

# Root Cause Analysis

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# Course Overview

- What is RCA?
- Why do an RCA
- The theory underpinning the RCA process
- The process of RCA
- Overview of RCA Tools
- Some Practice using the tools
- Solution Generation
- Incident Decision Tree

# National Patient Safety Agency

- Established July 2001
- Special Health Authority
- Purpose
  - to implement and operate a new national system for learning from patient safety incidents in all sectors of the NHS with one core purpose – *to improve patient safety by reducing the risk of harm through error.*

*(source: Building a Safer NHS for Patients)*

## About the NPSA

- Not a regulatory body
- No performance management
- No disciplinary powers
  
- Share information
- Issue alerts/advice/rapid responses on good practice
- Collaborate with World Health organisation

# Seven Steps to Patient Safety

- Step 1 - Build a safety culture
- Step 2 - Lead & support your staff
- Step 3 - Integrate risk management activity
- Step 4 - Promote reporting
- Step 5 - Involve & communicate with patients & public
- Step 6 - Learn & share safety lessons
- Step 7 - Implement solutions to prevent harm

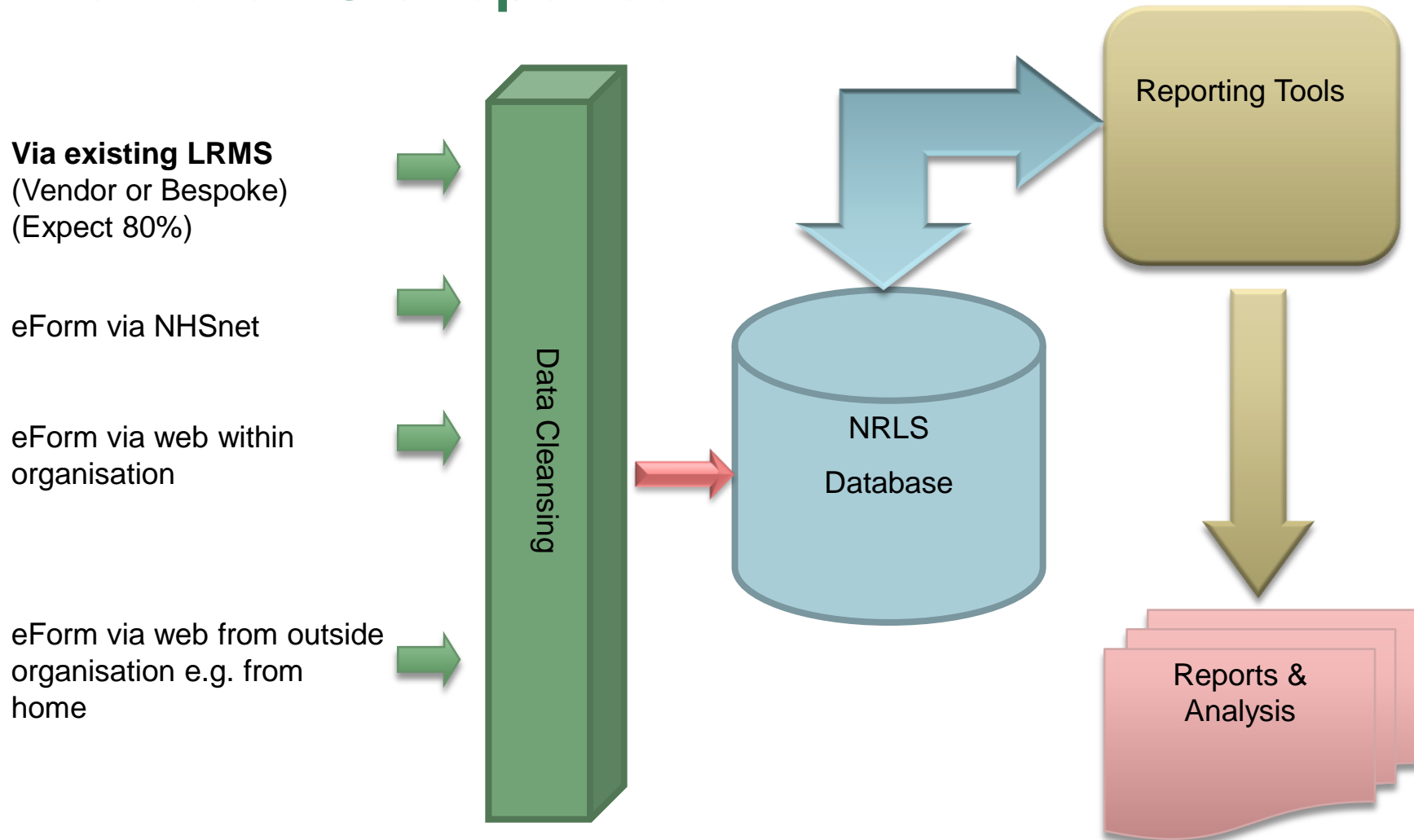
## What do we mean by Patient Safety?

The processes by which an organisation reduces the risk and occurrence of harm to patients as a result of their healthcare

## What is a Patient Safety Incident (PSI)?

Any unintended or unexpected event(s) that could have or did lead to harm for one or more people receiving NHS funded healthcare

# How are PSIs reported?



## What is RCA?

- RCA is a structured investigation that aims to identify the true cause(s) of a problem, and the actions necessary to eliminate it.

*(Anderson and Fagerhaug 2000)*

## Why do an RCA?

- There is a need to learn from patient safety incidents
- System failures can lead to Human errors.
- Evidence from 'high reliability' industries demonstrates that systematic investigation can expose system failures.

