Learning from Never Events
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http://resiliencecentre.org.uk/
Overview

• Introduce principles of resilient systems and Safety II

• Describe study of RCA reports following Never Events
  – Analysed from Safety II perspective
  – What can we learn to make RCA process more effective?
  – Recommendations
Traditional approach to safety - Safety I

• Reactive – aims to prevent future problems
• Humans are seen as unreliable – focus on human error
• Errors are categorised and counted – error taxonomies, estimation of error rates, search for data, studies on human limits
• Safety is defined as absence of adverse incidents – try to minimise the number of things that go wrong
• Parallels with medical models of illness – health as absence of illness, search for causes, removing cause results in health
Swiss cheese model

SUCCESSIVE LAYERS OF DEFENSES

Some holes due to active failures
Other holes due to latent conditions

HAZARDS

Accident
Problems with Safety I

- Dissatisfaction with existing models and methods for improving safety – reactive, slow progress
- Limitations of root cause analysis, incident reporting – difficulty of establishing causes, same problems often recur, highly targeted solutions with wrong focus, time consuming
How do we know we are safe?

• Safety is not the absence of error
• If we rely on error rates to indicate safety we can only know how safe we were in the past
• We need to strengthen safety in the present and future
Safety II – Resilient systems

- Proactive systems approach aimed at anticipating and preventing problems
- Based on the reality of clinical work –
  - Often messy, chaotic
  - Determined by social interaction and negotiation
  - Relies on co-ordination and articulation across groups, physical locations, time
- Organisational resilience, or safe adaptation is the key to creating safe systems
Safety II/Resilient systems

• Resilience is “the intrinsic ability of a system or an organisation to adjust its functioning prior to, during, or following changes and disturbances, so that it can sustain required operations under both expected and unexpected conditions” (Hollnagel, 2011, p. xxxvi)

• Four cornerstones – anticipating, monitoring, responding and learning
Key concepts

- Work as imagined (WAI) is different to work as done (WAD)
- Ability to adapt and work flexibly is what creates safety
- Safety and harm emerge from the complexity
- Safety II – maximise the number of things that go right
Never events seem to be a Safety I approach
  – Retrospective analysis
  – Root Cause Analysis is used to identify problems, propose solutions and implement them
  – Never Events keep happening – little evidence of learning

Could a Safety II perspective help to understand Never Events and how to analyse and prevent them?
Never events – a misnomer

- 332 Never Events occurred in England between April-November 2017
- Never Events are patient safety incidents that CAN cause harm or death –
  - 15 well defined events – updated regularly
  - wrong site surgery, wrong route drug administration, retained foreign objects, wrong implants
- It is assumed there is sufficient available evidence about how to prevent them so hospitals are penalised if they occur
1. Analyse existing RCA reports using a Safety II perspective to identify new insights
   – Effectiveness of reports using an existing framework of analytic effectiveness and new resilience dimensions
   – Effectiveness of actions using three point scale – did the action relate to individuals, the system, or removing the risk
   – Thematic analysis
   – Analysis of groups of similar incidents

2. Develop a Safety II framework to guide Never Event analysis
<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>Position in all organisations</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014-15</td>
<td>7</td>
<td>Joint 2&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
<tr>
<td>2015-16</td>
<td>15</td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
</tr>
<tr>
<td>2016-17</td>
<td>6</td>
<td>Joint 6&lt;sup&gt;th&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
Never Events analysed

Never events between May 2014 and Sept 2017 n=35

- Wrong site surgery (incl. wrong ID patient): 12 cases
- Retained foreign object (incl. guidewires): 12 cases
- Wrong implant/prosthesis: 4 cases
- Misplaced naso-gastric tube: 3 cases
- Administration medication by wrong route: 2 cases
- Mis-selection strong potassium solution: 1 case
- Overdose methotrexate non-cancer: 1 case
• Used existing indicators of incident review meeting analytic effectiveness
• Nine dimensions – robustness of proposed causes and solutions, information seeking, systems problems

• Seven resilience indicators added
  – Description and analysis of WAI vs WAD
  – How are problems usually solved
  – Weak signals understood
  – Learning applicable to other areas – organisation/NHS
  – Articulate link between cause and effect
  – Clear rationale for actions and how they would prevent recurrence
  – Likelihood actions would prevent recurrence
Ratings of effectiveness
### Underlying themes (n=144)

