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International Forum on QUALITY & SAFETY in HEALTHCARE | 18-20 September 2019 Taipei | Institute for Healthcare Improvement | BMJ

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Changing how we think about healthcare improvement

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International Forum on Quality & Safety in Healthcare, International Improvement Research Symposium, Taipei

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Our mission is ***to enhance local, institutional and international health system decision-making through evidence****; and* ***use systems sciences and translational approaches to provide innovative, evidence-based solutions*** *to specified health care delivery problems.*

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PIONEERING | STRATEGIC | IMPACT

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Australian Institute of Health Innovation

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- Professor Jeffrey Braithwaite

Founding Director, AIHI; Director, Centre for Healthcare Resilience and Implementation Science

- Professor Enrico Coiera

Director, Centre for Health Informatics

- Professor Johanna Westbrook

Director, Centre for Health Systems and Safety Research

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Part 1: Why is change so hard?

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First things first

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How is changed managed in your organisation?

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First things first

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Change is well managed in my organisation:

1	2	3	4	5
Strongly agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**

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Part 2: Common models of change

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Model 1: Use the structure

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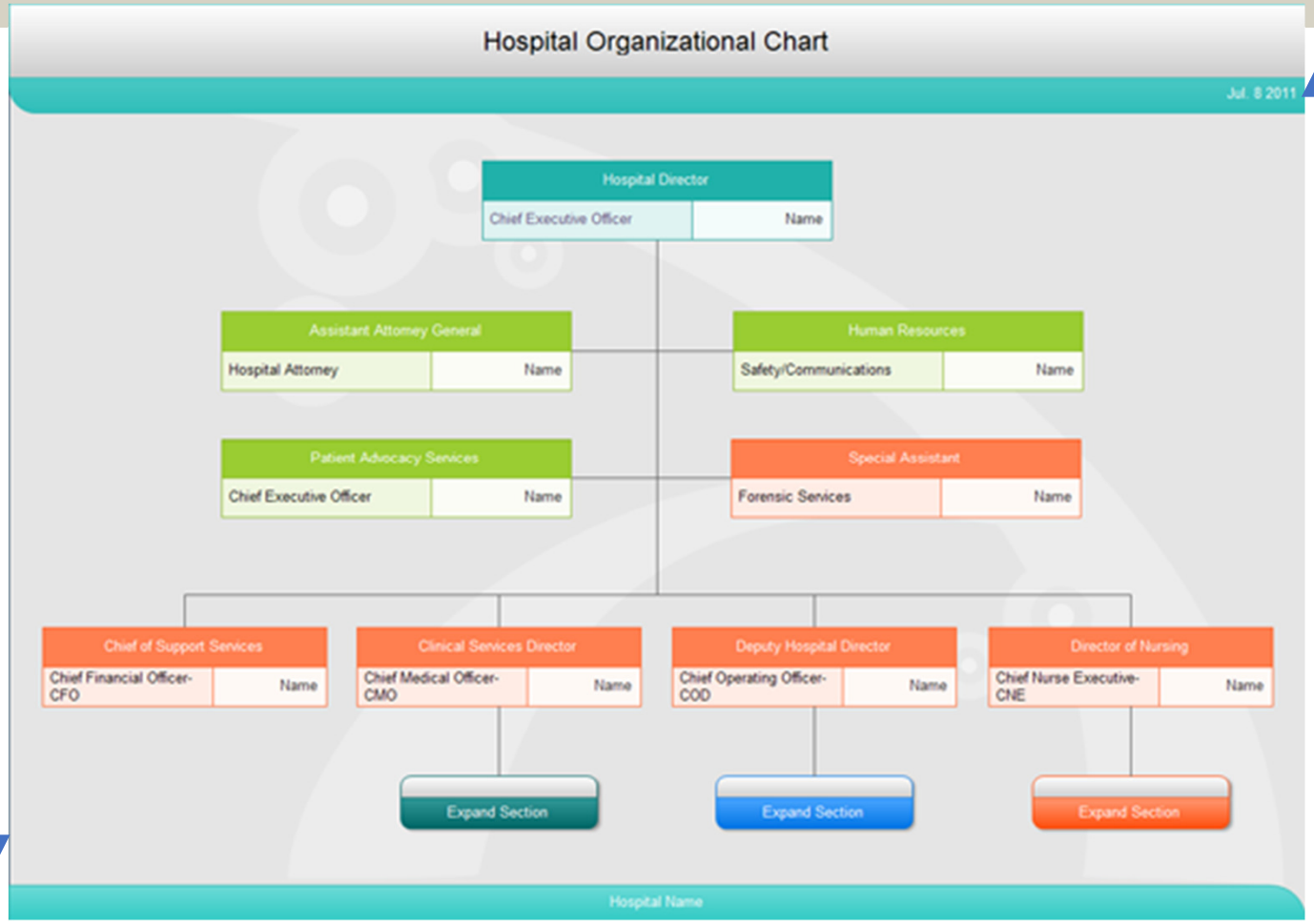
Policy, rules, money, etc flow downwards



