Learning from Errors to Prevent Harm
Understanding & Managing Clinical Risk

Learning objective

- By end of this lecture you will be able to :
  - Understand the nature of error.
  - Define the following terms error, slip, lapse, mistake, violation, near miss, hazard, risk and Risk management.
  - Understand how you can learn from errors.
  - Identify situational and personal factors that are associated with the increased risk of error.
  - Participate in analyses of adverse event and practice strategies to reduce errors.
  - Know how to apply risk-management principles in the workplace.
 - Know how to report risks or hazards in the workplace.

Principal Types of errors

- **Errors :** An error is <u>a failure to carry out a planned action as intended</u>. or the use of a wrong plan to achieve an aim.

- Errors may manifest by:
  - Doing the wrong thing (commission) OR
  - failing to do the right thing (omission).

- Example, Retained surgical instruments

- **Violations:** are errors caused by deliberate deviation by an individual from an accepted protocol or standard of care.

Principal Types of Human errors

Figure B.5.1. Principal types of errors
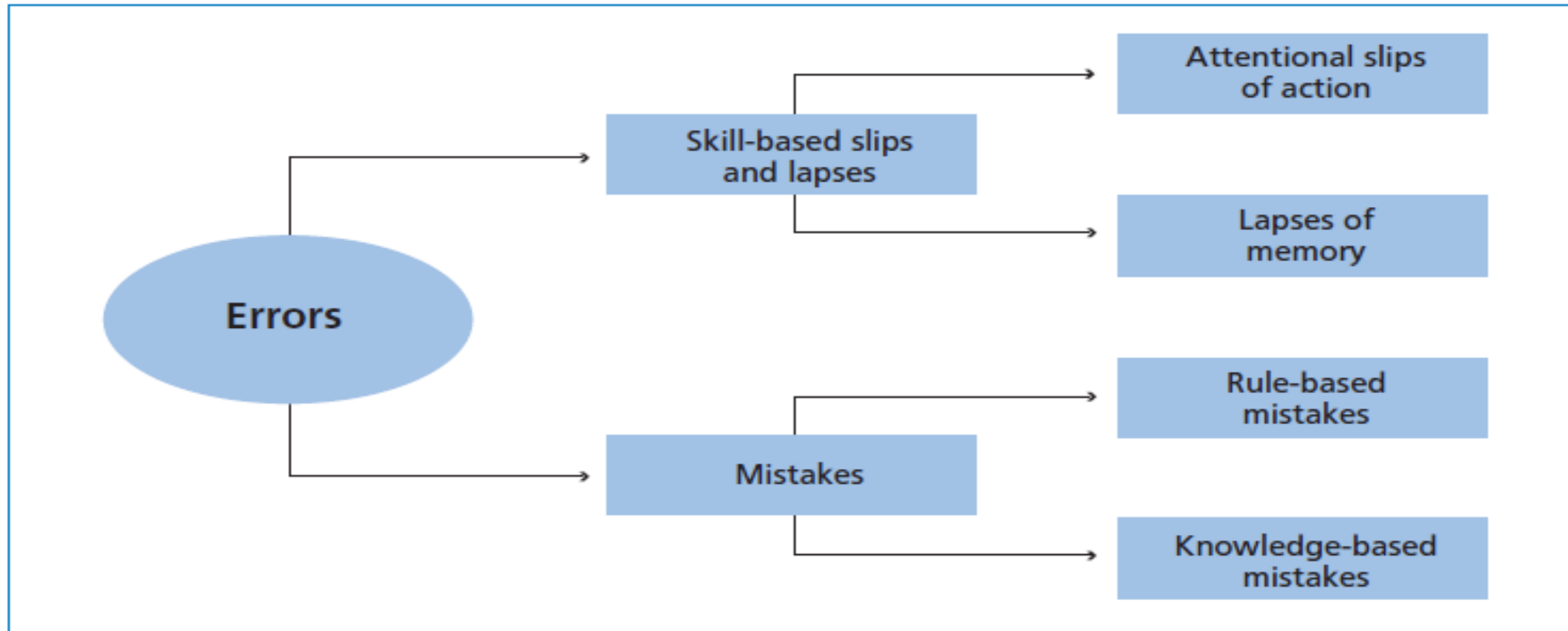
Source: Reason JT. Human error: models and management. *British Medical Journal*, 2000 [4].

