


Adverse events Workshop

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Learning outcomes

- ▶ Identify individual, team and environmental factors that influence performance
 - ▶ Apply a “root cause analysis” tool to a critical incident
 - ▶ Explain and question the person approach to human error theory
 - ▶ Recommend areas of improvement to promote patient safety and service quality
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Session structure

- ▶ Lecture:
 - Introduction to human error in healthcare
 - Introduction to the London Protocol
- ▶ Workshop:
 - Application of the London Protocol to real surgical incidents
 - Discussion of pros and cons of incident analysis

Some terminology

- ▶ Adverse event: injury suffered as a result of treatment or hospitalisation
- ▶ Other terms:
 - iatrogenic injury
 - critical incident
 - sentinel event
 - patient safety incident

Types of AEs

Medication errors

- Prescribing/Preparation
- Administration/ Adverse Drug Events

Hospital acquired infection

- Indwelling devices
- Pneumonia/MRSA/C. Diff

Procedural adverse events

- Surgical Site Infection (SSI)
- Wrong site/patient/procedure

Diagnostic errors

- Accuracy
- Timing

Documentation problems

- Missing records
- Inaccuracies

Communication problems

- Poor teamwork
- Lack of information


An old problem

“...the actual mortality in hospitals...is very much higher than the mortality of the same class of diseases treated outside hospitals”

Florence Nightingale (1820–1910)



DEAD
KEVIN MURPHY 1999
 Age: 21 years old
 Place: IRELAND
 Cause: Failure to detect an excessively high blood calcium level.
 Source: Patient's family




DEAD
PAT SHERIDAN 2002
 Age: 45 years old
 Place: USA
 Cause: Failure to communicate diagnosis of spinal cancer leading to delay in treatment. Cal, Pat's son, brain damaged due to untreated neonatal jaundice.
 Source: Partnership for Patient Safety



DEAD
WAYNE JOWETT 2001
 Age: 18 years old
 Place: UNITED KINGDOM
 Cause: A chemotherapy drug (vincristine) incorrectly administered into his spine instead of a vein.
 Source: Patient's family



HARMED
URIEL GONZÁLEZ VÁZQUEZ 1994
 Place: MEXICO
 Cause: Fetal distress and untreated neonatal jaundice causing brain damage.
 Source: Perspectives in Health 2005, the Pan American Health Organization



DEAD 2001
Josie King
 Age: 18 months
 Place: USA
 Cause: Severe dehydration during hospital stay



Incidence: record review studies

Study	Date of admissions	Number of hospital admissions	Adverse event rate (% admissions)
California Insurance Study	1974	20864	4.65
Harvard Medical Practice Study	1984	30195	3.7
Utah-Colorado	1992	14052	2.9
Australian	1992	14179	16.6
United Kingdom	1999	1014	10.8
Denmark	1998	1097	9.0
New Zealand	1998	6579	11.2
France	2002	778	14.5
Canada	2000	3745	7.5

