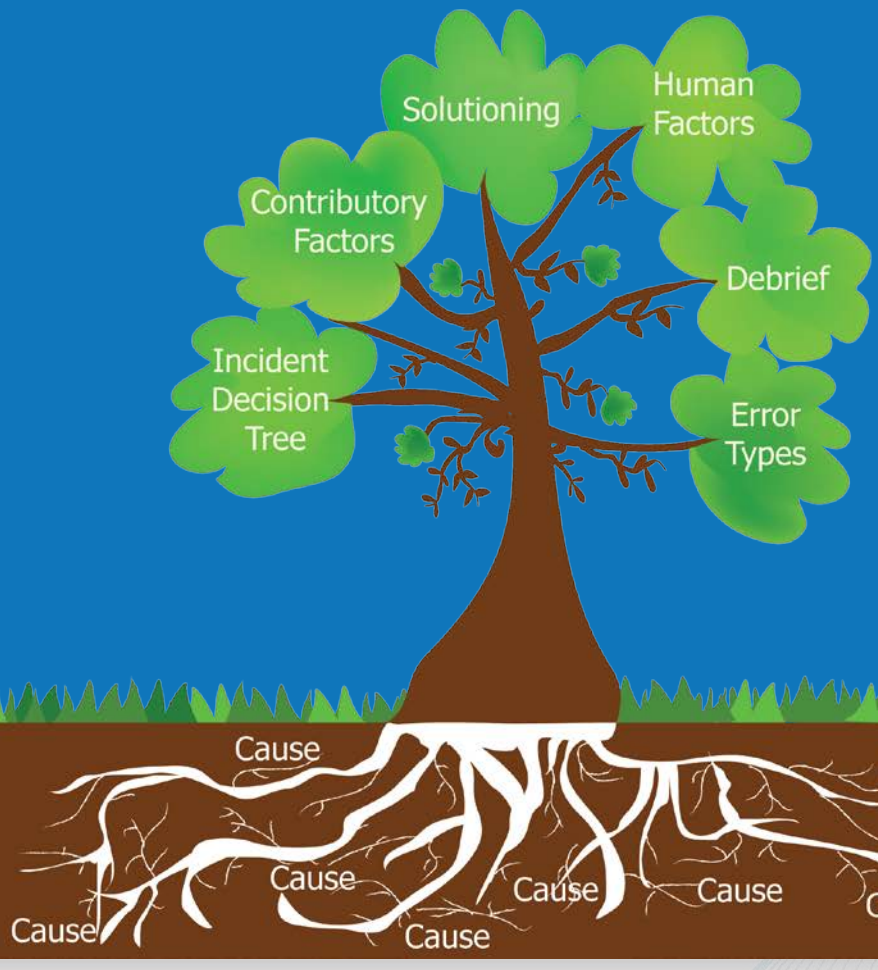
HEALTHCARE ROOT CAUSE ANALYSIS

WORKBOOK



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WELCOME

The Healthcare Root Cause Analysis (RCA) workshop has been developed by the Institute of Healthcare Quality (IHQ), under Group Quality Resource Management which is a member of the National Healthcare Group, Singapore. The workshop aims to equip healthcare professionals with the essential skills and knowledge in drilling down to the origin of a problem and uncovering its root causes using a systematic and structured approach.

Adj A/Prof TAI Hwei Yee
Group Chief Quality Officer, National Healthcare Group
Director, Institute of Healthcare Quality, Group Quality and Clinical Governance

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Institute of Healthcare Quality

The Institute of Healthcare Quality (IHQ) is established to advocate Healthcare Quality and Safety. It recognises that one of the key points to deliver the best care to patients is by the transformation of healthcare quality across entire continuum of healthcare providers.

The IHQ advocates professional accountability as system of performance monitoring and improvements, supportive infrastructures and a patient-centric culture that highly regards safety, openness and staff empowerment. The IHQ seeks to achieve these objectives through training, encouraging knowledge-sharing, fostering collaborations between healthcare providers, as well as events that promote the culture of safety and continuous improvement.

1st edition, 2012
2nd edition, 2013
3rd edition, 2014
3rd edition reprint, 2016
3rd edition reprint, 2017

OVERVIEW OF RCA WORKSHOP

At the end of the workshop, participants will be able to:

- Understand the role of Root Cause Analysis (RCA) in a Patient Safety and Quality Improvement framework, and how it leads to high system reliability
- Appreciate the differences between systemic analysis and individual blame
- Understand the concepts and principles of accident causation
- Understand the steps needed to perform an RCA
- Learn how to use the Incident Decision Tree for a fair and transparent approach

INTRODUCTION TO ROOT CAUSE ANALYSIS

Module Objectives:

At the end of this module, participants should be able to:

a. Understand the role of RCA in patient safety and quality framework
b. The principles and applications of RCA
c. Understand benefits of doing an RCA
d. When to do and when not to do an RCA
e. Understand the principles behind doing an RCA

The role of Root Cause Analysis in Patient Safety

"Every system is perfectly designed to achieve the results that it achieves. The central law reframes performance from a matter of effort to a matter of design"

A primer on leading the improvement of systems,
Donald Berwick. BMJ 1996 312:619-622, 9 March 1996

The central law of improvement implies that better or worse "performance" cannot be obtained from demanding better work results within our healthcare system. Our results such as mortality rates, or the speed which we address our patient's needs are by themselves a natural result of the design of our processes. In order to achieve a different outcome, we need to thoroughly understand how the different components of the process contribute to the end result.

Root Cause Analysis is a tool that helps us to understand how and why a system and its processes behave and interact in such a way to produce the outcome seen. Such understanding leads us to better design of processes that can help us to achieve a new level of capability, especially in the area of achieving better patient safety.

What is Root Cause Analysis?

Root Cause Analysis (RCA) is a structured methodology designed to identify not only **what** and **how** an event occurred, but also **why** it happened. This approach supports the effective identification of the root causes or key underlying issues of the event and helps in the formulation and implementation of effective solutions to prevent its recurrence.

Root Cause Analysis answers three basic questions:

1. What happened?
2. Why did it happen?
3. What can be done to prevent it from happening again?

What is a Root Cause?

The root or fundamental issues are the **earliest** points at which action(s) could have been taken to correct or reduce the chance of the event from happening.

Understanding the root cause(s) of an event is key to developing effective recommendations to improve the current system and processes.

Participant's Notes:

Why is the Identification of Root Causes Important?

Case Study: Mass Food Poisoning Incident in Singapore

Singapore experienced one of its worst massive food poisoning cases in recent years when more than a hundred customers who patronised an Indian rojak food stall at the Geylang Serai Food Centre suffered mass food poisoning. Many were hospitalised, and there were two deaths. The cause of the food poisoning was eventually identified to be a bacterium (*Vibrio Parahaemolyticus*).

Exercise

Put yourself in the shoes of the following stakeholders and make two recommendations for each to prevent a similar incident from occurring again.

Ministry of Health

National Environment Agency

Food Centre Management Committee

Food Stall Owner

Debrief of Exercise

Share your recommendations with the other stakeholders.

Did you have to change your proposed recommendations? Why?

Participant's Notes:

What are the Benefits of Using RCA Tool?

By using a proper methodology to perform root cause analysis in the process of analysing problems or reducing the risk of occurrence of unwanted incidents, it will help us to:

- Avoid making the wrong assumptions
- Stay focused and be objective
- Be able to identify causes that can be acted upon
- Assign the correct process owners to fix the problem

When Should We Do a Root Cause Analysis?