Accountability, information, efforts flow upwards

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Model 2: Change the structure

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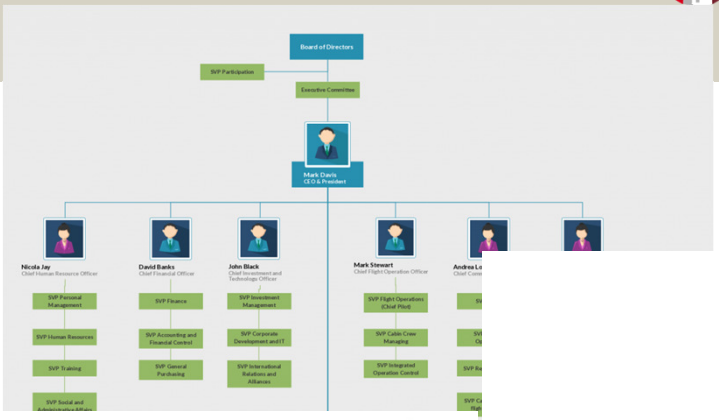

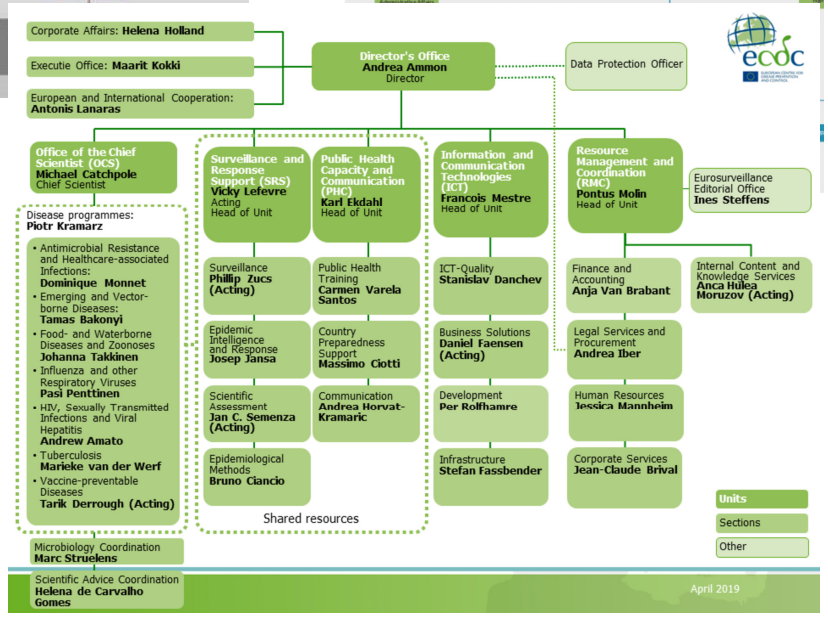

