Root Cause Analysis

Liverpool Heart and Chest Hospital

2016

Course Aims

- **To provide/improve**

1. Understanding of theory underpinning RCA
2. Skills to undertake effective RCA
3. Tools to undertake RCA analysis
4. Understanding of the advantages of a 'systems' based approach.
5. Develop an appreciation of the correct way to write up an investigation report

WHY?

To learn and share lessons

Costs

- **Costs to the NHS healthcare system**

- adverse events cost £1 billion/yr in hospital stay alone
- > £400 million clinical negligence settlements/year

Costs to our patients

- can have a life long affect on the quality of life for patients

Impact on Staff

- It has been estimated that 38% of doctors who are subject of a clinical negligence claim suffer clinical depression as a result of the process…there is damage to a doctor's reputation, morale, self-esteem and professional confidence.

CMO making Amends DOH 2003

- I am so afraid of making another mistake. I want to give it all up and work in Tesco where the worst mistake I could possibly make will only be to annoy somebody, not kill them.

Anon (Registered Nurse)

Understanding adverse incident causes

Person centred approach

- Individuals who make errors are 'careless, at fault, reckless'
- Blame and punish
- Remove individual=improve safety

Systems approach

- Poor organisational design sets people up to fail
- Focus on the system rather than the individual
- Change the system=improve safety

Human Error

- We all make errors irrespective of how much training and experience we possess or how motivated we are to do it right
- There are good reasons why we behave as we do
- If we understand those reasons we can understand why errors have occurred in the system

Human Factors

The study of how humans behave physically and psychologically in relation to particular environments, people or procedures

Other Human Factors

- **Fatigue, sleep deprivation**
- **Inadequate nutrition,hydration**
- **Overload**
- **Training and experience**
- **Team dynamic**

Rasmussens Skill, Rule and Knowledge Model

- Knowledged Based

Conscious thought required

Unskilled or occasional user

New environment

Effortful

Slow

Lack of awareness of consequences

- Skill Based-automatic
- Skilled regular use
- Familiar environment
- Effortless
- Fast
- Strong habit focus

Error Types

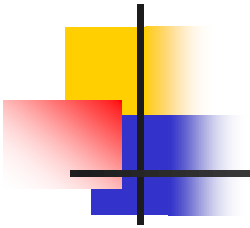
Intended Actions

Routine violations-regular short cuts accepted by clinical team because procedure badly designed

Reasoned violations – occasional change from procedure with good intent i.e. emergency situation

Reckless violations – unacceptable changes from procedure. Harm is likely but not intended

Malicious violations – deliberate acts intended to cause harm



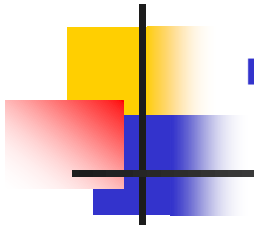
Error types

Unintended actions

Lapses – errors made by experienced people undertaking familiar tasks with little conscious thought

Slips – errors made by experienced people undertaking any task. Could happen to anyone.

The *Swiss cheese* model of system accident prevention

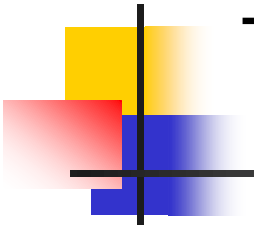


- Defenses, barriers, and safeguards occupy a key position in the system approach. High technology systems have many defensive layers:
- some are engineered (alarms, physical barriers, automatic shutdowns),
- others rely on people (surgeons, anesthetists, pilots, control room operators),
- and others depend on procedures and administrative controls.