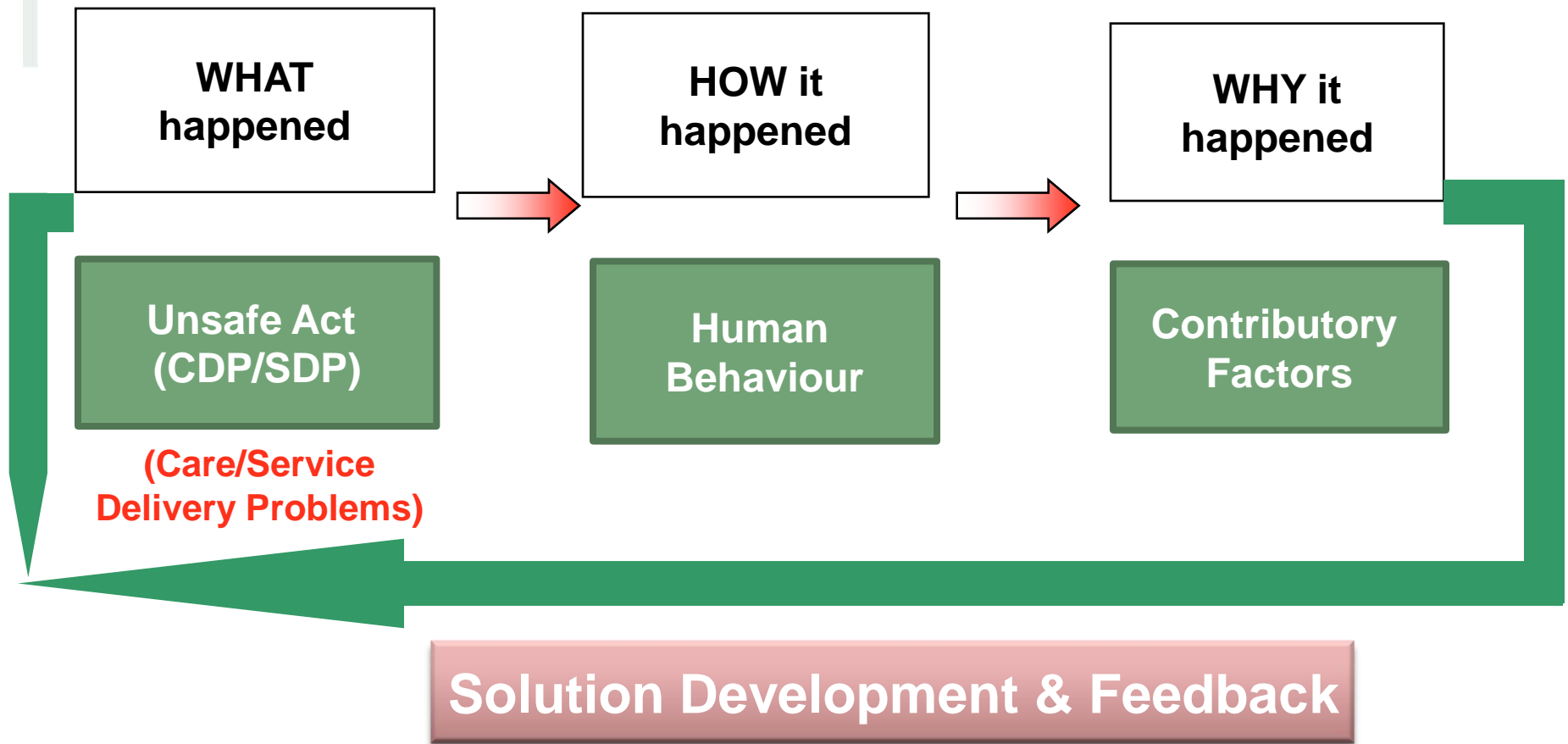
# Why is Patient Safety important?

- Modern health care is complex – risks increase
  - **Increased volume of work**
  - **Older and sicker patients**
  - **Complex interventions and technology**
  - **Cost constraints – efficiency**
  - **Workforce pressures**
- Changing expectations
- Indemnity and litigation costs take money away from direct care

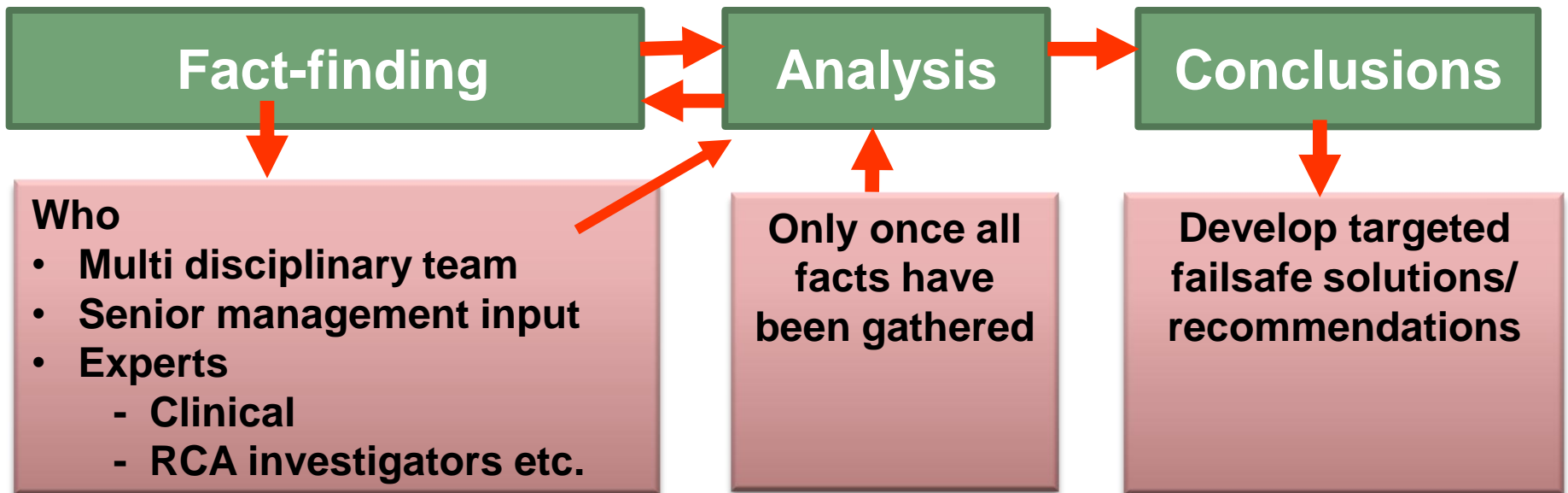
# Some quotes from the Patient Safety Congress

- ‘Our challenge is to implement safer practices...true change is from the bottom up’
- ‘creating a non-punitive environment is difficult but we know that the first principle of patient safety is don’t punish people for making mistakes’
- Lucien Leape, April 30<sup>th</sup> 2009

# Basic elements of a good RCA investigation



# Management of Investigation



## In conclusion

- ‘We must stop blaming people and start looking at our systems.
- We must look at how we do things that cause errors and keep us from discovering them.....before they cause further injury’

*Lucian Leape*  
*Error in Medicine*  
*JAMA 1994 : 272 1851-1857*

According to research at Cambridge University, it doesn't matter what order the letters in a word are, the only important thing is that the first and last letter are in the right place.

