

# Janus: looking both ways

Presided over the beginning and ending of conflict, and hence war and peace



- Roman God of doorways
- Open in times of war
- Closed in times of peace
- Looking backwards
- Looking forwards

SERIOUS HAZARDS OF TRANSFUSION

**SHOT**

# Why do we make mistakes? Human factors in transfusion practice

**BBTS Conference, Thur 22 Sept 2016**

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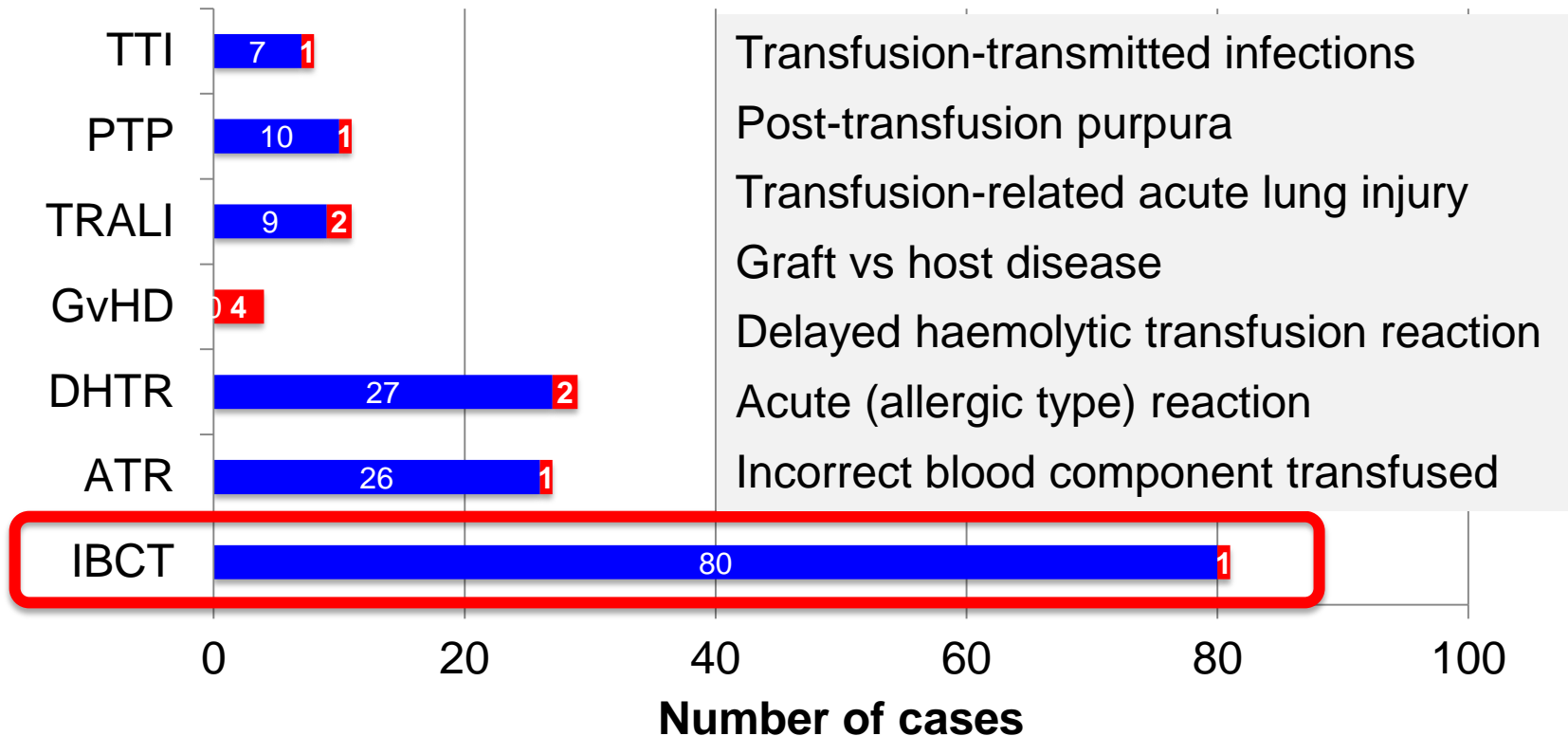
# Aim of presentation

To discuss:

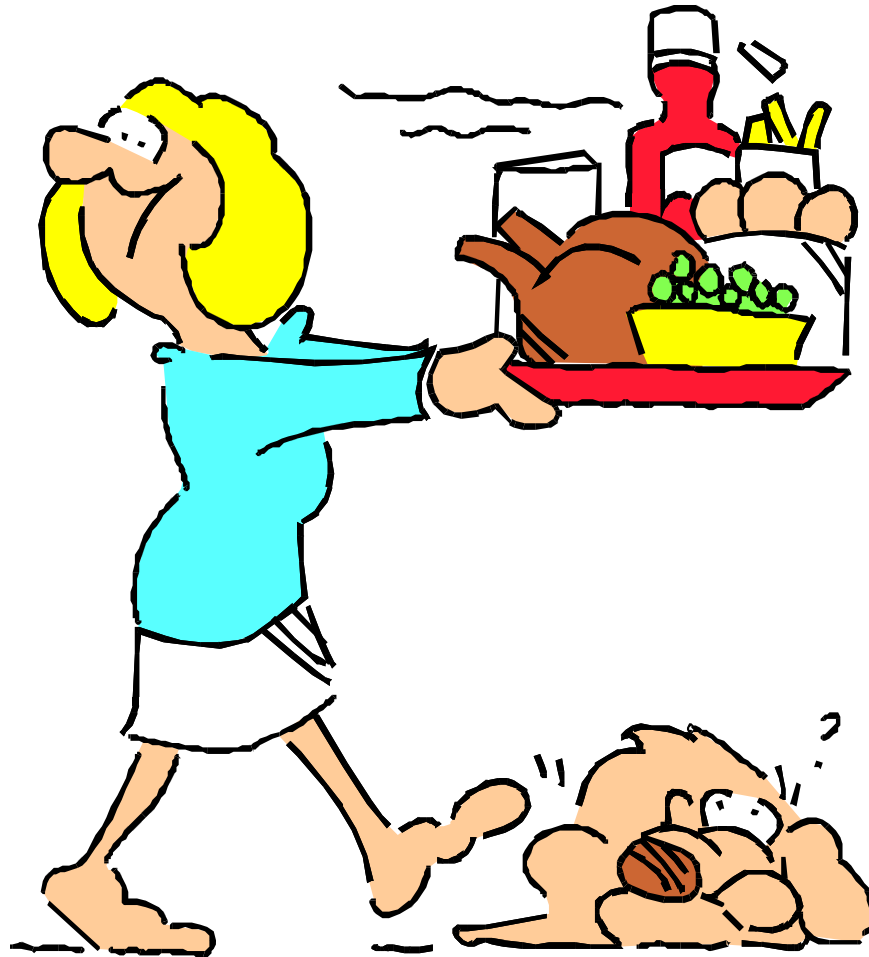
- how we are all error prone
- that awareness of human factors may help reduce error

# Data from 1st SHOT Report (1997)

■ Survived ■ Deaths



The greatest risk from transfusion is that somebody will make a mistake





# Not just in transfusion practice:

1GM

Wednesday December 24 2014 | THE TIMES

## Thousands of patients killed by drug and equipment errors

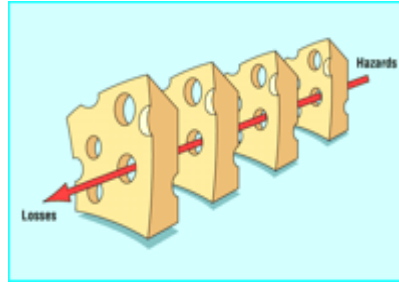
### Safe as Planes

The NHS has a lot to learn from airlines about avoiding unnecessary risk

‘Official figures show that at least 8000 patients a year are killed or severely harmed needlessly by drug errors’ - a report by Jane Reid

‘We should design errors out of the system by making them much harder or impossible to commit’ - Leading article

# Lethal intrathecal vincristine 2001



Drugs sent together

- 18 yr old in CR from ALL died 4 weeks after the event
- 14 separate factors
- Swiss cheese model
- Communication and hierarchy
- Assumptions and 'newcomer syndrome'
- Physician *and* pharmacy error in 69% of 55 cases 1968-2006

# An unexpected death

- 29 March 2005, Elaine Bromiley, a 37-year-old mother of two had routine minor surgery
- Anaesthetist's perception of elapsed-time failed while trying to intubate
- Nurse tried to intervene, but failed, partly due to issues of theatre hierarchy
- This contributed to the introduction of the WHO Surgical Safety Checklist, 2009  
(28 years after air industry's Crew Resource Management in 1981)





# Quotation from Independent Report into death of Elaine Bromiley

**“So that others may learn,  
and even more may live.”**

Martin Bromiley, husband of Elaine, airline pilot and  
founder of Clinical Human Factors Group (CHFG)

# Human factors

## Why do we make mistakes?

FAILURE OF BEDSIDE CHECK, WRONG BLOOD IN TUBE STAFF SHORTAGES  
INADEQUATE STAFFING LEVELS MISTAKES SHIFT CHANGE INEXPERIENCE ERRORS  
MISUNDERSTANDING FAILURE TO RETURN BLOOD BAG TAGS FATIGUED RESILIENCE  
RUSHED WORKING UNDER PRESSURE ERRORS STRESSFUL SITUATION  
SHIFT CHANGE BUSY INEXPERIENCE MULTIPLE HANDOVERS  
MULTIPLE HANDOVERS COMMUNICATION FAILURE LONE WORKING, NO BREAK FOR OVER 5 HOURS ERRORS  
FAILURE TO ACTIVATE MHP DISTRACTION WORKING OVER A BREAK TIME  
COMMUNICATION FAILURE CONFUSION INADEQUATE TRAINING PRESSURED  
FAILURE OF BEDSIDE CHECK NURSE MISTOOK PLATELETS FOR FFP DEMANDING PATIENT  
URGENCY NOT COMMUNICATED MULTI-TASKING LONE WORKING IN A LATE SHIFT SHIFT CHANGE  
DISTRACTION LACK OF STAFF TO ANSWER THE TELEPHONE OTHER EMERGENCIES PRESSURE COMMUNICATION FAILURE  
MULTITASKING MISCOMMUNICATION POOR PRACTICE BEDSIDE CHECK COMPROMISED SHIFT CHANGE  
UNABLE TO ACCESS EMERGENCY UNITS INCREASING WORKLOADS LOCUM STAFF TRAINING  
FAILURE TO TAKE PATIENT ID TO REFRIGERATOR DISTRACTED BUSY INTERRUPTED  
STAFF COMPETENCIES HIGH WORKLOAD AND INAPPROPRIATE STAFFING VALIDATION  
INCREASING WORKLOADS IGNORED AND OVERRODE WARNINGS