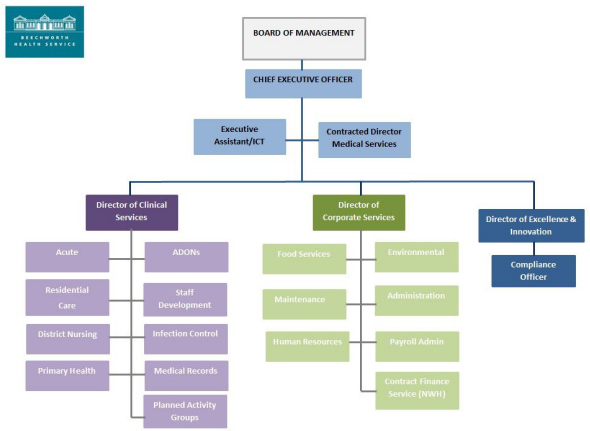

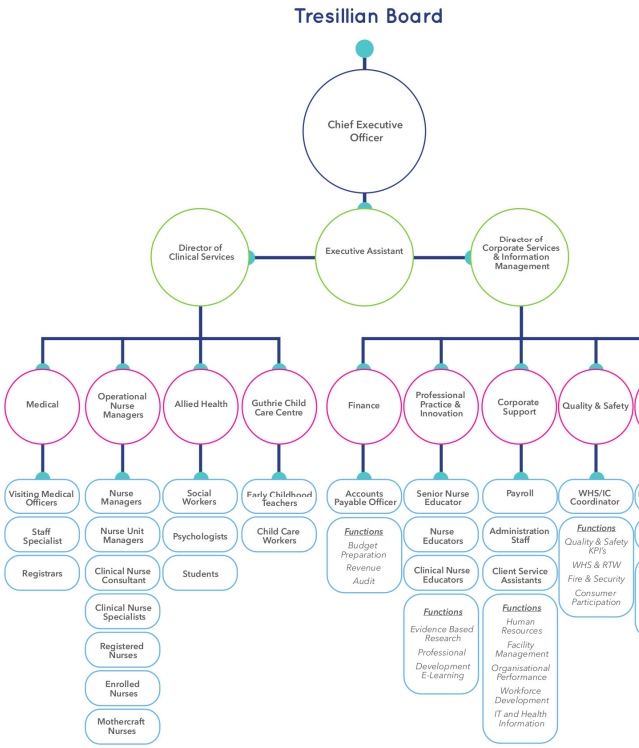

Model 3: Change the culture

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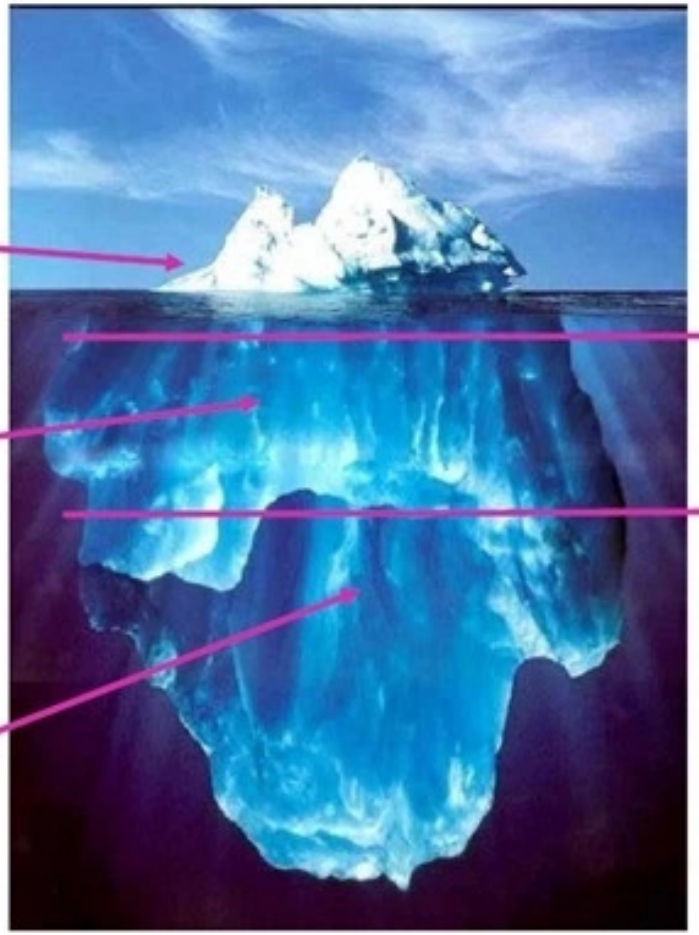
Norms, Behaviors and artifacts.
Visible, tangible.