BMJ

No 7237 18 March 2000



2000

Reducing error
Improving safety

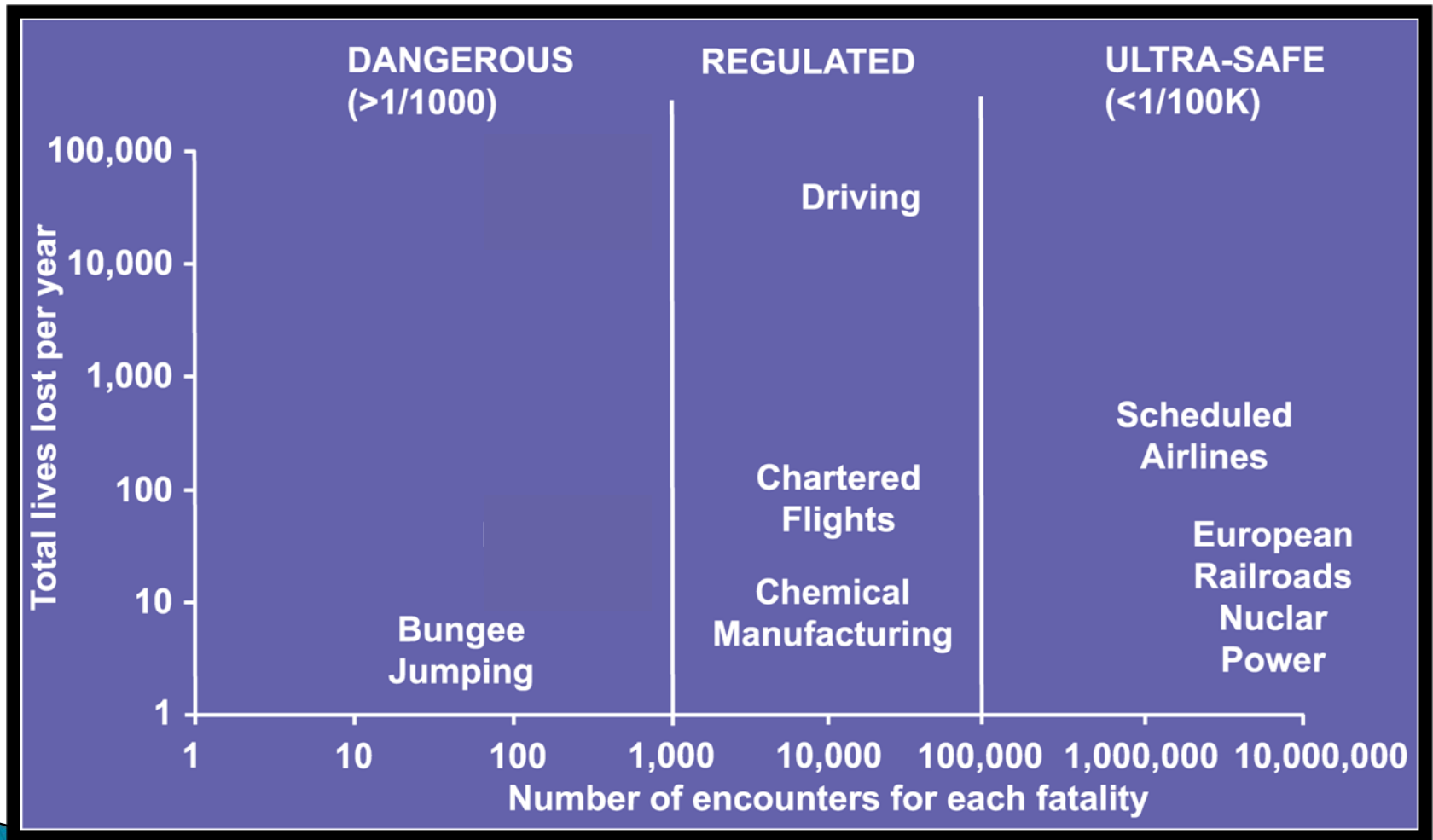
Building a memory: preventing harm,
reducing risks and improving patient safety

**The first report of the National Reporting and
Learning System and the Patient Safety Observatory**

July 2005



How safe is healthcare?



Consequences

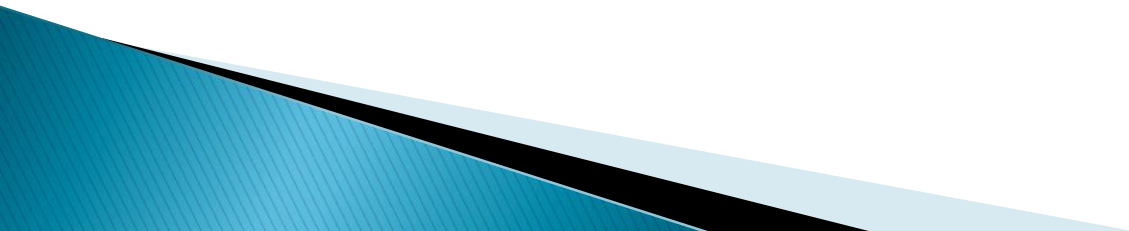
- ▶ “A swelling on my cheek was diagnosed as a malignant tumour and part of my jaw and extensive tissue was removed without my consent. The lab test showed that it was not a tumour, malignant or benign”
- ▶ “I was really shaken. My whole feeling of self worth and ability was basically profoundly shaken”
- ▶ “I was appalled and devastated that I had done this to somebody”

Consequences: the NHS

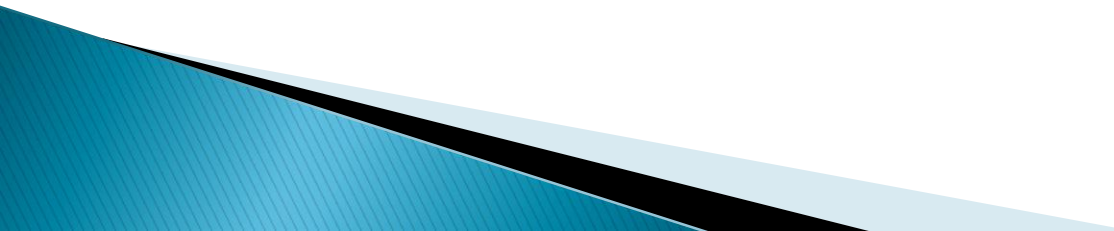
- ▶ *Vincent et al 2001*
 - 119 adverse events
 - 999 extra bed days
 - £290,268 extra costs for the Trusts