# To err is human (Pope)

- ‘Human Factors is using what we know about people to design safe, effective and efficient systems.’ Beverley Norris, Human Factors Lead, NPSA
- ‘Every system, process, machine, tool or act that a human devises, uses or does is prone to error and failure. The study of and the learning from this simple truth is the basis of Human Factors.’ Chris Seal, Airline and Military Pilot and Human Factors Consultant



# Human factors

- The science of optimising human performance through better understanding of human behaviour and interactions
- Clinical Human Factors Group ([www.chfg.org](http://www.chfg.org))
- The Human Factors Concordat - National Quality Board, NHS England
- 'Sign up to safety' – NHS campaign

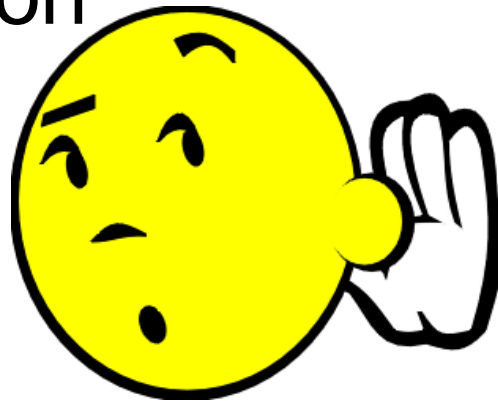




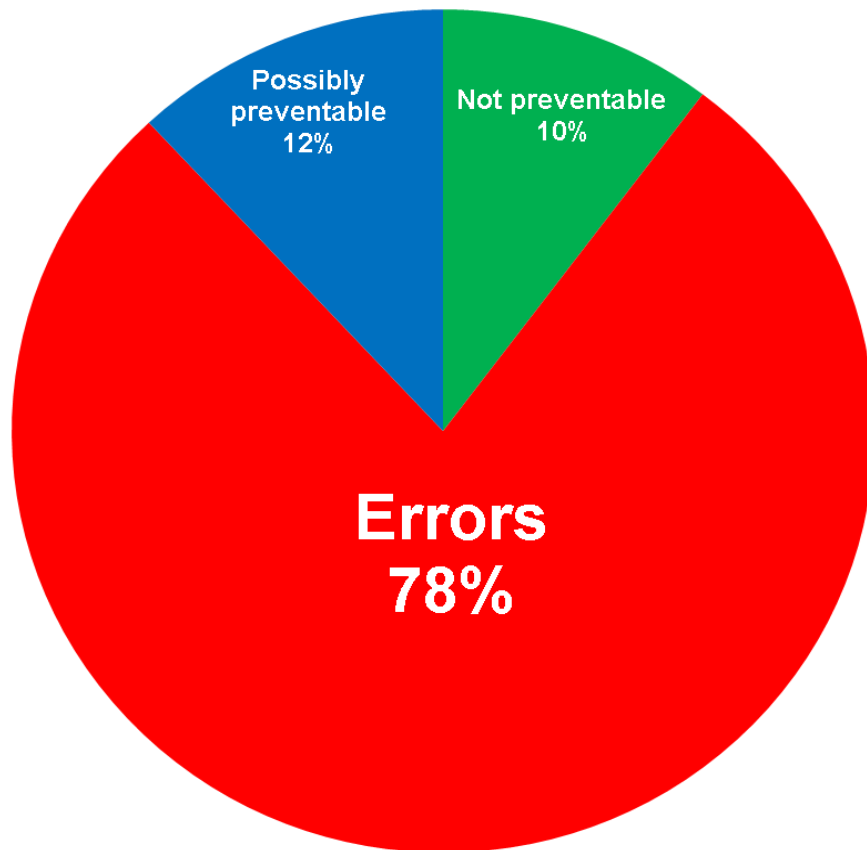
# Transfusion safety – 3 critical factors in patient safety