A Root Cause Analysis is generally done on high-risk and high-impact events, which include:

- Incidents that have resulted in serious adverse outcomes
- Incidents that are moderately severe in terms of consequence and are likely to recur frequently
- Near misses that *could have* resulted in serious adverse outcomes
- Observed variations in existing processes that may lead to poor outcomes or create quality issues
- Difficult and long-standing problems that need to be resolved

Severity Assessment Matrix

The use of a severity assessment matrix can help an organisation to decide what is a high risk or high impact event. In general, a score of 1 or 2 would indicate that an RCA should be conducted. Aggregate analysis of a number of similar events could be conducted for score 3 or 4.

	Extreme	**Major**	**Moderate**	**Minor**	**Insignificant**
Frequent (Almost Certain)	1	1	2	3	3
Probable (Likely)	1	1	2	3	3
Occasional (Possible)	1	2	2	3	4
Uncommon (Unlikely)	1	2	3	4	4
Remote (Rare)	2	3	3	4	4

Figure 1: Severity Assessment Matrix

Participant's Notes:

When Should We NOT DO a Root Cause Analysis?

A Root Cause Analysis should not be conducted for incidents involving criminal acts or those requiring disciplinary action.

Examples:

- If criminal act is suspected
- If a person commits an intentionally unsafe act
- Situations involving alcohol/substance abuse by a staff member
- Alleged or sustained patient abuse

Disadvantages of the RCA Methodology

- Retrospective
- Reactive
- Subject to hindsight bias

Participant's Notes:

RCA Investigation Principles

- Focus on systems and processes, not individual performance
- Be fair, thorough and efficient
- Internally consistent, not contradict itself or leave obvious questions unanswered
- Focus on problem solving
- Progresses from special cause to **common cause**
- Use recognised and established analytical techniques
- Include consideration of any relevant literature

Why Talk About a System's Approach?

- Human beings are not perfect and it is not possible to expect a human not to make errors
- Human Factors science tells us that human performance can be influenced by many factors within a system. Most errors made by humans are unintended. These errors occur because of poor system design
- We need to focus on fixing the imperfect system rather than on fixing the imperfect human
- Evidence shows that system gaps are found in up to 80% of accidents.
- Traditional focus and blame on individuals have not improved safety in Healthcare

Participant's Notes:

UNDERSTANDING ACCIDENT CAUSATION CONCEPTS

Module Objectives:

At the end of this module, participants should be able to:

a. Understand how a continuum of causes result in a particular effect

b. Understand the relevance of human factors and failures in the context of accident causation (Swiss Cheese model)

c. Be familiar with the different types of unsafe acts and have a mental model of contributory causes to accidents and error types

Link Between Causes and Effect

In a Root Cause Analysis, step-by-step questioning will often uncover a continuum of causes or contributory factors.

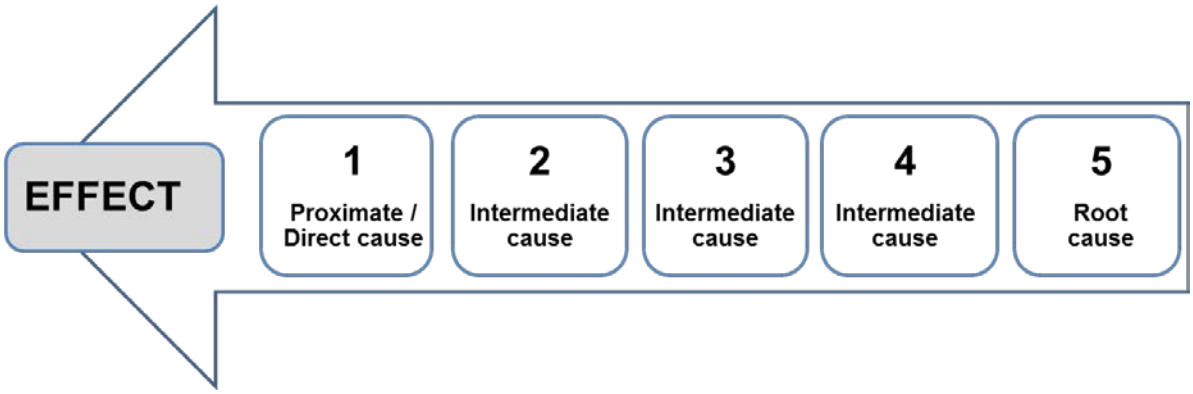


Figure 2: Link Between Causes and Effect

- The cause that leads directly to the effect is called the ***proximate* or *direct*** *cause*
- The causes that result in the proximate cause are called the ***intermediate*** *causes*
- When a chain of causes are traced back to an origin, that cause is called the ***root*** *cause*

An Example of Causes and Effect

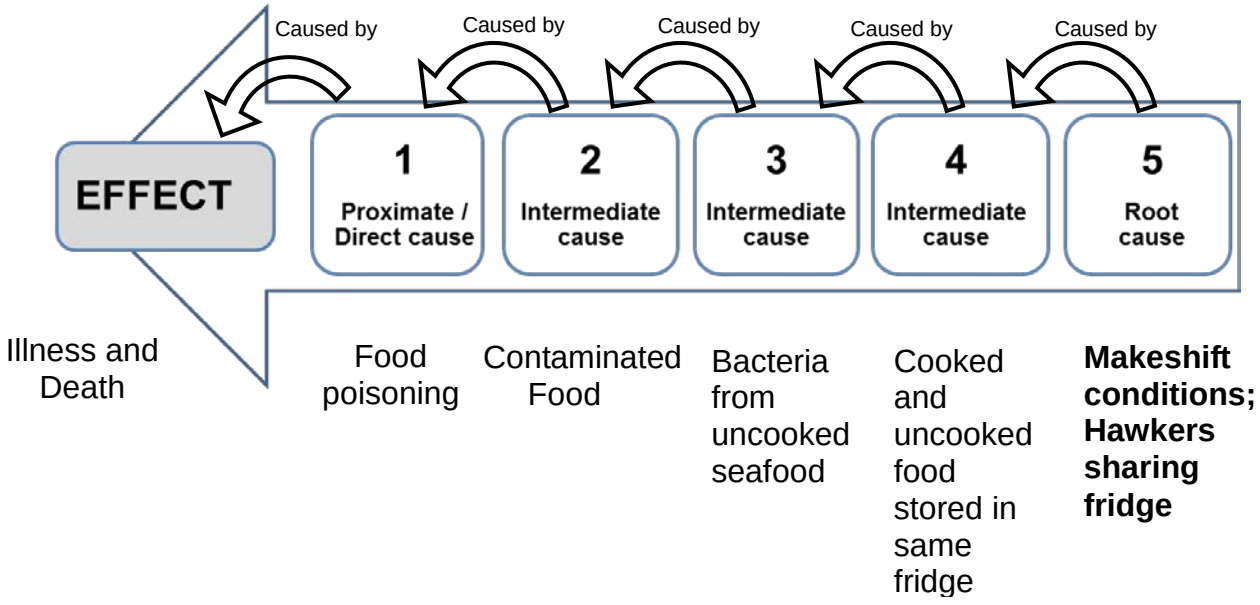


Figure 3: Illustration of Link Between Causes and Effect

Participant's Notes:

Human Factors and Root Cause Analysis

Traditionally, when a critical incident occurred, people would look for the most obvious explanation of why it happened. In most cases, we ended up pinpointing human error as the cause, primarily because it was easy to identify and appeared to be easy to fix. This approach ignores the contributory factors that lead to the error, resulting in a shallow analysis of the incident, and its focus is almost exclusively directed at improving individual performance.

Studies and research on how incidents occur have led patient safety experts to advocate a new way of thinking that views human error as only the symptom of broader issues within a poorly-designed system, such as an adverse physical or organisational environment.

A systems-based approach recognises that errors are usually induced by faulty systems and poor organisational design that set people up to fail (95% of the time). It removes the focus from the individual to the organisation and from blaming to understanding how organisational factors may lead to errors, that safety can be improved by examining and redesigning the system that is compatible with human characteristics.

