Safer Healthcare
Strategies for the Real World

HQI Monterey November 2017

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Or ..... 
Has patient safety been hijacked by quality improvement?
Patient safety – a very, very brief history

- 25 years ago – the dark ages
- 20 years ago – risk management, incident reporting & analysis
- 15 years ago – epidemiology, the scale of harm
- 10 years ago – process change, teamwork, culture, organisational change
- 5 years ago – prioritisation of interventions, evaluation, strategy
Dominant view: incidents within a patient journey which need to be eliminated

Good care + incidents
Dominant view: incidents within a patient journey which need to be eliminated

Good care - incidents
How things go wrong

- Date prior to 1/2/04 Pt contacts hospital to ask if treatment plan can be altered due to work commitments. Consultant agrees to IV & IT procedures on same day.
- Pt well known to clinical teams.
- No multidisciplinary team discussion about changes to planned treatment.
- Failed barrier IT policy not adhered to.
- 1/2/04 11.30 Pharmacist rings SpR to query prescription contrary to policy.
- Permanent SpR received news of sick parent and had to leave to attend.
- Pt rings to say she will be late.
- Locum SpR goes to pharmacy to collect Chemo, Returns to ward and gives drug to Sr.
- Pharmacist issues Methotrexate without proof of the IV Vincristine having been given.
- Pharmacy short staffed over lunchtime.
- Distraction from phones ringing.

LEGEND
- Event
- Barrier
- Contributor
- A - joint
- CDP/SDP

- Pt delayed by RTA.
- Ward Sr 1 queries change to treatment plan.
- Locum SpR had been recruited to help with already busy workload.
- Consultant had signed prescription and SpR overruled concerns.
- Evidence of lack of safety culture.
- Personality of SpR.
- Ward Sr 1 had to leave for dental appt.
- Lack of induction for locum sp registrar.
- Lack of Team handover/communication.
- Pharmacy short staffed over lunchtime.

- 14.40 Pt arrives on ward, checked in and taken to bay 8.
- Failed barrier IT policy not adhered to.
- No discussion between admitting nurse and patient about treatment plan.
- Lack of communication with patient.
Safety as best practice

- Targeted at specific events
- Aim is to optimise reliability of basic procedures

Annals of Internal Medicine

The Top Patient Safety Strategies That Can Be Encouraged for Adoption Now

Table 2. Patient Safety Strategies Ready for Adoption Now

Strongly encouraged
- Preoperative checklists and anesthesia checklists to prevent operative and postoperative events
- Bundles that include checklists to prevent central line–associated bloodstream infections
- Interventions to reduce urinary catheter use, including catheter reminders, stop orders, or nurse-initiated removal protocols
- Bundles that include head-of-bed elevation, sedation vacations, oral care with chlorhexidine, and subglottic suctioning endotracheal tubes to prevent ventilator-associated pneumonia
- Hand hygiene
- The do-not-use list for hazardous abbreviations
- Multicomponent interventions to reduce pressure ulcers
- Barrier precautions to prevent health care–associated infections
- Use of real-time ultrasonography for central line placement
- Interventions to improve prophylaxis for venous thromboembolisms

Shekelle et al, 2013
But will this approach work for these challenges?

- Nurses do not follow hydration guidelines
- The acute medicine unit is under pressure. Increased admissions and short staffing recurrently threaten patient safety
- 20% of care homes are rated as unsafe and given 1 year to improve
- Surgical complications are found to be markedly higher within particular surgical teams
- The emergency department experiences sudden and dramatic loss of control and goes into ‘freefall’
- Families experiencing errors are given explanations but remain angry and are contacting regulators
A new vision is needed

- Only part of the system has been addressed
- Safety and quality improvement equated
- Interventions are idealistic
- Safety has neglected the management of risk
- Healthcare is changing rapidly with new benefits and new risks
Patient safety must not proceed haphazardly toward only those specific harms currently being measured and targeted for improvement by incentives.

Advancement in patient safety requires an overarching shift from reactive, piecemeal interventions to a total systems approach to safety.