- Identification
- Documentation
- Communication

But these apply in all areas of medical practice



# SHOT reports 2015 n=3288

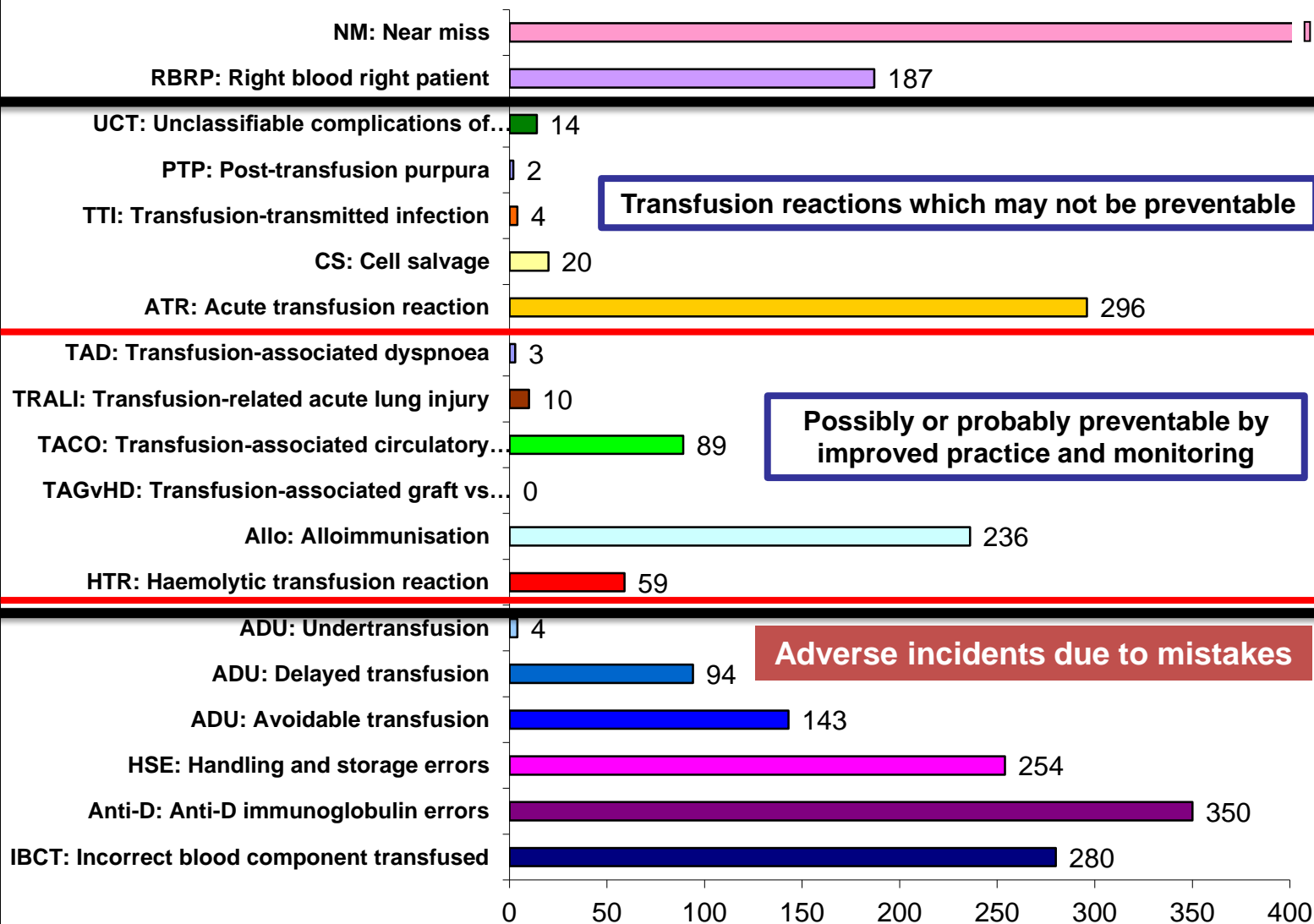


**SABRE reports:**  
**740/765**  
**96.7% errors**



# SHOT Reports 2015 n=3288

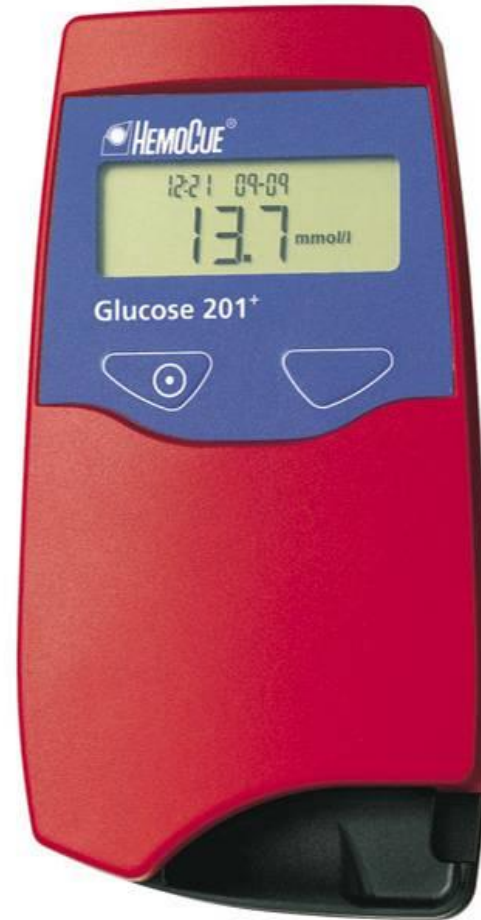
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# Being set up to fail...