- ▶ *An Organisation with a Memory 2001*
 - 10,000 reported serious adverse drug reactions
 - NHS pays £400 million in litigation
 - Hospital acquired infections cost nearly £1 billion and 15% are regarded as preventable

Adverse events and human error

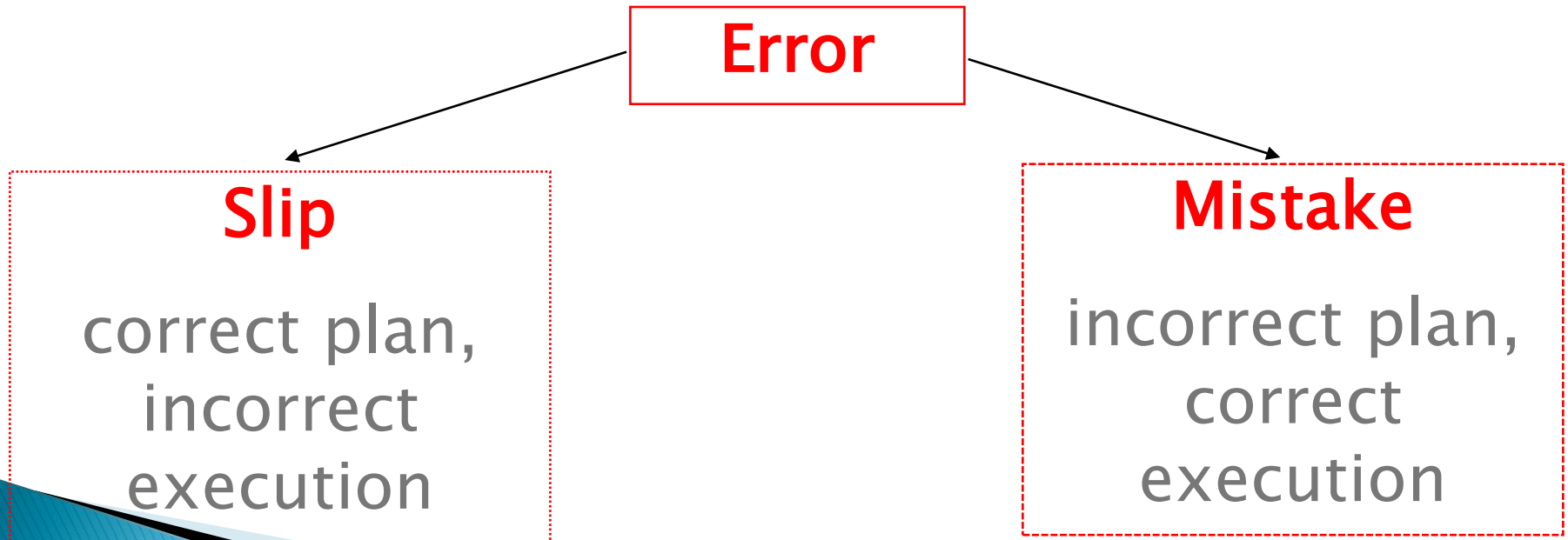


Important point

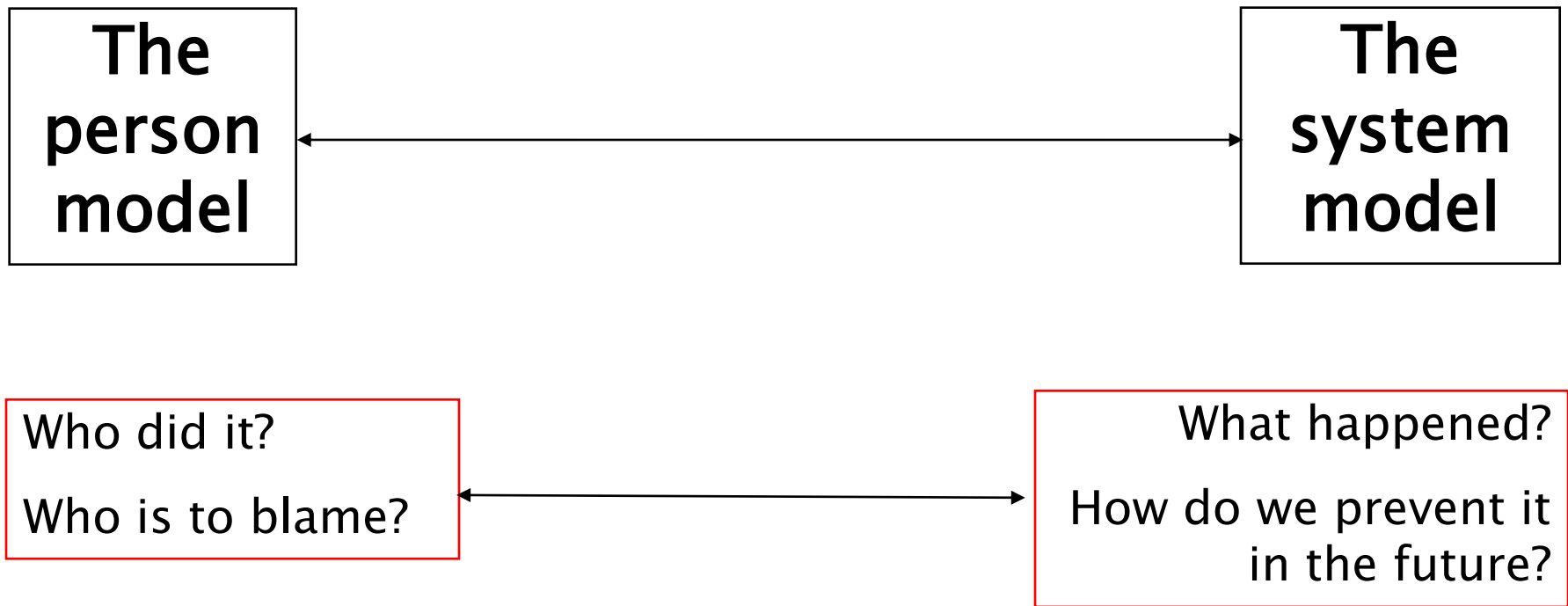
- ▶ Not all adverse events involve human errors
 - ▶ Not all human errors result in adverse events
 - ▶ Important to understand errors as they involve healthcare professionals
- 