It means more complete development of the science, measurement, and tools of patient safety.
Our ambition and questions

- Are we thinking about safety in the right way?
- How is safety achieved in different settings?
- A wider range of safety strategies and interventions?
- Can a framework of strategies and interventions be developed?
  - Applicable across contexts? Hospital, home, primary care
  - Across levels? Patient, frontline, organisation, regulation and government?
Patient harm happens in every healthcare setting: at home in convalescence, in an operating room under anaesthesia, at the lab getting blood drawn, in the hospital corridor lying alone on a stretcher ……

Harm may result from missed diagnosis, scheduling delay, poor hygiene, mistaken identity, hostile behaviour, device malfunction, confusing instructions and hazardous surroundings.

The trajectory of harm begins with the unexpected experience of harm arising from or associated with the provision of care ………

The patient may experience harm during the episode of care when the failure occurred, or later, after some time has passed. Harm as it is first endured may evolve, transform and spread (Canfield, 2013)
A Patient Journey through Healthcare

Incidents may occur but do not capture the safety challenges
II Improving quality or managing risk?

- While outcomes are good ....
  - 228 patients reported 183 service deficiencies, each of which doubled their risk of harm (Taylor et al, 2008)
  - 20% of patients received less than satisfactory care often experiencing harm (Hutchinson et al, 2013)
  - 15% of out patient appointments are conducted with important information missing (Burnett et al, 2013)
Constant and changing threats to best practice

19% of operations with one or more equipment problem

‘We always need a colposcope with that list and time and time again it isn’t there or it’s broken or it isn’t back or nobody knows where it is’

Surgeon 3 Organisation A
Interventions to optimise care

1. The care envisaged by standards

2. Compliance with standards - ordinary care with imperfections

3. Unreliable care / poor quality - the patient escapes harm

4. Poor care with probable minor harm but overall benefits

5. Care where harm undermines any benefits obtained

Interventions to manage risk

The same thing?
III Three models of safety
Avoiding risk: ultra safe

- Risk is excluded as far as possible
- Procedures & supervisory systems
- Priority given to prevention
- Strong regulatory control
- Training in rigorous procedures and management of workload
Managing risk: high reliability model

- Risk in not sought out but is inherent in the profession
- Group intelligence and adaptation
- Mutual protection of team members.
- Training and safety focused on adaptability and flexibility of procedures
Embracing risk: ultra-adaptive

- Taking risks is the essence of the profession
- Working conditions are unstable and sometimes unforeseeable
- Cult of champions and heroes
- Success analysis more important than accident analysis
- Training is acquisition of expertise, understanding own limitations
Three contrasting approaches to safety

**ULTRA ADAPTIVE**
- Embracing risk
- Context: Taking risks is the essence of the profession: Deep sea fishing, military in war time, drilling industry, rare cancer, treatment of trauma.
- Safety model: Power to experts to rely on personal resilience, expertise and technology to survive and prosper in adverse conditions.
- Priority to adaptation and recovery strategies
- Innovative medicine Trauma centers
  - Hymalaya mountaineering
  - Finance
  - Forces, war time
  - Professional fishing

**HIGH RELIABILITY**
- Managing risk
- Context: Risk is not sought out but is inherent in the profession: Marine, shipping, oil industry, fire-fighters, elective surgery.
- Safety model: Power to the group to organise itself, provide mutual protection, apply procedures, adapt, and make sense of the environment.
- Priority to procedures and adaptation strategies
- Scheduled surgery Chronic care
  - Fire Fighting
  - Chronic Care
  - Chartered Flight
  - Chemical Industry (text)

**ULTRA SAFE**
- Avoiding risk
- Context: Risk is excluded as far as possible: Civil aviation, nuclear industry, public transport, food industry, medical laboratory, blood transfusion.
- Safety model: Power to regulators and supervision of the system to avoid exposing front-line actors to unnecessary risks.
- Priority to prevention strategies
- Anaesthesiology ASA1
  - Civil Aviation
  - Railways
  - Nuclear Industry

Risk level: 10-2 VERY UNSAFE, 10-3 UNSAFE, 10-4 SAFE, 10-5 ULTRA SAFE
Consequences for incident analysis
A limited approach to interventions