Personal Values and Attitudes.
Less visible, but can be talked about.

Cultural Values and Assumptions.
Usually not visible at all, often held subconsciously, rarely (if ever) questioned in everyday life.



Model 4: Run a project

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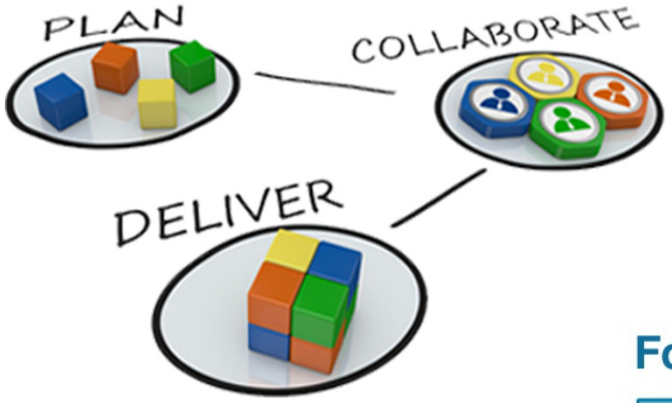
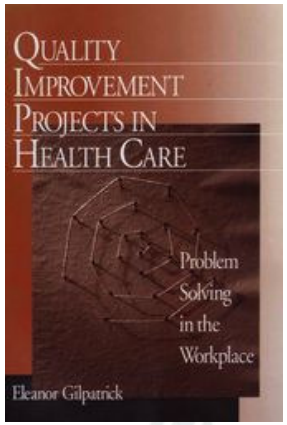




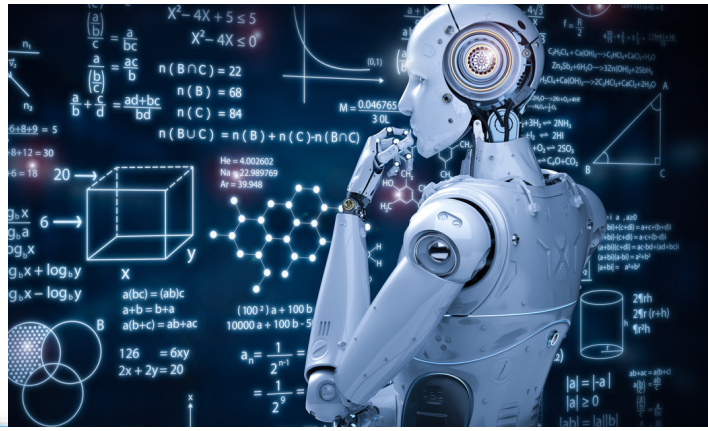
Four Step Approach

Step 1: Define the Project and Business Need
- State proposal
- Justify business need

Step 2: Begin to Quantify ROI

Step 3: Recruit, Train, Plan and Implement

Step 4: Evaluate Costs, Revenue & Direct Benefits



Model 5: Apply a stimulus

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- Rewards
- Incentives
- Praise
- Discipline
- Performance manage
- [Insert your own preferred stimulus here]

