**Term list: Informatics Session 7, Clinical Decision Support, v. 1.0**

Alert

An intrusive overlay of information in a computer workflow that occurs as a response to triggering data, usually implemented as a “pop-up” box containing text that appears in front of a user’s work and may be accompanied by a tone. In some healthcare systems alerts are called “Best Practices Advisories” or BPAs.

Alert fatigue

Reduced responsiveness to alerts produced by excessive numbers of alerts, perceived low value of alerts, or both.

Automatic thinking

Described as type I problem solving by Daniel Kahneman in Thinking Fast and Slow, a rapid, relatively unconscious decision-making method that is based largely on pattern matching. Automatic thinking is efficient and low effort but subject to several types of errors including “jumping to conclusions” or answering the wrong question.

Automation bias

A tendency to assign more weight than appropriate to information from automated systems because they are assumed to be well-designed and correct.

Bandwagon effect

People tend to do what their peers do, ie, they follow perceived behavioral norms. Decision support is more likely to be effective if it is perceived by users as reinforcing rather than combatting behavioral norms.

Choosing Wisely

A consortium of professional and provider organizations dedicated to optimizing outcomes and efficiency in healthcare. Choosing Wisely provides extensive lists of vetted recommendations for optimizing care, including recommendations related to specific over- and under-testing problems in the clinical laboratory. See [www.choosingwisely.org](http://www.choosingwisely.org).

Default heuristic

A general principle that people will favor default options, ie, they are more likely to choose a pathway that doesn’t require additional action or changes. For this reason it is important that default selections in order sets are correct for the order sets’ common uses.

De-skilling

Loss of decision-making experience and skills from over-reliance on alerts and automation to catch problems and prompt decisions.

eCDS

Electronic clinical decision support. eCDS systems and processes are triggered by computer user actions and/or patient characteristics, and they overlay information on computer workflows to aid users in decision-making.

Five Rights

Five characterstics of good CDS systems. These systems have the ability to provide 1) the right information, 2) to the right person, 3) in the right intervention format, 4) through the right channel, 5) at the right time.

Hard stop

Presentation of an interruptive alert in a way that blocks the computer workflow until a response is entered into the alert.

Heuristics

“Rules of thumb” based on experience, often useful when there is inadequate information to make decisions based on a full understanding of a problem. Heuristic decision-making is sometimes referred to as “empirical.”

Infobutton

A button that brings up decision support information on request, commonly implemented as a round blue button containing a white italicized “I.”

Interruptive eCDS

New information that halts a user’s workflow in the system, typically by automatically popping up in an alert on the screen in front of the user without a user request for it.

Longitudinal study

A sequential study of an eCDS intervention in which healthcare performance, measured as either outcomes or process changes, is compared before and after the intervention. Longitudinal studies are subject to interference from other changes that may have occurred in the environment around the same time.

Non-interruptive eCDS

Decision support information that is available to the user on request, commonly implemented as a box that appears when an infobutton is clicked or when the user hovers the cursor over a cue on the screen.

Order set

A collection of related orders that can be displayed as a group and filled out together. Orders in a set can be selected by default or unselected but available for convenient selection if desired. Order sets can guide behavior based on their content and the default selection choices.

Order template

An order entry display that contains extra data entry fields to collect information required for the order. The template may carry out calculations and other processing to determine whether an order is warranted. In older systems that used command line interfaces, the extra data entered for the order were known as “ask at order entry” or AOE data elements.

Outcome measures

Healthcare outcomes that may be affected by CDS interventions, such as length of stay, readmissions, quality of life, and mortality.

Process measures

Characteristics of healthcare delivery that may be affected by CDS interventions and are thought to influence outcomes measures. Process data may be more readily available than outcomes data and includes utilization of healthcare resources such as volume and type of lab testing, blood product utilization, treatment orders issued or changed, or whether clinical decision-making follows defined criteria.

Protocol order

A pre-defined set of orders with criteria for issuing them. Protocol orders can streamline workflow by allowing non-physicians to issue orders under routine conditions such as initial transplant evaluation visits and elective surgery admissions.

Randomized study

A study in which one or more interventions and controls are followed simultaneously, and patients, physicians, or services are assigned to the interventions randomly. CDS is difficult to truly randomize because different physicians/services/locations may have real differences that bias groups, and because it is difficult to reliably separate groups.

Reflective thinking

Described as type II problem solving by Kahneman in Thinking Fast and Slow, a decision-making method that requires effort, concentration, and agency. Typically used for new or complex problems, it can be more accurate than automatic thinking if it is used effectively, but it tends to be used only when necessary because of the effort required.

Reflex orders

Pre-defined orders, often for a sequence of tests for which the choice of later tests depends on intermediate results or sample characteristics (eg, volume).

Risk compensation

Relaxed risk-avoidance based on the perception of protective safeguards. For example, riskier driving when wearing seatbelts or failing to carefully match blood product identity to the patient because of the belief that barcode scanning will catch any mismatches.

Soft stop

Presentation of an interruptive alert in a way that allows the alert to be dismissed and the previous workflow resumed.

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