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HUMAN FACTORS EVERYWHERE

Safety-II in Practice

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THE PROBLEM WITH...

The problem with making Safety-II work in healthcare

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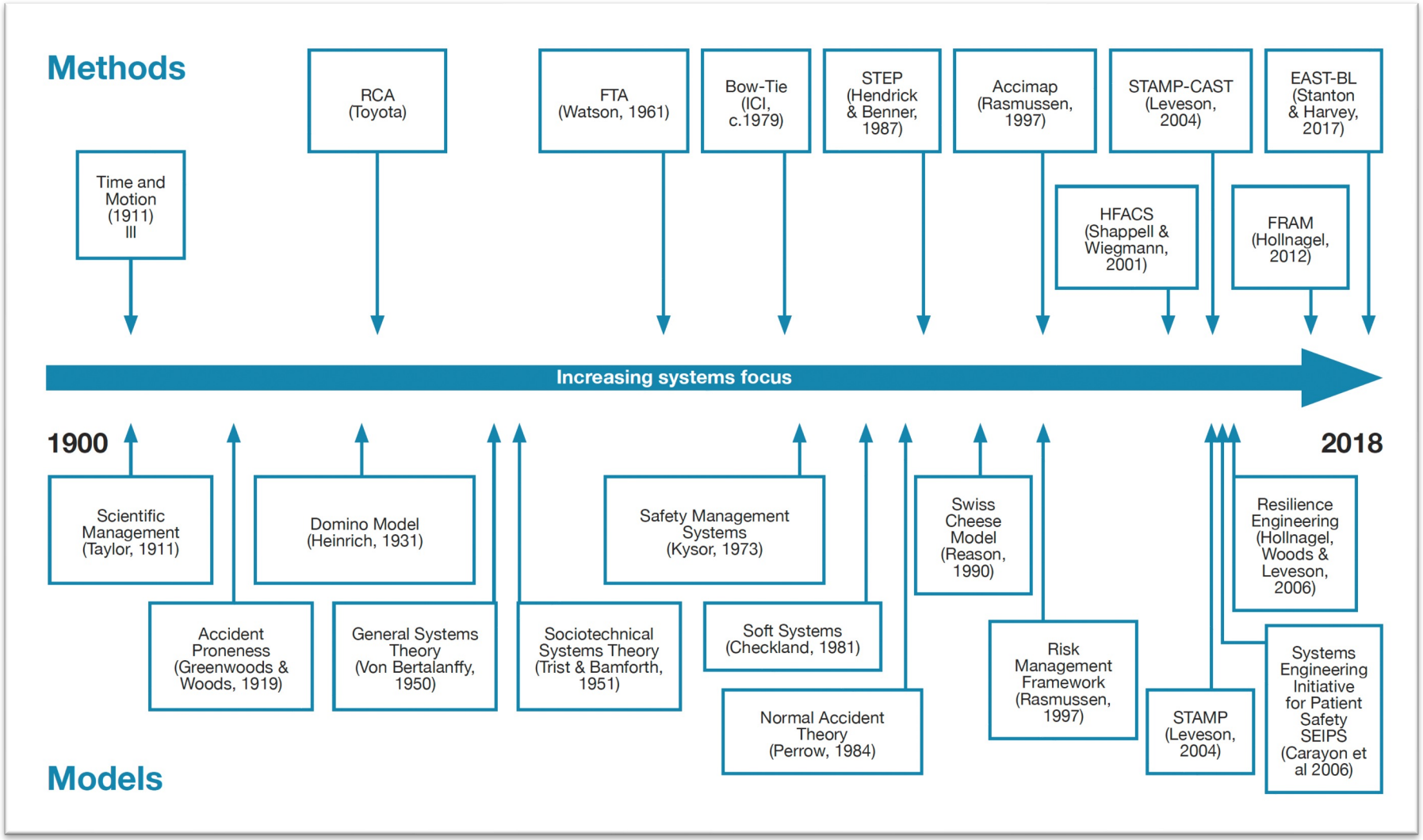
The problem with... series covers controversial topics related to efforts to improve healthcare quality, including widely recommended, but deceptively difficult strategies for improvement and pervasive problems that seem to resist solution.