The rest can be a total mess and you can still read it fairly easily.

This is because the human mind does not read every letter by itself, but the word as a whole.

# Why things go wrong

# Understanding adverse incident causes

## Person centred approach

Individuals who make errors are 'careless, at fault, reckless'

Blame and punish

Remove individual = improve safety

## System approach

Poor organisational design sets people up to fail

Focus on the system rather than the individual

Change the system = improve safety

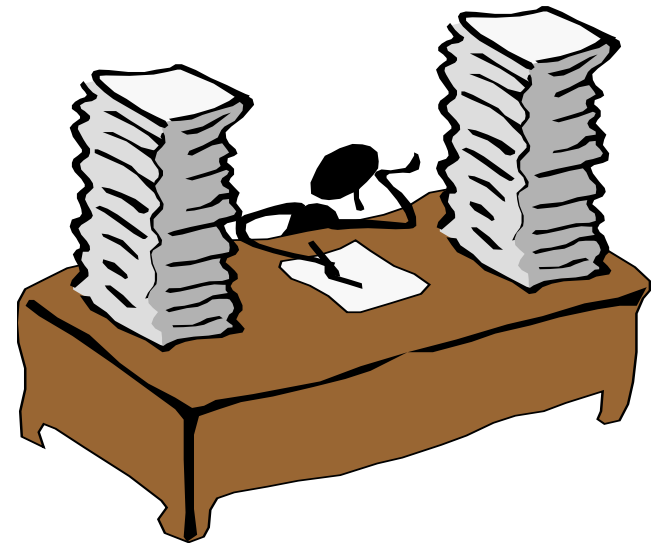
# What is Human Error?

“We all make errors  
- irrespective of how much  
training and experience we possess,  
or how motivated we are to do it right.”

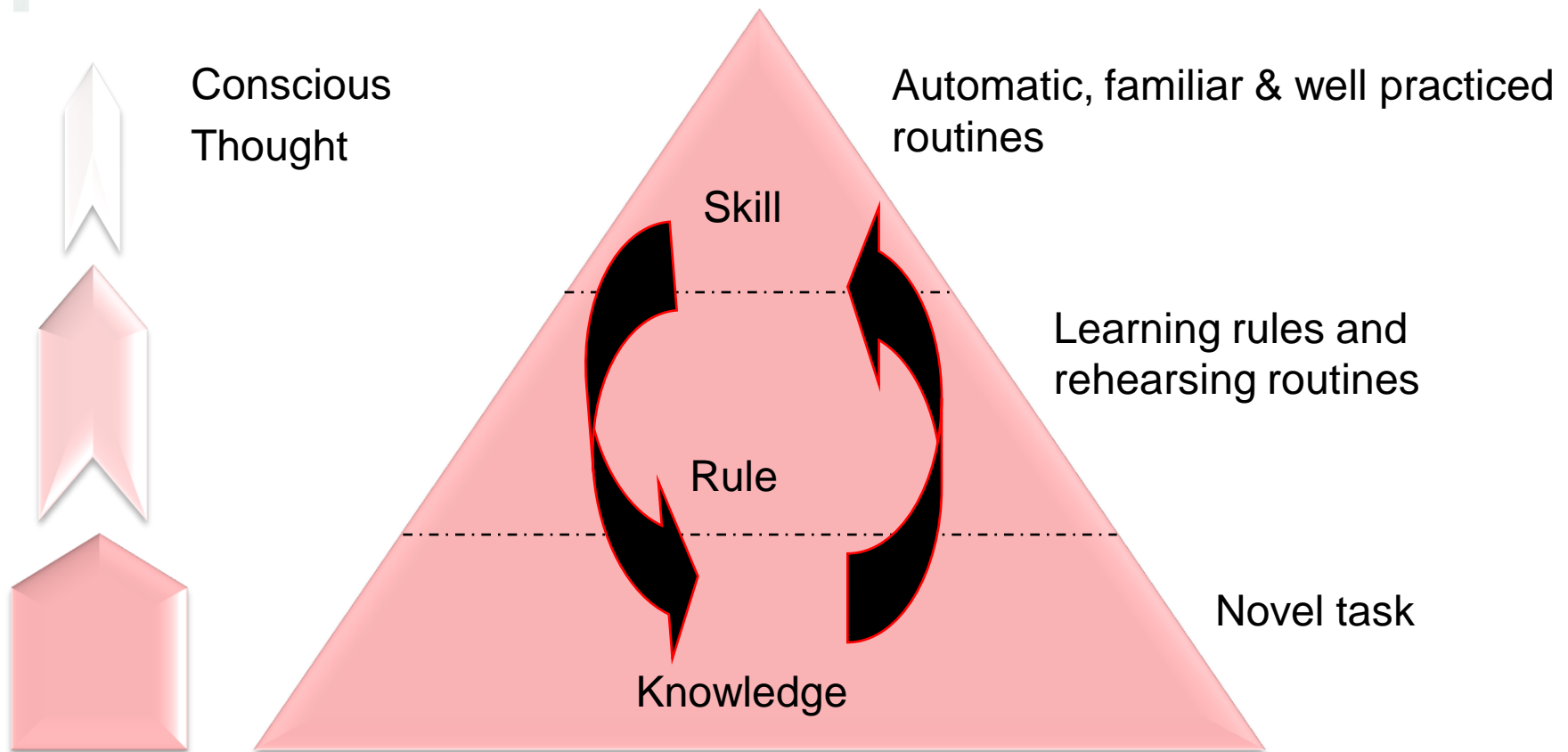
*(in Reducing error and influencing behaviour - HSG48)*

