specific data display functions



### 3 Use alerts for high risks to patient safety (<https://sbmi.uth.edu/nccd/SED/Briefs/sedb-mu01.htm>)

- Ensure alerts allow provider to control alerted order items by providing direct access to order management
- Block *action completion* until critical alerts are reviewed and acknowledged
- Ensure that alerts contain all necessary information to make a sound decision



### 4 To deliver context information without overwhelming the user, use integrated context aids such as infobuttons

- Present infobuttons throughout the system

- Provide information and links to information sources for all evidence shown
- Provide chronology information on evidence delivered by the system

Learn more at <https://sbmi.uth.edu/nccd/SED/Briefs/sedb-mu04.htm>