The *Swiss cheese* model of system accident

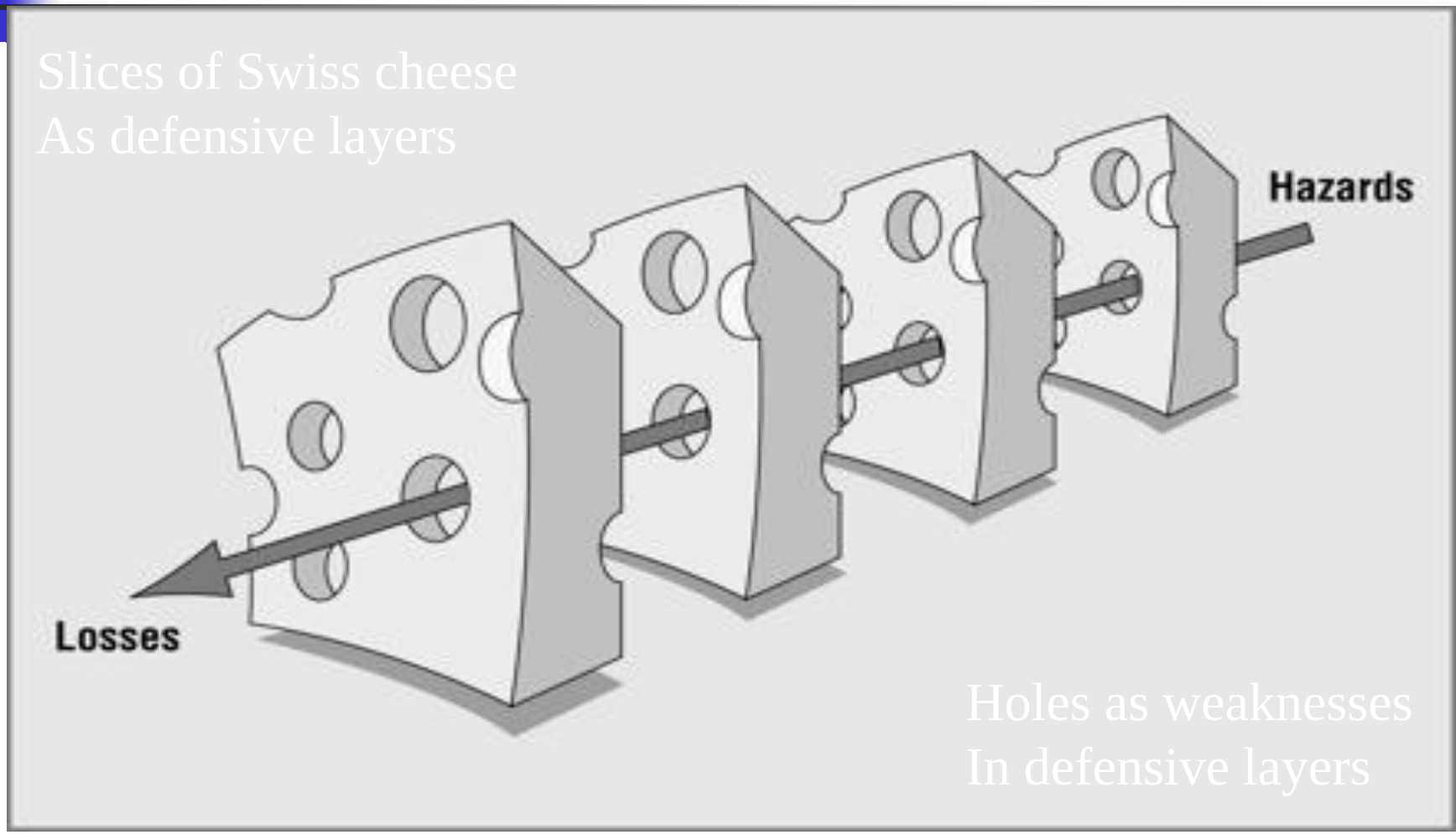
In an ideal word, each defensive layer would be intact. In reality, they are more like slices of Swiss cheese, having many holes- although unlike in the cheese, these holes are continually opening, shutting, and shifting their location.