Principal Types of Human errors

- A mistake is a failure of planning (i.e. the plan is wrong).

- This can be either:
  - **Rule-based**, when the wrong rule is applied,
    e.g.: wrong diagnosis end with inappropriate treatment plan

  - **Knowledge-based**, when a clinician does not take the correct course of action.
    e.g. when physicians are dealing with unfamiliar clinical situations

Principal Types of Human errors

- Skill-based **slips** error : if the action is observable
  - e.g. pushing the wrong button on a piece of equipment

- Skill-based **lapse** error : if the action is NOT observable
  - e.g. a memory failure, such as forgetting to administer a medication.

Types of Medical Errors

- **Diagnostic**
  - Error or delay in diagnosis(in the case of the diabetic patient may lead to blindness or glaucoma)
  - Use of outmoded tests or therapy
- **Treatment**
  - Error in the performance of an operation, procedure, or test(inserting a breathing tube into a patient's esophagus).
  - Error in the dose or method of using a drug

- **Preventive**
  - Failure to provide prophylactic treatment
  - Inadequate monitoring or follow-up of treatment (no order for anticoagulant post major orthopedic procedure may lead to PE).
- **Other**
  - Failure of communication
  - Equipment failure

SOURCE: Leape, Lucian; Lawthers, Ann G.; Brennan, Troyen A., et al. Pr e-venting Medical Injury. Qual Rev Bull. 19(5):144–149, 1993.

Concepts :

- **A clinical incident:**

  Is a deviation from standard of care and safety

  Examples: Medication errors

- **Near miss:**

  Is any situations that did not cause harm to patients (that did not reach the patient) , but could have done.

Factors Associated with an Increased Risk of Error

- **Situations factors:**
  Examples:
  - Shortage of time
  - Poor procedures preparation

- **Individual factors:**
  Examples:
  - Fatigue
  - Stress

Situations Associated with an Increased Risk of Error

- **Shortage of time:**
  - Time pressures encourage people to cut corners and take shortcuts when they should not.
  - e.g. Not cleansing hands properly is an example of this.

- **Inexperience:**
  - It is very important not to perform a procedure or administer a treatment for very first time without appropriate preparation.

Situations Associated with an Increased Risk of Error

- **Inadequate checking:**
  - The simple act of checking saves thousands of patients from receiving the wrong medications.

- **Poor procedures:**
  - Inadequate preparation, inadequate staffing and/or inadequate attention to the particular patient.

- **Inadequate information:**
  - Misinformation, incorrect and inadequate information are often factors contributing to adverse events. Due to:
    - Recoding the patient details inaccurately
    - Illegible handwriting in the patient record

Individual factors that predispose to errors

- **Limited memory capacity:**
  - Learning to ask for help is an essential skill

- **Fatigue:**
  - Study by Landriganetal found that interns working in the ICU,CCU of Brigham and Women's Hospital made substantially more serious mistakes when they worked frequent shifts of 24 hours or more as compared to when they worked shorter shifts.

Individual factors that predispose to errors

- **Stress, hunger and illness:**
  - There are many mnemonic devices to help students monitor themselves. HALT is one such aid.
  - **H** Hungry
  - **A** Angry
  - **L** Late or
  - **T** Tired
- Another memory tool for self-monitoring is IM SAFE.
  - **I** Illness
  - **M** Medication (prescription and others)
  - **S** Stress
  - **A** Alcohol
  - **F** Fatigue
  - **E** Emotion

Individual factors that predispose to errors

- **Language or cultural factors:**
  - communication errors caused by language and cultural factors is obvious