- RCA misleading term
- Poor recommendations from single RCAs
- Tendency towards weaker solutions
- Lack of system wide thinking to tackle underlying problems
7 Major Changes to Adverse Event Analysis

- Work with patients and families to identify and prioritise safety issues
- Widen the time frame of analysis: review the patient journey
- Conduct fewer, deeper and more proportionate analyses
- Understand success and failure in detection and recovery
- Examine safety issues and contributory factors at different time points
- Reflect on the workability of the underlying care process
- Broaden our repertoire of responses and recommendations

Vincent, Carthey, Macrae, Amalberti (2018)
Safety Strategies and Interventions
Why are frameworks useful?

Contributory Factors
- Patient
- Task
- Staff (Individual)
- Team
- Working conditions
- Organisation
- Institutional context

Framework for interventions?
Families of safety interventions

- Best practice
- Improve the system
- Risk control
- Adapt & respond
- Mitigation

Optimising Strategies

Risk Management Strategies
I Aspire to standards – safety as best practice

- Targeted at specific events
- Aim is to optimise reliability of basic procedures
II Improvement of processes and systems

- Standardisation and simplification
- Automation and decision support
- Improved equipment design
- Formalising team roles and responsibilities
- Reduce interruptions and distractions
- Improve organisation and level of staffing
Simplify the working environment
III Risk control

- Withdraw services
- Reduce demand
- Place restrictions on services
- Place restrictions on conditions of operation
- Place restrictions on individuals
- Prioritisation of activities
Risk control in medication

- There are clear guidelines about who can and cannot administer intrathecal chemotherapy.
- Junior doctors are generally not permitted to prescribe certain drugs such as chemotherapy, oral methotrexate and other substances.
- There are legal controls on the use of many drugs such as diamorphine and other opiates.
- Nurses have to pass a test of competency to be permitted to administer intravenous medications.
Effect of withdrawal of co-proxamol on prescribing and deaths from drug poisoning in England and Wales: time series analysis

Keith Hawton, professor of psychiatry and director,¹ Helen Bergen, researcher,¹ Sue Simkin, researcher,¹ Anita Brock, senior research officer,² Clare Griffiths, principal research officer,² Ester Romeri, research officer,² Karen L Smith, senior medical statistician,³ Navneet Kapur, professor and honorary consultant in psychiatry, head of research,⁴ David Gunnell, professor of epidemiology⁵

A steep reduction in prescribing of co-proxamol occurred in the post-intervention period 2005–7 with the number of prescriptions falling by 59%. Prescribing of some other analgesics increased significantly during this time. These changes were associated with a major reduction in deaths involving co-proxamol compared with an estimated 295 fewer suicides and 349 fewer deaths including accidental poisonings. During the 6 years following the withdrawal of co-proxamol there was a major reduction in poisoning deaths involving this drug without apparent increase in deaths involving other analgesics.
Experts are constantly thinking ahead

- Pre-mission planning for fighter pilots often takes longer than the mission
- Route is analysed for threats, whether from hostile aircraft, personal factors, weather
- During the flight pilots devoted over 90% of available time to anticipation
- Typically developed a ‘tree’ of events that might occur

Amalberti & Deblon, 1992
Box 9.1: Anticipation and preparedness in surgery

‘You need to have a strategy ready when there is bleeding: cold, automatic responses to a hazardous situation ingrained in your mind so that it can be done without stress and strain. What to do if the groin starts to bleed is one of the worst situations. When teaching I give them a list of things they’re going to do. I get them to repeat it to me over and over again so that when it does happen to them, and it will eventually, they don’t need to think, they just go into autopilot.'
Prepared approaches to monitoring, adaptation and response

- Resilient teamwork at the frontline
- Supportive interventions
  - Briefing and de-briefing
  - Team training for cross checking, monitoring
- Develop planned approaches to adaptation and recovery rather than relying on ad hoc improvisation.
- Executive training in risk scenarios and trade offs between safety and other objectives
V Mitigation