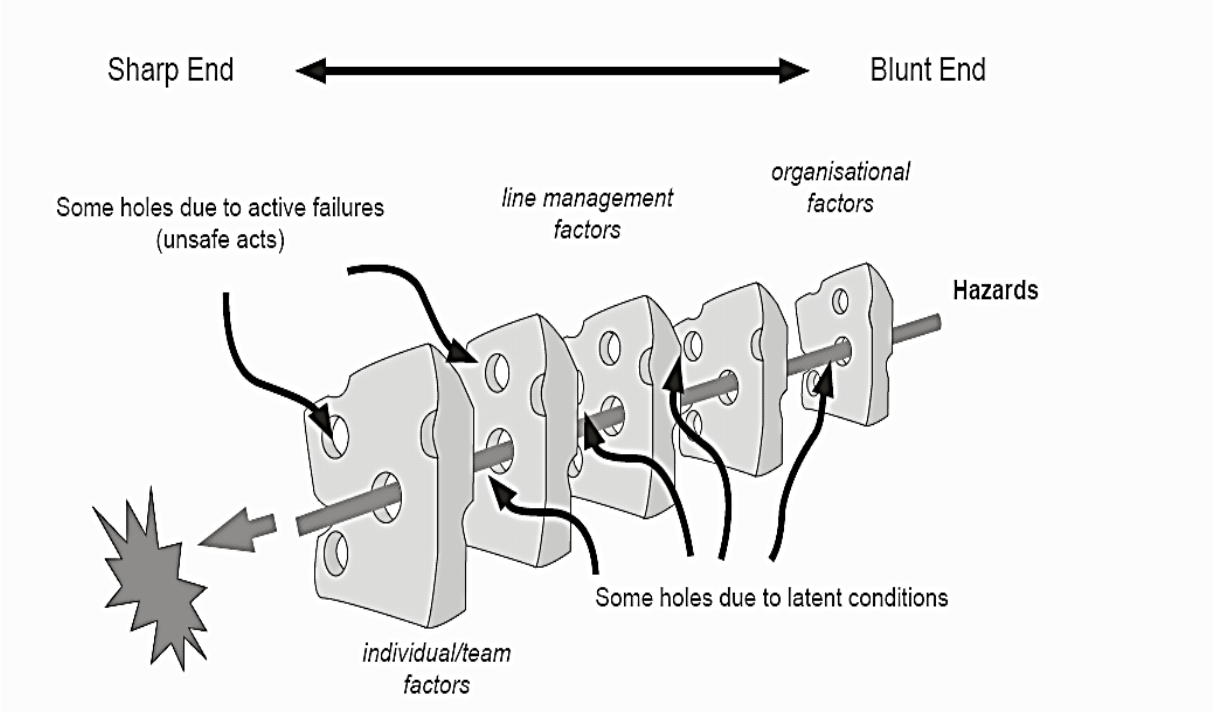
Contributory Factors of an incident can be divided into three broad areas:

- The individual – which include staff and customer of the process
- The job and workplace – referring to environment of work, tasks, equipment and teams
- The organisation and society – referring to senior management and other organisational factors and societal attributes that influence behaviour

James Reason's Swiss Cheese Model

The Swiss Cheese model, which is based on James Reason's theory of accident causation, illustrates the fact that accidents are usually the result of a complex chain of contributory events, some of which are present in normal working conditions. As each layer of defense against hazards may have failure points, the alignment of these failure points may result in the occurrence of an accident (see diagram below).

By employing his approach, we can identify the various slices of the cheese which represent the chain of events, and understand where the weaknesses and failures in our systems and processes are (i.e. the holes in the cheese).



(Taken from the Website of Disaster Management Institute, Bhopal)

Figure 4: James Reason's Swiss Cheese Model

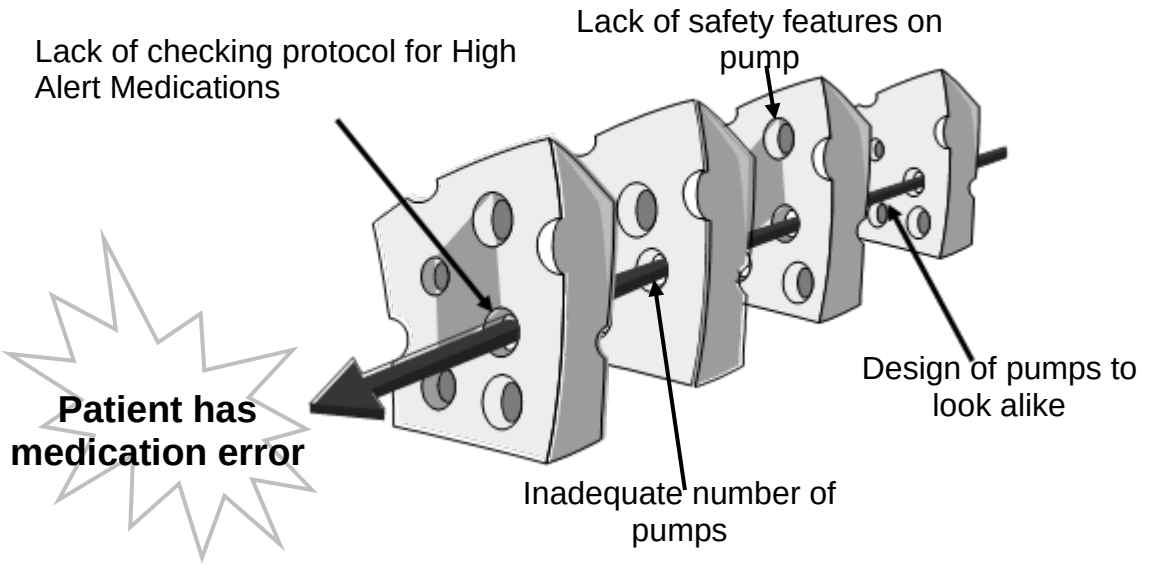
The point at which healthcare services are delivered to the patient can be referred to as the "**sharp end**" of the system. The "**blunt end**" of the system represents the broader management, organisational and regulatory factors of the system.

Active Failures

- Unsafe acts made by operators performing the processes at the "Sharp end"
- Effects felt almost immediately
- Influenced by error-producing conditions

Latent Failures

- Attributed to management or managerial decisions
- Often exist for many years in a system without causing an incident - "accidents waiting to happen"
- Manifest when combined with local or task factors

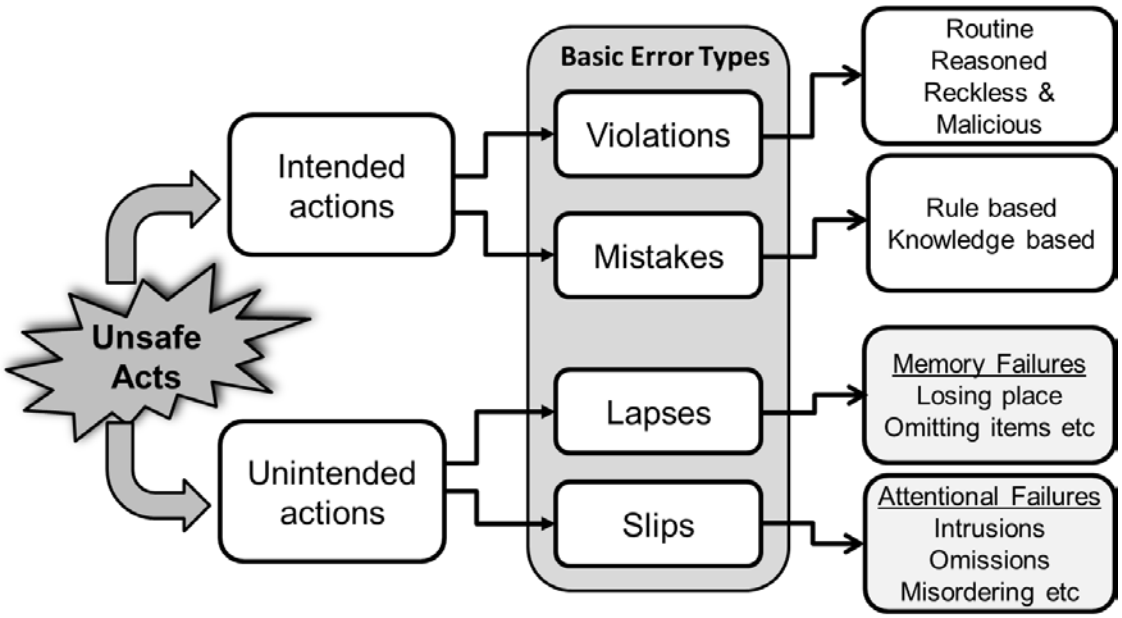


(5-FU Case: A Day's Worth of Cancer Drugs delivered in Hours)