## Human Behaviour .....

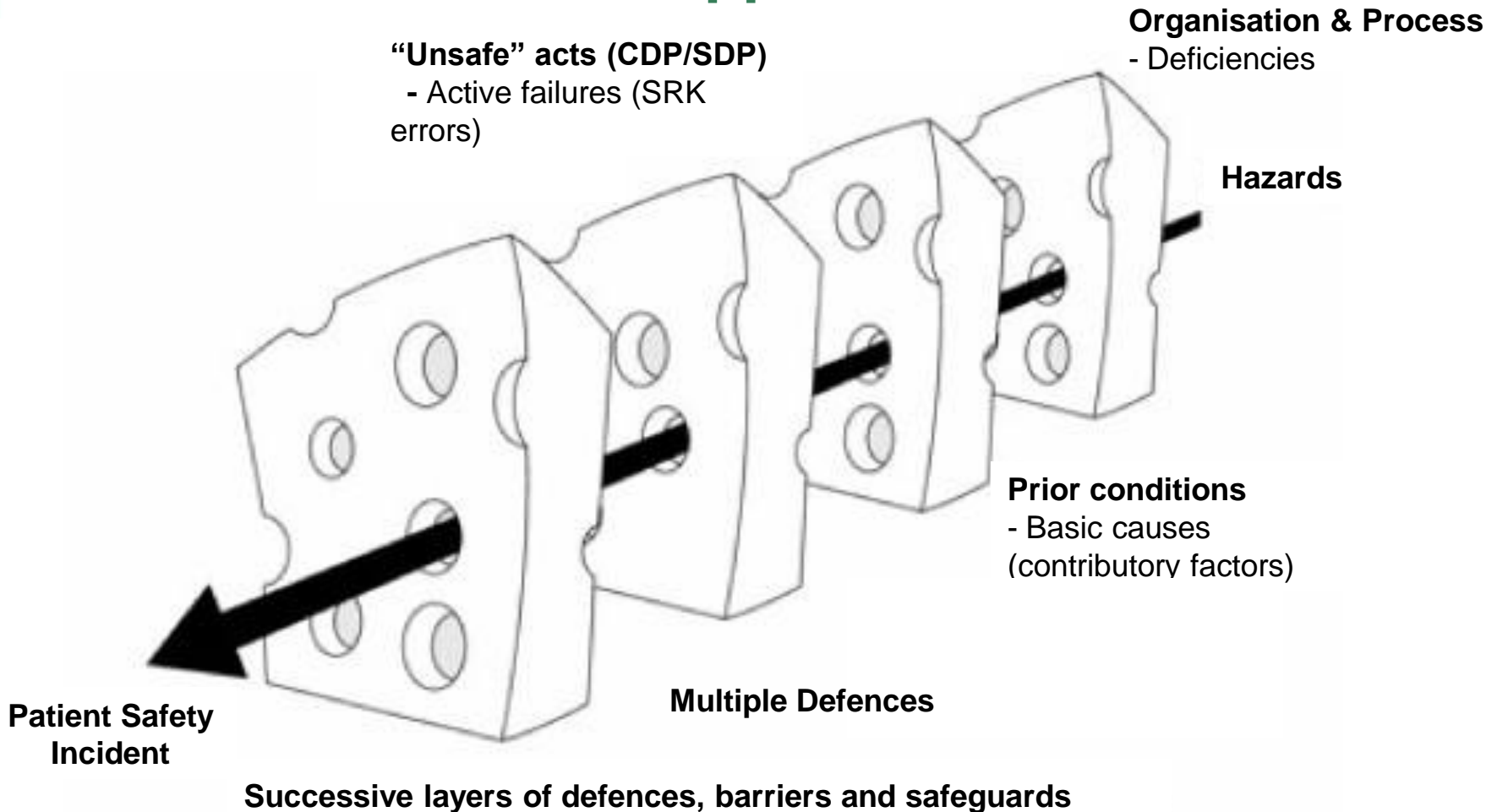
- There are good reasons why we behave as we do



# Rasmussen's Skill, Rule and Knowledge (SRK) Model



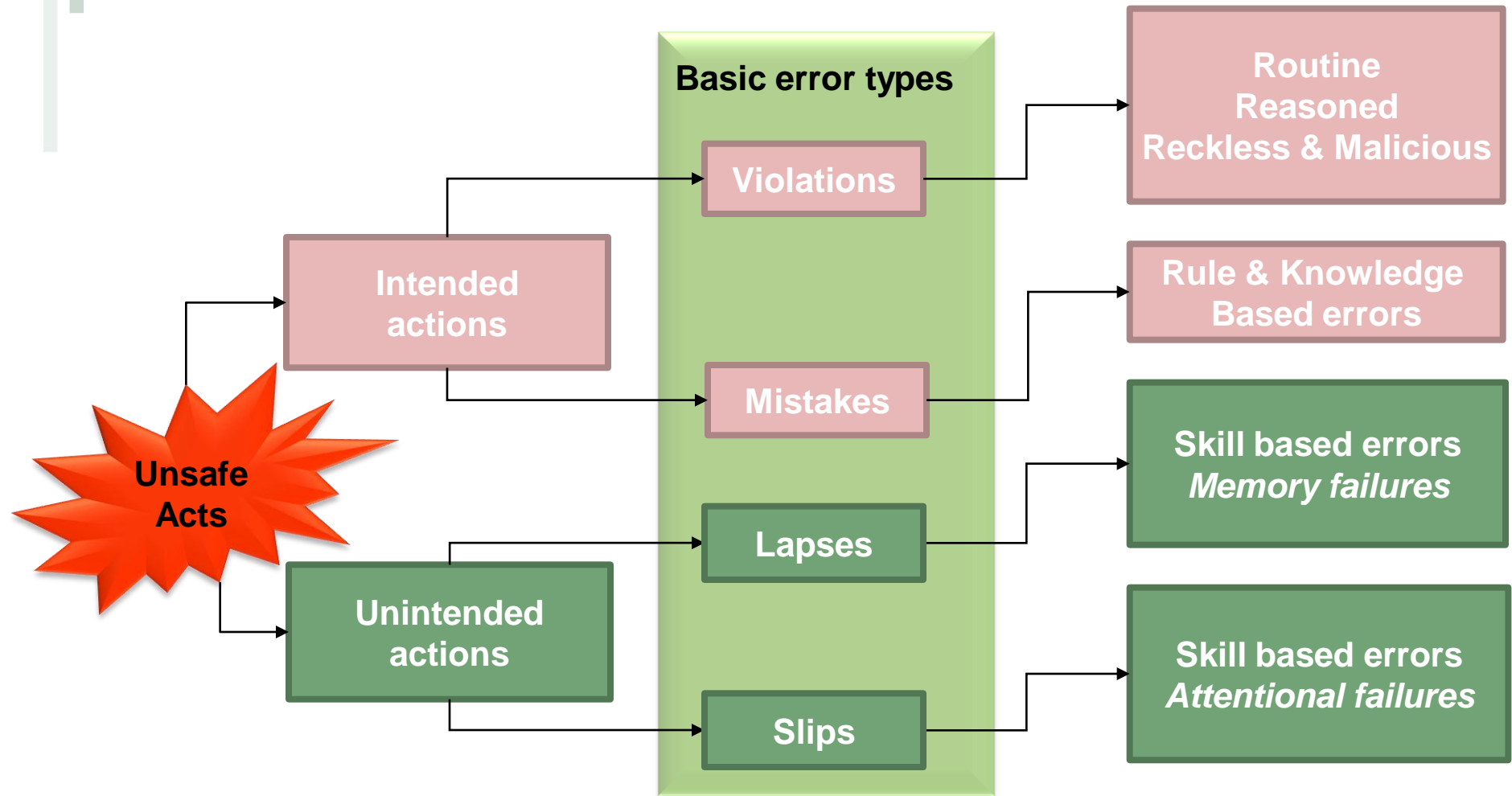
# How do accidents happen?