- Support for patients, families and carers
- Support for staff
- Financial and legal planning
- Management of media
- Response to regulators
Mitigation in home haemodialysis  

- Established units provide training and prepare patients and carers very carefully.
- Instil culture of safety without unduly alarming the patient,
- Mitigate the risk of adverse events,
- Ensuring the patient is fully briefed in emergency procedures, letter for emergency department
- An explicit and comprehensive set of safety strategies
Common medical procedures in the home

- Administering intravenous medications (e.g. home iv antibiotics)
- Self-catheterisation
- Subcutaneous injections
- Home oxygen
- Enteral feeding (e.g. PEG, NG)
- Haemodialysis
- Stoma bag changing
- Wound care (e.g. dressing wounds, managing drains)
Choosing safety interventions
Equipment availability in operating theatres

19% of operations with one or more equipment problem

‘We always need a colposcope with that list and time and time again it isn’t there or it’s broken or it isn’t back or nobody knows where it is’

Surgeon 3 Organisation A
Potential for risk control in anaesthesia
Faulty gas analyser: Go or No Go?

**GO**

Use TIVA with propofol (BIS monitored)... I am well aware that a functioning oxygen monitor is present in the guidelines. To cancel would be the counsel of perfection, but this won't get the patient the treatment he needs

[Consultant; 25 years’ experience]

**NO-GO**

Completely elective cases with faulty kit I would not proceed. There is a risk of awareness/hypoxia. Proceeding fails my stand up in court test.

[Consultant; 10 years’ experience]

Grieg et al, 2015
Contrasting strategies

◆ Options for dealing with missing equipment
  ▪ Clinical judgment
    - Preserves status quo
  ▪ Surgical checklist (enhance monitoring and adaptation)
    - Preserves status quo
  ▪ Go/no go hard stop rule (risk control)
    - Which may force improved system efficiency
◆ Benefits and limitations of each approach and highly dependent on wider context
Safer healthcare: a strategic approach
Beyond quality improvement: we can use this menu to address these challenges

- Nurses do not follow hydration guidelines
- The acute medicine unit is under pressure. Increased admissions and short staffing recurrently threaten patient safety
- 20% of care homes are rated as unsafe and given 1 year to improve
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The same thing?

Interventions to manage risk
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Interventions</th>
<th>Level of Implementation</th>
<th>Degree of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety as best practice: aspire to stand</td>
<td>Focal safety programme to reduce specific harms</td>
<td>✓</td>
<td>Used ++</td>
</tr>
<tr>
<td>Improvement of systems and processes</td>
<td>Staff training, assessment and feedback</td>
<td>✓ ✓ ✓</td>
<td>Used +</td>
</tr>
<tr>
<td>Risk control</td>
<td>Standardisation and simplification of key processes</td>
<td>✓ ✓ ✓</td>
<td>Underused ++</td>
</tr>
<tr>
<td>Monitoring, adaptation and response</td>
<td>IT to support decision making</td>
<td>✓ ✓ ✓</td>
<td>Used +</td>
</tr>
<tr>
<td>Mitigation</td>
<td>Automation of processes</td>
<td>✓ ✓ ✓</td>
<td>Underused +</td>
</tr>
<tr>
<td>Withdraw services</td>
<td>Improve safety culture</td>
<td>✓ ✓ ✓</td>
<td>Underused +</td>
</tr>
<tr>
<td>Reduce demand</td>
<td>Improve detection of deterioration</td>
<td>✓ ✓ ✓</td>
<td>Underused +</td>
</tr>
<tr>
<td>Place restrictions on services</td>
<td>Develop emergency response systems</td>
<td>✓ ✓ ✓</td>
<td>Used +</td>
</tr>
<tr>
<td>Place restrictions on individuals</td>
<td>Policy of explanation, apology and support for injured patients</td>
<td>✓ ✓ ✓</td>
<td>Used +</td>
</tr>
<tr>
<td>Place restrictions on conditions</td>
<td>Rapid response to physical harm</td>
<td>✓ ✓ ✓</td>
<td>Used +</td>
</tr>
<tr>
<td>Psychological support for patients and families</td>
<td>Peer to peer support programmes for staff</td>
<td>✓ ✓ ✓</td>
<td>Underused ++</td>
</tr>
<tr>
<td>Formal support and mentoring for staff</td>
<td>Insurance of staff and organisation against claims</td>
<td>✓ ✓ ✓</td>
<td>Used ++</td>
</tr>
<tr>
<td>Proactive response to complaints and claims</td>
<td>Proactive response to media</td>
<td>✓ ✓ ✓</td>
<td>Underused ++</td>
</tr>
<tr>
<td>Open dialogue with regulators</td>
<td>Open dialogue with regulators</td>
<td>✓ ✓ ✓</td>
<td>Underused ++</td>
</tr>
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A Compendium of Safety Strategies
An Incomplete Taxonomy