Human error Reason 1992

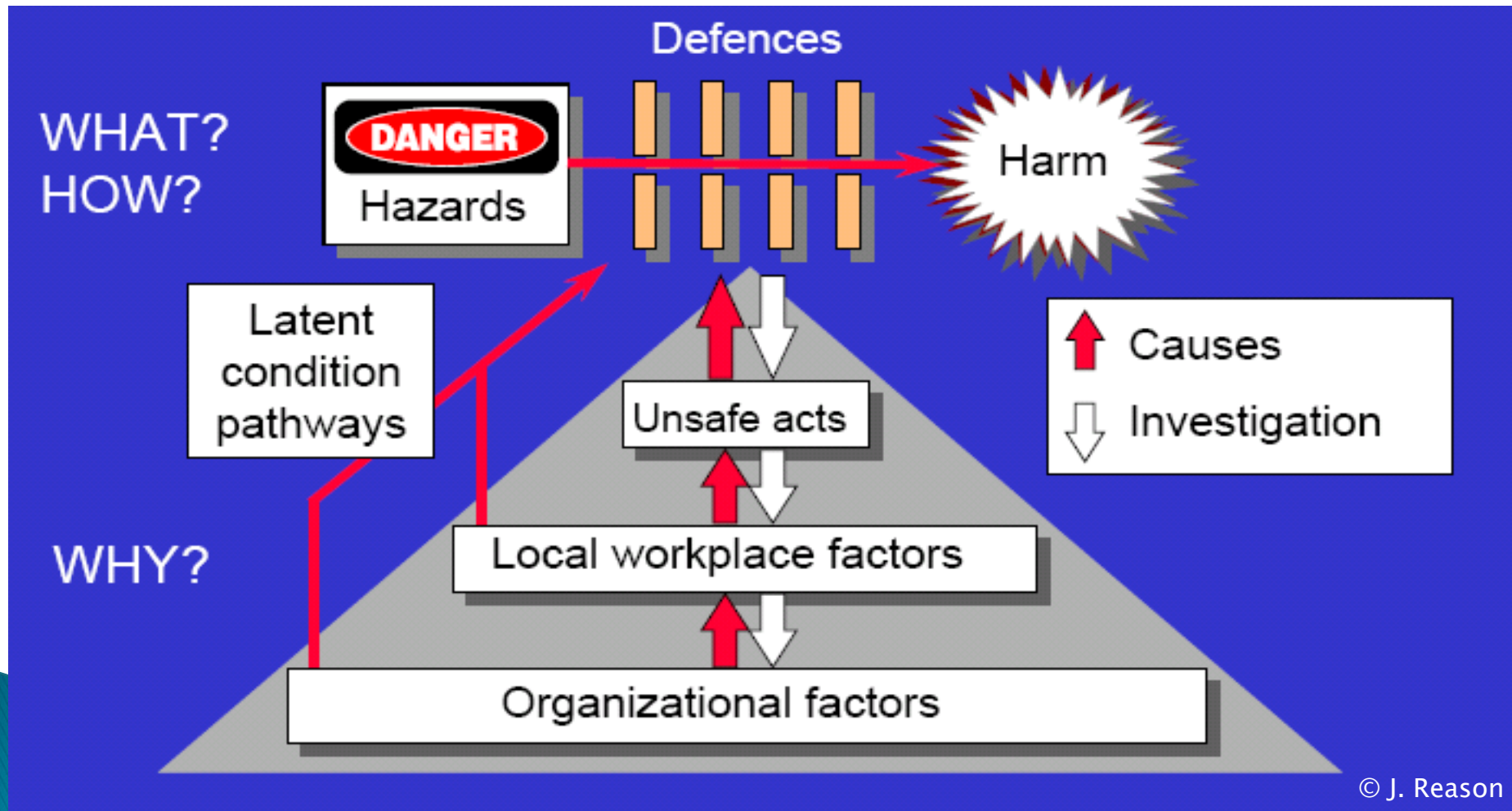
- ▶ Failure of achieving the intended outcome in a planned sequence of mental or physical activities not attributable to chance



