

# Safety, deviation & human performance

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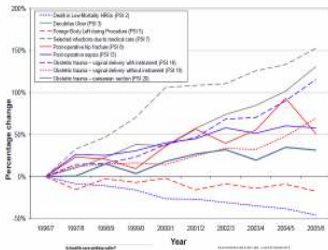
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## Is health care getting safer?

- The United States Agency for Healthcare Research and Quality has defined safety indicators and generated measurement initiatives over the last 10 years
- In UK, rates are actually increasing in all but two of the nine indicators so far translated.
- "Deaths in Healthcare Resource Groups" (HRGs) appear to be decreasing significantly.
- "Foreign Body Left during Procedure" is also decreasing slightly, but this indicator has been found to include many cases which are not related to patient safety.
- The remaining indicators appear to suggest that care is getting steadily less safe



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## The problem

- Patient Safety is a priority- what would that look like?
  - Top of agenda at all levels
  - Deep knowledge of safety issues
  - Managing risk is critical for everyone
- Efforts are considerable:
  - Once the horse has left the barn: root cause analysis, media management, law suits, policy review etc. etc. (reactive strategies)
  - Fixing the barn door: the hospital at work as usual in crisis conditions (need for proactive strategies):
    - Nights, WE and holidays
    - Poor continuity of care
    - Reduction in medical staff available during office hours

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## Why poor results?

- Improved transparency?
- Or / and
- Too many ineffective safety interventions
  - Too narrow targets
  - Designing better proactive Safety strategies and interventions remains a core target for tomorrow successes

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## Too many ineffective safety interventions

Compliance with safety recommendations remain very low

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## Surgical site infections (SSIs) and antimicrobial prophylaxis

- Despite evidence of effectiveness of antimicrobials to prevent SSIs, numerous studies have demonstrated inappropriate timing, selection, and excess duration of administration of antimicrobial prophylaxis
- Two thousand nine hundred sixty-five acute care US hospitals.
- An antimicrobial dose was administered to 55.7% of patients within 1 hour before incision.
- Antimicrobial agents consistent with published guidelines were administered to 92.6% of the patients.
- **Antimicrobial prophylaxis was discontinued within 24 hours of surgery end time for only 40.7% of patients.**



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### 'The dream for stable systems' Cont.

#### Paradoxes of Resilience

Significant safety improvements always detrimental to  $S_m$

Safety improvement

↓

Craftman industry  $S_t = S_r + S_m$

↓

Ultrasafe systems  $S_t = S_r + S_m$

The next challenge : Preserving  $S_m$  while Improving  $S_i$

$S_t = S_r + S_m$

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### The targets are too narrowly targeted...

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### Three horizon lines

The silo technical vision  
Time continuity  
Specialty dependent

The patient's medical episode vision  
Consider a longer period of time  
Analysis extended backward and forward to the previous and next transition of care

The integrated patient life's journey vision  
Starts from end (AE) and look backwards on the evolution of the disease

Primary care  
Admission  
Discharge  
After events  
long term Mortality

AE  
Consequence of AEs  
Consequence of AEs

Time horizon  
Patient life's journey through out the medical system

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## Assess the efficacy of the rule / recommendation prior to implementation

- Anticipate the future non compliance to the *rule* on three dimensions :
  - Vulnerability to high pressure of work, competing priorities and existing bypass
  - Need of additional resource (time, medical device, staffing) to get compliance
  - Conflicting nature with other existing policies




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## Improve evaluation

- Anticipate and measure side-effects
  - Put at least two indicators on potential side effects
- Focus on outcomes and whole system approach and less on:
  - processes without looking at resultant outcomes and achieving little
  - measurement of each component separately making us feel relatively safe and effective. When you use the all-or-nothing measure, you will find a remarkably lower reliability indicating that care is not very safe or effective.

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## Test your rule prior to implementation

	SCOPE		DESIGN VULNERABILITIES			EVALUATION	
	Perceived efficacy	Preservation of expertise	Easiness of Sacrifice in Adverse conditions of work	Additional resources needed	Conflict with other policies	Dreaded side effects (at least two measures)	Process vs Outcome Whole vision
Gradation of relevance							
Under control	Clear link with medical outcome and disease control	Risk control Preserve expertise	Scarcely sacrificed	NO	NO	NO	Outcome and disease oriented
Potential risk, need specific action before implementation	Ambiguous link with medical outcome	Need to plan recurrent training to maintain minimum expertise on alternative strategies	Sometimes sacrificed Anticipate conditions	YES Additional resource given	YES This new policy should have a greater importance for Authorities and Justice	YES Toxic side-effects Compromise needed on the rule	Process oriented Targeting Immediate precursors <small>(e.g. including team, preliminary hazard analysis, safety or failure mode and effect analysis (SMEDA))</small>
Definitively Weak	Micro Event centered	Risk exclusion strategy in an area where risk cannot be formally excluded	Always sacrificed Management will not care	YES Remain not afforded	YES The conflicting policy has a greater importance for Authorities and Justice	YES Toxic side-effects greater than benefits	Process oriented Targeting Facilitating factors (causal with outcome link not obvious)

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## Decision making policy

	P1	P2	P3	P4	P5	P6	P7
Score your matrix	Perceived efficacy	Threat on expertise	Easiness of Sacrifice	Extra resource needed	Conflict with other policy	Side effects	Measure outcome
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							
Any of FOUR POSITIVE	YOUR DESIGN HAS NO CHANCE TO BE BENEFICIAL FOR SAFETY						
Any of FIVE ORANGE ANY RED	YOU ARE CREATING RISK WITH YOUR SAFETY POLICY						

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## Take-Home Points

- Safety and risk reduction a priority
- No change in outcomes without reliable and tested design by end users
- Test the design against the seven principles
- MEASURE effectiveness
- Expect migrations and plan for them
- Impact on Design and Training programs

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