# Contributory Factors

- Patient factors
- Individual factors
- Task factors
- Communication factors
- Team & Social factors
- Education & Training factors
- Equipment and Resource factors
- Working Condition factors
- Organisational & management factors

# ERROR TYPES – based on the work of James Reason, adapted by NPSA



# Types of Violation

## 1. Routine

- Involve regularly performed short-cuts between task-related points, which are accepted locally, and sometimes by management.
- They generally occur due to the system, procedure or task being poorly described or designed.
- Everyday example of a routine violation
  - Not using indicator when turning off a main road into a side road in a familiar area
- Healthcare example of a routine violation
  - Identities of long-term patients not checked because “everyone knows who they are”.

# Types of Violation

## 2. Reasoned Violations

- Occasional, deliberate deviations from protocol or procedure where the violation is for good reason.
- It is important to ensure staff are not unfairly disciplined for an act that was reasoned and had good intent. *Adams (2002)*
- Everyday example of a routine violation
  - A car driver driving through a red light, because his passenger is in the final stages of labour.
- Healthcare example of a routine violation
  - Theatre team do not scrub and gown up for an emergency life saving operation, but later the patient develops an infection.

# Types of Violation

## 3. Reckless Violations

- Deliberate deviations from accepted behaviour.
  - The reason is often questionable and harm is generally a foreseeable consequence.
  - However, harm is never intended.
  - These are not accepted practices & usually involve an active lack of care.
- Everyday example of reckless violations
  - Using a 'hands on' mobile-phone whilst driving at speed
- Healthcare example of reckless violations
  - A health professional administers blood for transfusion without checking.

# Types of Violation

## 4. Malicious Violations

- Deliberate deviations from the protocol and include acts of sabotage.
- The perpetrator intends to cause harm or damage, whilst uncommon, the outcome from these type of violations is often devastating.
- Everyday example of reckless violations
  - Vandals throwing bricks and stones at the new Jaguar XK8 parked in the station car park
- Healthcare example of reckless violations
  - The Beverley Alitt and Harold Shipman cases, where patients were intentionally harmed by the perpetrators.

# Mistakes

## 1. Knowledge based mistake

- a novel situation for which your training and experience have not prepared you

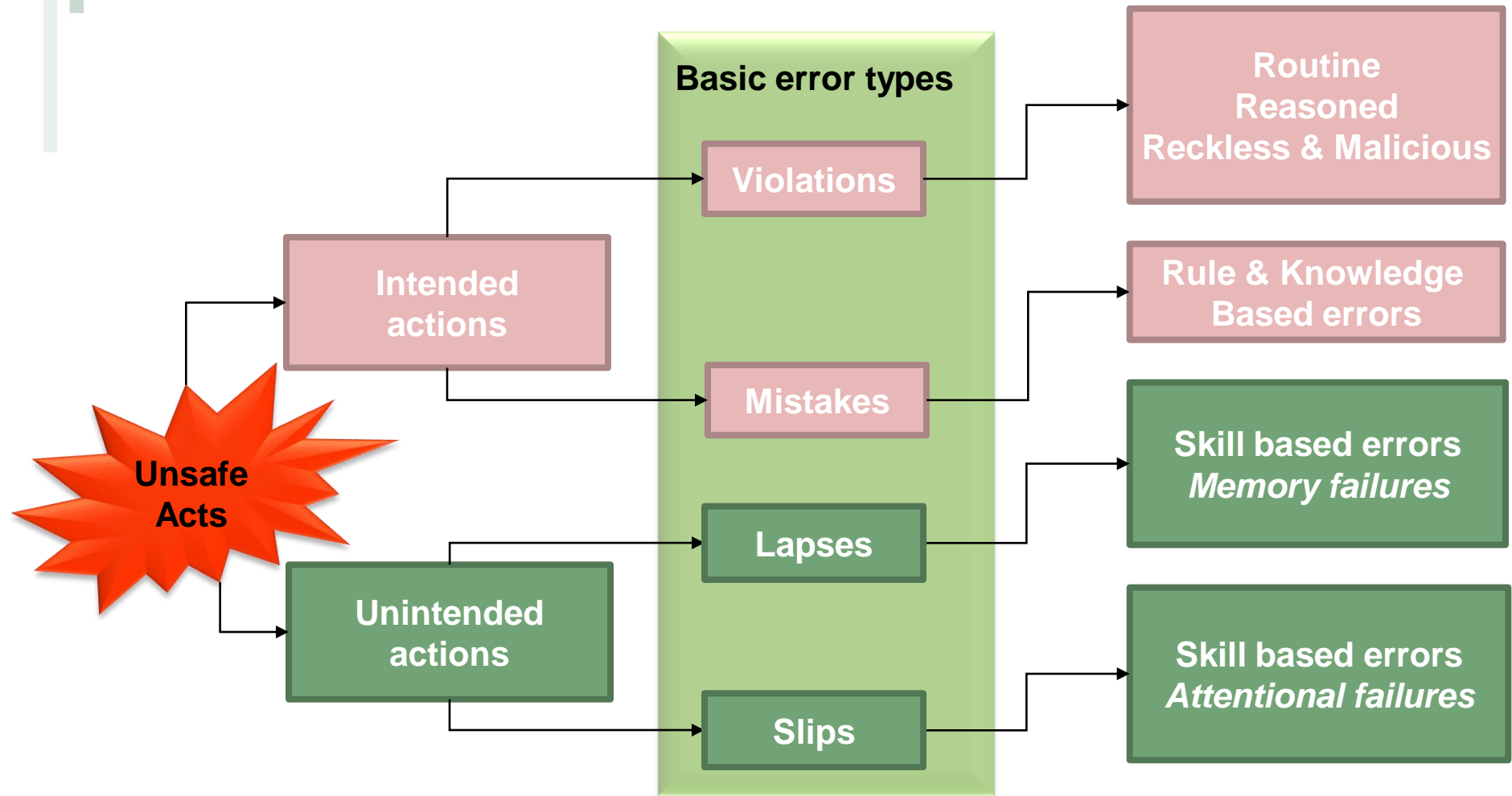
**Example:** layperson delivering a baby in an emergency

