**Risky rules – the pitfalls of rules and checklists in IPC**

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**‘Do I still have to wash my hands if I just stand in the doorway of the patient’s room’**  
Stage 3 Sydney Medical Student, Westmead 2011

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**Error is ubiquitous in healthcare**

- King Edward high risk obstetric notes: 47% ≥ 1 clinical error, 79% during labour, 75% outside business hours  
- ED staff questioned at shift end: 1 error recognised & reported for every 5 patients  
- Paediatrics ≥ 1 error in 2/3 of cases  
- ICU, observational study, serious errors ≈ 1/4 bed-days  
  - Landrigan CP et al. NEJM 2004;351(18):1838-48  

  - Perrow (Normal Accidents: Living with High Risk Technologies) & Reason argue for the inevitability of errors or accidents in complex systems

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**Association between error and adverse events**

- Whether or not an error results in an AE is determined by:  
  - the cause and effect relationship (tightness of the coupling of processes)  
  - the opportunities to detect and correct the error (system defences and redundancy)  

  - In general, the ‘health care system is so loosely coupled that small … human and equipment errors rarely propagate throughout the system or culminate in major catastrophes’.


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**Rules and regulation appeal to many**

‘…anyone promoting mandatory behaviours or procedures at the health-care coalface is likely to be seen by the clinical professions as a creep or jerk …[but] a key message from aviation is that intensifying regulatory requirements goes in jumps and starts as learning suggests more change. … we ask: is the time coming when we must trade higher levels of autonomy in exchange for mandatory regulation of clinical behavior if it can fulfill the promise of greater safety for patients?’

‘What is needed, however, isn’t just that people working together be nice to each other. It is discipline.’


Atul Gawande -The Checklist Manifesto

- New York Times bestseller
- Promoted work of Peter Pronovost – Michigan Keystone ICU study
- Led WHO Safer Surgery initiative

‘We propose that widespread deployment of checklists without an appreciation of how or why they work is a potential threat to patients’ safety and to high-quality care’


Snow brand milk poisons 10,000 Japanese

A power outage occurred because snow fell on the electric powerhouse for the plant ... raw milk material for the powdered skim milk remained on the line for three hours ... staphylococcus aureus bacteria proliferated, and enterotoxin grew in the milk ... but it was made into powdered milk as usual.

‘It is common knowledge for someone who has studied food sanitation that staphylococcus aureus bacteria could proliferate during an electric outage in food plants, but the staff of the Taiki plant had not realized that risky connection.”

When Resilience does not Work

Remaining Sensitive to the Possibility of Failure

- ‘If the members of a work community cannot produce their own understanding of the reasons behind these recommendations, they will have a tendency to treat them as without inherent value, bypassing them whenever they become inconvenient to follow’

- ‘SOPs often become overwhelmingly exhaustive by continuous amendments to prohibit actions that have been implicated in some recent incident or accident’

Hollnagel, Nemeth, Dekker, Eds, Remaining sensitive to the possibility of failure, Ashgate, Aldershot (2008)
Experts

- Understand the purpose of their work
- Have enough technical knowledge to be able to provide resilience

"Why are you painting those roses red?" asked Alice

Whisks

Risks

Expert opinion

- Are we holding a dinner party, and the kitchen is open plan?
- Are we in a busy restaurant kitchen where lots of verbal communication is necessary?
- Are our eggs/cream so precious that overwhipping is a disaster?
- Is hygiene our main consideration? Did we have a death from Salmonella?
- Are the kitchen assistants children or otherwise unreliable?
- Are 50 people waiting for dessert with whipped cream?
Challenges raised by considering expertise

Human factors engineering is to patient safety as microbiology is to infection control

Gosbee VA HF curriculum

1. Empowerment of clinicians
2. Development of regulation that respects the place of expertise in safety

DIY human factors – where empowered and skilled clinicians:
- to refuse to accept rules and policy where they don’t understand the rationale
- demand usability testing, perform usability testing, refuse to use unsafe equipment

...she heard a little shriek and a fall, and a crash of broken glass...

‘Inappropriate standardisation can make systems unable to change in response to circumstances’: this has been termed ‘brittleness’.