The *Swiss cheese* model of system accident



The presence of holes in any one "slice" does not normally cause a bad outcome. Usually this can happen only when the holes in many layers momentarily line up to permit a trajectory of accident opportunity- bringing hazards into damaging contact with victims

The Swiss cheese model of how defenses, barriers, and safeguards may be penetrated by an accident trajectory



Being Open (Duty of Candour)

Being open involves apologising and explaining what happened to patients who have been harmed as a result of a patient safety incident.

Key elements of being open

1. Acknowledging and apologising
   (is not an admission of guilt)
2. A factual explanation
3. Reassuring patients and their families
   - the lessons learned will prevent harm from recurring
4. Ensuring systems are in place to enable learning
5. Duty of Candour – contractual obligation, evidence of which is required by commissioners on a quarterly basis

What does the research show?

- Patients wanted an apology
- Clinicians were afraid to apologise in case this created legal liability
- Both groups wanted emotional support after involvement in a Patient Safety Incident.
- Patient/rels less likely to proceed to make a claim if incident is acknowledged, apology is made and action taken to prevent incident of similar nature occurring.

What is a Root Cause?

- The root or fundamental issues, is the earliest point at which action could have been taken that would have reduced the chance of the incident happening.

What is Root Cause Analysis?

- A methodology that enables you to ask questions ‘How’ and ‘Why’, in a structured, objective way.
- The aim is to learn how to prevent similar incidents happening again, not to apply blame.
- The process for RCA enables the investigation of incidents, which supports analysis of systems, not individuals.

Before starting the investigation

- Access the NPSA Incident Decision Tree
- Created to assist NHS managers and senior clinicians identify the appropriate management action
- Aim is to promote fair and consistent staff treatment within organisations
- Web based tool, usually takes 30mins to complete

INCIDENT DECISION TREE*

Work through the tree separately for each individual involved

THE NHS CONFEDERATION

NHS National Patient Safety Agency

Start Here

Deliberate Harm Test

Were the actions as intended?

- NO → Incapacity Test
- YES → Were adverse consequences intended?
  - NO → Incapacity Test
  - 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

Incapacity Test

Does there appear to be evidence of ill health or substance abuse?

- NO → Foresight Test
- YES → Does the individual have a known medical condition?
  - YES → Is there evidence that the individual took an unacceptable risk?
  - NO → Consult NCAA or relevant regulatory body
    Advise individual to consult Trade Union Representative
    Consider:
    - Occupational Health referral
    - Reasonable adjustment to duties
    - Sick leave

    Highlight any System Failures identified

Foresight Test

Did the individual depart from agreed protocols or safe procedures?

- NO → Substitution Test
- YES → Were the protocols and safe procedures available, workable, intelligible, correct and in routine use?
  - NO → Substitution Test
  - YES → Is there evidence that the individual took an unacceptable risk?
    - YES → Were there significant mitigating circumstances?
    - NO → Advise individual to consult Trade Union Representative
      Consider:
      - Corrective training
      - Improved supervision
      - Occupational Health referral
      - Reasonable adjustment to duties

      Highlight any System Failures identified

Substitution Test

Would another individual coming from the same professional group, possessing comparable qualifications and experience, behave in the same way in similar circumstances?

- YES → **System Failure**
  Review system
- NO → Were there any deficiencies in training, experience or supervision?
  - YES → **System Failure**
    Review system
  - NO → Were there significant mitigating circumstances?
    - YES → **System Failure**
      Review system
    - NO → 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

* Based on James Reason's Culpability Model

Starting the investigation

Consider:

- How far back in the episode of care you need to go
- Do other organisations need to be involved?
- What information you need?

Managing the investigation

- The initial team may include 3-4 people:
- one as lead investigator
- One competent in RCA
- Should be objective
- Terms of reference for the Team should be established

What and how?

- Interviews
- Witness statements
- Retrospective clinical records
- Incident reports
- Staff rota’s
- Audit data
- Training supervision records
- Medical equipment maintenance records.