## 2. Rule based mistake

- a relatively familiar problem, but you apply the wrong pre-packaged solution

**Example:** washing lambs wool jumper on standard hot wash

# ERROR TYPES – based on the work of James Reason, adapted by NPSA



# Slips and Lapses

## 1. Lapses

- skill based - memory failures

**Example:** turning up for a regular meeting that was actually cancelled that week

## 2. Slips

- skill based – attention failures

**Example:** pouring milk into a herbal tea drink

“The single greatest impediment to error prevention is that we punish people for making mistakes”

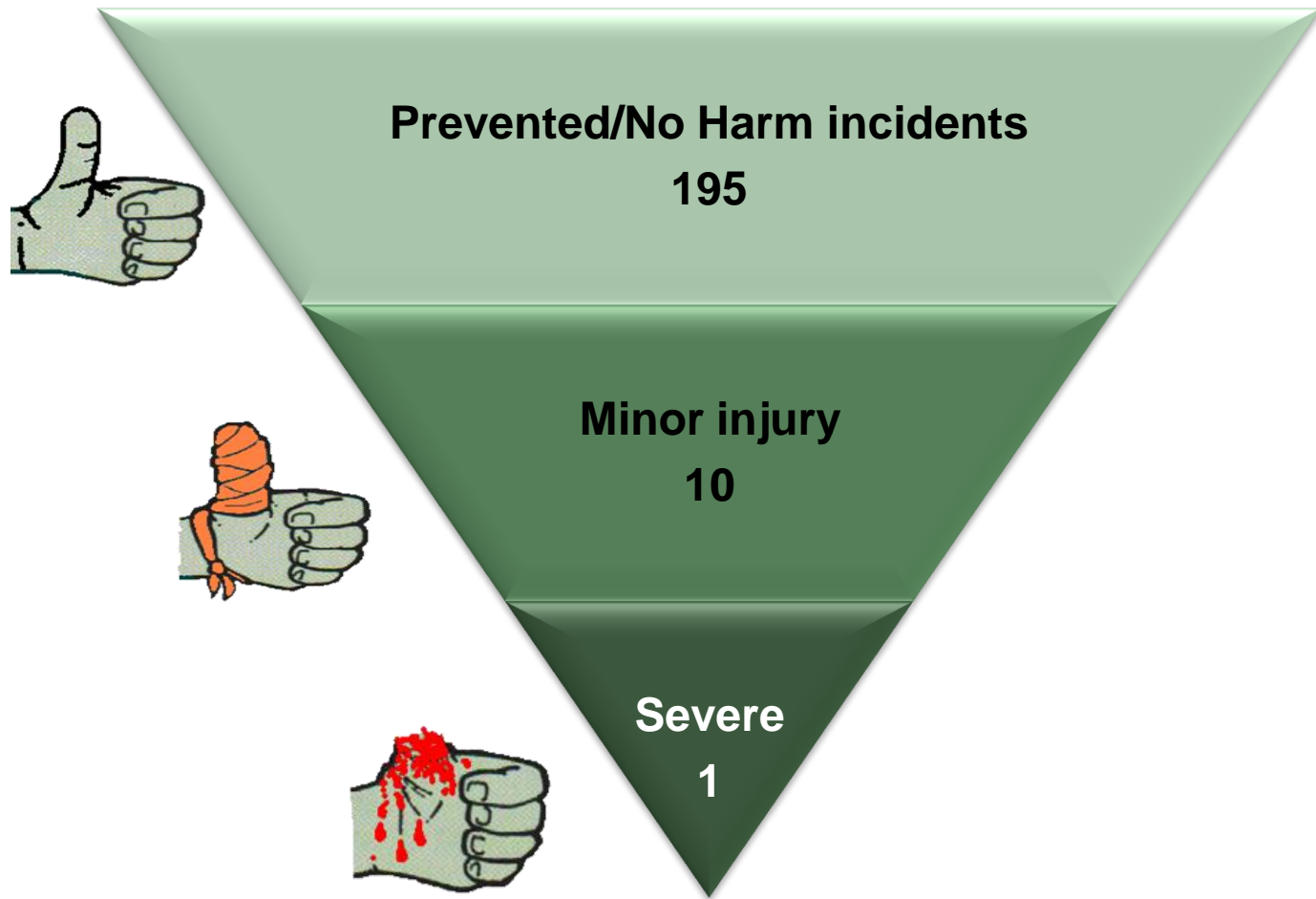
*Dr Lucian Leape, Harvard School of Public Health*

# Getting Started

- Which Patient Safety Incidents require an RCA?
  - PSI causing death or severe harm
  - Frequently occurring PSI
  - Prevented or No Harm PSI (Near Miss)

# Getting started

# Frequently Occurring Near Misses



HSG(96)

# Classifying Incidents

- Use organisational procedure for PSI classification
- Classify according to:
  - the degree of harm or damage caused at the time
  - its realistic future potential for harm if it occurred again

# Selecting the RCA Investigation Team

- Incidents causing death or severe harm
  - Multidisciplinary group of 3-4 persons
  - One of which should be fully trained in incident investigation
  - Objective attitude
  - Good organisational skills (? Administrative support)
  - Use of experts
  - Use of lay person (? Non-Executive Director)

## Scoping of the RCA Investigation

- How far back in the episode of care do you need to consider within your investigation?
- Do you need to involve another healthcare/social care provider within the RCA?
- What information are you going to collect to support the investigation?

A decorative graphic in the top-left corner consisting of several light green lines forming a partial grid or corner shape.