- **Hazardous attitudes:**
  - Students who perform procedures or interventions for patients without supervision might be said to display a hazardous attitude.
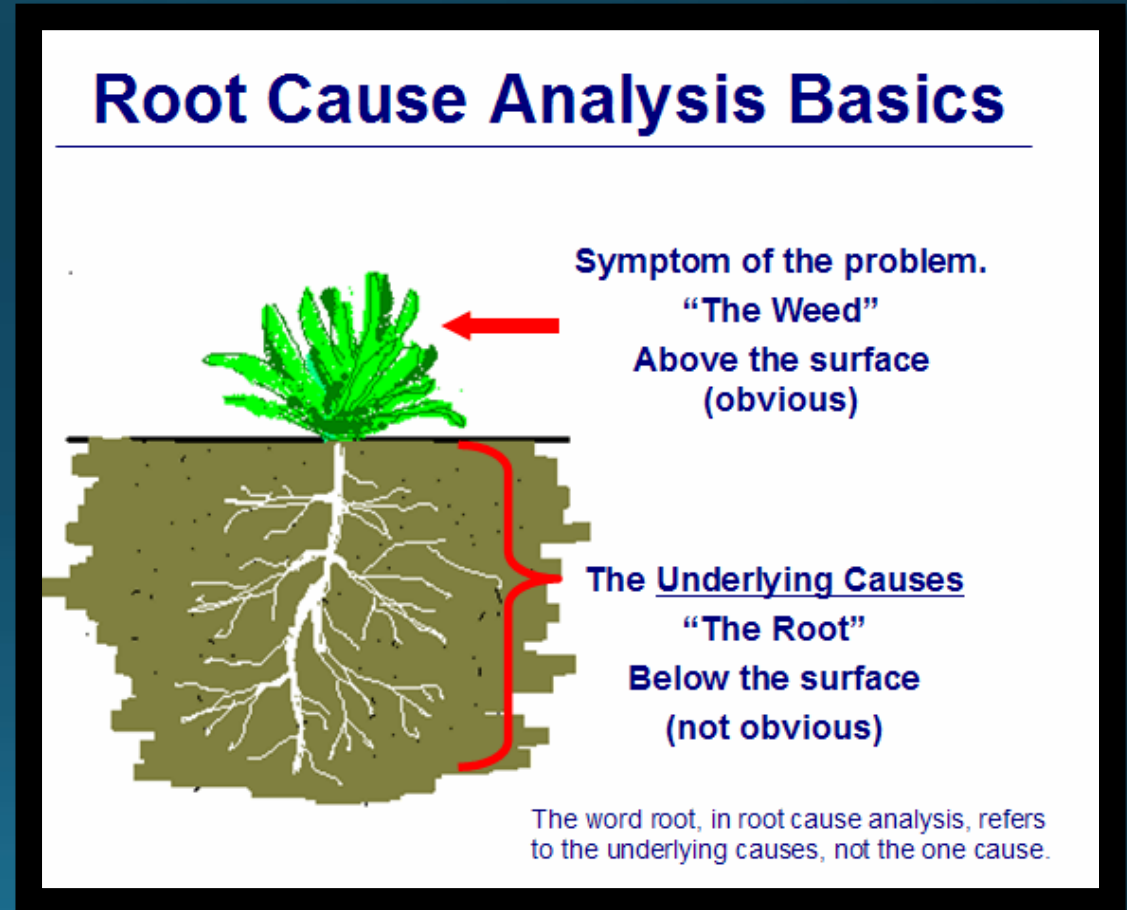
Ways to learn from errors

- **Incident reporting**
  - Incident reporting and monitoring involve collecting and analyzing information about any event that could have harmed or did harm a patient in a clinical setting or health-care organization.

- **Root Cause Analysis(RCA):**
  - Is a highly structured systemic approach to incident analysis
  - RCA focuses on the system, not the individual

Root Cause Analysis Basics

Symptom of the problem.
"The Weed"
Above the surface
(obvious)

The Underlying Causes
"The Root"
Below the surface
(not obvious)

The word root, in root cause analysis, refers to the underlying causes, not the one cause.