The person or the system?



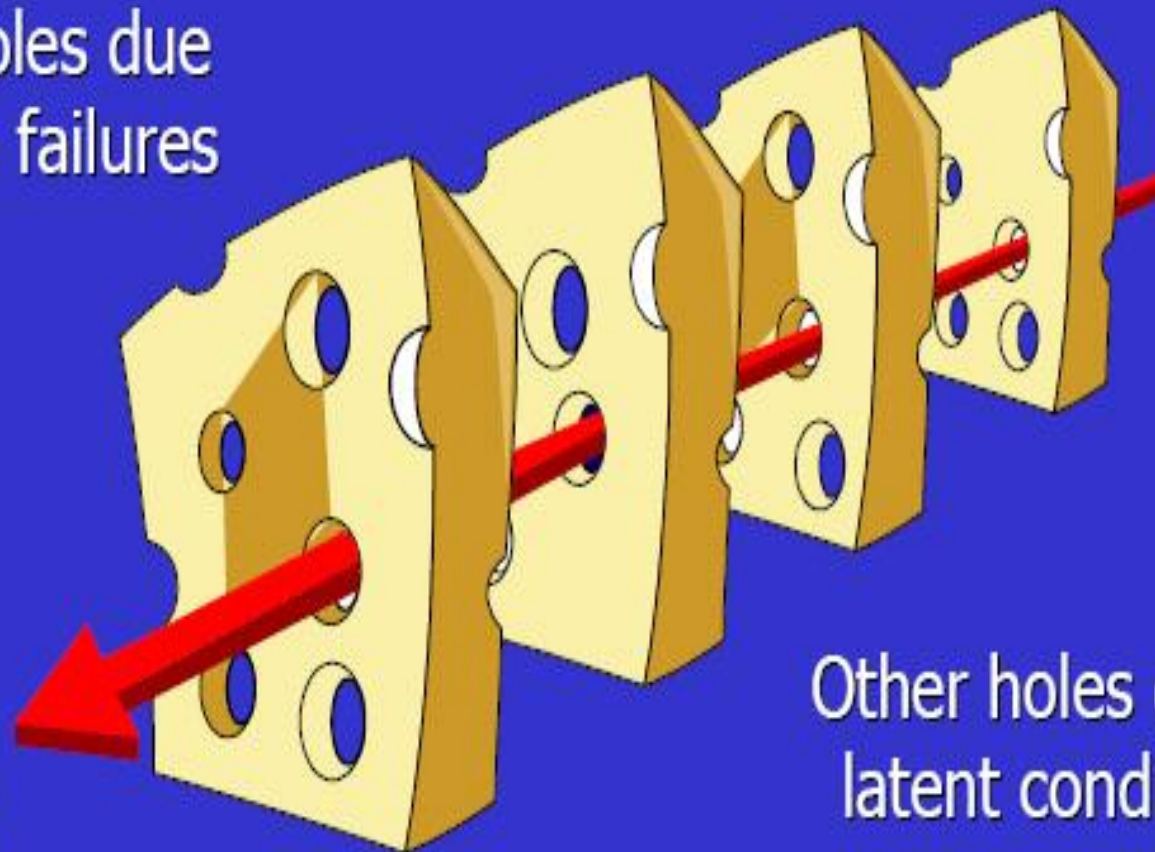
Reason's theory of 'organisational accidents'



Reason's 'Swiss Cheese'