Figure 5: Adapted illustration of James Reason's Swiss Cheese Model

Participant's Notes:

Understanding Error Types



(Adapted from James Reason, Human Error, 1990)

Figure 6: Error Types

Slips or Lapses are skill-based performance errors that occur when we routinely perform highly practised activities with little conscious effort.

- A slip occurs when a person has the right intention to carry out an action but then does the wrong thing.
- A lapse occurs when a person has the right intention to carry out an action but forgets to do something when carrying it out.

Mistakes happen when actions follow a plan, but the plan deviates from the intended path to the desired goal.

- Rule-based mistakes are made when a person does the wrong thing believing it to be right. This includes applying a rule in a situation where it is not appropriate. This is often a rule that is frequently used and seems to fit the situation well. It also includes the failure to apply a rule that is applicable and valid in a certain situation.
- Knowledge-based mistakes arise from the lack of knowledge, uncertainty, or misapplication of knowledge, particularly in novel situations. They can be made during complex problem solving where the situation is unfamiliar. Such mistakes may be related to decision-

making where biases (e.g. confirmation bias) lead us into making faulty conclusions about a situation, and choosing the wrong course of action.

Exercise

Give an example of each type of error.

Slip

Lapse

Rule-based mistake

Knowledge-based mistake

Violations are deliberate deviations from rules, procedures, instructions or regulations. The key characteristic of a violation is that the act must be deliberate, such as when a person knowingly takes shortcuts, circumvents or just doesn't apply safety rules. While violations are deliberate rather than unintentional deviations from safe practice, most violations occur because of poorly-designed-systems or procedures, lack of time, conflicting objectives and poor safety culture. It is important that such circumstances are identified and understood.

- Routine violations occur when shortcuts are regularly taken and non-compliance becomes the norm. This means that there is likely an inherent weakness in the design of the process.
- Reasoned violations are deviations from a protocol which we believe we have a good reason for making – e.g. in the patient's best interest; policy does not cater for situation. These include optimising, situational and exceptional violations.
- Reckless and malicious violations occur where the action and consequences are as intended by the operator (e.g. a deliberate intent to cause an accident; sabotage or criminal act). A root cause analysis may not be appropriate for this case.

Common reasons why violations occur include:

- Perceived low likelihood of detection
- Inconvenience
- Apparent authority figure requests to violate or ignore rule
- Copying behavior
- No disapproving authority figure present

Participant's Notes:

DOING THE ROOT CAUSE ANALYSIS

Module Objectives:

At the end of this module, participants should be able to:

a. Understand the sequential steps involved in doing an RCA
b. Appreciate pitfalls and common problems in doing an RCA
c. Appreciate interviewing skills needed to conduct an RCA

Steps in Conducting an RCA

1. Getting Started, Forming a Team
2. Gathering Information
3. Understanding the Process (including interviewing)
4. Determining Causes and Effect
5. Reporting and Putting up Recommendations

1a Getting Started

Every organisation needs to have a formal system for the notification of events and a process to decide whether an RCA is warranted for a given incident or problem. In addition, the processes should stipulate the timeline and resources to support the RCA, documentation requirements, reporting accountability and subsequent actions.

It is paramount that all healthcare providers clearly understand how their organisation will approach the review and follow-up of a critical incident. It is equally important that the organisation carries out these processes fairly and consistently in the manner indicated by the policy.

In performing an RCA, the principle of confidentiality must be emphasised and agreement maintained at all times. Some organisations require team members to sign a confidentiality agreement. This agreement reinforces that information shared within the team is not to be transmitted or disclosed outside of the communication mechanisms stipulated by the policies and/or legislation.

- Organisation-wide framework
- Consistent application of policy and processes
- Maintain confidentiality of the RCA investigation

1b Forming an RCA Team

The RCA team needs to be inter-disciplinary in nature. Involving people from multiple disciplines can:

- Prevent individual biases
- Lead to more questioning
- Provide opportunity for open debate around the care delivered

Various team functions and roles can be identified and should be assigned upfront.

- Team Leader – Keeps the team on task to ensure that root causes are identified and effective preventive actions are developed in a timely manner
- Facilitator – Ensures a "no blame" approach, provides just-in-time training and ongoing consultation (e.g. flow charting, development of root causes, actions, outcome measures)
- Team Members – Actively participate in the RCA process (simulate the event/close call, review documents and literature, conduct interviews, develop root cause statements and action plan)

Key providers involved in the delivery of care must be included to ensure adequate coverage of issues. Actual staff involved in the event should also be invited to participate in the analysis.

Exercise

For an incident involving an error in medication administered to a patient, who would you want to include in the RCA team?

Participant's Notes:

2. Gathering Information

The gathering of evidence is crucial to a good RCA investigation and analysis. Early action and planning will be required to ensure that perishable and other physical and witness evidence can be obtained. Both objective data and subjective information are required for a comprehensive understanding of what happened.

Objective Data

- Rosters
- Logs - phone, visitor
- Physical measurements, diagrams, sketches
- Test reports

Subjective Data

- Staff interviews
- Surveys
- Expert opinions
- Field observations - mimic incident circumstances

A list of documents that may be gathered by the RCA team:

- Patient's medical record
- Care protocols, policies and procedures
- Staff rosters
- Staff training and certification records
- Staff statements
- Equipment - maintenance records, manuals
- Unit risk assessment records
- Videos
- Photographs
- Phone logs
- Visitor logs
- Unit workload statistics

Exercise:

Following the medication error incident, what type of relevant information would you want to gather?

Participant's Notes:

3a Understanding the Process

Piecing together what happened can be difficult but it is necessary to be accurate so that a true picture of the system and processes in play is presented to the team for analysis.

The best way for team members to have a common understanding of what actually happened is to construct a detailed description of the work activities immediately before the final effect. This can be mapped out in the chronological form. It is important to take note of anything that differs from the usual practice or scenarios.

A flow chart can help in the preliminary analysis to identify obvious problems or failed processes, highlighting areas where gaps exist so that the team may be guided to gather more information around these gaps. All reasonable lines of enquiry should be explored.

