Risk Management

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Consultant
A&E Department QMH
What are we going to discuss?

- Definition of Risks
- Prevalence and nature of risks in health care setting
- Factors contributing to errors/risks
- Definition of Risk management
- Safety culture
Definition of Risk

- Possibility or chance of meeting danger, suffering loss, injury etc. (Oxford Advanced Learner’s dictionary)

- In health care setting, it refers to risk of having accidents, risk of having harms.
Definition of Risk

‘A measure of Probability and severity of adverse effects’

Lowrence-Of acceptable risk: Science and determination of safety

“The chance of something happening that will have an impact upon objectives. It is measured in terms of consequences and likelihood.”

Joint Australian/New Zealand standard on risk management 4360:1999 (AS/NZS 4360:1999)
Prevalence of adverse incidents—actual harm

Range of such incidents in in-patients: 2.9%–16.6%, e.g.,

- California Medical Association (1974)
  - Mills et al 4.6%
- Harvard Medical Practice Study (1991)
  - Brennan et al 3.7%
- Quality in Australian Health Care Study (1995)
  - Wilson et al 16.6%
- University College London (2000)
  - Vincent et al 11%

27-51% preventable
3-13.6 causes fatality
2.6-16.6% causes permanent disability
Risk to patients

Adverse events 10% admissions
Potentially preventable adverse events 5%
Preventable cost 5% of healthcare budget
Human costs
Deaths 10,000 pa in Australia
38,000 pa in UK
98,000 pa in USA (8th cause of death)
Loss in Trust in the Health Care System

Australian Patient Safety Foundation
Risks to staff (QMH data)

No. of IOD Cases by Type of Accident

- Injured whilst lifting or carrying object: 89 (2006), 46 (2007)
- Slip, trip or fall: 64 (2006), 40 (2007)
- Trapped in or between objects: 9 (2006), 9 (2007)
Risk to staff

No. of IOD Cases by Staff Group

- **NURSING**: 154 (2006), 112 (2007)
- **SUPPORTING (CR)**: 100 (2006), 60 (2007)

(till 2007)
Risk to staff

- Under-reporting!
- Especially for medical grade
Factor contributing to errors

- Human factors
- Environmental factors (hardware)
- System errors (software)
- Culture
Technology Development and Risk in Healthcare

Source: Chris Quinn, Newcastle Hospitals NHS Trust, England
Swiss Cheese Model

Triggers
- The World
- Institution
- Organization
- Profession
- Team
- Individual
- Technical

DEFENSES
- Incomplete Procedures
- Mixed Messages
- Production Pressures
- Responsibility Shifting
- Inadequate Training
- Attention Distractions
- Clumsy Technology
- Deferred Maintenance

Goal Conflicts and Double Binds
- Goal Conflicts and Double Binds

Accident

Modified from Reason, 1991 © 1991, James Reason
The Swiss cheese model of how defense, barriers, and safeguards may be penetrated by an accident trajectory

Human errors: Model and management
The Failure Sequence in High Risk Systems
(What Root Cause Analysis Consistently Demonstrates)

Active Failures include operator errors and violations. Violations constitute deviation from policy and/or procedure.

Undue time pressure, inadequate tools, under-staffing, “clumsy” automation, inadequate training, inadequate maintenance, unworkable procedures, ...

Senior level decisions: Strategic decisions, Budgeting, Planning, Communicating, Norms and Informal Expectations (culture), Resource allocation ...

Active Failure

Injury or Death

Latent workplace conditions

Latent organizational conditions

© 2001 System Safety Group
Adapted from Managing the Risk of Organizational Accidents, J. Reason, 1997
“Unsafe” Journey through the Hospital

adverse event / injury
≈ 10% of patients
≈ 7% of staff

“To Err is Human”
Institute of Medicine Report 1999
974,400 to 1,243,200 incidents annually
8th leading cause of death (98,000)
> RTA, Breast Cancer, AIDS
Definition of Risk Management

AS/NZS 4360:1999

The culture, processes and structures that are directed towards the effective management of potential opportunities and adverse effects”
Managing incidents

- Surveillance, incidents reporting
- Root cause analysis: human factors, system fault
- Remedial actions: mitigating action, training & education, system review
Error-producing conditions

- Unfamiliarity with the task (x17)
- Time shortage (x11)
- Poor signal :noise ratio (x10)
- Poor human-system interface (x8)
- Designer-user mismatch (x8)
- Information overload (x6)
- Negative transfer between skills (x5)
- Misperception of risk (x4)
- Poor feedback from system (x4)
- Inexperienced (not lack of training) (x3)
- Poor instructions or procedures (x3)
- Inadequate checking (x3)
- Educational mismatch of person with task (x2)
- Disturbed sleep patterns (x1.6)
- Hostile environment (x1.2)
- Monotony and boredom (x1.1)

Incident Decision Tree

Start Here

1. **Deliberate Harm Test**
   - Were the actions as intended? (NO)
   - Were adverse consequences intended? (YES)
     - Consult NCAA or relevant regulatory body
     - Advise individual to consult Trade Union Representative
     - Consider:
       - Suspension
       - Referral to police and disciplinary/regulatory body
       - Occupational Health referral
     - Highlight any System Failures identified