Some holes due
to active failures

Hazards



Other holes due to
latent conditions

Harm

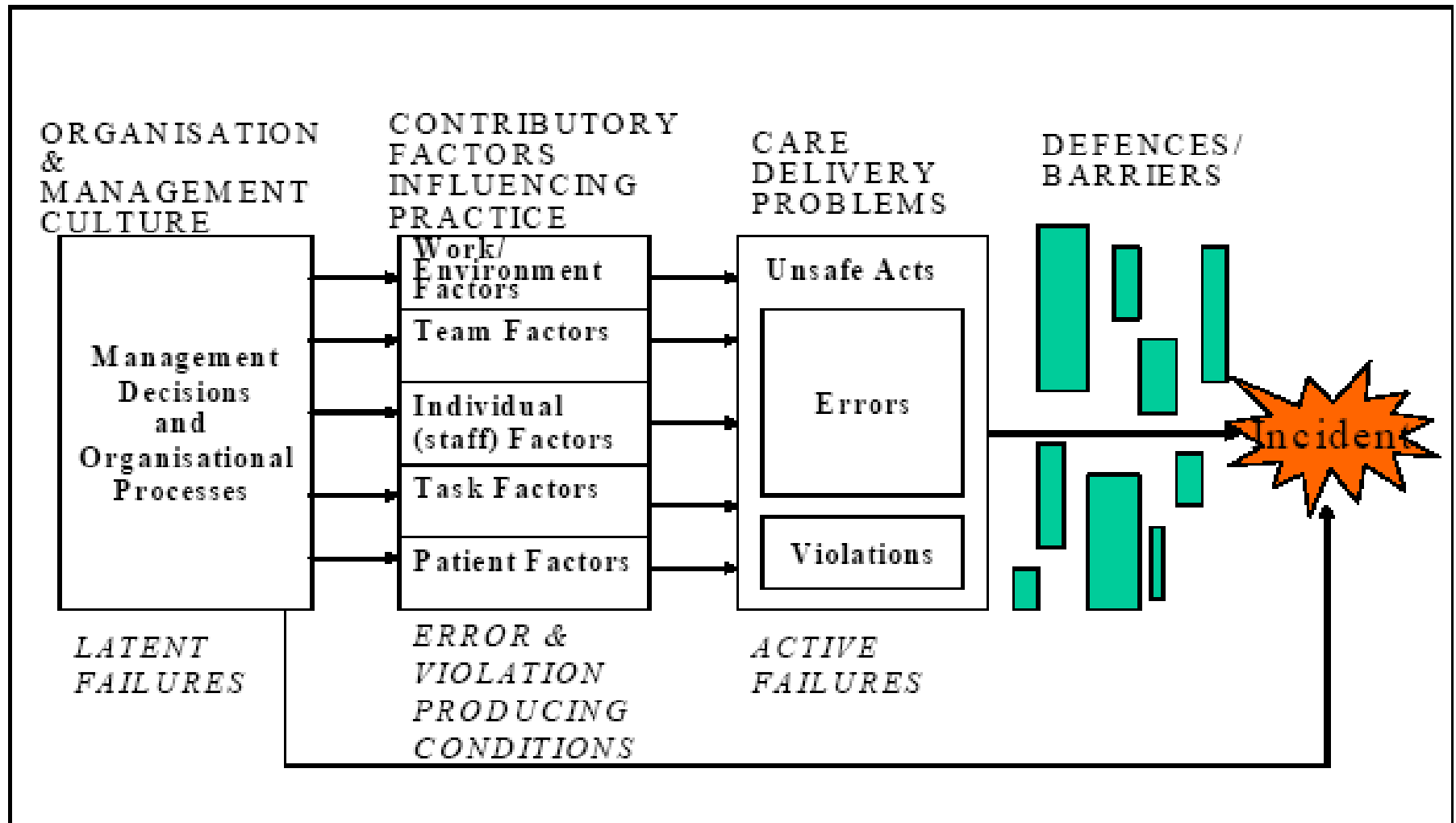
Error analysis

**Should we analyse errors and
AEs?**

**What's the purpose of the
analysis?**



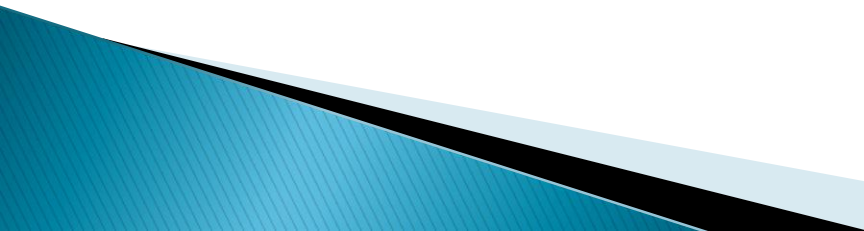
The 'London Protocol' (C Vincent)



Key concepts

- ▶ Care delivery problem (CDP)
- ▶ Contributing factors

Care Delivery Problems

- ▶ CDPs are problems that arise in the process of care
 - ▶ Actions or omissions by staff
 - Failure to monitor, observe or act
 - Incorrect (with hindsight) decision
 - Not seeking help when necessary
 - ▶ Two key features:
 - Care deviated beyond safe limits of practice
 - The deviation contributed to adverse outcome for the patient
 - ▶ Several CDPs may be involved in one incident
- 