Almaberti – 5 causes of migrations

1. Constraint on the legal goal/ legal procedure
   - Unachievable goal
   - Time missing, sub-system missing/inoperative
2. Facilitation of group cohesion
   - Priority given to pleasing team members, or reducing burden
3. Resilience of old procedure(s)
   - Cost oriented conservatory strategy
   - Safety oriented conservatory strategy: Feeling that the new procedure breaks routines, and has the potential to degrade safety compared to present
4. Search for external acknowledgement of expert status
5. Disputable rule
   - Any time a system is about to change (pre-transition phase), or improvement planned the ease to violate is multiplied
Designing Safer Safety Policy - Almaberti

<table>
<thead>
<tr>
<th>P1</th>
<th>P2</th>
<th>P3</th>
<th>P4</th>
<th>P5</th>
<th>P6</th>
<th>P7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score your matrix</td>
<td>Perceived efficacy</td>
<td>Threat on expertise</td>
<td>Easiness of Sacrifice</td>
<td>Sacrifice needed</td>
<td>Conflict with other policy</td>
<td>Side effects</td>
</tr>
</tbody>
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- All green: GO
- Any RED: FORGET

- NO IDENTIFIED RISK: DESIGN SOUNDS PERFECT - HIGH BENEFITS EXPECTED
- CUMMULATION OF DRAWBACKS: ONE ISOLATED ORANGE: YOUR POLICY SHOULD WORK provided you control Drawback
- Any OF TWO POSITIVE: YOUR DESIGN NEEDS SIGNIFICANT MODIFICATION TO LIMIT POTENTIAL
- Any OF THREE POSITIVE: YOUR DESIGN HAS NO CHANCE TO BE BENEFICIAL FOR SAFETY
- Any OF FIVE OR RANGE: YOU ARE CREATING RISK WITH YOUR SAFETY POLICY

More advice from Almaberti

- Test any new rule:
  - ‘Put at least 2 indicators on any potential side effects’
  - ‘Obsessing about processes without looking at resultant outcomes achieves nothing’

- Ultra safe systems are rule based but...it is not clear what areas of healthcare can ever be ultrasafe plus safety has great (infinite) costs

Ethnographic safety studies

- ‘staff did not always do things as they should be done, and patient safety risks were introduced as a result.’
- ‘there were many troubles associated with deploying formal rules for patient safety in an effort to get staff to do the right things.’


Chief Anaesthetist in military teaching hospital introduces a new rule

- Requiring documentation of a detailed anaesthetic plan before surgery. All staff signed the new protocol.
- This rule = an example of
  - ‘a growing category of process-oriented rules justified by preventative risk analysis, expert judgement and experiential reports, but not by strong epidemiological evidence. They are usually accepted because the intervention is low cost, easy to implement and with a low risk of harm...’


Case study: the natural lifespan of a safety policy

- Reasons for the erosion of compliance included:
  - The nature of the rule - a ‘nice to follow’ rule.
  - Pressure of work and competing priorities.
  - The lack of censure or consequence after non-compliance.
  - Individual motivation and leadership.

- ‘The staff had a great respect for the Chief of the Department and an established culture of adherence to safety rules and procedures...’
- Failure of compliance from the beginning by one senior doctor and an abandonment of the practice by another = the factors that led to a rapid migration of all individuals into non-compliant practice.
What factors influence violations in anaesthesia?

<table>
<thead>
<tr>
<th>Factors associated with the rule</th>
<th>Factors associated with the anaesthetist</th>
<th>Organisational and situational factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credibility</td>
<td>Risk perception</td>
<td>Time pressure</td>
</tr>
<tr>
<td>Ownership</td>
<td>Experience &amp; expertise</td>
<td>Resources</td>
</tr>
<tr>
<td>Force</td>
<td>Professional group norms</td>
<td>Design of equipment</td>
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<td>Clarity</td>
<td>Concurrent task activity</td>
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Normalisation of Deviance

- Compliance with “good to follow” erodes first and infects compliance with others [rules that are truly vital].

  Charles Vincent 6th Australasian Conference on Safety and Quality in Healthcare; September 2008; Christchurch.

‘...she gave a little scream...and tried to beat them off...’

‘Organizations that were unable to provide orderly, supportive environments, and that made staff at the sharp end balance too many competing priorities, shifted the emphasis to ‘getting on with things’.


‘An effective hand rub procedure will take between 20 and 30 seconds’.