<table>
<thead>
<tr>
<th>Category</th>
<th>Themes</th>
</tr>
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<tbody>
<tr>
<td>Policy problems</td>
<td>Inappropriate, poorly drafted, or lack of policy</td>
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<tr>
<td></td>
<td>Difficult for staff to comply</td>
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<tr>
<td>Staff issues</td>
<td>Busy/overworked/tired; understaffed</td>
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<tr>
<td></td>
<td>Under-trained or given inappropriate responsibility</td>
</tr>
<tr>
<td>Documentation</td>
<td>Non-completion, non-availability or counterintuitive</td>
</tr>
<tr>
<td>Checklist &amp; checking</td>
<td>Checklist difficult, failure to use or incorrect version</td>
</tr>
<tr>
<td></td>
<td>Other checking-related issues</td>
</tr>
<tr>
<td>Patient issues</td>
<td>ID, delirium/confusion/paediatric; Reliance on input to treatment; Patients inconvenienced for expediency</td>
</tr>
<tr>
<td>Theatre/invasive</td>
<td>Counting equipment, marking of site, complex surgery</td>
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<tr>
<td></td>
<td>Left/right confusion; Mis-linking intubation (Luer)</td>
</tr>
<tr>
<td>Storage/labelling</td>
<td>Storage causing confusion; Inappropriate labelling</td>
</tr>
<tr>
<td>IT problems</td>
<td>Access issues, poor design, lack of interoperability</td>
</tr>
<tr>
<td>Change implementation</td>
<td>Lack of change control, actions not implemented, reverting to previous process</td>
</tr>
</tbody>
</table>

Each incident report contained one or more of these underlying themes, range 1 to 7. About half were not associated with any action, n=64/144 (44.4%)
Analysis of actions (n=144)

- **Policy problems**: 5 No action, 8 Limited action, 12 Satisfactory action, 12 Comprehensive action
- **Theatre/invasive issues**: 6 No action, 4 Limited action, 12 Satisfactory action, 2 Comprehensive action
- **Staff issues**: 19 No action, 8 Limited action, 2 Satisfactory action, 2 Comprehensive action
- **Documentation**: 10 No action, 8 Limited action, 7 Satisfactory action
- **Checklist & checking**: 2 No action, 12 Limited action, 7 Satisfactory action
- **Patient issues**: 14 No action, 2 Limited action, 2 Satisfactory action
- **Storage & labelling**: 4 No action, 1 Limited action
- **IT problems**: 2 No action, 5 Limited action
- **Change implementation**: 3 No action, 1 Limited action
• The two never events categories with the highest number of incidents were:
  – Retained foreign object n=12/35 (34.3%)
  – Wrong site surgery n=12/35 (34.3%)

• Remaining cases n=11/35 (31.4%) were split across five further categories, range 1 to 4, so too small to identify common themes
Retained foreign objects
(n=12 cases)
Wrong site surgery (n=12 cases)

<table>
<thead>
<tr>
<th>Type of underlying human factors</th>
<th>Number of actions in wrong site surgery cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient issues</td>
<td>![Patient issues bar chart]</td>
</tr>
<tr>
<td>Policy problems</td>
<td>![Policy problems bar chart]</td>
</tr>
<tr>
<td>Documentation</td>
<td>![Documentation bar chart]</td>
</tr>
<tr>
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<tr>
<td>Storage &amp; labelling</td>
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</tr>
</tbody>
</table>
Main RCA weaknesses

1. Failure to understand or describe WAD, main challenges, how problems usually solved

2. Failure to consider weak signals – eg incomplete consent, documentation, verbal patient id

3. Failure to consider how the identified problem could affect other areas – dentistry, radiology

4. Actions have to be SMART – inhibits identification of big organisational problems

Specific, Measurable, Achievable, Realistic, and Timely
Main RCA weaknesses

4. Staff well being not addressed – eg 14 hour operation, support following incident

5. Items added to checklists on the basis of the last incident – lost opportunity to think more holistically and design a better checklist

6. Policy problems not addressed
   – No attempt to understand why not followed
   – No recommendation to introduce a policy when it was warranted and vice versa
Enter text here.
Recommendations

1. Incorporate the effectiveness and resilience frameworks into future RCA processes to improve the quality of solutions and actions

2. Use Never Events as a window on the system to identify:
   
   • Weak signals (accidents waiting to happen)
   • Other areas that may be affected – Trust/NHS
   • Longer term actions – Allow actions even if they cannot be closed in a timely fashion, so long-term issues can be recorded
Recommendations

3. Add an examination of WAD into event analysis and other improvement activities such as audits, QI projects. How is work usually accomplished? What creates challenges and how are they resolved?

4. Use understanding of WAD to analyse
   - Is any action required?
   - Which actions might assist workers even if not a direct cause of the incident?
   - Which actions will inhibit work activity?
   - What change processes are required to implement action?
5. Use Never Events as a learning opportunity to raise risk awareness - solutions are never perfect and may even increase risk, but awareness may provide a defence.
Conclusions

• Regulators, politicians and the media all live in a Safety I world

• Safety I practices such as Never Event analysis are sub optimal but can be improved

• Resilient Healthcare can contribute insights to improve the quality of Never Event analysis
  – Changing the emphasis of investigations to include a wider perspective and a focus on the system, not just the event

• Safety I and II are not mutually exclusive!
“There is always a well-known solution to every human problem - neat, plausible and … WRONG”

H. L. Mencken, 1949,
American columnist, essayist, magazine editor and acerbic critic of life and culture
Many thanks for your attention

Reflections?
Comments?