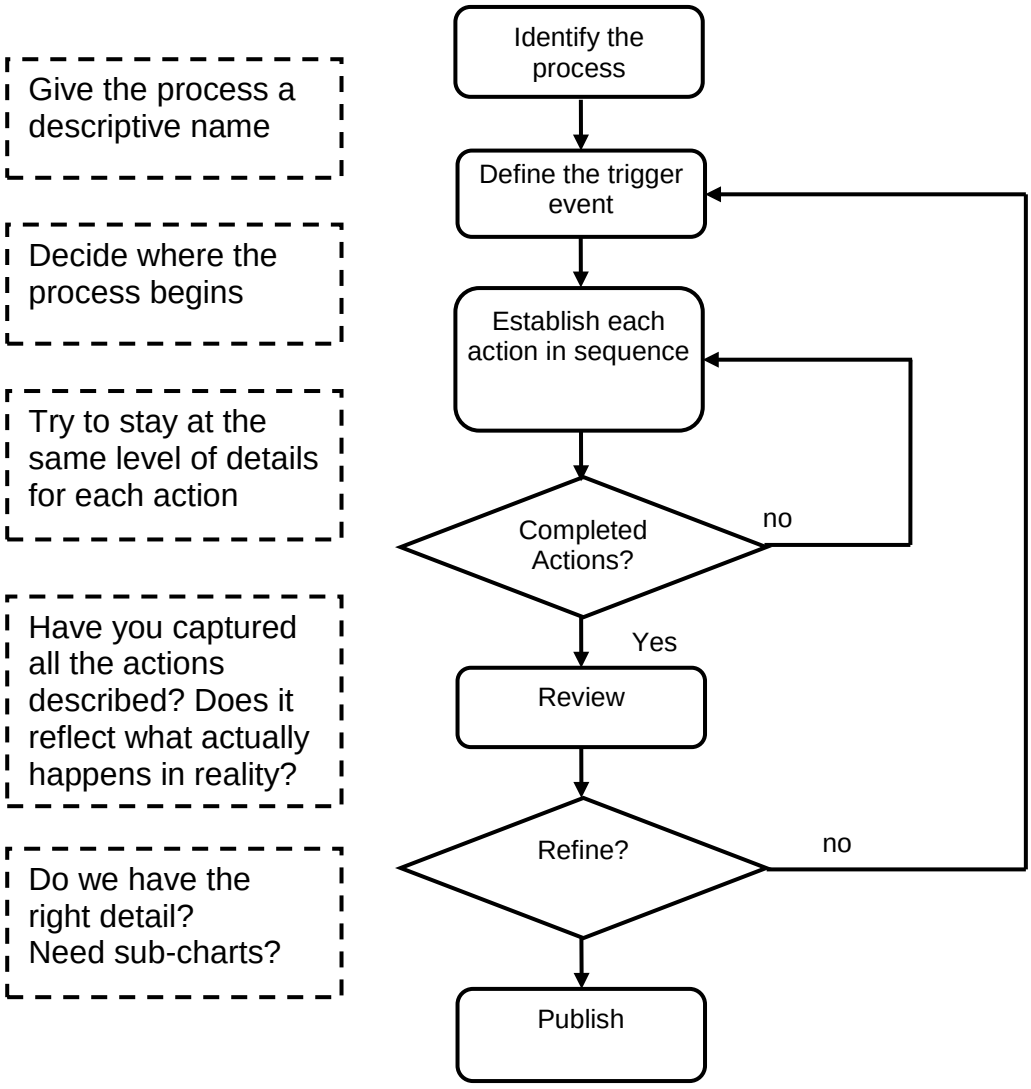


Figure 7: How to Draw a Flow Chart

Time-person Grid

- Tabular mapping tool that tracks the movements of people (staff, patients, visitors, contractors) before, during and after an incident

Staff Involved	9.02am	9.04am	9.06am	9.08am
Houseman	With Patient	At Dr's Station	At Dr's Station	With Patient
Ward Manager	In Office	In Office	With Patient	With Patient
Nurse	With Patient	With Patient	With Patient	With Patient

Figure 8: Illustration of a Time-person Grid

Participant's Notes:

3b Interviewing

Witness statements are very important to the investigation and witnesses to be considered should be identified as soon as possible. While first-hand accounts are especially useful, others who are also indirectly involved in the incident can add vital information to help identify the underlying causes.

A potential list of people to be interviewed could include:

- Those directly involved
- Eye witnesses
- Supervisors and managers of the system
- Those who designed and operated the safety systems
- Experts in the field under study

Interviews should be done as soon as possible after the incident.

- Avoid memory loss
- Reduce contamination through conversations

Ground rules for conducting an RCA interview:

- Respect for individuals, no-blame approach
- Respect for opinions expressed (open-minded)
- Equal participation by all
- Ask questions to clarify rather than to challenge others
- Uphold confidentiality of the discussions
- Provide support for staff involved as they are also affected

Participant's Notes:

Good Interview Practices:

- Introduce those present and their roles
- Make the purpose of the interview clear
- Explain how the interview will be conducted
- Explain the level of confidentiality and any legal issues
- Keep asking “Why” to retrace the chain of events and to ascertain the underlying causes
- Listen actively and use appropriate body language (eye contact, open posture, facing, nods, smiles, no interruption, acknowledgements)
- Summarise key details of interview
- Thank interviewee(s) for time spent or highlight any additional session required

A number of **interview techniques** may be used to elicit information. Interviewers should be mindful that some staff may face significant pressure after an incident. Also, interviewees may not always provide completely true or accurate information due to some underlying reasons. Hence, vary your questioning approach or arrange for additional sessions to obtain accurate information.

- Closed-ended questions (starting with ‘is’, ‘are’ and ‘do’) may get you a factual answer and be used to test accuracy, but they are likely to also terminate a discussion
- Open-ended questions (starting with ‘what’, ‘why’, ‘could’, ‘how’, and ‘would’) can facilitate open discussion and are likely to set the tone for a more relaxed environment
- Mental imagery takes the interviewee back to the actual situation, and uses one’s senses (e.g. sound, smell, sight) to help build the picture
- If there are doubts about the evidence and information obtained, it is useful to repeat the interviewee’s explanation from a different perspective and order (e.g. going backwards through the events)

Exercise:

Following the medication error incident, who would your team like to interview?

Participant's Notes:

4. Determining Causes and Effects

At this phase of the RCA process, the focus is on recognising all system issues that may have contributed to the event. It is inherent in human nature to identify causes at the “sharp end” (i.e. those causes that are apparent and close to the point of occurrence). Nonetheless, you need to move away from the “sharp end” towards the “blunt end” to ensure that you determine all the underlying causes. If the contributory factors and root causes are not properly identified, the recommendations developed by the team may not effectively reduce the likelihood of recurrence of the incident. Another common problem is that people tend to confuse causes with effects.

A number of tools can be used to help in the analysis:

Brainstorming is often used to generate as many ideas as possible around a given subject area. This can be done through a structured or unstructured approach.

- Define topic
- Allocate 10 minutes to produce ideas on causes, contributory factors
- Record down verbatim
- Aggregate and group ideas with agreement
- Clarify if necessary

General Rules for success:

- Check titles at door
- No right or wrong ideas
- Do not self-censor
- Involve everybody, no idea is too small
- Encourage cross-discipline interaction and contribution

Participant’s Notes:

The 5 “Whys” Technique requires the team to constantly ask “WHY?” through the various layers of causes, systematically progressing towards the true root cause(s) of the identified problem or issue.

- For each effect, identify its cause(s)
- Ask “Why did this happen” for each cause
- Keep going until you cannot come up with an answer
- Connect all causes with “caused by”
- Support all causes with evidence

Participant’s Notes:

Task Analysis examines systematically every detail of a specified task to identify the root causes of the effect.

- Steps
- Who
- Actions
- Components
- Tools
- Outcomes

Participant’s Notes:

5. Documentation of Cause and Effect

Documentation of the identified causes and effects helps the RCA team to ensure that the analysis has been drilled down to the "blunt end". Visualisation aids in the understanding of how various contributory causes relate to each other and to the effects. Diagrams can also help the team to see where issues arose and identify target areas for improvement.

Ishikawa or Fishbone Diagram is a common way to represent in a diagrammatic fashion the relationships between various causes and the final effect. A common approach is to draw a horizontal arrow on a large sheet of paper or white board. At the head of the arrow is the primary outcome observed. Spines or 'Bones' are then added to the arrow in a fishbone arrangement. Each spine is given a category classification heading and the causes are mapped against each category in a way that demonstrates the relationship between contributory causes and root causes.