Model 6: Do something simple with leverage

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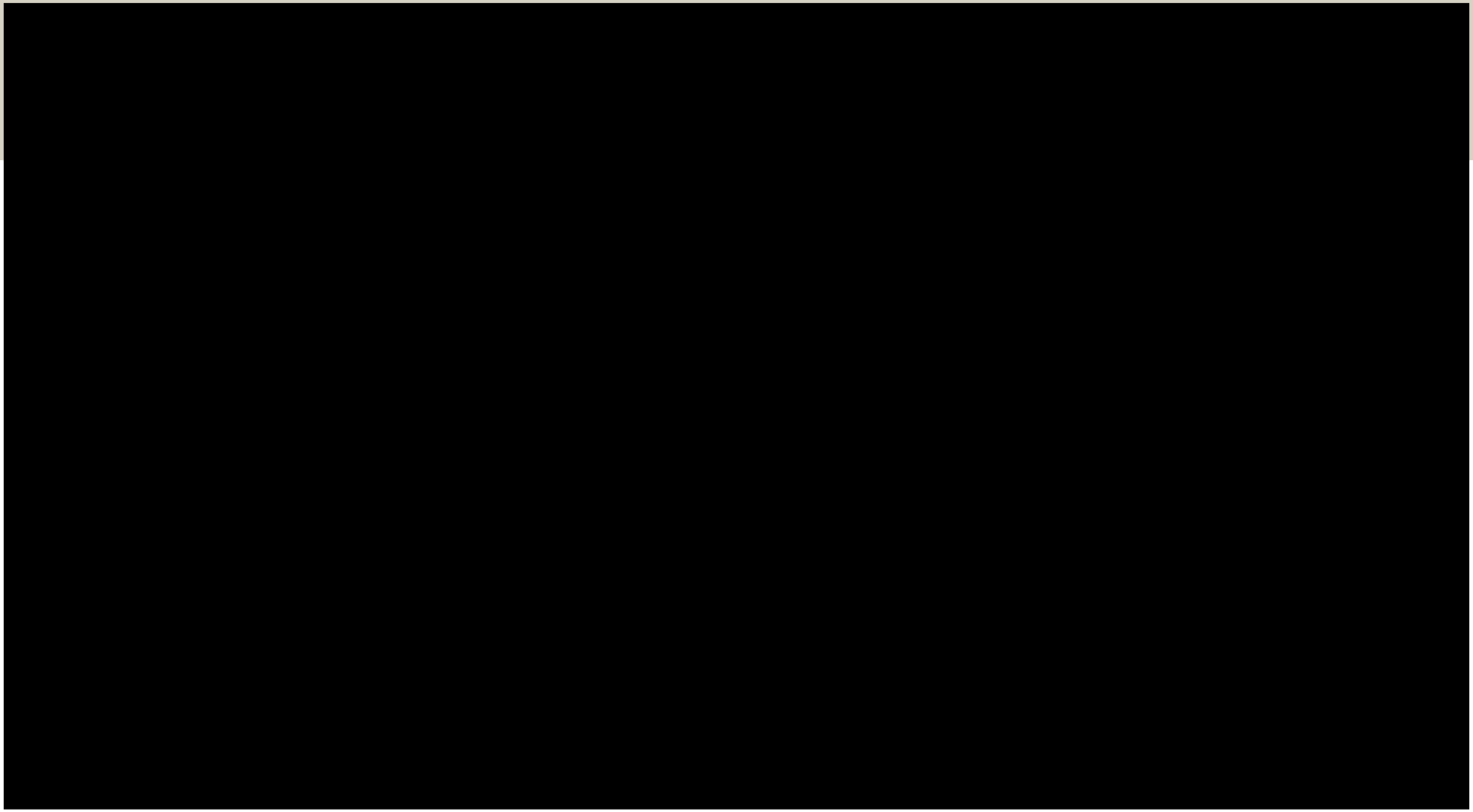
#theatrecapchallenge

http://www.smh.com.au/national/health/rabblerousing-surgical-staff-wear-their-names-on-their-caps-to-stop-mixups-and-improve-patient-safety-20171211-h02o1c.html [Published December 13 2017]

- Surgical staff writing their names and job title on their caps
- Stops mix-ups and improves patient safety
- Dr Rob Hackett in Australia started to show up to surgery with his name and profession written on his scrub cap
- Many mocked him, but he has now started an international movement 6 months later
- Helps reduce delays and misidentification when clinicians cannot recognise or remember names of colleagues
- #Theatrecapchallenge has been shared by staff in Australia, UK, US, Europe and South America



