Understanding Errors and Improving Patient Safety

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Charles Vincent
Professor of Clinical Safety Research
Department of Surgical Oncology & Technology
Imperial College London
www.csru.org.uk
Overview

- Early pioneers
  - Emergence of patient safety
  - Understanding error
  - Directions & paradigms
  - Enhancing patient safety
The Team

Psychologists

Sally Adams
Jonathan Benn
Katrina Brown
Rachel Davis
Damien Forrest
Andrew Healey
Mary Koutantji
Nick Sevdalis
Andrea Smith
Maria Woloshynowych

Clinicians

Sonal Arora
Ruth Brown
Ros Jacklin
Susy Long
Krishna Moorthy
Graham Neale
Sergio Sawh
Shabnam Undre
Amit Vats
Early pioneers

`It may seem a strange principle to enunciate as the very first requirement in a Hospital that it should do the sick no harm. It is quite necessary, nevertheless, to lay down such a principle, because the actual mortality in hospitals … is very much higher than any calculation founded on the mortality of the same class of diseases among patients treated out of hospital would lead us to expect`
The hazards of hospitalisation

- Prospective investigation of over 1000 patients.
  - Untoward consequences of acceptable medical care
- 240 adverse episodes in 198 patients.
  - 01 minor, 82 moderate, 32 major 16 fatal
- Patients `encountering noxious episodes’ 28.7 days in hospital; 11.4 days for others
- Reactions due to error excluded!

Schimmel, 1964
Drivers of patient safety

- Quality of care initiatives
- Litigation
- High profile cases & system breakdowns
  - Bristol Royal Infirmary
  - Winnipeg Cardiac Surgery
- Psychology & human factors
- Professional and government reports
London Pilot Study - Results
Percentage of patients who experienced an AE

- Patients with unpreventable AE
- Patients with preventable AE
- No adverse event

Vincent, Neale, Woloshynowych 2001
Cost of adverse events

- Average of 8.7 extra days in hospital for each adverse event (Range 0 - 60)
- 8 million admissions per year in England
- 856,000 adverse events
- Cost in extra days in hospital £1 billion per annum for preventable adverse events
# Epidemiology of harm

<table>
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<th>Study</th>
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<th>Adverse event rate (% admissions)</th>
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UK National Reporting & Learning System

Hospital Episode Statistics: 11.8M hospital admissions in England 2004/5
Injections Given with Sterile and Reused Equipment Worldwide

- South America
- Central Europe
- West Africa
- China and Pacific
- South East Asia
- East and Southern Africa
- Eastern Europe and Central Asia
- South Asia
- Middle East Crescent

Number of injections per person and per year
Global Patient Safety Challenge: clean care is safer care
The end of the beginning

- Lets fix it?
- The attraction of neat solutions
  - Culture
  - Leadership
  - Teams
  - Technology
  - Etc etc
A tough problem

- Largest industry in the world
- Scale of problem massive
- Diversity and complexity of activities
- Diversity of settings
- Less proceduralised, more ‘hands on’
- Causes of error and harm complex
- Patient safety a meeting point for many disciplines
The Nature of Healthcare Error
Transfusion Errors

- 6% bedside transfusions, no identification
- 9% key information missing (NBS, 2005)
- 11.8% correct verbal identification at bedside pre barcoding (Turner, 2003)
- 8% checking blood group and unit label matched compatibility label (Davies, 2006)
Person versus System explanations

◆ Person Centred View
  - Focuses on those at the `sharp end’
  - Individual responsibility and blame
  - Countermeasures aimed at changing individuals’ behaviour

◆ System View
  - Human beings fallible, errors to be expected
  - Focus on factors influencing errors
  - Countermeasures aimed at conditions of work
Obstetric example
Care delivery problems

- The significance of the decelerations on the CTG trace were not given sufficient weight
- The midwife did not reduce the syntocinon as soon as she saw the deteriorating trace
- The consultant overrode the decision of the team without considering their arguments
- The sister was ‘forced’ to induce more evident signs of fetal distress
Wider features of the unit

Contributory factors

- No clear demarcation of roles and responsibilities and no agreed line of communication in a crisis
- Inadequate training for CTG interpretation
- Staff assumed faults in machines rather than fetal distress
- General acceptance of faulty equipment
- No system to ensure lessons learnt from serious incidents
7 levels of safety

- Patient
- Task
- Individual staff
- Team
- Working conditions
- Organisational
- Government and regulatory

Vincent, Adams, Stanhope 1998
How to investigate and analyse clinical incidents: Clinical Risk Unit and Association of Litigation and Risk Management protocol

Charles Vincent, Sally Taylor-Adams, E Jane Chapman, David Hewett, Sue Prior, Pam Strange, Ann Tizzard

Why do things go wrong? Human error is routinely blamed for disasters in the air, on the railways, in complex surgery, and in health care generally. However, quick judgments and routine assignment of blame obscure a more complex truth. The identification of an obvious departure from good practice is usually only the first step of an investigation. Although a particular action or omission may be the immediate cause of an incident, closer analysis usually reveals a series of events and departures from safe practice, each influenced by the working environment and the wider organisational context. This more complex picture is gaining acceptance in health care, but it is seldom put into practice in the investigation of actual incidents.