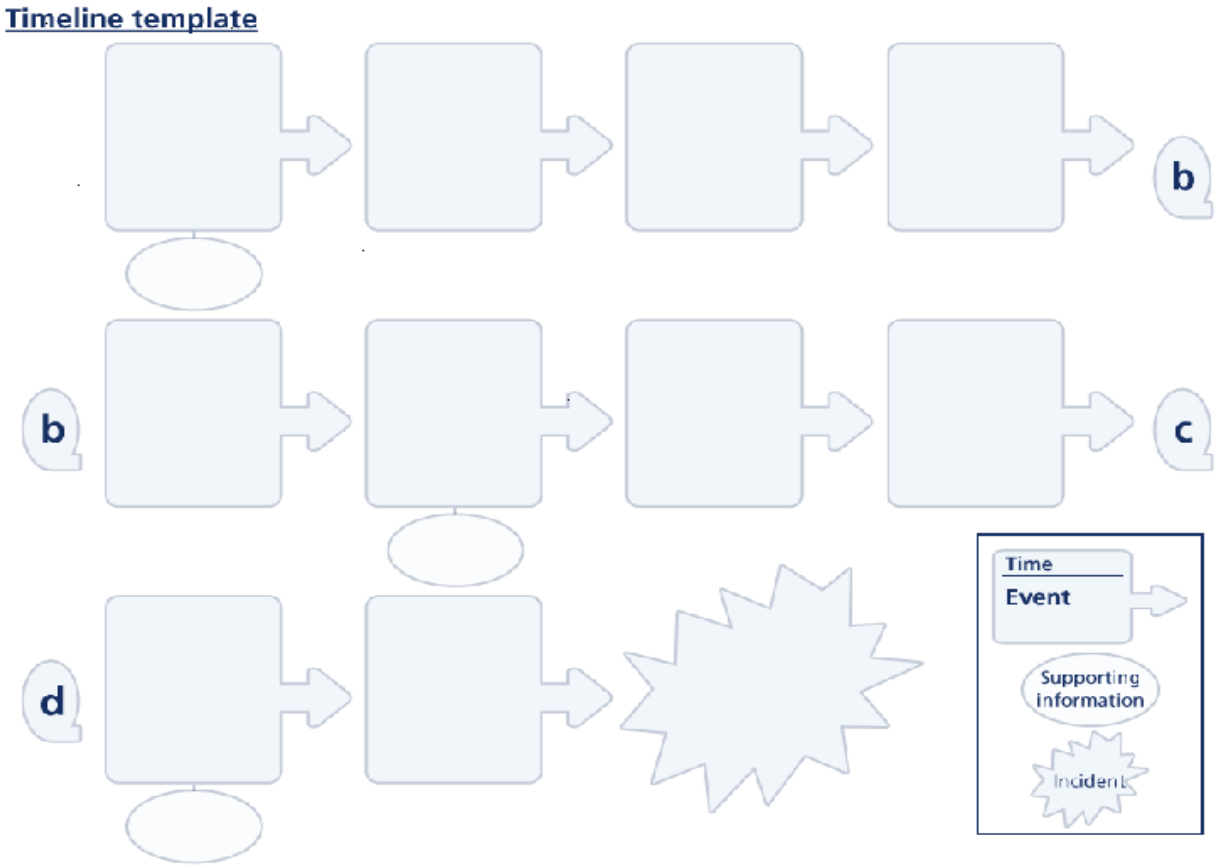
What is a Timeline?

- A method for mapping and tracking the chronological chain of events involved in the incident.
- Allows identification of information gaps
- Allows identification of critical problems that arose contributing to the incident.

When to use a Timeline

- When undertaking any incident investigation where it is anticipated that the incident contains more than one episode of procedural failure
- Useful as a means to map the chain of events prior to a meeting with those involved in the incident.