[Source: The Awkward Drive Home – Mr Bean. https://www.youtube.com/watch?v=dNn4YFvQLMI]

Changing how we think about healthcare improvement

Complexity science offers ways to change our collective mindset about healthcare systems, enabling us to improve performance that is otherwise stagnant, argues **Jeffrey Braithwaite**

For all the talk about quality healthcare, systems performance has frozen in time. Only 50-60% of care has been delivered in line with level 1 evidence or consensus based guidelines for at least a decade and a half[1-5]; around a third of medicine is waste, with no measurable effects or justification for the considerable expenditure[6-9]; and the rate of adverse events across healthcare has remained at about one in 10 patients for 25 years.[10-13] Dealing with this stagnation has proved remarkably difficult—so how do we tackle it in a new, effective way?

adaptive system, meaning that the system's performance and behaviour changes over time and cannot be completely understood by simply knowing about the individual components. No other system is more complex: not banking, education, manufacturing, or the military. No other industry or sector has the equivalent range and breadth—such intricate funding models, the multiple moving parts, the complicated clients with diverse needs, and so many options and interventions for any one person's needs. Patient presentation is uncertain, and many clinical processes need to be

make it hard to impose order. And health systems are indeterministic—meaning that the future cannot be predicted by extrapolating from the past. They are also fractal and self similar, often looking alike in, for example, organisational culture in different places and at different points in time.

How then is a system as complex and seemingly dynamic as healthcare typically in a steady state, with entrenched behaviours, cultures, and politics? Because the total of the negotiations, trade-offs, and positioning of stakeholders pulls strongly

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Part 3: Change in a complex system

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The Cynefin Framework

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Simple

Complicated

Complex

Chaotic

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Examples in healthcare

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Simple **Complicated** **Complex** **Chaotic**

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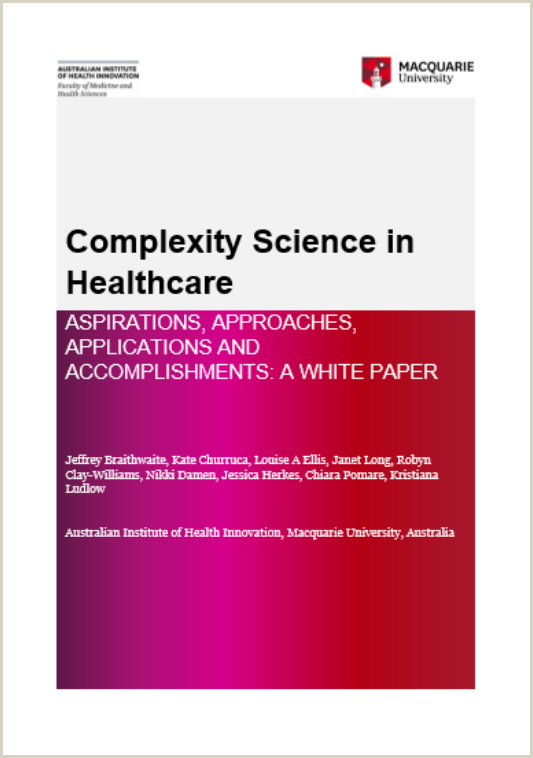
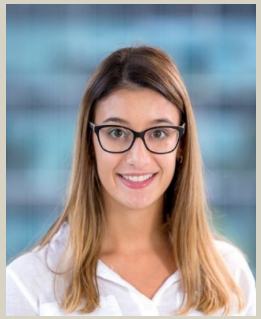
Complexity Science in Health Care: *A White Paper*





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Properties of complexity

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1. Agents
2. Interacting
3. Self-organised
4. Collective
5. Networks
6. Rules
7. Emergence
8. Uncertainty
9. Adaptive
10. Dynamical
11. Bottom up
12. Transitional
13. Feedback
14. Path dependence