2. **Incapacity Test**
   - Does there appear to be evidence of ill health or substance abuse? (NO)
   - Does the individual have a known medical condition? (YES)
     - Consult NCAA or relevant regulatory body
     - Advise individual to consult Trade Union Representative
     - Consider:
       - Corrective training
       - Improved supervision
       - Occupational Health referral
       - Reasonable adjustment to duties
     - Highlight any System Failures identified

3. **Foresight Test**
   - Did the individual depart from agreed protocols or safe procedures? (NO)
   - Were the protocols and safe procedures available, workable, intelligible, correct and in routine use? (YES)
     - Were there any deficiencies in training, experience or supervision? (NO)
     - Were there significant mitigating circumstances? (YES)
       - Consult NCAA or relevant regulatory body
       - Advise individual to consult Trade Union Representative
       - Consider:
         - Referral to disciplinary/regulatory body
         - Reasonable adjustment to duties
         - Occupational Health referral
         - Suspension
       - Highlight any System Failures identified

4. **Substitution Test**
   - Would another individual coming from the same professional group, possessing comparable qualifications & experience, behave in the same way in similar circumstances? (NO)
   - Were there any deficiencies in training, experience or supervision? (YES)
     - Were there significant mitigating circumstances? (NO)
       - Consult NCAA or relevant regulatory body
       - Advise individual to consult Trade Union Representative
       - Consider:
         - Reasonable adjustment to duties
         - Sick leave
     - Highlight any System Failures identified

5. **System Failure Review System**
   - Consult NCAA or relevant regulatory body
   - Advise individual to consult Trade Union Representative
   - Consider:
     - Referral to disciplinary/regulatory body
     - Reasonable adjustment to duties
     - Occupational Health referral
     - Suspension
   - Highlight any System Failures identified

By Prof James Reason
### Human errors: Model and management

**J. Reason BMJ 2000; 320:768-770**

Approach to the problem of human fallibility

<table>
<thead>
<tr>
<th>Person Approach</th>
<th>System Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on unsafe act of people</td>
<td>Focus on condition of work</td>
</tr>
<tr>
<td>Unsafe acts is the cause of errors, unsafe acts arise from aberrant mental processes: forgetfulness, inattention, poor motivation, carelessness, negligence, recklessness</td>
<td>Upstream systemic factors are the causes of errors, human fallibility are unavoidable</td>
</tr>
<tr>
<td>Error management by reducing unwanted variability in human behaviour, change human condition.</td>
<td>Error management by building up system defences, change condition of work.</td>
</tr>
<tr>
<td>Uncouple a person’s unsafe act from any institutional responsibility</td>
<td>Recognize that 90% errors are blameless</td>
</tr>
<tr>
<td>Isolate unsafe acts from the system context—recurrent errors</td>
<td>Remove error provoking properties of the system</td>
</tr>
</tbody>
</table>
Neither/nor, but both

Have to look at systems

AND

Human factors
High Reliability Organizations

Examples:
US Navy nuclear aircraft carriers
Nuclear power plants
Air Traffic Control centres

- HROs have carried out very demanding tasks with low incident rates and an almost complete absence of organizational accidents
- Prime example of system approach.
Crew Resource management

- Previously called cockpit resource management
- ‘using all available sources, information, equipment, and people to achieve safe and efficient flight operations’
- Focus on prevention of human errors
- Not so much on technical knowledge and skill training
- Cognitive skill: situation awareness, problem solving and decision making
  Inter-personal skill: Communication and team work
- Leadership
- Open and effective communication
- Stress management
- Automation
CRM

- 5th generation: Threat and error management
- Human & System errors: identification, prevention and management
- Errors inevitable and an invaluable source of information.
- Normalizing errors, adopt non-punitive approach.
- CRM as countermeasures of errors with 3 lines of defence: Avoid errors, trap errors, mitigating consequence of errors.
Aviation industry and Healthcare industry

Errors in Healthcare industry: patients suffer (what about SARS, needle prick injury, medicolegal consequence?)
Errors in Aviation industry: the whole crew suffer
CRM successful in Aviation Industry, does it work in healthcare industry?

Chapter 44. Crew Resource Management and its Applications in Medicine
Laura Pizzi, Pharm.D. Neil I. Goldfarb
David B. Nash, M.D., M.B.A.
Thomas Jefferson University School of Medicine and Office of Health Policy & Clinical Outcomes

- Team responsibility for patients.
- A belief in clinician fallibility.
- Peer monitoring.
- Team member awareness of patient status, team member status and institutional resources
What are we trying to achieve?

Shift the average to the right

learn from failures

POTENTIAL PROBLEMS

spread good practice

EXEMPLARS

High

Low

Quality

(adapted from Donaldson & Scally, 1998)
What is a ‘safe’ culture

- A safe culture = an informed culture
- An informed culture is one that knows where the ‘edge’ is without having to fall over it first
- An informed culture is preoccupied with the possibility of failure and works continuously to become more resilient to its operational hazards
Safety culture

“The product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization's health and safety management"

UK Health & Safety Commission
A safe culture = an informed culture consisting of many interlocking elements

Reporting culture

Just culture

Flexible culture

Learning culture

From: James Reason
The elements must work in harmony
Culture of Safety

- Where openness and participation are encouraged;
- Where people learn from failures and blame is the exception rather than the rule;
- Where good practice and new approaches are freely shared and willingly received; and
- Where education and research are properly valued.