INTRODUCTION

WHAT SAFETY-II BRINGS TO THE TABLE

BMJ

There is no "Safety-I"

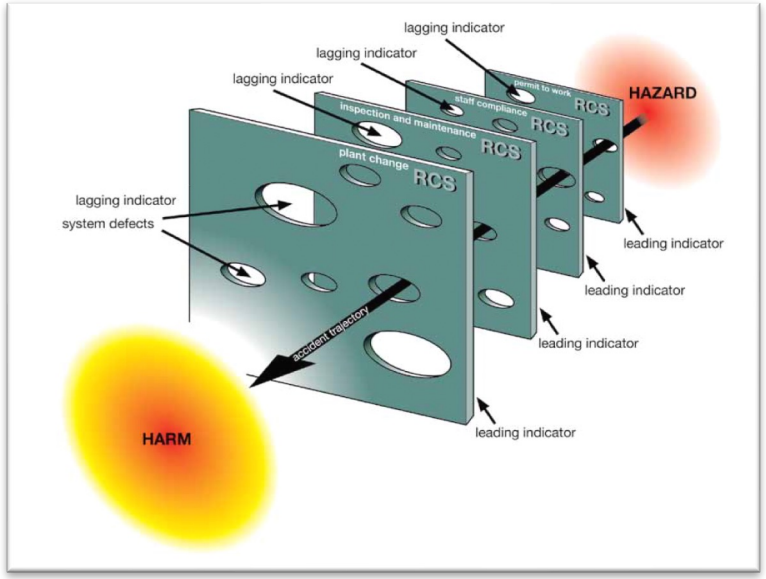


(Adapted from N.A. Stanton et al., Safety Science 120 (2019):117-128)

“Safety-I” is both reactive AND proactive

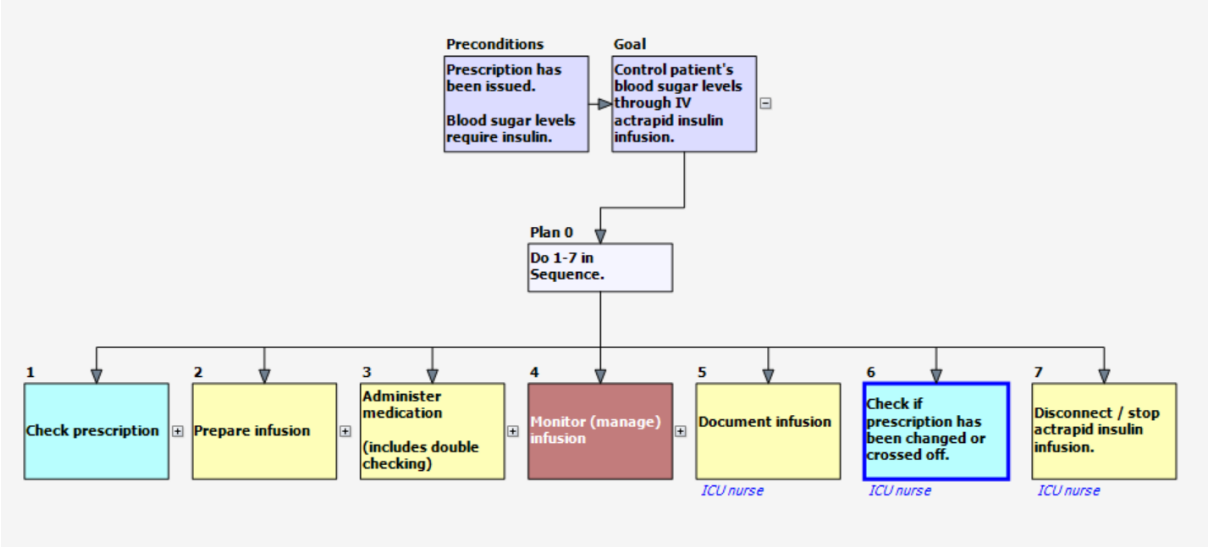
ID	Description	Agent/Person	Activity Type	Failure Mode	Error Description	Clinical Consequence	Consequence Type / Severity	Existing Risk Control Measures / Recovery	Performance Influencing Factors	Recommendations (HoC / PIFs)
2	Check prescription and double checking		Checking		See analysis at 1.1 - 1.3					
Plan 2	Do 1 - 2 in sequence. Do 3 independently									
2.1	Check prescription as first independent check		Checking		See analysis at 1.1.1 - 1.1.6					
Plan 2.1	Do 1-4 in Sequence									
2.1.1	Cross check prescription chart against patient (ID check - first name, surname, DoB, hopsital number, gender).	ICU nurse	Checking							
	Fm 2.1.1.1	ICU nurse	Checking	CH1 Check omitted	ID check not done.	Give wrong drug to the wrong person. Professional damage.	5. Catastrophic - Patient death	This is a risk control measure. Patients have wrist-bands. Policy and procedure. Double-checking (this is normally not done). Documentation normally kept in bed space (but can be taken out to show to doctor). Strong culture of checking.	Nurses normally only look after one patient so less likely to confuse different patients compared to other wards. Computer that displays patient records by bedside could be displaying someone else#s details, thereby causing confusion.	Scan wrist bands before administration. Mitigation strategies when patients with a similar name enter ICU, e.g. place them apart. Restrict computer use to patient by that bedside. Or make it obvious when viewing a distant patient.
	Fm 2.1.1.2		Checking	CH2 Check incomplete	Only a selection of identifiers is checked (e.g. just surname)	Like above.	5. Catastrophic - Patient death	Like above.	Nurses look aftre the same patient again and again so unlikely to check all the details	Scan wrist bands before administration.