<table>
<thead>
<tr>
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<th>Degree of use</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety as best practice aligned to standards</td>
<td>RAND safety programme to reduce specific harms, improve visibility of targeted processes, improve continuous professional education to align best practices, develop more sophisticated guidelines for common problems</td>
<td>Used +</td>
<td>Used +</td>
<td>Allow time for testing procedures, reduce disparity within setting, improve line time devoted to education and training, personalized medicine in progress</td>
</tr>
<tr>
<td>Improvement of systems and processes</td>
<td>Staff training, assessment and feedback, standardization and implementation of key processes, focus on automation of processes, improved equipment design, removing workflow and responsibilities, standardization and enhancement of hardware, improving working conditions, light, noise, physical environment, reduce interruptions and distractions, improve organization and level of staffing, decision of new roles and parts to improve collaboration</td>
<td>Used +</td>
<td>Used +</td>
<td>Systematic use of temporary staff, increase volume of patients, and medical processes, improve staff and integration into workflow, address problems, reduce resistance to adoption, manage non-controversial engagement in safety, models available but seldom implemented, models available but seldom implemented, limited margin for progress, not considered as a problem, economic constraints and need for professional views, economic constraints and need for professional views</td>
</tr>
<tr>
<td>Risk control</td>
<td>Feedback service, reduce demand, place restrictions or services, place restrictions on individuals, place restrictions on conditions of operation, place restrictions or conditions of patients, place restrictions or place restrictions or conditions permanently</td>
<td>Used +</td>
<td>Used +</td>
<td>Leverage constraints and potential adverse social impact, political constraints and potential adverse social impact, political constraints and potential adverse social impact, response other than social and tax positive, do not contribute to financial culture, politically difficult at local level</td>
</tr>
<tr>
<td>Monitoring, adaptation and response</td>
<td>Improve safety culture, develop emergency response systems, develop front line checking and monitoring, develop and deployment of hazards, improve organisational response to patient and human to safety, improve organisational response to regulatory deficiencies</td>
<td>Used +</td>
<td>Used +</td>
<td>Often overlooked but seldom effectively implemented, in progress with increasing attention to failure to rescue, many examples but would be more effectively employed, models available and huge potential for increased use, models available and huge potential for increased use, needs exploration, study and development, adverse relationship between providers and regulation</td>
</tr>
<tr>
<td>Risk management strategies</td>
<td>Policy of escalation, staging and support for injured patients, rapid response to physical harm, psychological support for patients and families, first aid, support and medical support for staff, assessment and evaluation of hazards, response to computer and controls, proactive response to media, open dialogue with regulation</td>
<td>Used +</td>
<td>Used +</td>
<td>Policies exist but practical lag behind, rapid response in hospital may be slower in community, policies exist but practical lag behind, models exist but few examples of effective implementation, models exist but few examples of effective implementation, models exist but few examples of effective implementation, widely used but little ability to safety initiatives,models exist but few examples of effective implementation, some examples of good practice but frequently difficult, huge scope for improved and more productive relationships</td>
</tr>
</tbody>
</table>
A framework of safety strategies and interventions

Best practice

Improve the system

Risk control

Adapt & respond

Mitigation

Quality Improvement

Human factors & ergonomics

Regulation & governance

Resilience, team training

Optimising Strategies

Risk Management Strategies