

**Learning From Mistakes:  
Error Reporting and  
Analysis and HIT**

Unit12.1: HIT and Error  
Detection & Reporting

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**Objectives**

At the end of this segment, the student will be able to:

- Explain how reporting errors can help to identify HIT system issues,
- Describe ways in which HIT can facilitate error reporting and detection.

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**Learning From Mistakes**



Let's start with a story. [Listen to the short lecture about Josie King].

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## Learning From Mistakes

"A new delivery system must be built to achieve substantial improvements in patient safety – a system that is capable of preventing errors from occurring in the first place, while at the same time incorporating lessons learned from any errors that do occur."

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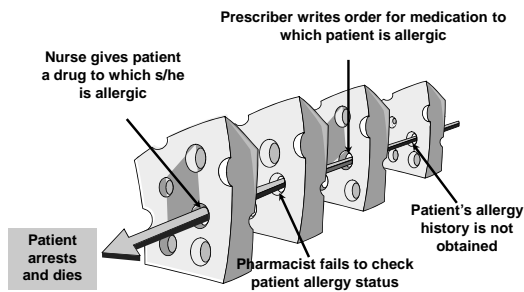
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## A Medication Error Story



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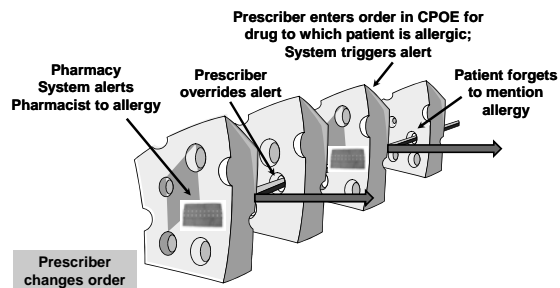
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## How Can Technology Help?



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## Culture of Safety

- Admit that providing health care is potentially hazardous
- Take responsibility for reducing risks
- Encourage error reporting without blame
- Learn from mistakes
- Communicate across traditional hierarchies and boundaries; encourage open discussion of errors
- Use a systems (not individual) approach to analyze errors
- Advocate for multidisciplinary teamwork
- Establish structures for accountability to patient safety

*Kilbridge and Classen, 2008 The Informatics Opportunities at the Intersection of Patient Safety and Clinical Informatics*

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## The Role of HIT

How can Information Technology assist in error detection and analysis?

- Automated surveillance systems
- On-line event reporting systems
- Predictive analytics and data modeling

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## Automated Surveillance Systems

- Do not rely on human cues to determine when events occur
- Use electronically detectable criteria

“Such surveillance systems typically detect adverse events at rates four to 20 times higher than those measured by voluntary reporting.”

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## Automated Surveillance Systems

### Decision Support Logs

- summarize number/types of decision rules fired, user interactions with decision rules, outcomes of interactions

### Medical Logic Modules

- define how a provider should apply knowledge for health care decision-making given specific patient data in the EHR.

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## Automated Surveillance Systems

### Clinical Data Scan

- use automated triggers for chart review to detect adverse drug events

### Claims Data Mining

- Looks at coding sets for patient quality-related conditions and events used in claims data.

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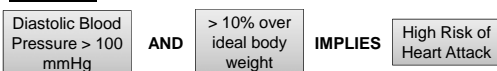
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## Predictive Analytics

- Good for large complex data sets
- Use rules of logic to predict outcomes based on the presence of certain identified conditions
- Help us find associations among variables that could be useful in future decision-making

### Example:



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## On-line Event Reporting Systems

Voluntary reporting of patient or provider/staff events or concerns

Accessible from any location

Include a broad range of event types

Catalogue events in a searchable database that facilitates trending, communication, and analysis

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## On-line Event Reporting Systems

Voluntary

- Non-punitive
- Reporter motivated to tell the complete story to prevent future harm

Mandatory

- Punitive
- Reporter motivated by self-protection rather than preventing future harm

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## On-line Event Reporting Systems

Barriers to Reporting

- Embarrassment
- Fear of reprisal
- Fear of legal repercussions
- Lack of time
- Not recognized

Facilitators to Reporting

- Culture of safety
- Effective, timely system changes in response to error review and analysis

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## Event Reporting Taxonomies Patient

- Medication Error
- Adverse Drug Reactions (not medication error)
- Equipment/Supplies/Devices
- Error related to Procedure/Treatment/Test
- Complication of Procedure/Treatment/Test
- Transfusion
- Behavioral
- Skin Integrity
- Care Coordination/Records
- Other



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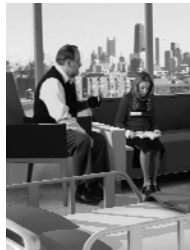
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## Event Reporting Taxonomies Staff or Visitors

- Assault by patient
- Assault by staff
- Assault by visitor
- Exposure to blood or body fluids
- Exposure to chemicals or drugs
- Fall
- Injury while lifting or moving
- Other



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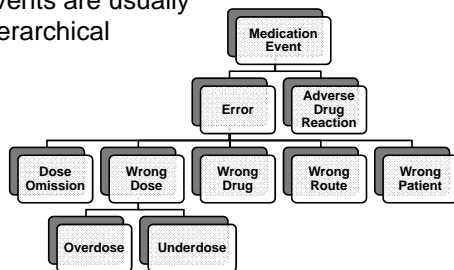
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## On-line Event Reporting Systems

Events are usually hierarchical



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## On-line Event Reporting Systems

- Supplement electronic surveillance systems
- Capture actual events and near misses
- Catalogue event outcomes
- Depict trends & potential areas of concern
- Allow password-protected event analysis
- Facilitate follow-up by key stakeholders
- Increase efficiency by reducing time from reporting to analysis and action

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## Type of Outcomes

### Near Miss

No error

Error, did not reach patient

Error, reached patient, no harm

### Harm

Error, temporary harm

Error, permanent harm

Error, death

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## Types of Error

### Commission

- Doing something wrong
- Example: ordering medication for a patient with a documented allergy

### Omission

- Failing to do the right thing
- Example: failing to prescribe medications to prevent blood clots in patients at high risk for clots

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## Types of Error

Active Failures	Latent Conditions
<ul style="list-style-type: none"> <li>• Occur at the point of contact between a human and the system</li> <li>• Readily apparent</li> <li>• At the “sharp end”</li> <li>• <b>Example:</b> pushing an incorrect computer key</li> </ul>	<ul style="list-style-type: none"> <li>• Failure of design or organization</li> <li>• Less apparent</li> <li>• At the “blunt” end</li> <li>• <b>Example:</b> facility has multiple types of infusion pumps, increasing likelihood of programming error</li> </ul>

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## Types of Error

Slips	Mistakes
<ul style="list-style-type: none"> <li>• Lapses in concentration</li> <li>• Arise with competing sensory or emotional distractions, fatigue or stress while performing reflexive activity</li> <li>• <b>Example:</b> overlooking a step in a routine task due to lapse in memory</li> </ul>	<ul style="list-style-type: none"> <li>• Incorrect choices</li> <li>• Arise during active problem solving</li> <li>• <b>Example:</b> selecting the wrong diagnostic test</li> </ul>

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## Summary:

People and IT systems are subject to error.

Health IT can assist in detecting and reporting errors so that we can learn from our mistakes.

Voluntary error reporting systems are most effective in health care settings that embrace a culture of safety.

Health IT professionals should be aware of the various types of error that can occur in the interaction of users with IT systems.

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