Example: FMEA-style proactive risk assessment

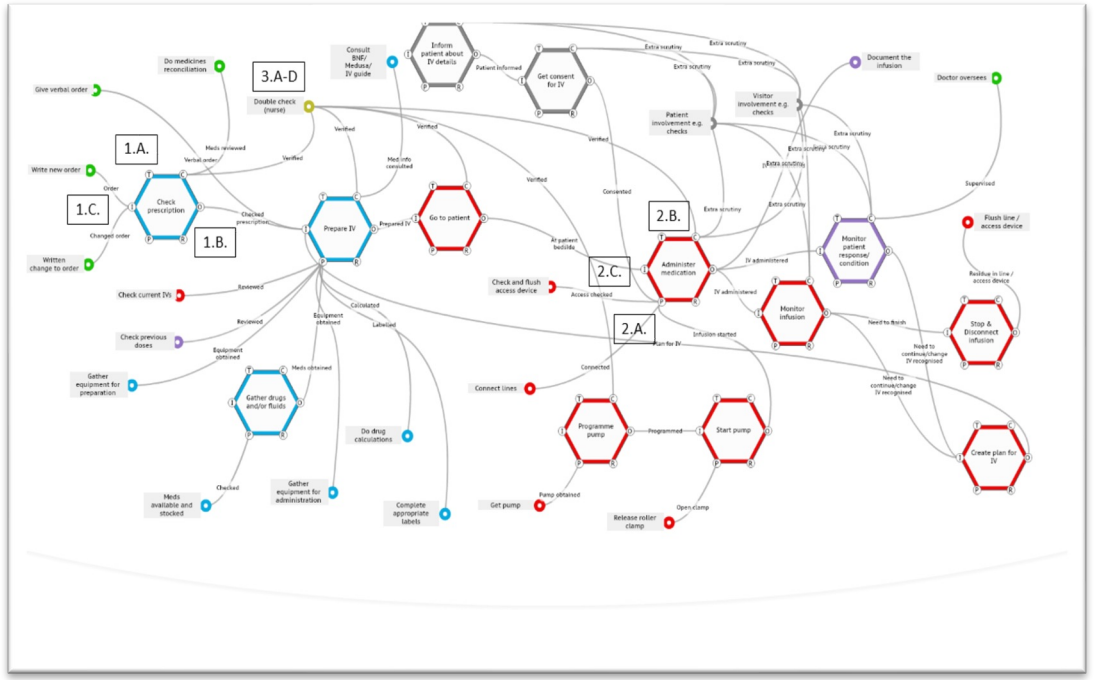


Example: Leading and lagging safety indicators (HSE 254)