Timeline

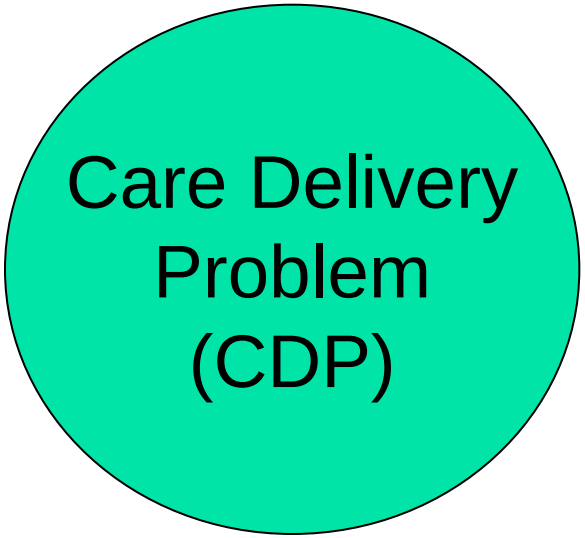

Timeline template
b
b
c
d
Time
Event
Supporting information
Incident

The Five Why Technique

- The main purpose of the technique is to delve into the causes of the incident by simply asking 'Why'
- Can use three 'Whys', seven 'Whys', nine 'Whys', however many it takes to reach the primary cause of the incident.
- Use to question each identified primary cause of a problem and to identify whether it is a symptom, an influencing factor or a root cause

Identifying the problem(s)

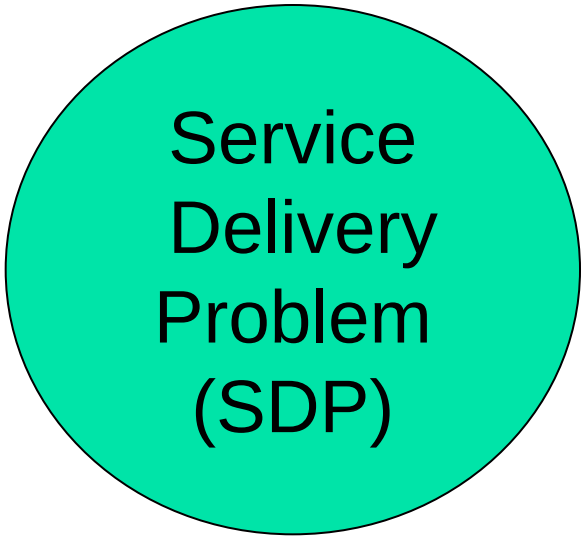
Problems that arise in the process of care, usually actions or omissions by staff:



i. care deviated beyond safe limits of practice and

ii the deviation had a direct or indirect effect on the eventual adverse outcome for the patient

