

Partnering for Patient Safety: Accelerating the safety agenda by learning together. Westin Hotel, Ottawa
October 11, 2007

Patient Safety; The 'Blame and Train Syndrome'

James Reason
Professor Emeritus
University of Manchester, UK

*Quality & Safety in Health Care
2006;15:229-230*

'... junior doctors say they rarely see their seniors report or act on errors—their own or those of others.'

M Walton
Professor of Medicine
University of Sydney

Health care and aviation

- Health care: a belief in trainable perfectibility—after a very long and expensive education, you expect to get it right.
- Aviation was predicated on fallibility from the outset. Was it Orville or Wilbur who devised the first checklist?

*Errors dominate the risks:
Two models of error*

- Person model
- System model

Each has its own 'theory' of error. Each directs a particular type of remedy.

The person model

- Sees errors as the product of wayward mental processes: forgetfulness, inattention, distraction, carelessness, etc.
- Remedial measures directed primarily at the 'sharp end' error-maker: naming, blaming, shaming, retraining, fear appeals, writing another procedure, etc.
- (Human-as-hazard rather than human-as-hero.)

*Vulnerable System Syndrome
A self-perpetuating cycle*

```
graph TD; Blame --> Denial; Denial --> Excellence[Pursuit of 'excellence']; Excellence --> Blame;
```

Applying the 'logic' of VSS

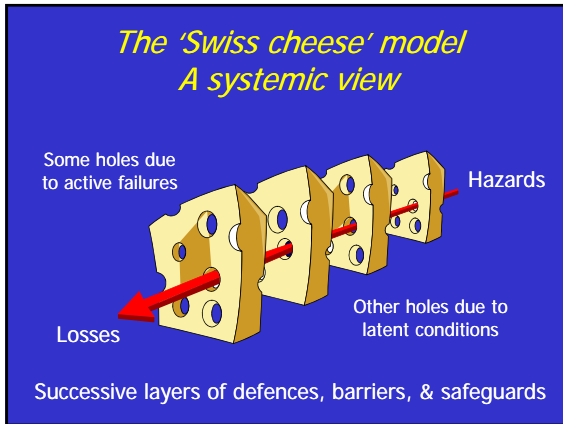
- **Blame:** There may be a few bad apples, but the barrel is OK
- **Denial:** If the barrel's OK, then anyone who says differently is either stupid or malicious.
- **Pursuit of 'excellence':** Now we've sanctioned the bad apples and gagged the whistleblowers, we can focus on meeting our targets

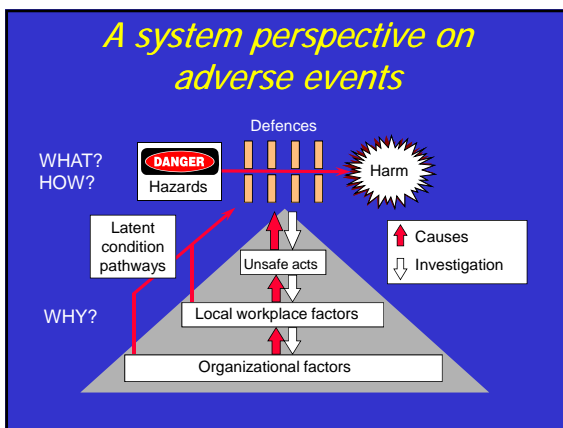
Penalties of blaming individuals

- Failure to discover latent conditions
- Failure to identify error traps
- Management having its eye on the wrong ball
- A blame culture and a reporting culture cannot co-exist

The system model

- Health carers are human. They will make errors. This is not a moral issue.
- Adverse events are the product of latent conditions (pathogens) within the system.
- 'Sharp-enders' are more likely to be the inheritors than the instigators.
- Remedial efforts directed at improving defences and removing error traps.





- ### Strong endorsement of system model from . . .
- U.S. National Academy IOM reports
 - *To Err is Human* (2000)
 - *Crossing the Quality Chasm* (2001)
 - *Keeping Patients Safe* (2004)
 - U.K. Dept of Health reports
 - *An Organisation with a Memory* (2000)
 - *Building a Safer NHS for Patients* (2001)
 - *And comparable reports from Australia, New Zealand and Canada*

Human performance: Two aspects

Human as hazard	Human as hero
<ul style="list-style-type: none">• Slips• Lapses• Mistakes• Violations	<ul style="list-style-type: none">• Adjustments• Compensations• Recoveries• Improvisations

'Reliability is a dynamic non-event'
(Karl Weick)

Human as hero: The Gimli glider

- On July 23 1983, an Air Canada 767, flying from Montreal to Edmonton, ran out of fuel due a variety of errors and system failures.
- When the engines stopped, the aircraft was 65 miles from Winnipeg and 45 miles from Gimli—to where it glided and landed safely.