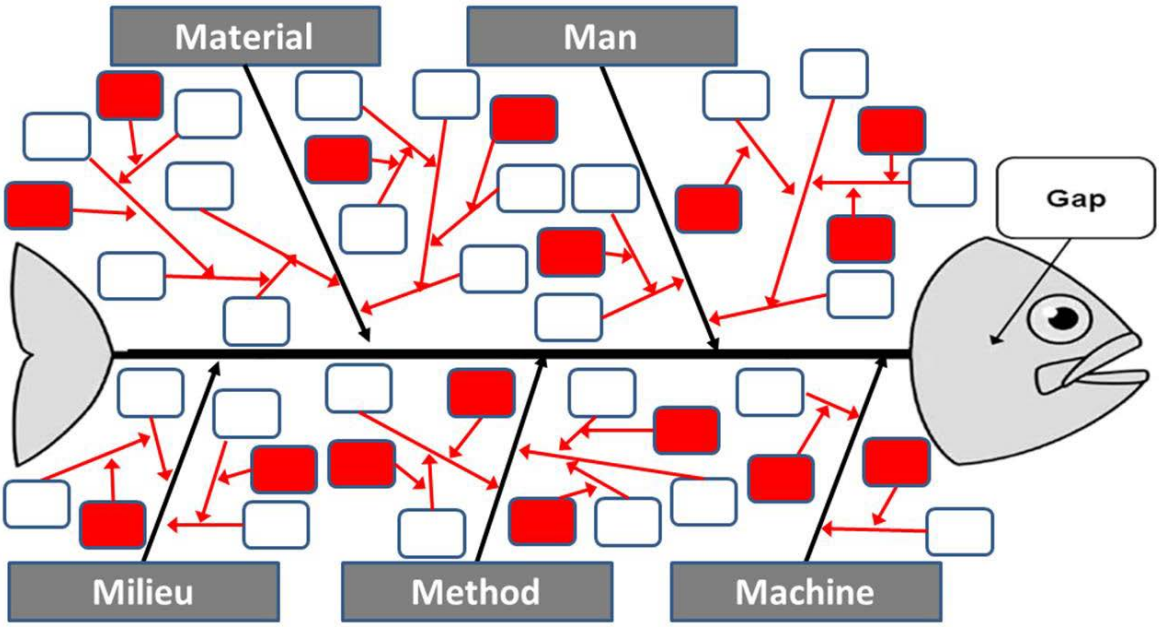
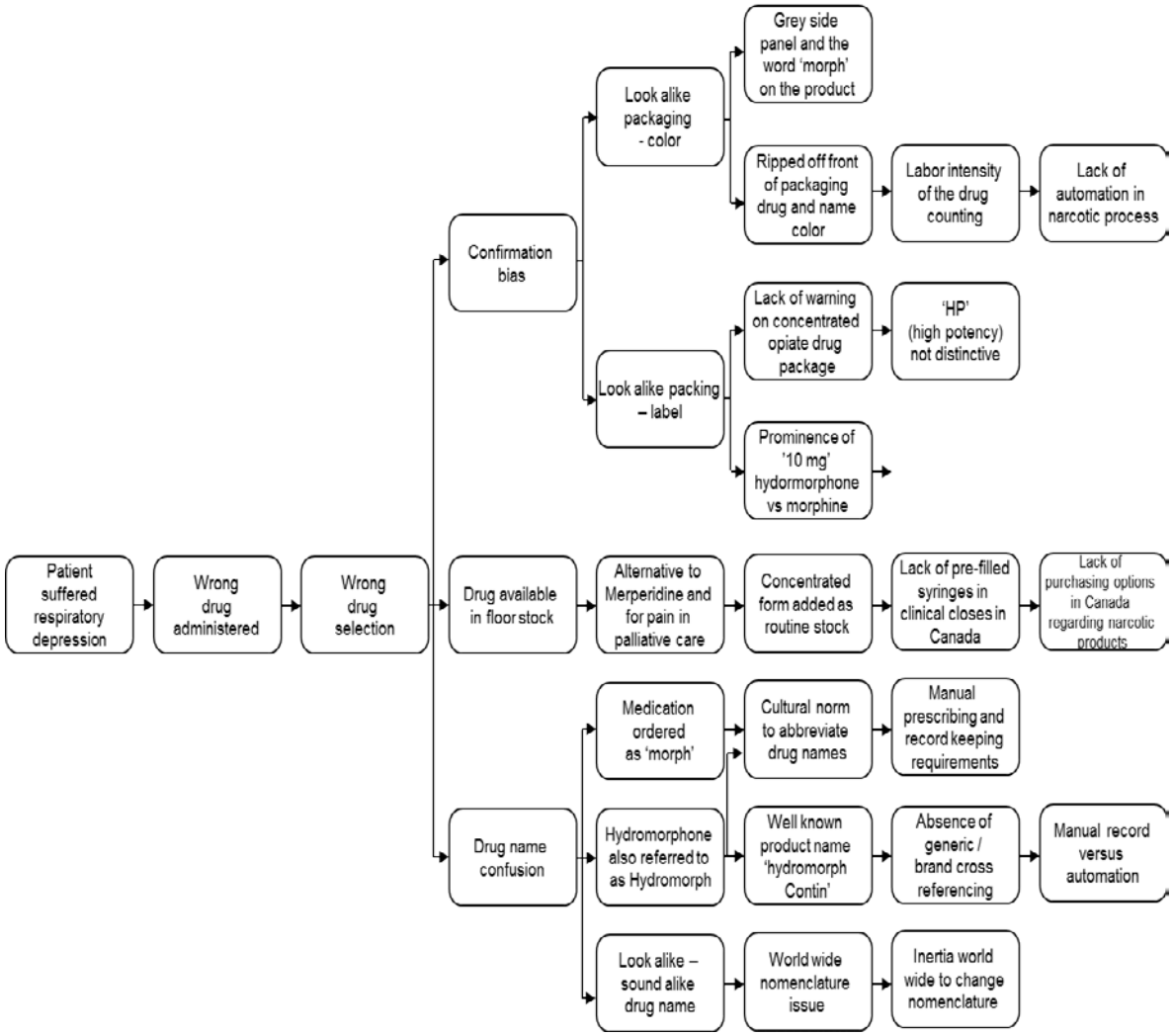


Figure 9: Sample Ishikawa or Fishbone Diagram

Many people find that mapping the contributory factors via fishbones is a helpful tool that forces them to consider the variety of issues that can influence performance. However, not everyone likes this format - therefore it is also perfectly acceptable to consider the contributory causes in other formats.

A Causal Tree Diagram is an alternative form of the cause and effect diagram, which resembles a tree turned on its side. The branch arrangement facilitates recording of contributing factors identified by asking a series of "caused by" and "why" questions. Diagramming begins with formulation of the outcome or problem statement. The team can then begin to work away from the "sharp end" of the event. This part of the process can also be assisted by the use of sticky notes because the organization of ideas will be very fluid.



From: Canadian Patient Safety RCA Framework; 2006

Figure 10: Sample Causal Tree Diagram

Participant's Notes:

Exercise:

For the medication error incident, how will your team decide which tool to use for analysis and documentation?

5a Report

The objective of an RCA investigation report should not only be to report accurately on the incident and its causes to formulate recommendations to improve safety, but also to demonstrate that the investigation has been conducted with a high level of professionalism.

The report should contain the following sections:

- Date, time and location of the event
- A statement on the purpose of the investigation
- A summary of events
- Evidence and essential supporting information
- Factors for consideration (e.g. human factors)
- Conclusion (including causal statements)
- Recommendations
- Composition of investigation team

The **causal statements** must focus on the root causes and must be specific.