## ...an accident waiting to happen

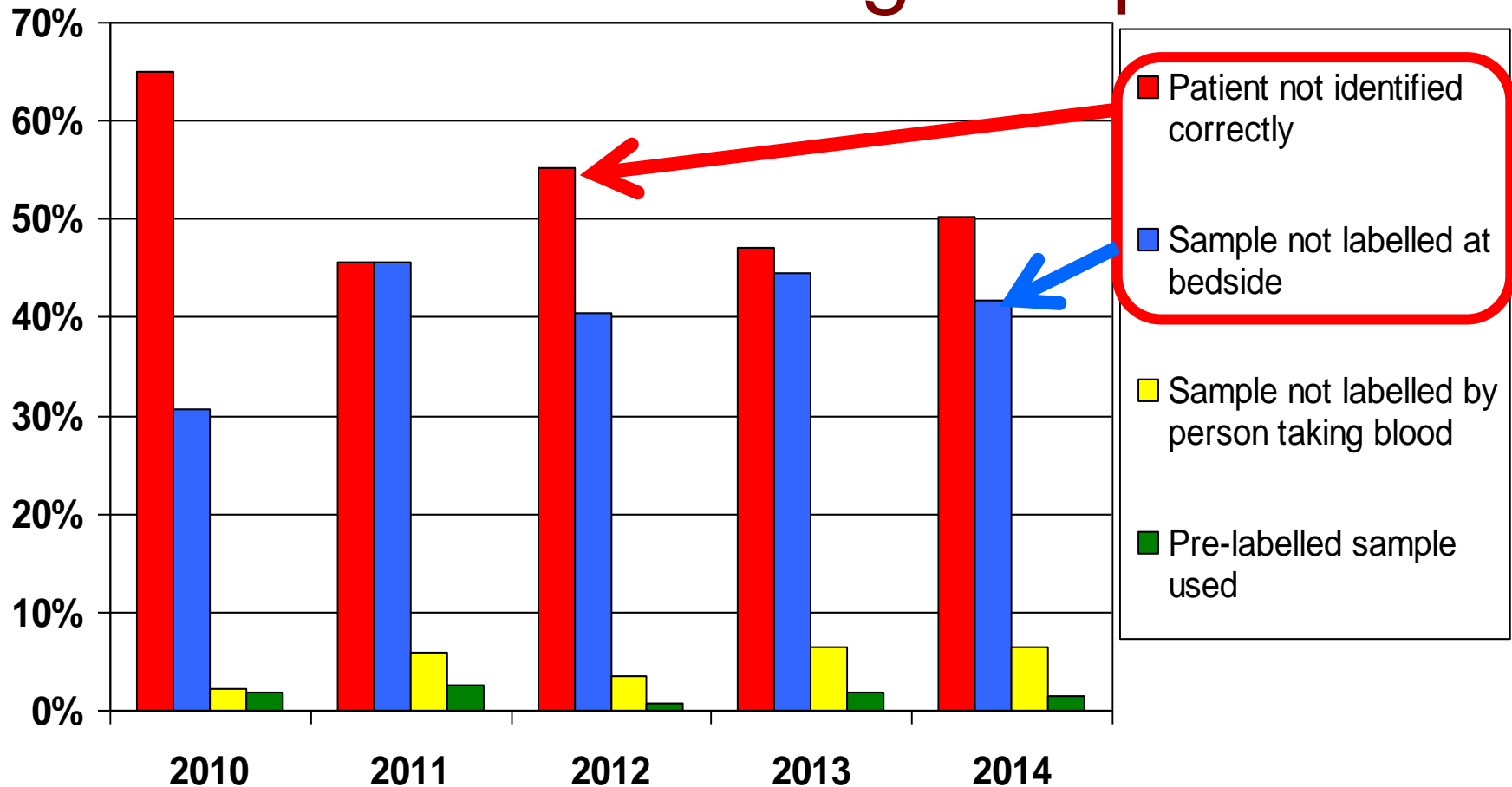
Errors have been made in theatre with point-of-care testing