Case Studies-small Group Discussion

- A 58-year-old female was being treated for non-Hodgkin's lymphoma. Vincristine was prepared in a 20 ml syringe and delivered in a package containing two other drugs, including methotrexate. Route of administration was not indicated on the solutions. The intrathecal treatment was administered at noon. The hematologist was particularly busy and requested help from another doctor who had not recently participated in intrathecal procedures. The medication was delivered in the patient's room.
The nurse who assists was not familiar with the intrathecal procedures. The 20 ml syringe with vincristine was passed to the doctor who started to inject it. After administering approximately 2 ml, he noticed the size of the syringe and ceased administration realizing the error.

- The patient died approximately 100 days later.

Case Studies-small Group Discussion

- Identifying the care management problems
- Identifying the contributory factors
- Suggested actions
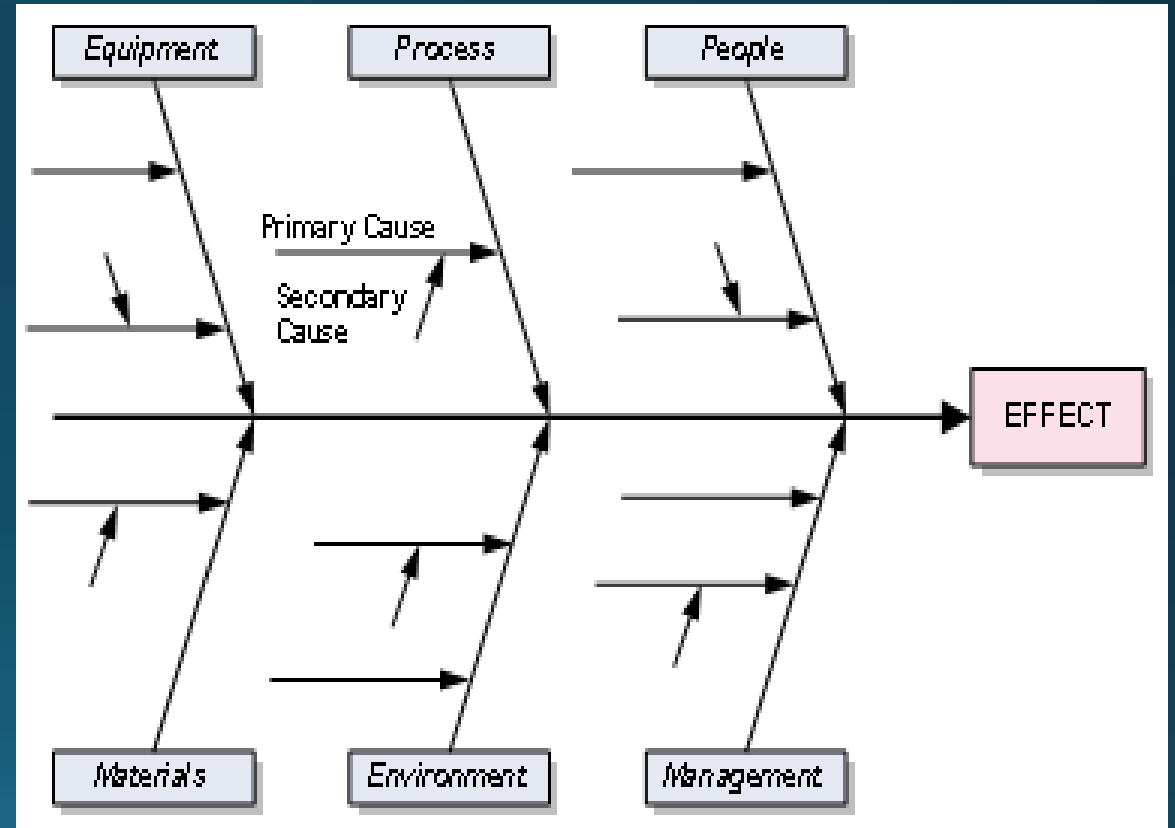
Understanding & Managing Clinical Risk

Introduction

- Risk management is routine in most industries and has traditionally been associated with limiting litigation costs

