Integration of Patient Safety into daily work
Integration of Patient Safety into daily work
The measurement and monitoring of safety

Drawing together academic evidence and practical experience to produce a framework for safety measurement and monitoring
UK National Reporting & Learning System

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Figure 2: Reported incidents by type. April 2006 to March 2007

- Consent, communication, confidentiality: 28,596
- Disruptive, aggressive behaviour: 33,709
- Clinical assessment (including diagnosis, scans, tests, assessments): 35,316
- Documentation (including records, identification): 37,210
- Infrastructure (including staffing, facilities, environment): 42,476
- Medication: 62,660
- Access, admission, transfer, discharge (including missing patient): 59,852
- All other incident types: 98,347
- Patient accident: 265,343
- Total no. of incidents: 727,736
- Acute/general hospital: 523,875

Hospital Episode Statistics: 11.8M hospital admissions in England 2004/5

*Source: Data are based on the dates the reported incident occurred, using data as of 31 July 2007.*
Is health care getting safer?

Despite numerous initiatives to improve patient safety, we have little idea whether they have worked. Charles Vincent and colleagues argue that we need to develop systematic measures.

We do not know whether we are making progress or not.
Just tell me

Are we safe?
Methods

- Reviews of research literature and reports from organisations:
  - Safety relevant industries
  - Conceptual approaches and models of systems safety
  - Measurement and monitoring in healthcare
  - The role of patients and families
- Interviews with senior staff in national organisations
- Case studies in healthcare organisations in the UK and USA across sectors
Safety in high risk industries

- **Lagging indicators**
  - Measures of events of incidents
  - Reactive measures safety performance
  - Lost time injuries, incident reporting, thoroughness of incident investigation

- **Leading indicators**
  - Precursors, events or measures that purportedly predict safety performance
  - Monitoring of key control systems or actions
  - Safety management system audits, safety cases, culture surveys and walk rounds
The fundamental questions

- Has patient care been safe in the past?
- Are our clinical systems and processes reliable?
- Is care safe today?
- Will care be safe in the future?
- Are we responding and improving?
Has patient care been safe in the past?

Are we responding and improving?

Integration and learning

Past harm

Are our clinical systems and processes reliable?

Reliability

Safety measurement and monitoring

Anticipation and preparedness

Sensitivity to operations

Will care be safe in the future?

Is care safe today?
What do we mean by harm?

- Treatment specific harm
- Harm due to over treatment
- General harm from healthcare
- Harm due to failure to provide appropriate treatment
- Harm due to failed or inadequate diagnosis
- Psychological harm and feeling unsafe
- *Harm due to neglect and dehumanisation*
NHS Safety Thermometer

“IT’s not just counting, IT’s caring”

Developed for the NHS by the NHS as a point of care survey instrument, the NHS Safety Thermometer provides a “temperature check” on harm that can be used alongside other measures of harm to measure local and system progress in providing a care environment free of harm for our patients.

The NHS Safety Thermometer allows teams to measure harms and the proportion of patients that are “harm free” during their working day. For example at shift handover or during ward rounds. This isn’t limited to hospitals; patients can experience harm at any point in a care pathway and the NHS Safety Thermometer helps teams in a wide range of settings, from acute wards to a patient’s own home, to measure, assess, learn and improve the safety of the care they provide.

STOP PRESS: Help us celebrate the success of the NHS Safety Thermometer by taking a ‘harm free care’ selfie of your team using or collecting your Safety Thermometer data or planning your improvement actions! Tweet it using #HCSelfie or e-mail it to us!

This website has been designed to allow collection of data and data analysis. The site also incorporates information about new NHS Safety Thermometer development programmes, such as medications and mental health, as well as discussion forums, submission schedules, and reports relevant to users. The site is regularly updated with new developments. Subscribe to regular updates using the “subscribe” menu to the left to receive the most up-to-date news on data updates and new functionality.

COMING SOON
- A function allowing you to aggregate your ‘Classic’ data by practice
- A ‘Classic’ Safety Thermometer app for data submission and feedback
- Mental Health and Maternity online Webtools.