**The Incident ...**

**Just an ordinary day..**

## Discussion: The Case Study

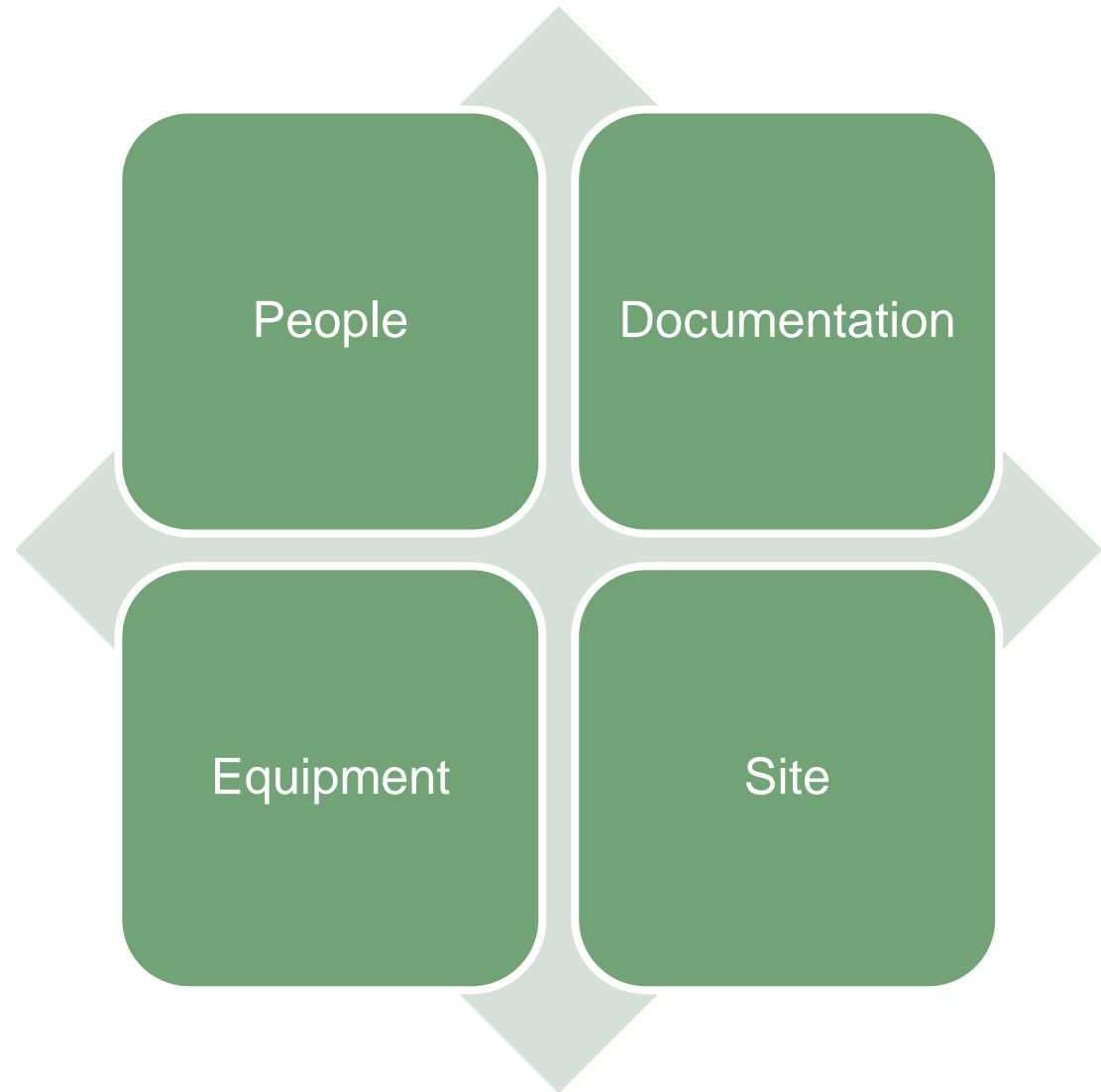
- How would you classify the severity of the case?
- Who would you want / expect to investigate this case from within (or outside) your organisation?
- What is the scope of the incident?

# Gathering and Mapping Information

# Gathering Information

- Information is the lifeblood of investigation
- 60% of your investigation time should be spent on data gathering

What  
Information  
To Collect?



# People

- Personnel directly involved in the incident
  - Clinical staff
  - Support staff
  - Patient / family
  - Others
- Witnesses
  - Porters
  - HCA
  - Receptionists
  - Ward clerks
  - Members of the public, etc

## What and how?

- Interviews (e.g. Cognitive Interview)
- Guided witness statements
- “Brain dumps”
- Reflective practice documents
- Retrospective clinical records

# Documentation

- Incident report (s)
- Guidelines, policy and procedures (in operation at the time of the incident)
- Medical records
- Relevant audit data (clinical, risk management, H&S)
- Staff Rota's
- Training and supervision records
- Medical equipment maintenance records
- etc

# Equipment

Any equipment involved in the incident

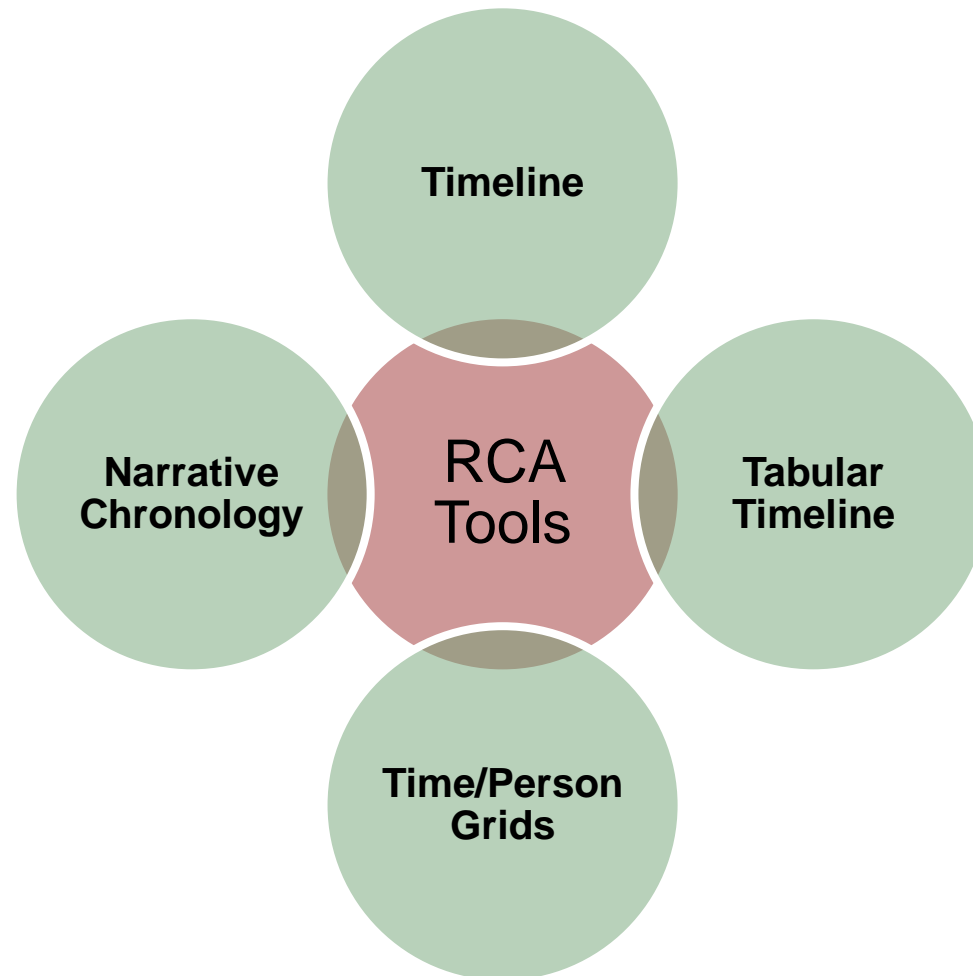
- CTG machine
- Shower curtain and rail
- Anaesthetic machine
- Syringe Driver
- Sphygmomanometer
- ECG machine