The following are the 5 rules of causation:

- Root cause statements must clearly show the link between the cause and the effect
- Negative descriptions should not be used in statements
- Each human error must have a preceding cause
- Violations of procedure are not root causes; they must have a preceding cause
- Failure to act is only causal when there was a pre-existing duty to act

Exercise:

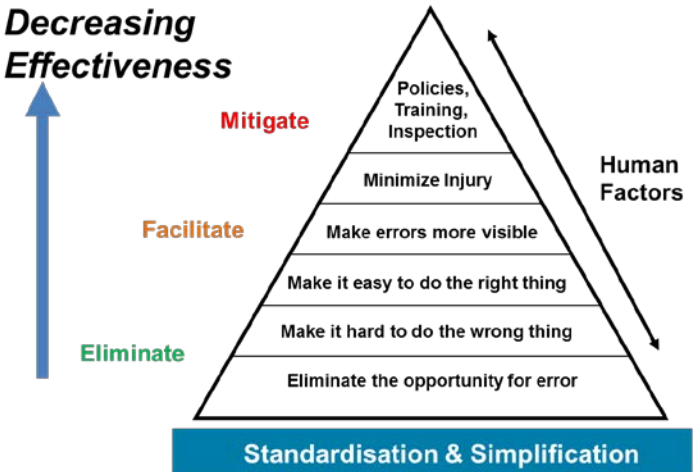
Use one of the identified root cause in our medication safety example to craft a causal statement.

Participant's Notes:

5b Recommendations

The ultimate goal of an RCA is to come up with actions to reduce the potential for recurrence of a similar event. The team should identify measures to address the root causes that they have uncovered. The initial focus is on the removal or elimination of circumstances that led to the event. If no action can be taken to eliminate the cause, the team should seek the most appropriate control to reduce the possibility of recurrence.

- Eliminate - make it hard to do the wrong thing and easy to do the right thing
- Facilitate - make errors more visible
- Mitigate - minimise injury



Adapted by Dept of National Patient Safety, Kaiser Permanente, Oakland, California, from Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health: Engineering Controls

Figure 10: Corrective Measures

If the investigating team becomes aware of an urgent safety problem, the relevant person in the organisation should immediately be informed of the issue in order to act on the risks in a timely manner.

Remedial actions should:

- Target the elimination of the root causes
- Offer a long-term solution to the problem
- Have a positive net impact on other processes, resources and schedules
- Be objective and measurable
- Be achievable and reasonable

Recommended Hierarchy of Actions

(Adapted from John Gosbee, MD, MS Human Factors Engineering)

Stronger Actions

- Architectural/Physical plant changes
- New device with usability testing before purchasing
- Engineering control or interlock (forcing functions)
- Simplification of the process and removal of unnecessary steps
- Standardisation of equipment, process or care maps
- Tangible involvement and action by leadership in support of patient safety

Intermediate Actions

- Increase in staffing/Decrease in workload
- Software enhancements/modifications
- Elimination/Reduction of distractions (sterile medical environment)
- Checklist/Cognitive aid
- Elimination of look and sound alike
- Read-back
- Enhanced documentation/communication
- Redundancy

Weaker Actions

- Double checks
- Warnings and labels
- New procedure/memorandum/policy
- Training
- Additional study/analysis

In the final report, the RCA team should present all the recommended actions that they consider reasonable to tackle the underlying causes of the event. Recommendations should be put forth to the appropriate process owners. The senior leadership then makes decisions about prioritisation and implementation of recommendations and determines the allocation of resources; this is not the responsibility of the RCA team.

Under certain circumstances, the team may choose not to propose any further intervention for one or more root causes (e.g. when the frequency and/or severity of the incident are not significant).

Participant's Notes:

RCA EXERCISE

Module Objectives:

At the end of this module, participants should be able to:

a. Apply knowledge in performing an RCA
b. Practice interviewing skills
c. Synthesize information to develop a credible causal analysis and report
d. Derive credible recommendations from the analysis

Scenario

This will be outlined by faculty

1. *Is this a problem that requires an RCA? (use SAC score)*

2. *Team Composition: Who would you want to include in your RCA team?*

3. *Gathering information: Develop a list of objective data that you need*

4. *Flow chart of events: Develop a timeline or flow chart of events*

5. *List of persons to Interview: Who would you want to interview?*

6. *Potential areas of concern: What are some of the preliminary issues?*

7. *Interviewing (subjective data)*

8. Cause and Effect Analysis

10. Report (Recommendations against the causes)

Participant's Notes:

DEVELOPING A PATIENT SAFETY CULTURE

Module Objectives:

At the end of this module, participants should be able to:

a. Understand requirements for developing a high reliability organisation
b. Understand the role of RCA in a patient safety and quality improvement framework
c. Learn about systems approach and how to use the Incident Decision Tree for a fair and transparent approach
d. Learn how RCA supports a Just Culture concept

High Reliability Organisations

There are three critical changes required for organisations to achieve high reliability of care within their healthcare systems.

- The responsibility of leadership to make high reliability the priority
- The importance of creating a culture of safety within an organization
- The use of proven quality methods to systematically improve the processes and avoid common, crucial failures

The NHG Quality and Patient Safety Framework involves creating a safety culture through a system of detection, analysis, improvement, spread and sustaining improvement, as well as a continuous cycle of evaluating if changes are effective. It serves to ensure that mechanisms are available and implemented to train, inculcate, audit and reward staff for providing quality healthcare services that are built on the vision and strategy of the organisation.