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Dimensions of effectiveness - rating scale definitions

Here for info, not for examination during presentation

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Rating scale</th>
<th>Low (1)</th>
<th>Medium (2)</th>
<th>High (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploration of possible causes</td>
<td>No consideration of alternative causes. Converging on a cause early.</td>
<td>Some exploration of different causes, but unbalanced focus on one</td>
<td>Consistent focus on a range of possible causes</td>
<td></td>
</tr>
<tr>
<td>Consideration of systems problems</td>
<td>No consideration systems issues, or emphasis on individual actions</td>
<td>Some consideration, but focus is mostly on individuals</td>
<td>Exhaustive consideration of different types of systems problems</td>
<td></td>
</tr>
<tr>
<td>Critiquing of hypothesised causes</td>
<td>No critiquing of causes or acceptance without examination</td>
<td>Some critiquing of proposed causes, but not systematic</td>
<td>Different viewpoints actively elicited. Explicit critiquing of hypotheses</td>
<td></td>
</tr>
<tr>
<td>Seek further information about the incident</td>
<td>No further information sought about the incident</td>
<td>Information sometimes sought but reliance on known sources</td>
<td>Actively seeking out information from different sources</td>
<td></td>
</tr>
<tr>
<td>Exploration of a range of possible actions</td>
<td>No consideration of a number of different actions. Tendency to simplify</td>
<td>Some alternative actions are considered but not systematically</td>
<td>Systematic exploration of many different alternatives</td>
<td></td>
</tr>
<tr>
<td>Consideration of systems impact of potential actions</td>
<td>No consideration of how proposed action(s) would affect operations</td>
<td>Some consideration of how proposed actions would affect the work system, but not systematic</td>
<td>Systematic exploration of the effects of potential actions including unintended consequences</td>
<td></td>
</tr>
<tr>
<td>Critiquing of potential solutions</td>
<td>No critiquing of proposed solutions.</td>
<td>Some critiquing of proposed solutions, but not systematic</td>
<td>Different viewpoints actively elicited. Explicit critiquing of potential solutions</td>
<td></td>
</tr>
<tr>
<td>Seek further information about actions taken in similar cases</td>
<td>No other information sources consulted</td>
<td>Information sometimes sought but reliance on known sources</td>
<td>Actively seeking out information from different sources</td>
<td></td>
</tr>
<tr>
<td>Address problems spanning boundaries</td>
<td>No attempt to resolve problems that span organisational boundaries</td>
<td>Some attempt is made to resolve cross-boundary problems, but not systematically</td>
<td>Problems that cross organisational boundaries are identified and addressed</td>
<td></td>
</tr>
</tbody>
</table>
### Dimensions of resilience - rating scale definitions

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<table>
<thead>
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<th>Dimension</th>
<th>Low (1)</th>
<th>Medium (2)</th>
<th>High (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did they consider work as imagined (WAI) v work as done (WAD)? Definition below*</td>
<td>No consideration of WAI v WAD</td>
<td>Described gap between WAI &amp; WAD</td>
<td>Implemented effective action plan related to difference between WAI &amp; WAD</td>
</tr>
<tr>
<td>Was there a description of how issues are normally solved?</td>
<td>No description of normal policy or strategies for dealing with risk</td>
<td>Usual methods of dealing with risk are described</td>
<td>Detailed explanation of normal procedures for managing the risk and they are robust</td>
</tr>
<tr>
<td>Were any weak signals understood?*see below</td>
<td>Weak signals not identified</td>
<td>Noticed/described a weak signal of future risk, but little or no action taken</td>
<td>Developed an action plan related to weak signal</td>
</tr>
<tr>
<td>Did they identify aspects of the incident applicable to other areas or similar cases?</td>
<td>No consideration of applicability elsewhere</td>
<td>Some understanding of applicability elsewhere</td>
<td>Includes actions related to shared information or risks in other areas</td>
</tr>
<tr>
<td>Was there clarity of the link between cause and effect?</td>
<td>Unclear link between cause and effect</td>
<td>Some links between cause and effect described</td>
<td>Clear links between cause and effect shown</td>
</tr>
<tr>
<td>Was there a clear rationale for actions taken related to this incident?</td>
<td>No rationale for actions taken</td>
<td>Rationale given without clear link</td>
<td>All actions clearly explained and linked to incident</td>
</tr>
<tr>
<td>What is the likelihood that actions would prevent further incidents?</td>
<td>Unclear how actions would prevent further incidents</td>
<td>Some clarity of how actions could prevent further incidents</td>
<td>Clear explanation of how actions would prevent further incidents</td>
</tr>
</tbody>
</table>

- **WAI** = expected procedures without adaptation or deviation; **WAD** = normal day to day variation of healthcare; **weak signals**=accident waiting to happen