Contributing Factors

▶ Patient factors

- Condition (complexity and seriousness)
- Language and communication
- Personality and social factors

▶ Task factors

- Task design and clarity of process
- Availability & use of protocols,
- Availability & use of test results

▶ Individual staff factors

- Knowledge and skills
- Motivation, physical and mental health

▶ Team factors

- Verbal and written communication
- Supervision and seeking help
- Leadership

▶ Work environment

- Staffing levels and skill mix
- Workload and shift patterns
- Design, availability and maintenance of equipment

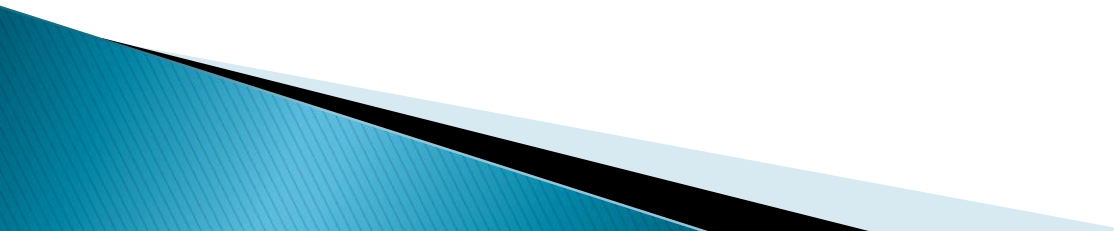
▶ Organisation and management

- Financial resources & constraints
- Organisational structure
- Policy standards & goals
- Safety culture & priorities

▶ Institutional context

- Economic & regulatory context
- Social attitudes to risk
- National Health Service Executive
- Clinical negligence schemes

The analysis aims to establish:

- ▶ What happened?
 - ▶ How did it happen?
 - ▶ Why did it happen?
 - ▶ What can we learn from this and what changes should we make, if any?
- 

Example: identifying AE timeline

Monday 17th March 2001, 9.15am

Patient A absconded from secure unit. Police informed that Patient A was missing

Monday 17th March 2001, 10.25am

Patient A had been found by the Police. He was located at home, covered in blood as he had killed his common-law wife.

Pre-prepare drugs 12.00noon → Prepared medications disrupted 12.45pm → Wrong medication given 1.15pm → Respiratory Arrest 1.30pm → Patient dies 1.45pm

	9.02am	9.04am	9.06am	9.08am
SHO	With patient	At Drs station	At Drs station	With patient
Ward Manager	In office	In office	With patient	With patient
Nurse	With patient	With patient	With patient	With patient

Fishbone diagrams

C:\RCAToolkit\course\index.htm - Microsoft Internet Explorer provided by National Patient Safety Agency

NHS
National Patient Safety Agency

Exploring Incidents - Improving Safety

Analysing Information

Contributory factors - NPSA framework

The key part of the analysis is to identify the [contributory factors](#) lying behind each problem. The NPSA's CFF has categories and components relating to exploring incidents. Click each category to find out more.

The diagram is a fishbone (Ishikawa) diagram. A central horizontal arrow points to the right, ending in a large arrowhead labeled "Problem or issue to be explored". From this central line, nine curved lines branch out to connect to nine rectangular boxes. Five boxes are positioned above the central line, and four are below. The boxes above the line are labeled: "Patient", "Individual", "Task", "Communications", and "Team & Social". The boxes below the line are labeled: "Education & Training", "Equipment & Resources", "Working Conditions", and "Organisational & Strategic".

Communications factors are grouped into three types:

- **Verbal**
- Written
- Non-verbal.

Example: Relatives interpret GP's instructions to patient wrongly due to limited understanding of language.

Click **Next** to continue

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Example: Action plan

Contributory Factors	Actions to Address Factors	Level of Recommendation (Individual <u>T</u> eam, <u>D</u> irectorate, <u>O</u> rganisation)	By Whom	By When	Resource Required	Evidence of Completion	Completion Sign-off

How to use the London Protocol

- ▶ Flexible approach: “*Use in 10mins or 10 days*” (C Vincent)
- ▶ **Brief application** for immediate reflection
Brief interviews or structured discussion in the time available
 - Determine what happened and who involved
 - Impact on patient and staff
 - Most important CDPs
 - Most important contributory factors
 - How those involved think future similar incidents might be prevented
- ▶ **Full investigation** if incident is serious or carried significant learning potential