## Site

From the place(s) where the event took place:

- Take photographs
- Sketch the layout
- What was the position of the equipment / people?

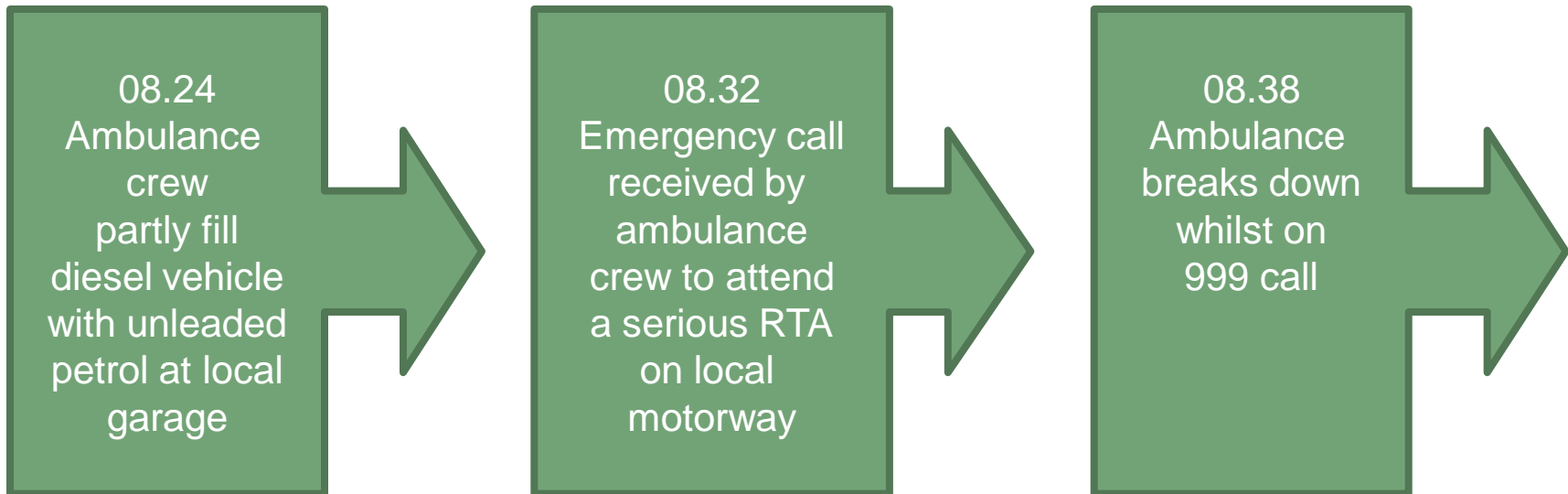
# Mapping the information



# Narrative Chronology

- Community Dentistry – failure of the chair
  - September 2000 Month 11 week 1
    - Four weeks later the suction was found to be permanently on, on the dental chair and the supplier was informed. It seemed that the motor had burnt out.
  - September 2000 Month 11 week 2
    - Seven days later the supplier came to repair the motor. The chair seemed to be working better again and disruption was minimal over the following three weeks.

# Timeline



# Tabular Timeline

Event date & Time	18 March 2002 – 19:15>>	18 March 2002 – 20:00>>
<b>Event</b>	Patient seen on Ward by Consultant Anaesthetist	Patient seen by SHO who applied operation site mark
<b>Supplementary Information &gt;&gt;</b>	Patient declined regional anaesthetic. Pre-assessment info. recorded in log-book. As medical + anaesthetic record frequently got lost, this info. should then have been transferred to anaesthetic record on day of procedure – Unfortunately correct practice did not take place on this occasion.	SHO new in post + first rotation in Orthopaedics, as a result, mark applied to unusual part of the limb rather than thigh or knee. Below knee anti-embolic stockings were then applied by patient, covering the mark. No guidance or training is given to SHOs in marking op sites.
<b>Missing information/ Data Gaps&gt;&gt;</b>	<p><b>NB: Need to stick solely to Mapping at this stage.</b> So for now, just use these rows to ‘park’ burning issues</p>	
<b>Notable practice&gt;&gt;</b>		
<b>Care &amp; Service Delivery Problems</b>	Failure to document planned procedure in Anaesthetic record	Operation site incorrectly marked

# Time-person Grid

Staff	10:05	10:15	10:25
Senior Nurse A	With Patient 1	With Patient 3	Nurses Station
HCA 1	With Patient 2	?	On break
Social Worker	With Patient 1	With Patient 1	Nurses Station
Dr 1	?	?	With Patient 2

# Mapping?

- Identify any gaps in your data collection
- Verify unconfirmed information

## Group Work: Mapping the incident

- Map the case study:
  - Just map the events. TRY TO AVOID MOVING INTO ANALYSIS
  - Use wallpaper lining paper and post its to do a timeline
  - Use the written summary & statements provided
  - Identify any gaps in data collection
  - Identify any unconfirmed information requiring verification

# Identifying problems – after lunch!