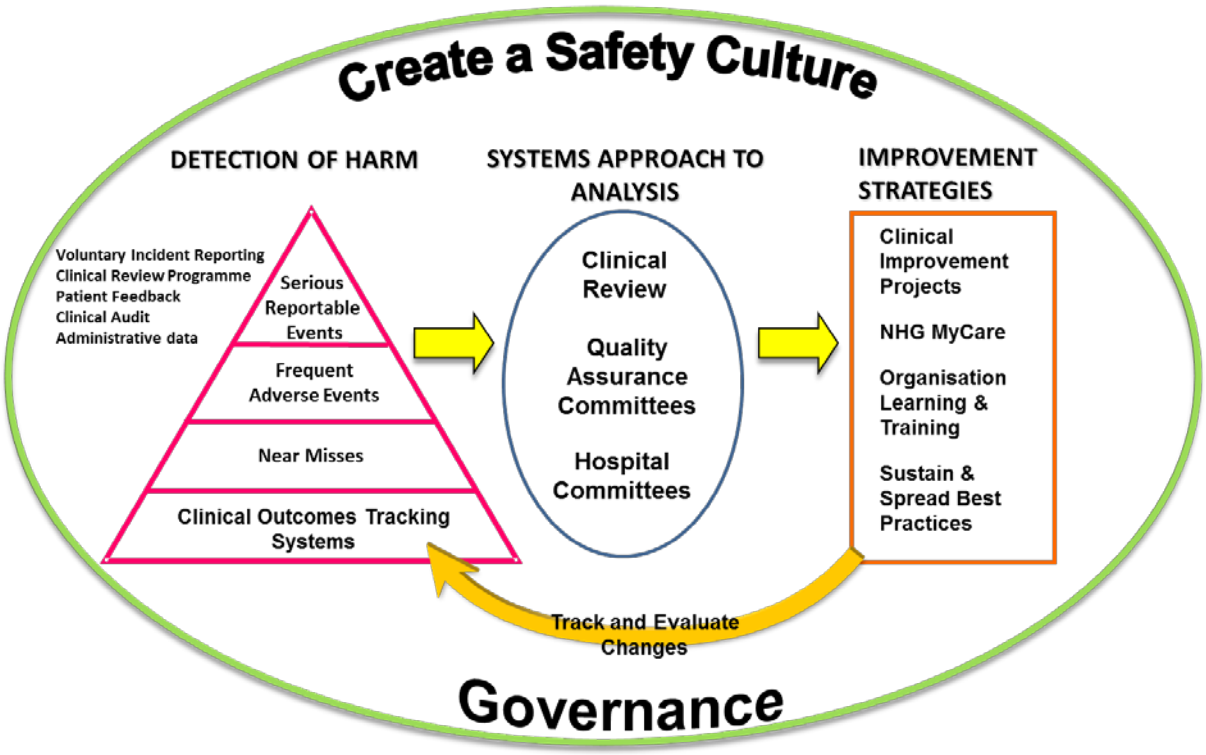
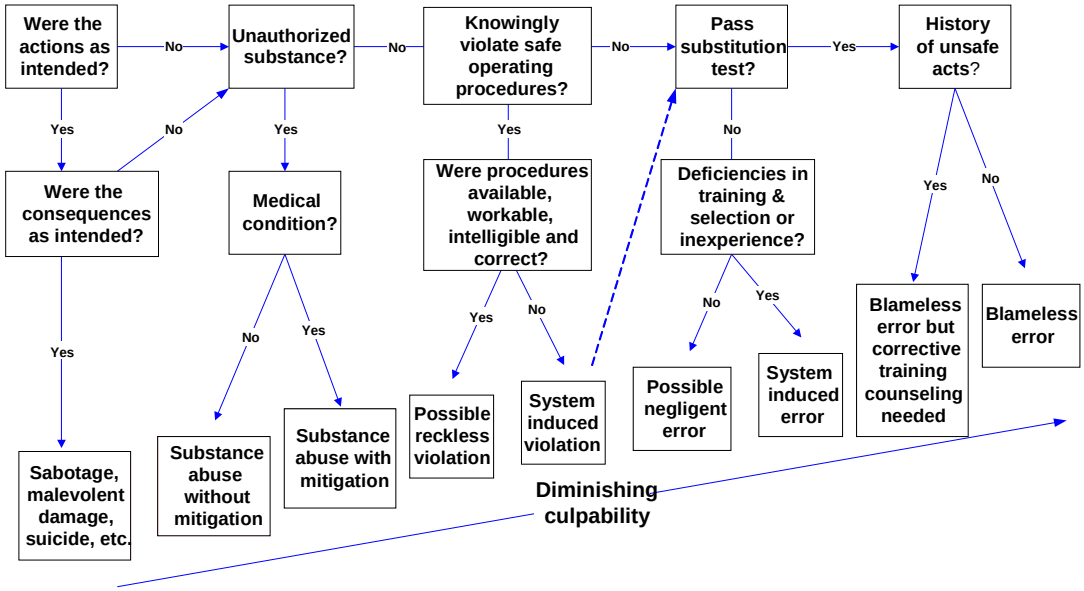


Figure 14: NHG Quality and Patient Safety Framework

Incident Decision Tree (IDT)

Studies show that supervisors are likely to exercise authority to suspend or punish staff after an incident associated with human error or protocol violation. The Incident Decision Tree was formulated to help supervisors and managers think through systemic and organisational issues behind human error (such as poor design of processes leading to human error). The IDT's 4 "tests" helps in the consideration of alternatives, other than punishment of the individual, using a series of questions to examine the individual's actions, motives and behaviour at the time of the incident. The degree to which the individual is culpable diminishes as one progress further through the tree.

The IDT is based on an algorithm developed by James Reason to determine the culpability of unsafe acts and to distinguish between violations and errors.



James Reason, Managing the Risks of Organizational Accidents

Figure 15: Decision Tree for Determining Culpability of Unsafe Acts

Exercise:

Following from the group work exercise, how would your team apply the IDT for this case?

Participant's Notes:

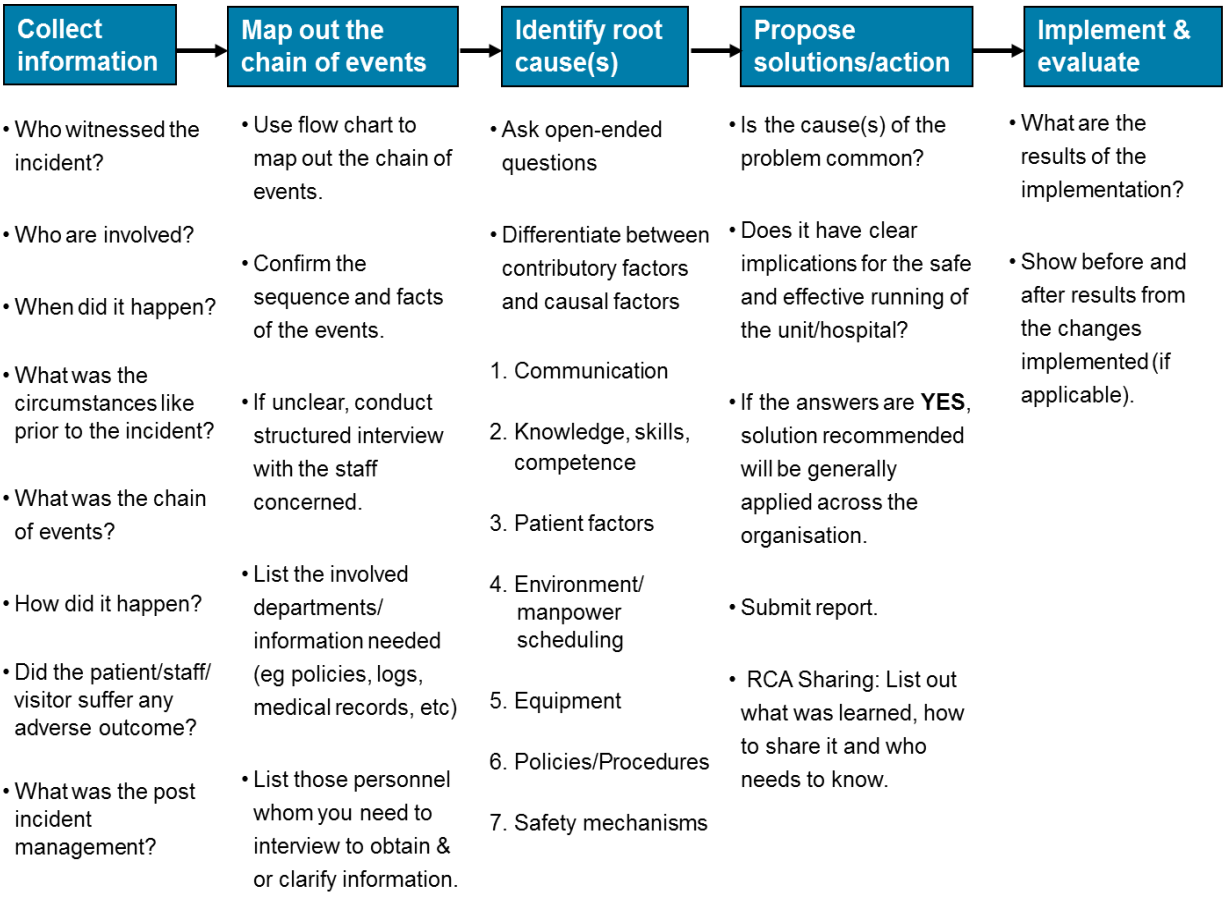
SUMMARY

The RCA process is a necessary and critical feature of any safety system because it provides the answers to the questions posed in high-risk, high-impact events - what happened, why it occurred, and what can be done to prevent it from happening again. In the investigation of serious incidents, the RCA methodology is used to drill down and identify the underlying causes and to develop effective solutions that will address system failures.

All incident investigations should be done within a framework that not only recognises the role of human error in accident causation but also looks at such incidents through the lens of systems thinking. A multi-disciplinary approach using recognised analytic techniques is highly recommended. The RCA report should guide decisions by management on risk reduction plans, which should be linked with the organisation's risk management controls.

Annex 1

Summary of the Root Cause Analysis Process



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