The NHS Safety Thermometer - The Story So Far

... measure with the
NHS Safety thermometer
Adverse events in older people

- Errors, omissions
- Operative/procedural complications
- Hospital acquired infections
- Adverse drug events

+ 

- Falls
- Pressure sores
- Incontinence
- Functional ± mobility decline
- Delirium
- Depression
- Nutritional decline
- Dehydration

**Adverse events affecting all age groups**

**The geriatric syndromes**

**Should be thought of as adverse events**
- Preventable?
- Prolonged hospital stay
- Increased morbidity and mortality
Are our clinical systems and processes reliable?

- Measuring and testing reliability: the WISER study –
  - Clinical information availability at the point of decision making
  - Prescribing for hospital inpatients
  - Equipment in theatres
  - Equipment for inserting IV lines
  - Handover between wards
Reliability of equipment availability in operating theatres
## Missing & faulty equipment

<table>
<thead>
<tr>
<th>Site</th>
<th>Total operations studied</th>
<th>Number of operations with equipment problems</th>
<th>Number of equipment problems</th>
<th>Percentage operations with one or more equipment problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>258</td>
<td>50</td>
<td>56</td>
<td>19%</td>
</tr>
<tr>
<td>D</td>
<td>67</td>
<td>25</td>
<td>28</td>
<td>37%</td>
</tr>
<tr>
<td>F</td>
<td>165</td>
<td>19</td>
<td>19</td>
<td>12%</td>
</tr>
<tr>
<td>Total</td>
<td>490</td>
<td>94</td>
<td>103</td>
<td>19%</td>
</tr>
</tbody>
</table>
'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
Sensitivity to operations

- Clinicians monitor their patients, watching for subtle signs of deterioration or improvement,
- Leaders monitor their teams for signs of discord, fatigue or lapses in standards.
- Managers have to be alert to the impact of staff shortages, equipment breakdowns, sudden increases in patient flow and other problems.
Soft intelligence

- Safety walk-rounds
- Using designated patient safety officers
- Operational meetings, handovers and ward rounds
- Briefings and debriefings
- Day to day conversations
- And above all .... the patient voice
Anticipation and Preparedness: Will care be safe in the future?

- WHO Surgery Checklist
- Risk assessments
  - (falls, pressure ulcers, self harm)
- Risk registers
- Safety culture assessments
- Safety cases

- Bringing available information in the organisation to anticipate safety in the future
Police embracing tech that predicts crimes

By Heather Kelly, CNN
July 6, 2012 — Updated 2019 GMT (04:39 HKT) / File under: Innovations

New technology allows police to predict crime before it happens, but some agencies can't afford the software.

STORY HIGHLIGHTS

- Predictive analytic software
  (CNN) — For something that predicts the future, the software is deceptively simple looking.

- Predictive analytics software is the latest piece of policing technology working its way into law-enforcement stations around the country, although it's going up against tight budgets, bureaucracy and a culture still clinging to its analog ways.

- The program was adapted from software meant to predict earthquake aftershocks.

- Many police stations still use obsolete technology due to small budgets and even less use.

- Even so, police depend heavily upon social media to solve crimes.

A map of a city is marked up with small red squares, each indicating a 500-by-500-foot zone where crimes are likely to take place next. A heat-map mode shows even more precisely where cars may be stolen, houses robbed, people mugged.

The program is called PredPot, and it calculates its forecasts based on times and locations of previous crimes, combined with sociological information about criminal behavior and patterns. The technology has been beta tested in the Santa Cruz, California police department for the past year, and in an L.A. police precinct for the past six months, with promising results.

"We had to try something because we were not being offered more cops," said Zach Friend, a crime analyst with the Santa Cruz Police Department. Last year, Friend contacted researchers working on the algorithm — originally used for predicting earthquake aftershocks — after reading an article in the LA Times.

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Possibilities for quantitative prediction

- Hospitals with low nurse staffing levels tend to have higher rates of pneumonia, shock, cardiac arrest, and urinary tract infections (AHRQ 2004)

- Adjusted risk of death was higher if the procedures were carried out on Friday (+44%) or a weekend (+82%) compared with Monday.