Identifying the problem(s) cont'd



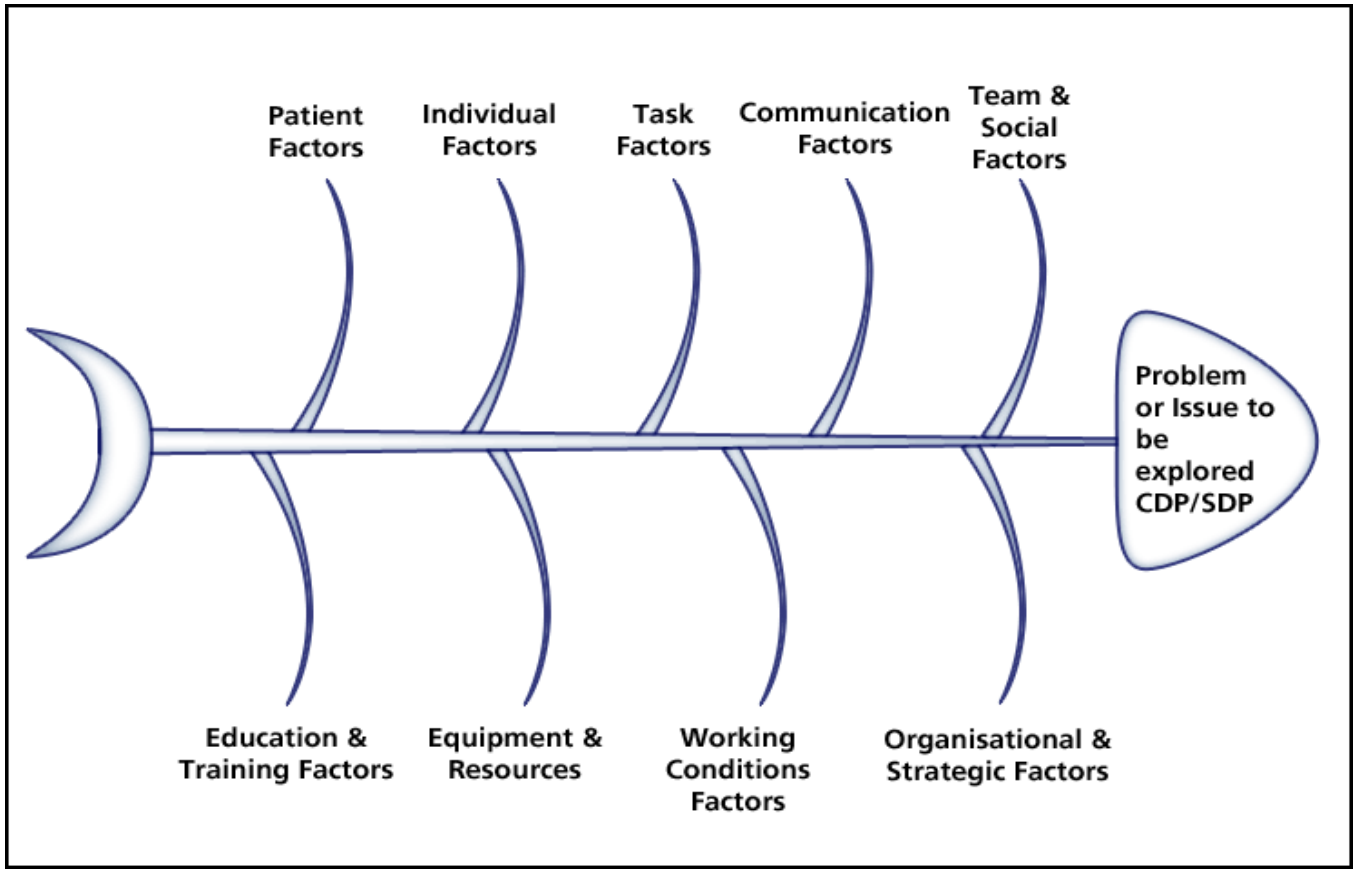
SDP refers to those acts or omissions that are identified during the analysis of the patient safety incident, but are not associated with direct provision of care.

They are generally associated with decisions, procedures and systems that are part of the whole process of service delivery.

Contributory Factors- Fishbone diagram

- When contributory factors have been identified for a specific problem, it may be helpful to use a classification framework to group them.
- Common approach is to draw a horizontal arrow on a large sheet of paper. At the head of the arrow is the problem to be explored.
- Spines are added in a fishbone arrangement, with each spine given a classification heading which represent the main areas to be explored.

The Fish Bone Diagram



Root Cause

- A root cause is something that led directly to a patient safety incident
- Removal of these factors will either prevent, or reduce risk.

Generating solutions

- The point of RCA is to discover why an incident happened and find a solution in order to prevent it happening again
- The solution should be realistic, sustainable and cost effective
- The solution/learning from the investigation should be shared so others may benefit and a similar incident is prevented in another area.

Writing the report and sharing the learning - Top Tips

- Reader is the most important person
- Needs to be succinct
- Organise for the convenience of the user
- Diagrams in the right place for the reader
- Checked for errors and readability
- Consider which groups need to receive the report to share the learning
- Refer to the Organisational Learning Policy regarding onward sharing of the learning