Key ideas: A 'window' on the system

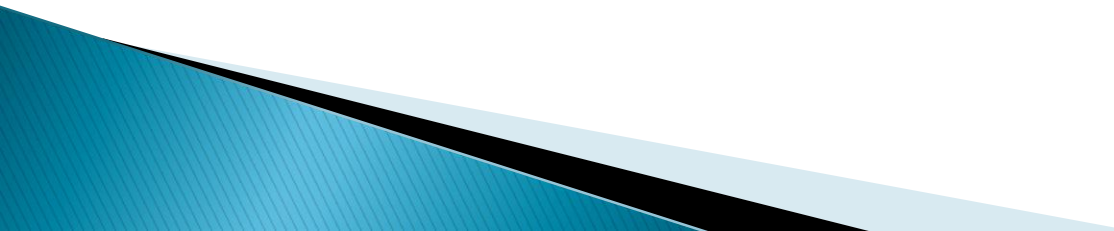
- ▶ Error analysis allows understanding of a complex system
 - Complexity of events
 - Complexity of contributory factors
 - It's not just about "whose fault it is"
- ▶ The analysis identifies weaknesses in the system
 - Looking to the future
 - Prioritising contributory factors to address
 - Generating plans for action

Questions?

Workshop aims

- ▶ To give you hands on experience of analysing incidents using a validated tool
 - London Protocol

Workshop structure

- ▶ You split into 4 groups
 - ▶ Each group receives one incident to analyse
 - ▶ You analyse the incident using the London Protocol 20–30mins
 - ▶ Each group feeds back to the entire group 30–40mins
 - ▶ We discuss the process (if time allows) 15–20mins
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coress

A confidential reporting system for surgery

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What is Coress?

The purpose of CORESS is to promote safety in surgical practice, both within the NHS and in the independent sector. CORESS is a new, educational service entirely owned and operated by the professional bodies of UK and Irish surgery. It is sponsored by the Association of Surgeons of Great Britain and Ireland and aims to serve all surgical disciplines by:



- Analysing safety-related reports which would not otherwise be available.
- At all times keeping the identity of the reporter confidential.
- Publishing 'Lessons learned' feedback commentary in the surgical literature.

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Feedback

This issue of Feedback contains cases which, once again, highlight the need for appropriate pre-operative checks. The problem of lack of familiarity with new equipment is a perennial cause for concern. Always ensure that you know how the equipment you intend to use works, that the necessary components are present and functional and that you've practised using the new equipment BEFORE encountering your patient.

We are grateful to the clinicians who have provided the material for these reports. The on-line reporting form is on our website www.coress.org.uk which also includes all previous Feedback Reports. Published contributions will be acknowledged by a "Certificate of Contribution" which may be included in the contributor's record of continuing professional development.

FLAMING (N)ECK

(Ref: 96)

An elderly patient was admitted for day case surgery to excise a lipoma from the back of her neck under local anaesthesia. The patient was placed prone, the operation site was cleaned with an alcohol-based skin preparation and draped. The patient was given mild sedation and oxygen through nasal cannulae. It appears that the disinfectant solution had collected in the patient's hair because, when diathermy was applied to cauterise a small wound edge bleeding point, the patient's head was suddenly engulfed in flames. The fire was rapidly extinguished but left small burns to one ear and loss of a large portion of hair.

Reporter's Comments:

Several factors contributed to this incident. A flammable skin preparation was used and the presence of residual alcohol after cleaning went unrecognised. Accumulation of oxygen from the nasal cannulae beneath the drapes may have acted as an accelerant. The diathermy spark acted as an ignition source. Always be vigilant to the risk of surgical fires, particularly when operating on head or neck or in areas where a skin preparation solution may pool.

CORESS Comments:

All alcohol preparations are flammable. Even lower concentrations of alcohol containing solution (eg.

povidone-iodine containing 30% alcohol) carry a moderate flammability risk with a documented flash point of 34°C [1].


There should be no hazard if alcoholic preparations are used correctly:

- The amount used should be adequate to keep the site wet for the recommended time.
- Sufficient time must be allowed for alcohol-based skin preparations to dry thoroughly before commencing the procedure, to ensure that all combustible ingredients have evaporated.
- The preparation should be allowed to evaporate completely before electrocautery, diathermy or laser instruments are switched on.
- Pooling of excess liquid below the patient, or in cavities or bodily contours, should not be allowed to occur.

Reference

- [1] *Recommendations for Surgical Skin Antisepsis in Operating Theatres*. Centre for Healthcare Related Infection Surveillance & Prevention (CHRISP), Queensland Health, August 2009
http://www.health.qld.gov.au/chrisp/resources/rec_prac_skinprep.pdf

Your aims

- ▶ Understand what happened and its impact
 - ▶ Work out the key CDPs
 - ▶ Identify contributing factors
 - ▶ Identify what action you would take to prevent similar incidents
 - ▶ One person per group feeds back to class
- 

Contributing Factors

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Questions?

Discussion

- ▶ What problems do you see in analysing incidents in this manner?
 - ▶ What are the key benefits?
 - ▶ What do you think is required for such processes not to become 'tick-box' exercises?
- 