Day of week of procedure and 30 day mortality for elective surgery: retrospective analysis of hospital episode statistics
Paul Aylin et al, BMJ 2013;346:f2424 (Published 28 May 2013)
Integration & learning. Are we responding and improving?
“Most Health care organisations at present have very little capacity to analyse, monitor, or learn from safety and quality information. This gap is costly and should be closed and that early warning signals can be valued and should be maintained and heeded” (Berwick, 2013, p26)
Great Ormond St: team level

- Number of days since the last serious incident (SI)
  - narrative, lessons learnt and recommendations
- Central venous line, MRSA (MSSA) infection rates
- Hand hygiene compliance rate
- WHO Surgical Safety Checklist compliance rate per clinical unit
- Common themes identified in executive walk-rounds
- Medication errors
- Top three risks from the clinical unit’s risk register.
Intermountain Healthcare

- Online reports portal with 80 quality and patient safety metrics
- Use of electronic records and data provided by care provider as part of clinical workflow
- Web-enabled reporting and SPC charts on demand including:
  - Centres for Medicare and Medicaid Services (CMS)
  - The Joint Commission core measures,
  - Quality Forum (NQF) etc. Intermountain captures patient harm from existing
Reflections on the framework & the report

- Does it seem like you always knew it?
  - Even though it was not explicit and we didn’t act on it
- ‘Deceptively simple’ or even ‘elegantly simple’?
  - But very different from current approaches
- Expanding our vision
- Structuring our thinking
- The proof of the framework will be in the expansion, validation & application
Information should include the perspective of patients and their families; measures of harm; measures of the reliability of critical safety processes; on practices that encourage the monitoring of safety; on the capacity to anticipate safety problems; on the capacity to respond and learn from safety information.
You have been asked to develop a plan to improve the measurement and monitoring of safety in your micro system. Discuss what you would need to put in place and use the framework below to describe your plan.
10% of patients are harmed
Are our data reliable?
Data Sources for Safety Outcomes

- Incident Reporting
  - Adverse Events
  - NRLS
  - Complaints / PALS

- Administrative Data
  - HES
  - Risk adjusted
  - HSMR
  - Readmissions
  - LOS

- Case Note Review
  - Global Trigger Tool
  - National Audits

- Point of Care Surveys
  - NHS Safety Thermometer
  - Local Audits
  - Safety Cross
Present
60% receive reliable care
Sensitivity to Operations

Middlemore Central

Dot

Centralised

Data
**Key Indicators of Hospital Status As At: 26/08/14 14:45 PM**

<table>
<thead>
<tr>
<th>Admissions</th>
<th>Current Inpatients</th>
<th>Discharges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total In: 165</td>
<td>Total Out: 197</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicare</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult</td>
<td>127</td>
<td>127</td>
</tr>
<tr>
<td>Peds</td>
<td>62</td>
<td>62</td>
</tr>
<tr>
<td>M.A.S.</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>Short Stay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assu</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Mass</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Critical</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total FC Volume: 334</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Data refreshes every 15 minutes.

**Key:** Blue - Current data, Grey - Yesterday's data (0700-0700), Green - Projected data.

**Beds Free and Occ. Rate includes all bed requests and bookings.**
How do I deliver reliable care?
Bundles of Care

- Ventilator
- Central Line
- Sepsis
- VAP
Safety Briefings

I'M STILL LEARNING

JOIN THE CLUB

STAFF MEETING
Safety Walk Rounds
Visual Management
Safe Staffing
1:8
Future
2014

I DIDN'T SEE THAT COMING
Safety is everyone's responsibility
Issues to consider

Prediction

Early Warning Systems

Pattern Recognition

Patterns and Trends
Flow and prediction
Prediction from SPC

The proportion of patients who die in hospital

[Graph showing the proportion of patients who die in hospital over time with upper and lower control limits (UCL and LCL).]
<table>
<thead>
<tr>
<th>Past</th>
<th>Outcomes</th>
<th>Process Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Staffing</td>
<td>Safety Surveys</td>
</tr>
<tr>
<td></td>
<td>Walk rounds</td>
<td>Safety Briefings</td>
</tr>
<tr>
<td></td>
<td>SBAR</td>
<td>Culture</td>
</tr>
<tr>
<td></td>
<td>FMEA</td>
<td>Prediction</td>
</tr>
<tr>
<td>Present</td>
<td>Pattern Recognition</td>
<td>Visual display &amp; assimilation</td>
</tr>
</tbody>
</table>
The Elephant(s) in the room
Citizens
Data
Technology
Electronic Records
Smartphones
Question 1

What strategies do you already use to monitor safety in the clinical microsystem?

Question 2

What 3 new strategies will you test?

Question 3

How could you engage patients?

FEEDBACK

20 mins