- Usually associated with patients taking legal action against a health professional or hospital

- To avoid problems, hospitals and health organizations use a variety of methods to manage risks

- hospitals are potentially dangerous places for patients as well as medical workers

- it's important to keep in mind that while there are a lot of potential hazards in hospitals,

Clinical risk management

- **Hazard:** is any activity, situation or, substance that potential to cause harm, including ill health, injury, loss of product and/or damage to plant and property.
  - **Blood borne Pathogens**
  - **Hazardous Chemicals**
  - **Stress**

- **Risk:** is the probability that harm (illness or injury) will actually occur.

- **Risk Management:** Organizational effort to identify, assess, control and evaluate the risk to reduce harm to patient, visitors and staff and protect the organization from financial loss

Purpose of Risk Management

- Improve organizational and client safety
- Identify and minimize the risks and liability losses
- Protect the organization resources
- Support regulatory, accreditation compliance
- Creating and maintaining safe systems of care, designed to reduce adverse events and improve human performance

Process Used to Manage Clinical Risks

The following simple four-step process is commonly used to manage clinical risks:

1. Identify the risk;

2. Assess the frequency and severity of the risk;

3. Reduce or eliminate the risk;

4. Assess the costs saved by reducing the risk or the costs of not managing the risk.

Process Used to Manage Clinical Risks

1. Identify the risk:

Use the following data as a sources for risk identification:
- Adverse event reports.
- Mortality and morbidities reports.
- Patient complaints reports.
- Assess the frequency and severity of the risk;

Process Used to Manage Clinical Risks

2. Assess the frequency and severity of the risk:

SAC (Severity Assessment Code) Score:

it is a matrix scoring system/ numerical scores are given to the severity and likelihood of risks and these scores are multiplied to get a rating for the risk

STEP 1 Consequences Table (For notification, consider the actual consequence or outcome using this table as a guide. The examples listed here are not exhaustive.)

		Serious	Major	Moderate	Minor	Minimum
CLINICAL CONSEQUENCE	Patient	Patients with **Death** unrelated to the natural course of the illness and differing from the immediate expected outcome of the patient management or: ■ **Suspected suicide**[1] ■ **Suspected homicide**[2] or any of the following: **The National Sentinel Events** ■ Procedures involving the wrong patient or body part ■ Suspected suicide in hospital ■ Retained instruments ■ Unintended material requiring surgical removal ■ Medication error involving the death of a patient ■ Intravascular gas embolism ■ Haemolytic blood transfusion ■ Maternal death associated with labour and delivery ■ Infant discharged to the wrong family	Patients suffering a **Major permanent loss of function (sensory, motor, physiologic or psychologic)** unrelated to the natural course of the illness and differing from the expected outcome of patient management or any of the following: ■ Suffering significant disfigurement as a result of the incident ■ Patient at significant risk due to being absent against medical advice ■ Threatened or actual physical or verbal assault of patient requiring external or police intervention	Patients with **Permanent reduction in bodily functioning (sensory, motor, physiologic, or psychologic)** unrelated to the natural course of the illness and differing from the expected outcome of patient management or any of the following: ■ Increased length of stay as a result of the incident ■ Surgical intervention required as a result of the incident	Patients requiring **Increased level of care** including: ■ **Review and evaluation** ■ **Additional investigations** ■ **Referral to another clinician**	Patients with **No injury or increased level of care or length of stay**
CORPORATE CONSEQUENCE	Staff	Death of staff member related to work incident or suicide, or hospitalisation of **3** or more staff	Permanent injury to staff member, hospitalisation of **2** staff, or lost time or restricted duty or illness for **2** or more staff or pending or actual WorkCover prosecution, or threatened or actual physical or verbal assault of staff requiring external or police intervention	Medical expenses, lost time or restricted duties or injury / illness for **1** or more staff	First aid treatment only with no lost time or restricted duties	No injury or review required
	Visitors	Death of visitor or hospitalisation of **3** or more visitors	Hospitalisation of up to **2** visitors related to the incident / injury or pending or actual WorkCover prosecution	Medical expenses incurred or treatment of up to **2** visitors not requiring hospitalisation	Evaluation and treatment with no expenses	No treatment required or refused treatment
	Services	Complete loss of service or output	Major loss of agency / service to users	Disruption to users due to agency problems	Reduced efficiency or disruption to agency working	Services: No loss of service
	Financial	**Loss of assets** replacement value due to damage, fire etc > $1M, **loss of cash/investments/assets** due to fraud, overpayment or theft >$100K or **WorkCover claims** > $100K	**Loss of assets** replacement value due to damage, fire etc $100K-$1M, **loss of cash/investments/assets** due to fraud, overpayment or theft $10K-$100K or **WorkCover claims** $50K-$100K	**Loss of assets** replacement value due to damage, fire etc $50K to $100K **or loss of cash/investments/assets** due to fraud, overpayment or theft to $10K	**Loss of assets** replacement value due to damage, fire etc to $50K	No financial loss
	Environmental	Toxic release off-site with detrimental effect. Fire requiring evacuation	Off-site release with no detrimental effects or fire that grows larger than an incipient stage	Off-site release contained with outside assistance or fire incipient stage or less	Off-site release contained without outside assistance	Nuisance releases