The Clinical Risk Unit has developed a process of investigation and analysis of adverse events for use by researchers. Two years ago a collaborative research group was formed between the unit and members of the Association of Litigation and Risk Management (ALARM). This group has adapted the research methods to produce a protocol for the investigation and analysis of clinical incidents.

Summary points

Analyses of clinical incidents should focus less on individuals and more on organisational factors

Use of a formal protocol ensures a systematic, comprehensive, and efficient investigation

The protocol reduces the chance of simplistic explanations and routine assignment of blame

Experience with the protocol suggests that training is needed for it to be used effectively

Analysis of incidents is a powerful method of learning about healthcare organisations

Organisational analyses lead directly to strategies for enhancing patient safety

Clinical Risk Unit, Department of Psychology, University College London, London WC1E 6BT

Charles Vincent, Reader in Psychology

continued over

BMJ 2000;320:777-81

website

extra

Further details of the investigation process are available on the BMJ's website

www.bmj.com
Systems analysis of clinical incidents

- Chain of events
- Complexity and contributory factors
- Error environments
- The importance of cumulative minor errors and deviations
Paradigms of safety

- Evidence based medicine
- Changing the culture
- Standardisation and technology
- People create safety
Specific Clinical Interventions
(Agency for Healthcare Research and Quality)

- Prophylaxis to prevent venous thromboembolism
- Perioperative betablockers to prevent morbidity
- Sterile barriers while placing central intravenous catheters
- Antibiotic prophylaxis in surgical patients
- 7 more highly rated safety practices of 79 reviewed
Venous thromboembolism

- Frequent, painful, dangerous
- Prophylaxis very effective, excellent evidence
- Massive under use
  - 10% US surgeons never use it
- But why? This is real safety problem
Safety culture

- ‘Join us in converting a culture of blame that hides information about risk and error into a culture of safety that flushes out information to prevent patient injuries’ (Leape et al, 1998)

- ‘A somewhat lethal cocktail of impatience, scientific ignorance and naïve optimism may have dangerously inflated our expectations of safety culture (Cox & Flin, 1998)
Culture as awareness

- Awareness of error and harm
- Willingness to discuss openly
- Open and fair culture
- Open disclosure
- Essential foundations
Culture as force for change

- Culture
  - Hard to define and measure
  - Little evidence of links to safety & outcome
- High reliability organisations may have different cultures
  - Preoccupation with failure
  - Deference to expertise
Conflicting Visions of Safety?

Replace or support human beings

People create safety
Two visions of human beings

- Fallibility & irrationality
  - Memory failure
  - Fallible decisions
  - Vulnerable to environmental influences
  - Lack of control over thought and action

- Expertise & skill
  - Flexibility and adaptability
  - Experience and wisdom
  - Anticipation of hazards
  - Recovery from error
How is safety achieved?
Contrasting visions

- Replace or support human beings
  - Design and standardisation
  - Protocols & guidelines
  - Information technology
  - Technical solutions

- People create safety
  - New & enhanced skills
  - High reliability organisations
  - Mindfulness & hazard awareness
  - Studying success and recovery
Standardisation & Technology

- Process improvement
  - Simplification and standardisation
  - Reduction in complexity
- Redesign of medication delivery systems
  - Reduction adverse drug events 5.8 per 1000 to 0.5 per 1000
Information technology

- Computerised order entry
- Forcing functions and corollary orders
- Communication and alerts
- Decision support
  - Guidelines and protocols
  - Computerised ‘customised’ support
People create safety

- Patient involvement
- Clinician engagement and preparedness
- Teams create safety
Patients and families

- Speak up if you have questions of concerns, and if you don’t understand, ask again. It’s your body and you have a right to know.
- Pay attention to the care you’re receiving. Make sure you’re getting the right treatments and medications. Don’t assume anything.
- Notice whether your caregivers have washed their hands. Don’t be afraid to gently remind a doctor or nurse to do this.
- Make sure your nurse of doctor confirms your identity.
Clinicians create safety

- Senior clinicians say they want juniors to err on the side of safety yet many juniors fear seeming weak. I make a point to reminding myself that I want to be safe first and brave afterwards.
- Being obsessive about hand washing. I am now very aware of why we are asked to do this and less irritated about the time it takes.
- Having enough humility to recognize when you are out of your depth. Willingness to ask for help.
Virtual operating theatre
Team behaviours to prevent, detect and recover from errors

- Make it clear what protocol or plan is being used
- Speaking up when a patient is at risk
- Team members should watch each other for errors and problems
- Messages and communications are acknowledged and repeated by those who receive them.
- Team members are aware of other’s actions and are ready to step in to support and assist.
Journey to Safety

Culture of openness & awareness → Technology & Standardisation → People create safety
Challenges

- The role of technology and human beings
- The development of solutions
- Redesign of systems and processes
- Massive implementation programme for existing solutions – national and local
- Clinical engagement and leadership
Looking after the people

- Caring for patients
  - Explanations, apology, making sure it does not happen again
  - Longer term support for some
- Supporting staff
  - Understanding of error
  - Professional and personal support
  - Potential long term effects