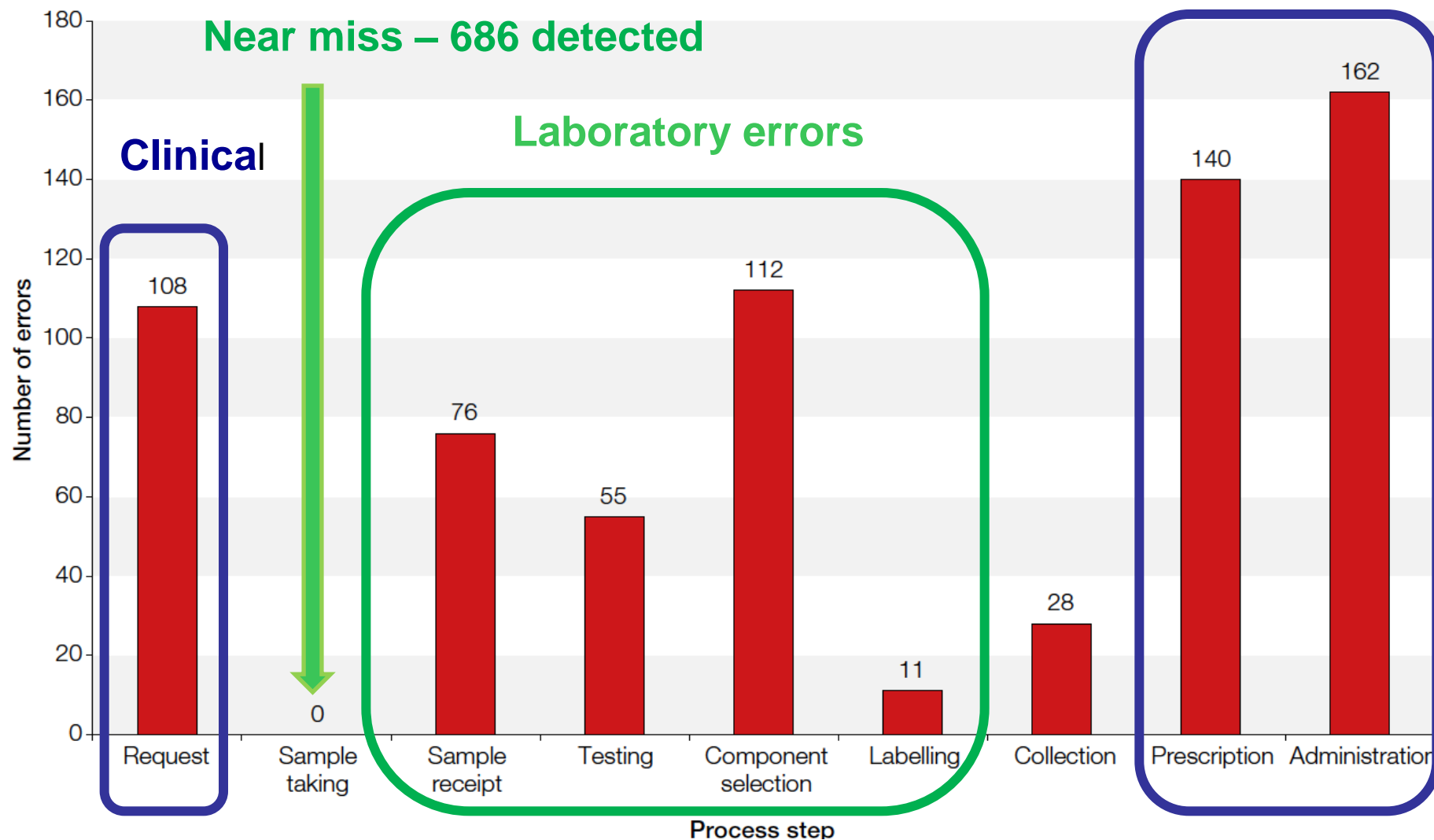
# Near Miss: wrong blood in tube

## Reasons for wrong samples



# Wrong transfusions, where are the mistakes made?

Data for 2014



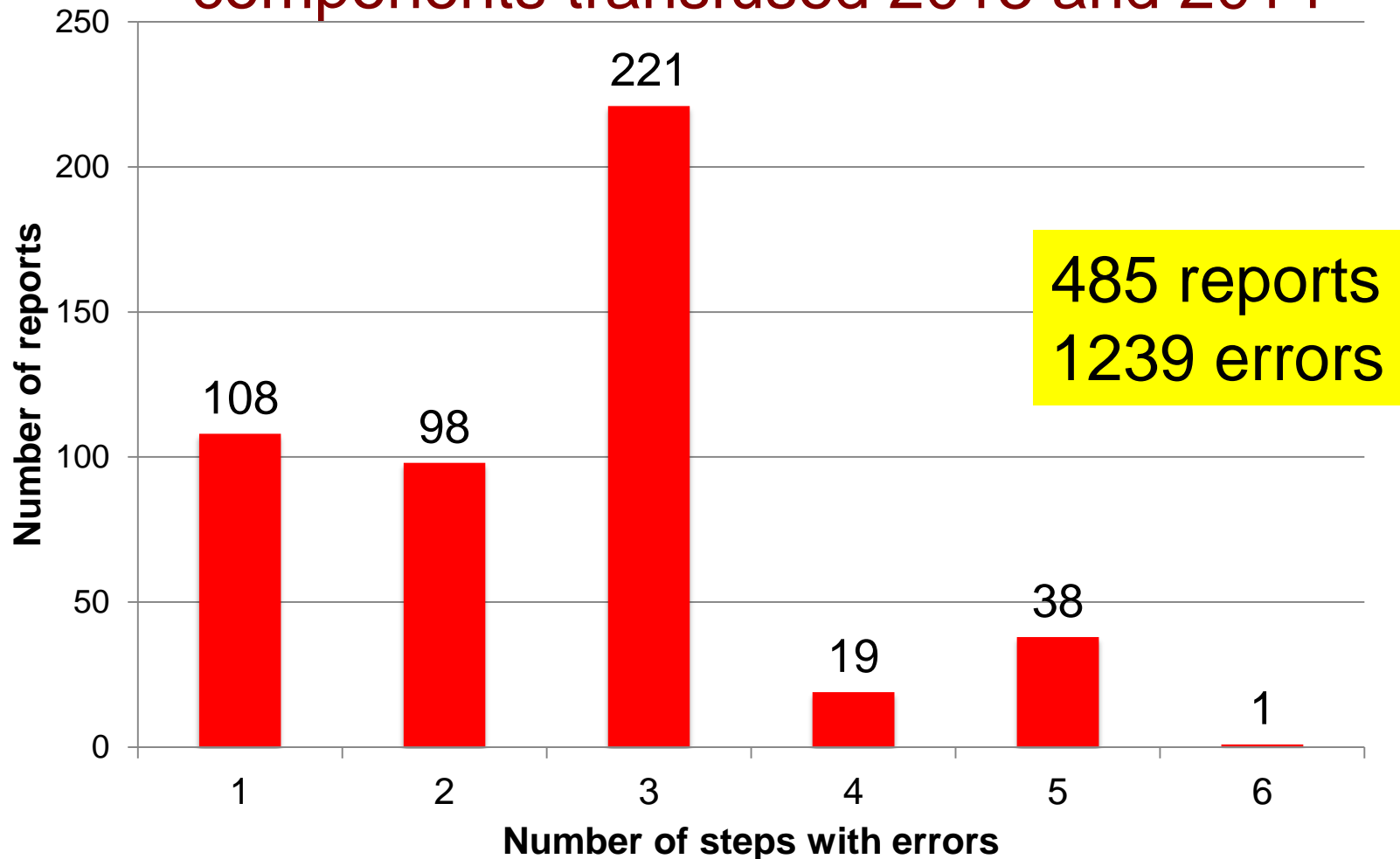
# Near miss 2015

- 1240 reports (about a third of the total)
- Wrong component transfusions 887 (71.5%)
- Wrong blood in tube 780
- **ABO-incompatible transfusions would have resulted in 288 (36.9%) cases**
- Actual ABO-incompatible red cell

- These are serious incidents but the solution is not to dismiss 288 staff, it is to understand why and change the process



# Multiple errors are common – incorrect blood components transfused 2013 and 2014





# **Key Recommendation from Annual SHOT Report 2013**

## **Process redesign**

**Annual SHOT data consistently demonstrate errors to be the largest cause of adverse transfusion incidents.**

**In line with human factors and ergonomics research it may be better to redesign the transfusion process by process mapping and audit at local and national level, to design out the medical errors.**



# A different approach

- **Safety-I** Situations where nothing goes wrong and responses are **reactive** – responding to adverse events when they happen: fire-fighting
- **Safety-II** Working environment where things go right. It is **proactive** – adjustments to performance so that risky situations do not occur