Why Safety-II? Complexity



Work-as-imagined: complicated but predictable



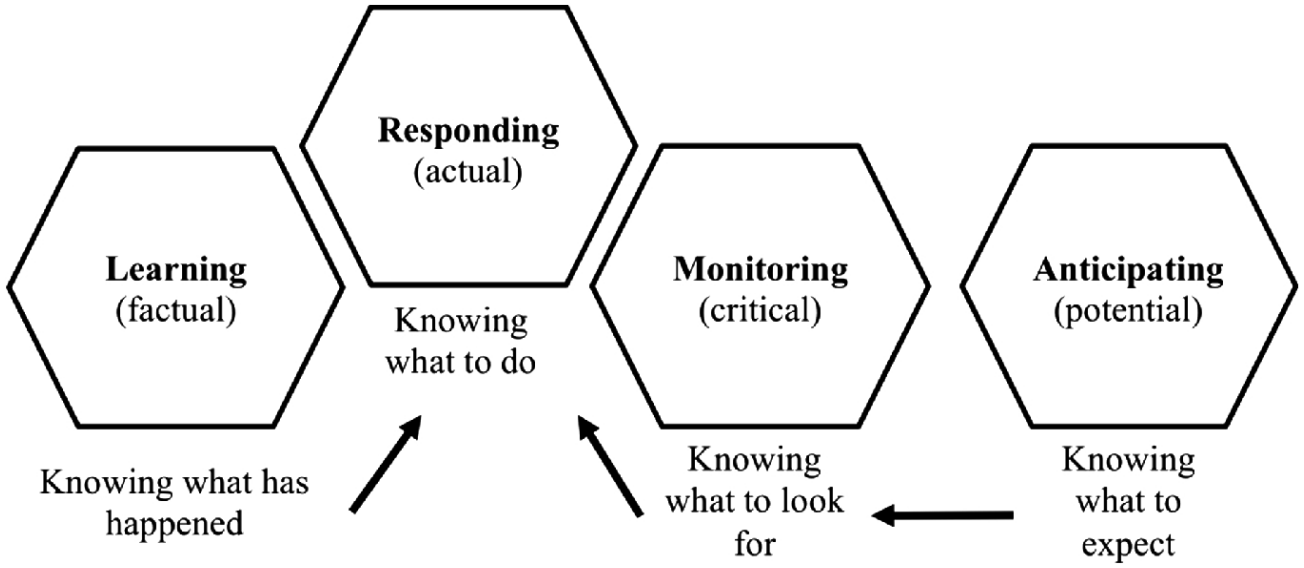
Work-as-done: complex and variable

Two Perspectives on Safety

Aspect	Safety-I	Safety-II
Definition of safety	Absence of adverse outcomes, absence of unacceptable levels of risk	Things going right, presence of resilience abilities
Safety management principle	Risk-based, control of risk through barriers	Achieving success through trade-offs and adaptations
Learning from experience	Learning from incidents and adverse outcomes, focus on root causes and contributory factors	Learning from everyday clinical work, focus on work-as-done and trade-offs
Performance variability	Potentially harmful, constraining performance variability through standardisation and procedures	Inevitable and useful, source of success and failure

(Based on Hollnagel, 2014)