STEP 2 Likelihood Table

Probability Categories	Definition
Frequent	Is expected to occur again either immediately or within a short period of time (likely to occur most weeks or months)
Likely	Will probably occur in most circumstances (several times a year)
Possible	Possibly will recur – might occur at some time (may happen every 1 to 2 years)
Unlikely	Possibly will recur – could occur at some time in 2 to 5 years
Rare	Unlikely to recur – may occur only in exceptional circumstances (may happen every 5 to 30 years)

STEP 3 SAC Matrix

		CONSEQUENCE			
		Serious	Major	Moderate	Minor	Minimum
LIKELIHOOD	Frequent	1	1	2	3	3
	Likely	1	1	2	3	4
	Possible	1	2	2	3	4
	Unlikely	1	2	3	4	4
	Rare	2	3	3	4	4

Process Used to Manage Clinical Risks

3. Reduce or eliminate the risk:

STEP 4 Action Required Table

		Action Required
1	(red)	**Extreme** risk – immediate action required – Reportable Incident Brief (RIB) for all SAC 1 incidents must be forwarded to the DoH within 24 hours. A Privileged Root Cause Analysis (RCA) investigation must be undertaken for all Clinical SAC 1 incidents with a report being submitted to the DoH.
2	(orange)	**High** risk – need to notify senior management. Detailed investigation required. Ongoing monitoring of trended aggregated incident data may also identify and prioritise issues requiring a practice improvement project.
3	(yellow)	**Medium** risk – management responsibility must be specified – Aggregate data then undertake a practice improvement project. **Exception** – all financial losses must be reported to senior management.
4	(green)	**Low** risk – manage by routine procedures – Aggregate data then undertake a practice improvement project.

NB – An incident that rates a SAC 2, 3 or 4 should only be reported to the DoH if there is the potential for media interest or requires direct notification under existing DoH legislative reporting requirements or NSW DoH Policy Directive.

Activities Commonly Used to Manage Clinical Risk

- **Incident monitoring:**

  - **An incident:** as an event or circumstance that could have or did lead to unintended and/or unnecessary harm to a person and/or a complaint, loss or damage.

  - **Incident monitoring:** refers to mechanisms for identifying, processing, analyzing and reporting incidents with a view to preventing their reoccurrence
  - The key to an effective reporting system is for staff to routinely report incidents and near misses.