Clinical Governance, Department of Health, UK
Hospital Authority
Advanced Incidents Reporting System

Login Authentication
Please enter the Domain Id and Password

Domain Id:
Password:

Submit  Reset

Check Your NEW CORP Domain ID
AIRS Training Material
IOC-related form/folder

Version 2.0 - Copyright © 2004 NTE Cluster IITD. All rights reserved. PMH 30th Anniversary
What to report?
Who to report?
Who to filter?
Who receive the information?
When to report?
Where to report?
How to report?
Reportable Incidents 1

Patient safety related incidents

**Human error/ mishap / process deviation**
associated with provision of care or services
- Adverse events (harm)
- Near Miss

**Unexpected events / complications**
involving death or serious injury
that are unrelated to a patient’s natural course of illness / underlying condition and
no human error / mishap was involved.
Purpose of incident reporting

- To learn
- To avoid harm to future patients
- Aspire to excellence
- To safeguard the Trust’s and your reputation
- Reduce costs
- To be the best
<table>
<thead>
<tr>
<th>Input</th>
<th>Management</th>
<th>Output</th>
<th>Risk reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident reporting</td>
<td>Case filtering</td>
<td>Daily return</td>
<td>Learning &amp; sharing</td>
</tr>
<tr>
<td></td>
<td>Classification</td>
<td>Enquiry</td>
<td>Management, review &amp; decisions</td>
</tr>
<tr>
<td></td>
<td>Investigation &amp; identification of contributing factors</td>
<td>Reports</td>
<td>Monitoring</td>
</tr>
<tr>
<td></td>
<td>Preventive Actions / Recommendation</td>
<td>Risk analysis</td>
<td>Culture building</td>
</tr>
</tbody>
</table>
# Data analysis of Medication incidents

## NATURE OF THE INCIDENTS

<table>
<thead>
<tr>
<th>Medication</th>
<th>Prescription</th>
<th>Wrong drug</th>
<th>Wrong dosage form</th>
<th>Wrong strength / dosage</th>
<th>Wrong route</th>
<th>Wrong duration</th>
<th>Wrong freq</th>
<th>Wrong abbreviation</th>
<th>Wrong instruction</th>
<th>Wrong patient</th>
<th>Double entry</th>
<th>Dose omission</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Dispensing</td>
<td>18</td>
<td>7</td>
<td>4</td>
<td>11</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>63</td>
<td>8</td>
<td>9</td>
<td>7</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>9</td>
<td>17</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Handling/storage</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

100
## Data analysis of Medication incidents

### CONTRIBUTING FACTORS OF THE INCIDENTS

<table>
<thead>
<tr>
<th>NATURE</th>
<th>GROUP</th>
<th>TYPE</th>
<th>COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STAFF FACTORS</strong></td>
<td>Competence</td>
<td>Inadequate knowledge and/or skill</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experience</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Compliance</td>
<td>Failure to comply with policies and procedures</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Personal</td>
<td>Lapse of concentration</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Violation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fatigue</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Attitude</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
<td>1</td>
</tr>
<tr>
<td><strong>COMMUNICATION</strong></td>
<td>Communication between staff/ agencies</td>
<td>Incomplete documentation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Incomplete / absent information</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Illegible</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Poor quality of information in the notes / documentation</td>
<td>2</td>
</tr>
<tr>
<td><strong>WORK ENVIRONMENT</strong></td>
<td>Equipment/supplies</td>
<td>Malfunction/failure/reliability (suspected)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>IT</td>
<td>System design</td>
<td>1</td>
</tr>
<tr>
<td><strong>PROCESS FACTORS</strong></td>
<td>Medication related</td>
<td>Complicated dosage design</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Protocol</td>
<td>Drug infusion / administration process</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unavailability of protocols</td>
<td>2</td>
</tr>
</tbody>
</table>
Just Culture

- Fair Blame
- Open Disclosure
The behavioural range: Incident Decision Tree guides decisions in the grey area

10% Culpable
- Sabotage
- Substance abuse
- Reckless violations etc.

90% Blameless
- System-induced violations
- System-induced errors
- ‘Honest’ errors etc.
Open Disclosure
Disclosure

- Disclosure is defined as an open and honest two-way communication with your patient (and their family when appropriate) regarding expected and unexpected outcomes of their care.

- Disclosure is a component of informed consent.
What do patients and families need from their caregivers after an adverse event

- **What happened?**
  - Uncertainty itself is painful
  - Silence is easily interpreted as lack of respect and compassion.
- **An apology**
  - They need to hear someone say that they are truly sorry for what they have suffered.
- **Is something being done to prevent similar tragedies in the future?**
  - Knowing that some good may come despite their tragedy helps mitigate their suffering.
- **Medical and financial assistance, ± financial compensation**