# Study One - Retrospective analysis of reports to SHOT

- a) What went wrong in actual incidents  
(Safety I)
- b) What went right to stop an incident so that  
it therefore became a near miss, with no  
patient harm (Safety II)
- c) Development of a Human Factors  
Investigation Tool (HFIT) for use by  
transfusion incident investigators – draft v1  
live since Jan 2016 in SHOT Database



# Study Two – Prospective analysis of the transfusion process (in partnership with National Comparative Audit):



- a) to define the critical control points of the transfusion process within healthcare establishments.
- b) to make recommendations for improved practice



# Resilience

- The intrinsic ability of a system to adjust its functioning before, during or after changes and disturbances, so that it can sustain required operations under both expected and unexpected conditions
- Requires the abilities to anticipate, to monitor and respond, and to learn

# Demonstration of resilience

When you walk through a crowd like this, how often do you make minor adjustments to avoid bumping into people?





# Emergencies happen....

# HELP!



‘Pull out! Pull out, you’ve hit an artery!’



SERIOUS HAZARDS OF TRANSFUSION

# SHOT

# Reality

- Standard operating procedures (SOPs) and protocols may work well in the lab and for the bedside check
- They do not work so well in the busy complex clinical environment
  - Multitasking is common
  - Distraction is everywhere
  - Assumptions...



# Resilience

## Managing the unexpected



Hudson river plane crash, 2009. Pilot Chesley Sullenberger saved all 155 lives

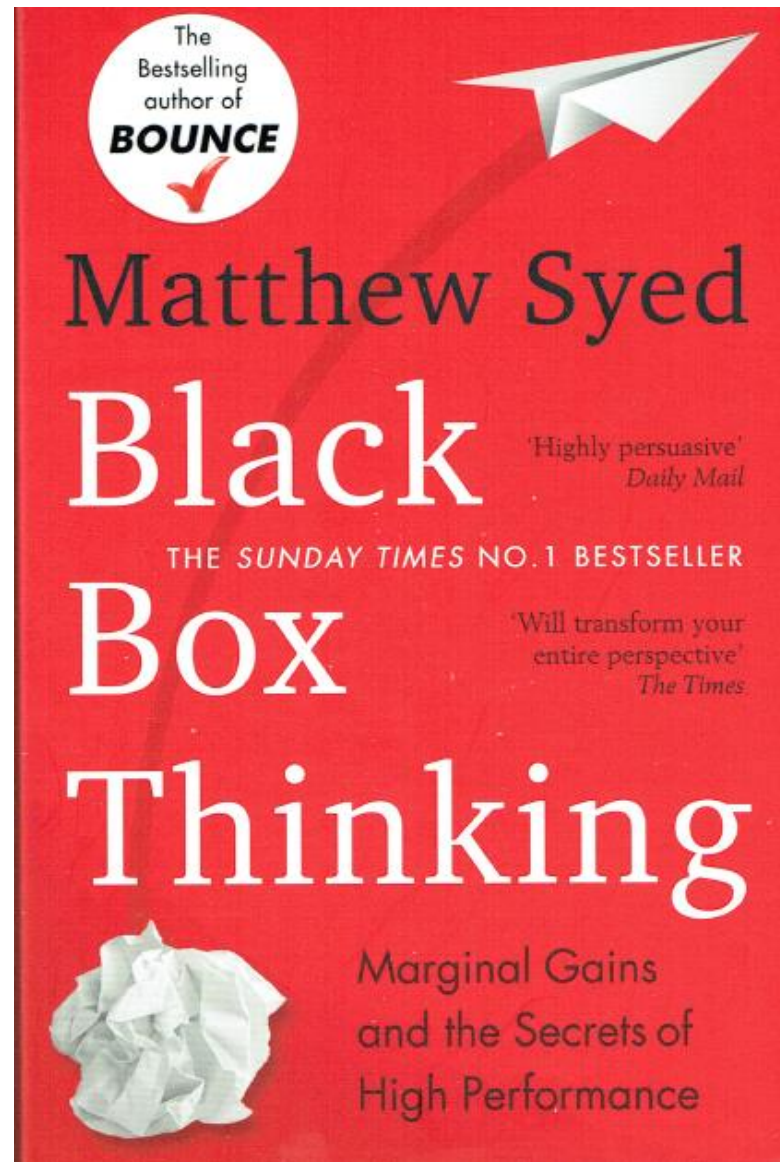


# Incident investigation and feedback is very important

- Why did it happen?
- What can be learned from it?
- Corrective and preventative actions to reduce likelihood of recurrence