Table B.6.1. Types of issues identified by incident monitoring

Type of incident	% of reports [a]
Falls	29
Injuries other than falls (e.g. burns, pressure injuries, physical assault, self-harm)	13
Medication errors (e.g. omission, overdose, underdose, wrong route, wrong medication)	12
Clinical process problems (e.g. wrong diagnosis, inappropriate treatment, poor care)	10
Equipment problems (e.g. unavailable, inappropriate, poor design, misuse, failure, malfunction)	8
Documentation problems (e.g. inadequate, incorrect, incomplete, out-of-date, unclear)	8
Hazardous environment (e.g. contamination, inadequate cleaning or sterilization)	7
Inadequate resources (e.g. staff absent, unavailable, inexperienced, poor orientation)	5
Logistical problems (e.g. problems with admission, treatment, transport, response to an emergency)	4
Administrative problems (e.g. inadequate supervision, lack of resource, poor management decisions)	2
Infusion problems (e.g. omission, wrong rate)	1
Infrastructure problems (e.g. power failure, insufficient beds)	1
Nutrition problems (e.g. fed when fasting, wrong food, food contaminated, problems when ordering)	1
Colloid or blood product problems (e.g. omission, underdose, overdose, storage problems)	1
Oxygen problems (e.g. omission, overdose, underdose, premature cessation, failure of supply)	1

[a] An incident may be assigned to more than one category.

Source: Runciman B, Merry A, Walton M. *Safety and ethics in health care: a guide to getting it right*, 2007 [3].

Activities Commonly Used to Manage Clinical Risk

- **Sentinel events:**

  - Is usually unexpected and involving a patient death or serious physical or psychological injury to a patient
    - e.g. surgery on the wrong patient or body site, incompatible blood transfusion.

  - Many health-care facilities have mandated the reporting of these types of events because of the significant risks associated with their repetition

Activities Commonly Used to Manage Clinical Risk

- The role of complaints in improving care

  - **A complaint :** is defined as an expression of dissatisfaction by a patient, family member with the provided health care.

  - Complaints often highlight problems that need addressing, such as poor communication or suboptimal decision making.

  - Communication problems are common causes of complaints, as are problems with treatment and diagnosis.

Benefits of complaints

- Assist the maintenance of high standards;

- Reduce the frequency of litigation;

- Help maintain trust in the profession;

- Encourage self-assessment;

- Protect the public.

Activities Commonly Used to Manage Clinical Risk

- **Fitness-to-practice requirements**
  - Accountability
  - Competency of healthcare professionals.
  - Are they practicing beyond their level of experience and skill? Are they unwell, suffering from stress or illness

  - **Credentialing**
  - **Registration (licensure)**
  - **Accreditation**

Credentialing

- The process of assessing and conferring approval on a person's suitability to provide specific consumer/patient care and treatment services, within defined limits, based on an individual's licence, education, training, experience, and competence.

Accreditation

- Is a formal process to ensure delivery of safe, high-quality health care based on standards and processes devised and developed by health-care professionals for health-care services.

- National Accreditation Program: CBAHI

- International Accreditation Program: Joint commission (US), Accreditation Canada(Canada)

Registration (licensure)

- Registration of health-care practitioners with a government authority, to protect the health and safety of the public through mechanisms designed to ensure that health practitioners are fit to practice.