The landing

'Fortunately for all concerned, one of Capt. Pearson's skills is gliding . . . Without power, the aircraft had no flaps or slats to control rate and speed of descent. There was only one chance at landing (on a 7,200 ft disused military runway).

As they approached Gimli, Capt. Pearson and F/O Quintal discussed the possibility of executing a side-slip . . . This the Capt. did on the final approach and touched down within 800 ft of the threshold.'

JUST 2 PARAGRAPHS IN A 104-PAGE REPORT

Human factors in the neonatal arterial switch operation (ASO)

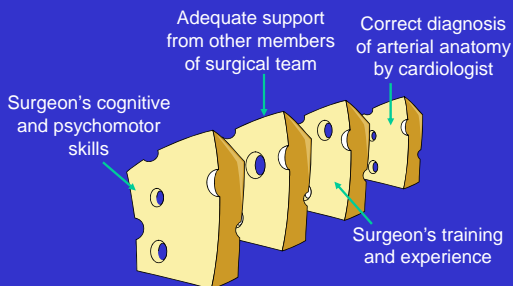
- The research team
 - Dr Jane Carthey
 - Professor Marc de Leval
 - Dr David Wright
 - Professor Vernon Farewell
 - Professor James Reason
 - And 16 UK paediatric cardiac centres

RESEARCH SUPPORTED BY THE BRITISH HEART FOUNDATION
See *Safety Science* 41 (2003) 409-425

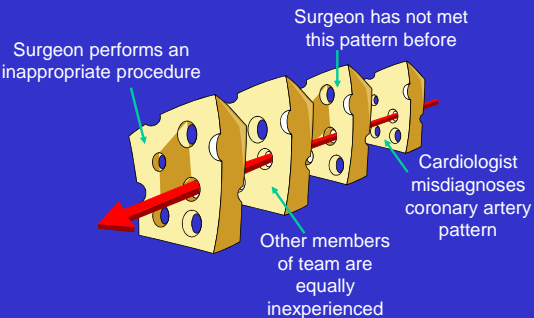
Event rates in surgery *Events largely due to errors*

- Based on direct observation of 166 arterial switch operations: 21 surgical teams, 16 UK centres.
- Average rate: 7 events per procedure
 - 1 major event (life-threatening)
 - 6 minor events (disrupts flow, irritates)
- Over half of the major events were successfully compensated.

Surgical defences



A typical major event scenario



Surgeon performs an inappropriate procedure

Surgeon has not met this pattern before

Other members of team are equally inexperienced

Cardiologist misdiagnoses coronary artery pattern

But that is not the end of the story



COPING RESOURCES

The surgeon and the team can still recover the situation

But limited coping resources can get nibbled away

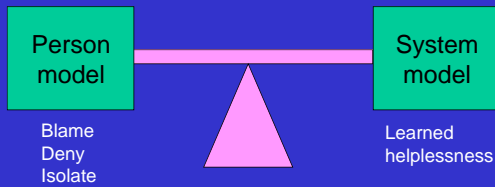


Accumulation of minor events. Not so much holes as steady attrition

Summarising findings

- The frequency of events during a procedure has a profound effect upon outcome.
- Compensating major events eliminates any increased risk of death.
- Good compensators have good outcomes
- Compensation for minor events is far less important than their total number.
- Minor events erode the coping abilities of surgical teams.

Getting the balance right



Both extremes have their pitfalls.

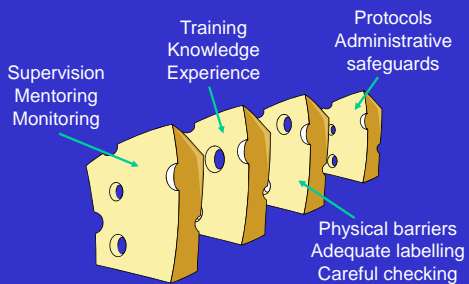
Health care: Distinctive features

- Diverse activities and equipment
- 'Hands on' work—high error opportunity, small margins of safety
- Uncertainty and incomplete knowledge
- Patients are vulnerable and needy
- Local event investigation
- One-to-one or few-to-one delivery

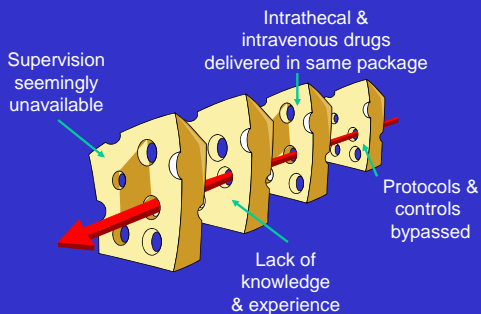
The Wayne Jowett tragedy *OMC, Nottingham, 4 January 2001*

- Wayne died from an intrathecal injection of the (intravenous) drug, vincristine.
- There had been more than a dozen instances of this event in the UK.
- The hospital was well aware of this error trap and had established a variety of safeguards to prevent its recurrence.
- (Analysed in depth by Prof. Brian Toft, an expert on accident causation).