‘Intensive-care nurses may have to clean their hands 20-30 times an hour.’

Mark Metherell, May 1, 2012 Quoting Lindsay Grayson?


‘I have heard about nonsensical policies being made that do not deal with the issues at hand following adverse events. … these policies have been made by non-clinical staff or staff who do not work in the relevant area and are thus unfamiliar with the system and the problems with the system. Often, doctors are not involved in the decision making process even though they are expected to follow the new policies. Even in instances where doctors have been involved, I have found that they are often not from the relevant level. For example, senior doctors being asked to provide input into a cannula policy...’

Sydney Masters Student 2012

‘I know what you’re thinking about”; said Tweedledum; “but it isn’t so, no-how”

‘In teams, relationships and performance are positively related to co-operative behaviours and negatively to monitoring and measurement.’

Real story of Michigan Keystone study

- Not about checklists BUT
- creation of social networks with a shared sense of mission, whose members were each able to reinforce the efforts of the other to cooperate with the interventions.
- Implementing the entire programme took 9 months.
- The work was arduous and often laden with emotions.
- Each ICU had to identify a physician and nurse team leader and the hospital had to identify a senior executive sponsor.
- Initiative was a complex theory driven cultural and organisational change process


Social interactions

- You are a surgeon. Your complex elective operation requires two specialty teams. After you have commenced, the surgeon from the other team arrives. He scrubs for about 20 seconds and then commences to gown and glove.
- What are you most likely to do?
  - (a) Say nothing because you don't think it really matters - 7%
  - (b) Say nothing because it will cause ill-will and make the teamwork in the theatre awkward - 12%
  - (c) Try a gentle correction only such as "It's OK John, we're not in that much of a hurry, you've got time to re-scrub" or "Did the water run out?" - 52%
  - (d) Insist on a full scrub - 20%
  - (e) Other - 5% and no response 5%

"Who are you?" said the Caterpillar?

- Doctors may be especially prone to resist externally or managerially imposed protocols, and seek to display their autonomy and seniority by demonstrating that they are not docile, but rather are creative, intuitive and individual.

What you could say ‘Did we run out of water out there?’
That would be sort of a win-win situation. Like you’d say, ‘I know what you did’ and he can say ‘Oh bugger, they saw me. Better go and do a scrub.’ "Oh, I didn’t know how to operate the switch, it just turned off … . That way it’s a win-win, but you have to be quick.

But … if you said that to me, I’d sort of blush and run out and have trouble coming back in.

“I’m not convinced that it’s that important as long as he puts his gloves on in a sterile fashion. But in the brain I suspect your attitude is different.” Sydney GI surgeon

A long and often painful history has shown that not only are command and control methods expensive, they are also prone to failure and tend to generate new pathologies, not least because workers usually find ways to neutralise or subvert instructions that they do not believe in or that seem to threaten their interests.


Energy diverted from patient care

‘My frustration lies in that often these efforts go to waste. We recently had a handwashing audit completed at our ward - the results were dispersed and some education was provided. Initially there was some change in habits, but I think everyone just went back to their old habits after about two days … I think often these exercises are futile if no action is enacted based on findings, and often the effort put into these endeavours takes time and resources away from day to day care of patients.’

Sydney masters student 2012

Creation of new safety risks and problems

‘Checklists [scrutinised routines] may then contribute to, rather than addressing, problems: if time and resource are diverted to checking and protocol routines, but the pressure is unrelieved, it is possible that problems will be displaced elsewhere in the system’

Dixon-Woods M. Why is patient safety so hard? J Health Serv Res Policy

Risky Rules - Take home messages

› Understand, preserve and develop expertise
› Find ways of increasing staff expertise around IPC – change viewpoint from that of correct/incorrect, right/wrong, compliance/violation to thinking about ways of practicing more or less safely.

Risky Rules – Take home messages

› Avoid proliferation and creation of rules that are hard to follow thereby preventing the normalisation of deviance increasing the rate of drift into failure
› Test and monitor new rules/procedures/protocols/checklists
- Be careful to avoid introducing brittleness, allow unpredictability of health
- Consider costs & risks as well as benefits, Clinical time is finite
Risky Rules - Take home messages

- Preserve team work and co-operative behaviours
- The workplace is SOCIAL – relationships, performance of professionalism, POWER
- Remember jerks and creeps!