- E.g. Saudi Commission for Health Specialties

- Proper registration/licensure is an important part of the credentialing and accreditation processes
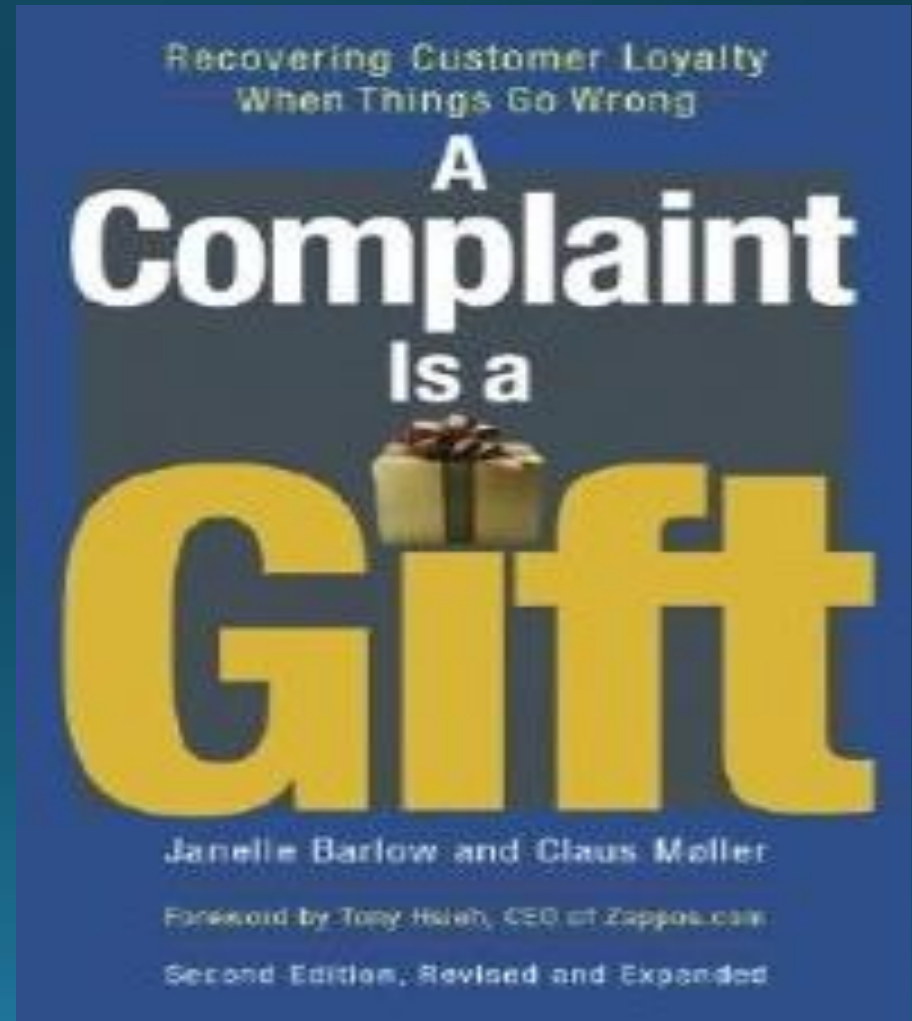
Personal Strategies for Managing Risk and Reduce Errors

- Care for one's self (eat well, sleep well and look after yourself);
- Know your environment;
- Know your task(s);
- Prepare and plan (*what if*…);
- Build checks into your routine;
- Practice the good documentation:
  - A referral or request for consultation : it is important to only include relevant and necessary information:
  - Keep accurate and complete health-care records
  - Provide sufficient information
  - Note any information relevant to the patient's diagnosis or treatment and outcomes;
  - Document the date and time

Personal Strategies for Managing Risk and Reduce Errors

- Report any risks or hazards/incidents in your workplace
- Participate in meetings to discuss risk management and patient safety
- Respond appropriately to patients and families after an adverse event
- Respond appropriately to complaints
- Ask if you do not know. Request that a more experienced person

Recovering Customer Loyalty When Things Go Wrong

A Complaint Is a Gift

Janelle Barlow and Claus Moller

Foreword by Tony Hsieh, CEO of Zappos.com

Second Edition, Revised and Expanded

Summary

- Medical error is a complex issue, but error itself is an inevitable part of being human.

- These tips are known to limit the potential errors caused by humans
  - Avoid reliance on memory
  - Simplify process
  - Standardize common processes and procedures
  - Routinely use checklists
  - Decrease reliance on vigilance

- Learning from error can occur at both an individual level and an organizational level through incident reporting and analysis.

- Root cause analysis (RCA) is a highly structured systemic approach to incident analysis that is generally reserved for the most serious patient harm episodes

Summary

- Health-care professionals are responsible for the treatment, care and clinical outcomes of their patients.

- Personal accountability is important, as any person in the chain might expose a patient to risk.

- One way for professionals to help prevent adverse events is to identify areas prone to errors.

- The proactive intervention of a systems approach for minimizing the opportunities for errors can prevent adverse events.

- Individuals can also work to maintain a safe clinical working environment by looking after their own health and responding appropriately to concerns from patients and colleagues.