Human Factors in Healthcare

Chris Hancock – Programme Manager, Rapid Response to Acute Illness (RRAILS), 1000 Lives Plus
Human Factors

Making it harder to do the wrong thing
Rollercoaster Mortality

• 1 in 1.5 billion chance of being fatally injured at an amusement park
• Injury rates for golf and deckchairs are higher
Hospital Mortality and Harm

• There is a one in 300 chance of accidental death through errors in care. (Institute of Medicine, 2000)

• More than one in ten people admitted to hospital are harmed unintentionally by its care. (Vincent et al. 2001)
Shall We Save 100 Lives

HAZARDOUS
(>1/1000)

Health Care

REGULATED

Driving

ULTRA-SAFE
(<1/100K)

Mountain Climbing
Bungee Jumping
Chemical Manufacturing Chartered Flights

Scheduled Airlines
European Railroads
Nuclear Power

Number of encounters for each fatality
Hands up: who comes to work to harm people?
Avoidable Mortality

• 11% of hospital deaths were as a result of unrecognized or untreated deterioration.

• 21% of ICU admissions were avoidable.

• Potential prevention of 1600 ICU admissions in Wales costing £12 million (one night’s stay only)
Sepsis: An acceptable harm?

Severe Sepsis
37,000 deaths pa in the UK (Daniels, 2009)
Welsh mortality – 1850 pa
I LOVE PARIS IN THE SPRINGTIME
The fact that we can misperceive situations despite the best of intentions is one of the main reasons that our decisions and actions can be flawed such that …
Human beings make “silly” mistakes

Regardless of their experience, intelligence, motivation or vigilance, people make mistakes.
The Gap Between Perception and Practice

What We *Think* We Do

Vs.

What We *Actually* Do

Mitchell Levy,
Director, Surviving Sepsis Campaign
Errors of Omission/Adverse Events

The Defect Rate in technical quality of American health care is approximately:

45%


Doing Nothing is Doing the Wrong Thing
Event Rates

- Bungee Jumping, Extreme Mountain Climbing, Motor Cycle Racing
- Auto driving, Chemical Industry, Charter Flights
- Scheduled Airlines, Nuclear Power, European Railroads, Aircraft Carriers
- Hospitals

Log(10) Error Rate

Dangerous Systems
Regulated Systems
UltraSafe Systems
Ideal System

Amalberti, R. Safety Science, 2001
Patient Safety

3,283 patients dead through preventable error, another 7,000 suffer severe harm
Equivalent to 9 medium size aircraft (Boeing 737/Airbus A320) being written off with total loss of life every year…….

…..in the UK!
Accidents Still Happen!

Some 80% of aviation accidents are attributable in whole or part to Human Factors.
Factors within the healthcare system that could potentially lead to harm

Staff act as harm absorbers

Adapted from REASON, 2005
How do Accidents Happen?

Organisation and processes
- Pre-op, missing notes - latent

Prior conditions – patient factors

“Unsafe” acts – active failures

Multiple Defences

Patient Safety Incident
Situations associated with an increased risk of error

- unfamiliarity with the task*
- inexperience*
- shortage of time
- inadequate checking
- poor procedures
- poor human equipment interface

* Especially if combined with lack of supervision
Individual factors that predispose to error

- limited memory capacity
- further reduced by:
  - fatigue
  - stress
  - hunger
  - illness
  - language or cultural factors
  - hazardous attitudes
Foresight Training
Apply human factors thinking to your work environment (WHO)

1. Standardize common processes and procedures
2. Make things visible
3. Decrease the reliance on vigilance
4. Avoid reliance on memory
5. Review and simplify processes
6. Routinely use checklists
Standardise common processes and procedures
Make things highly visible – PSAG Board
Decrease the reliance on vigilance – safety briefings
Avoid reliance on memory - SOP
### Review and simplify processes

#### SBAR Reporting

| S | Date: __________ Time: __________ AM/PM | Drs name: __________________________ |
|   | My name is: __________________________ |
|   | From Ward/Dept: __________________________ |
|   | I am calling about (patient name): __________________________ |
|   | The problem is: __________________________ |

| B | The patient was admitted with: __________________________ on __/__/__ |
|   | Relevant PMH: __________________________ |
|   | Resuscitation status: __________________________ |

| A | The patient has a PAR score of: __________________________ |
|   | Airway: __________________________ |
|   | Breathing: __________________________ |
|   | Circulation: __________________________ |
|   | Disability: __________________________ |
|   | Exposure: __________________________ |
|   | Other relevant factors e.g. Sepsis screening, blood results, pain, urine output: __________________________ |

| R | I request you review the patient within the next: __________________________ hrs/mins (enter agreed timescale e.g. 15 mins) |
|   | Document any initial instructions: __________________________ |
|   | __________________________ |
|   | __________________________ |
|   | Patient reviewed by Dr at: __________ __________ (ZPV) |
Routinely use checklists

Safe Surgery Saves Lives
**Background - Improving Reliability**

- **Level 1 Prevent Initial Failure**
  - standardise, train, measure & feedback

- **Level 2 Identify failure and mitigate**
  - decision aids, desired action by default, clear specification of the standard that can be articulated
  - Human factor changes
  - Redundancy function

- **Level 3 Redesign from failure modes**
  - Identify critical failures and then redesign
Assessment – Earning Interest

• The evidence shows that people will improve the reliability of boring, repetitive tasks provided that other people show an interest in what they are doing.

• The improvement falls off once the outside interest waivers.

  – Professor Peter Davey, Lead Clinician for Clinical Quality Improvement, Quality Safety and Informatics Research Group.
# % compliance with Response bundle - Pilot Ward

October 2011 - No patients on the ward identified as being at risk of deterioration in the 24 hour period.

- NEWS introduced
- Pilot of a New Data Gathering Tool
- Integration of RRAILS & Dashboard
- PDSA - Data Collection Tool amended
- PDSA - Response Bundle Data unreliable
- Safety briefing introduced
- PDSA - Training Sessions on the ward

Graphical representation of compliance percentage from December 2010 to November 2011.
Summary

1. Standardize common processes and procedures
2. Make things visible
3. Decrease the reliance on vigilance
4. Avoid reliance on memory
5. Review and simplify processes
6. Routinely use checklists

But only measurement will tell you if you have improved!
Questions?

explain why are there school

that's why

why are thin people not fat
why are yawns contagious
why are australians so stupid
why are we here
why are rainforests important
why are deserts dry
why are me
why are australians so racist
why are men attracted to breasts