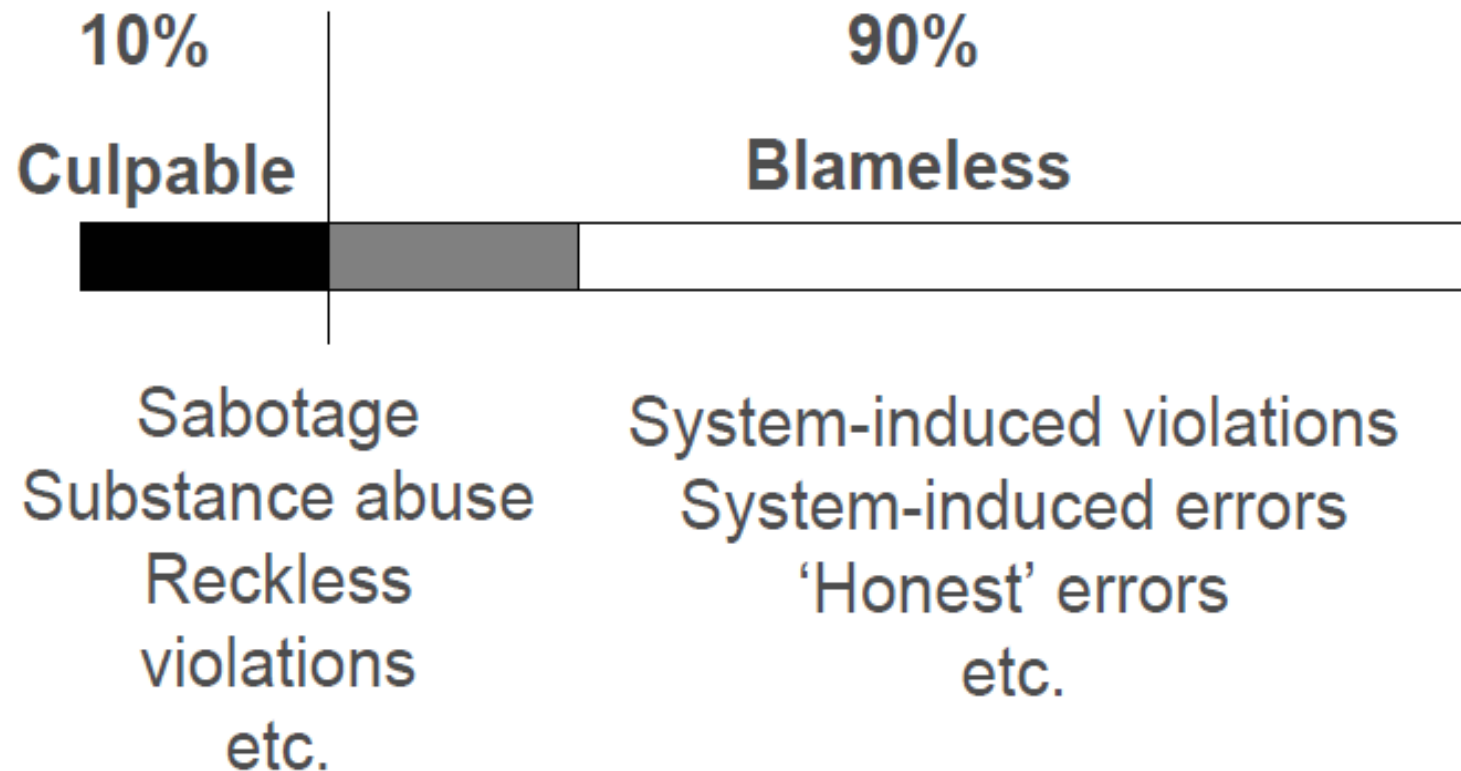
The health services need to learn all they can from incidents just as the air industry does

Perhaps as few as 5% of incidents are reported



## The behavioural range: Incident Decision Tree guides decisions in the grey area

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(James Reason, 2004)

25

# Learning from what goes wrong

- Concept of a 'just culture'
- Incident reporting more likely if non-punitive – trust is critical
  - Avoid 'omerta' the code of silence
- Accountability
  - Looking backwards for a scapegoat to blame
  - Looking forwards to see what can be learned and changed to avoid recurrence

Just culture: Sidney Dekker 2<sup>nd</sup> ed. Ashgate 2012





Thursday May 29<sup>th</sup> 2014

**Local newspaper**

**Front page headline:**

What message does  
this give to hospital  
staff?

# **BLOOD BLUNDER**

■ Two workers dismissed for  
putting patient's life at risk





# Situational awareness - Noticing

- Sherlock Holmes - The curious incident of the dog in the night time ... it didn't bark
- Noticing when things do not go as anticipated

# Case Study: Nurse notices an unusual irradiation sticker

- A unit of irradiated platelets was taken to the ward. A nurse noticed the irradiation sticker on the component was still red and the word **NOT** was still visible
- Although the component had been signed and dated as having been irradiated, the nurse contacted the laboratory to double-check
- The nurse was advised to return the unit as it had not been irradiated and thus prevented the patient receiving an incorrect unit

# Case Study: Situation awareness and persistence prevents incorrect transfusion

- Major haemorrhage, so porter was sent to get the emergency O D-negative blood
- Instead of the emergency O D-negative, he took 2 units O D-negative that were cross matched for a patient
- However, porter noticed the labels on the blood with a different name, so questioned this on arrival to patient
- Doctor said it was ok and started to run the blood through the giving set
- The porter was still concerned and went to the sister in charge and highlighted that the blood had someone else's name on it
- Sister stopped the doctor proceeding with the transfusion before the unit was connected to the patient

# Shared learning

**“Learn from the  
mistakes of others.  
You can’t live long  
enough to make  
them all yourself.”**

Eleanor Roosevelt



# Sign up to Safety

Harnessing the commitment of staff across the NHS in England to make care safer



Sign up to  
SAFETY

(<http://www.england.nhs.uk/signuptosafety/wp-content/uploads/sites/16/2015/06/homepage-image.jpg>)

Sign up to Safety is harnessing the commitment of staff across the NHS in England to make care safer. A patient safety campaign, it is one of a set of national initiatives

(<http://www.england.nhs.uk/ourwork/patientsafety/>) to help the NHS improve the safety of patient care.

Collectively and cumulatively these initiatives aim to reduce avoidable harm by 50% and support the ambition to save 6,000.



# Acknowledgements

- SHOT Team in Manchester
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