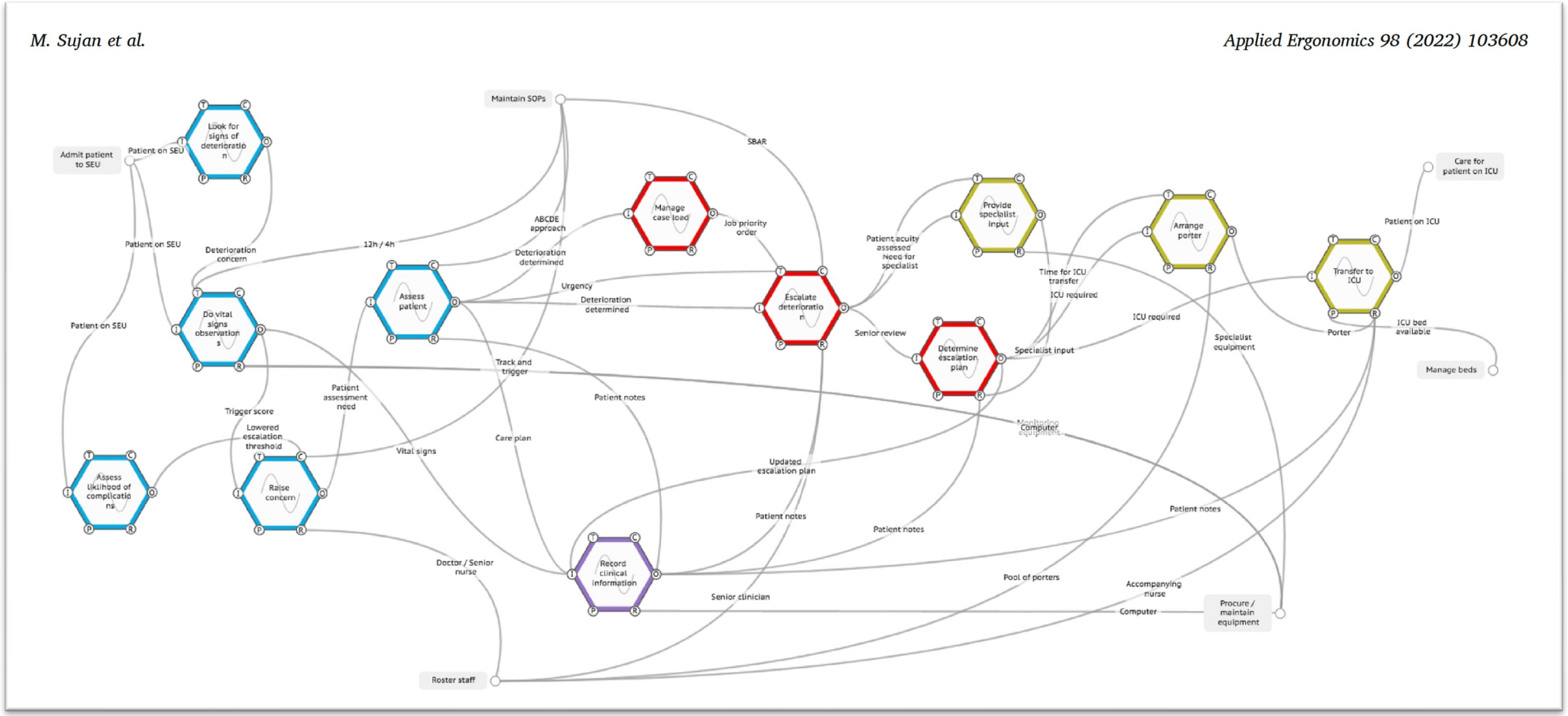
Resilience Abilities / Potentials



Box 1 Simplified example of resilience abilities in a system's delivery of care during the COVID-19 pandemic

- *Ability to monitor*: looking out for the number of patients with COVID-19 admitted and the number of staff off sick to apprehend the impact and requirements of the current situation.
- *Ability to respond*: changing the schedules of staff members and moving non-urgent services into the community to create extra in-hospital capacity.
- *Ability to anticipate*: the creation of long-term predictions about the impact of the expected increase in infections on the capacity of a hospital.
- *Ability to learn*: a reflection on the hospital's response to the preceding waves of infections, and the identification of what worked and why, to subsequently contemplate on plans to deal with future waves and challenge underlying beliefs about what 'good' care looks like in these circumstances.

WAD: Management of Deterioration



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Common (”Safety-I”) Recommendations

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- Failure to notice patient is unwell -> increase staffing levels
- Failure to measure vital signs -> education & training
- Failure to calculate NEWS -> education & training, usability
- Failure to take adequate history -> education & training, staffing
- Failure to check notes -> electronic medical records, usability
- Failure to commence correct initial treatment -> education
- Failure to inform senior doctor -> communication and teamwork
- Failure to arrange definite management -> clear escalation protocol

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Linking WAD to Resilience Abilities

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Resilience Ability	Learning from everyday work (what goes well)
Monitoring	• Knowing what to look out for (e.g. keeping an eye on patients likely to deteriorate) • Knowing experience / limitations of colleagues / roles • Having an overview of whole department (e.g. “hot / cold consultant”) • Building an awareness (e.g. patients that are not one’s own)
Responding	• Working within the multi-disciplinary team • Taking responsibility when colleague is busy or does not have sufficient experience / skills (e.g. nurses escalating to senior doctor) • Offering help (e.g. nurses supporting junior doctors) • Allocating people dynamically (e.g. pulling people in) • Preparing resources / people for potential deterioration so that action can be taken quickly if needed • Being able to trust colleagues (e.g. when referring patients) • Accommodating other people’s workloads and being responsive to them
Anticipating	• Knowing when peaks are in order to support workforce and skill-mix planning
Learning	• Appreciating gaps between work-as-imagined and work-as-done (trade-offs) • Establishing effective MDT and inter-departmental working relationships • Creating and promoting psychological safety • Understanding of roles and their actual and potential responsibilities • Building and maintaining trust

Safety-II Recommendations

Resilience Ability	Suggestions for strengthening resilience
Monitoring	• Dynamic plans for patients • Machine learning to predict deterioration • Create and maintain roles with explicit responsibility for having awareness of patients and patient movements across the department. • Implement easily accessible and visible IT solutions (e.g. electronic whiteboard) that communicate this awareness to all relevant members of staff.
Responding	• Dynamic plans for patients – early involvement and starting escalation before patient deteriorates. • Include roles that are deployable flexibly (e.g. floating staff). • Rehearse and formalise which roles and which areas can provide resources during peak demand. • Collaborative decision-making and sharing of tasks (nurse – junior doctor). • Facilitate bonding and relationship building
Anticipating	• Implement IT systems that collect and aggregate relevant data.
Learning	• Implement organisational learning processes that capture everyday work. • Design resilient procedures and work processes that explicitly consider the need for trade-offs. • Create opportunities for informal and inter-departmental learning.

Reflections

- Reflecting on WAD is important and useful, but…
- …analysis of WAD provides prompts and ideas, but not simple (simplistic) causal links and risk controls…
- ...and interventions at a systems level can be challenging to implement…
- ...and the evidence base is weak because we lack appropriate evaluation framework.
- A diversity of perspectives (”Safety-I” and Safety-II) is not a contradiction but helpful.

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