Safeguards against the wrong administration of vincristine



How the defences failed



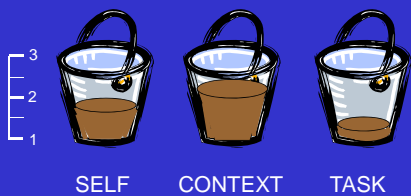
The lethal convergence of benevolence

- Difficult to persuade boys like Wayne to come twice for their 'chemo' as per protocol.
- Staff on ward negotiated a deal with the pharmacy: same day administration.
- SHO asked SpR to supervise intrathecal injections. He needed practice.
- SpR (new to job) agreed, even though he had a 'watching brief'. Wanted to be helpful.

On the front line . . .

- Professionals at the sharp end (nurses, junior doctors) have little opportunity to improve the system overall.
- We need to make them more risk-aware and 'error-wise' – mental skills that will:
 - Allow them to recognise situations with high error/risk potential.
 - Improve their ability to detect and recover errors that are made.

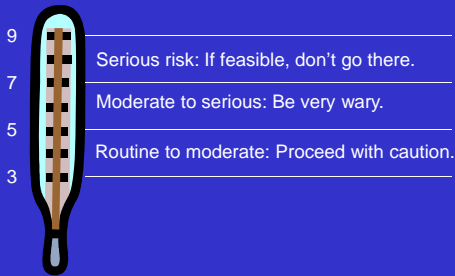
The 3-bucket model for assessing risky situations



How the model works

- In any given situation, the probability of unsafe act(s) being committed is a function of the amount of brown stuff in all three buckets.
- Full buckets don't guarantee an unsafe act, nor do empty ones ensure safety. We are talking probabilities not certainties.
- But with foreknowledge we can gauge these levels for any situation and act accordingly.

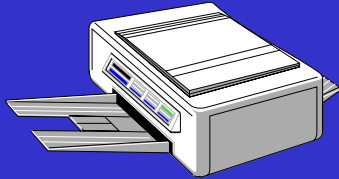
How the buckets might be 'read' by junior staff working alone



Task factors

- While people have a good idea of bad stuff with regard to themselves and the context, they are less likely to know that task steps vary widely in their potential to elicit error.
- It is this understanding (a mental skill) that will allow sharpenders to assess the error potential of any situation.

*A familiar error trap:
What is the most likely omission?*



Forgetting last
page of original

*Why? Four omission-provoking
factors combine*

- Premature exit: steps near end of task are more prone to omission.
- Lack of cueing: removing previous sheets cued by need to place next one.
- Goal (making a copy) achieved before task is completed.
- Out-of-sight-out-of-mind. Last sheet covered by lid.

The moral . . .



Errors can be predicted & managed

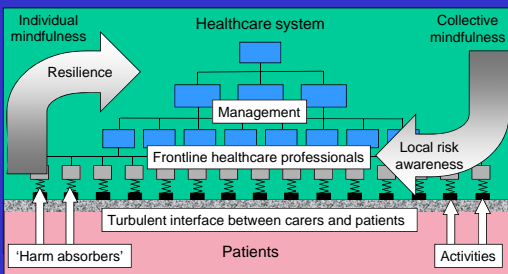
Factors promoting absent-minded errors

- Performance of some routine (habitual) task in familiar circumstances.
- Some change, either in the plan or the local situation.
- Attentional capture: preoccupation and/or distraction.

False assumptions

- Successive 'bum steers'—contextual cues leading to error
 - *What tree grows from an acorn? (oak)*
 - *What do we call a funny story? (joke)*
 - *What sound does a frog make? (croak)*
 - *What's another word for a cape? (cloak)*
 - *What do you call the white of an egg?*
- Expectation and confirmation bias
- Professional courtesy, etc., etc.

Balancing Person & System



Learning to live with error

- Recognise that fallibility is the norm
- Errors can't be eliminated, but they can be managed.
- Errors are consequences as well as causes.
- Errors are opportunities for learning.
- Naming, blaming and shaming have no remedial value.
- Design healthcare systems for real human beings—warts and all.