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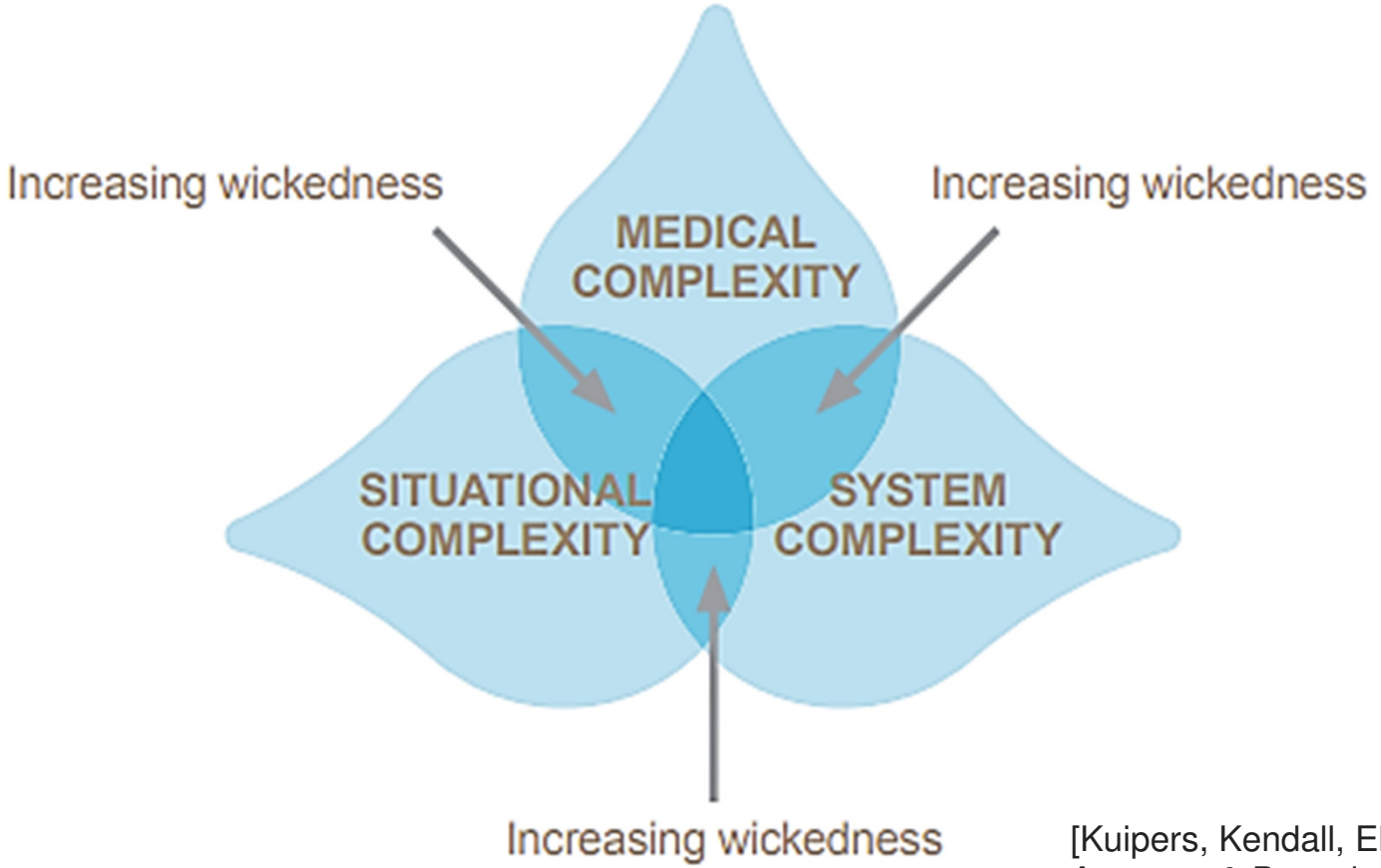
[Braithwaite 2010; Braithwaite 2015. Gaps in systems]

Layers of complexity in healthcare



[Kuipers, Kendall, Ehrlich, McIntyre, Barber, Amsters, & Brownie, 2011]

Everything is more complex than it looks: Lynch Syndrome

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How it looks

[Taylor et al 2016]

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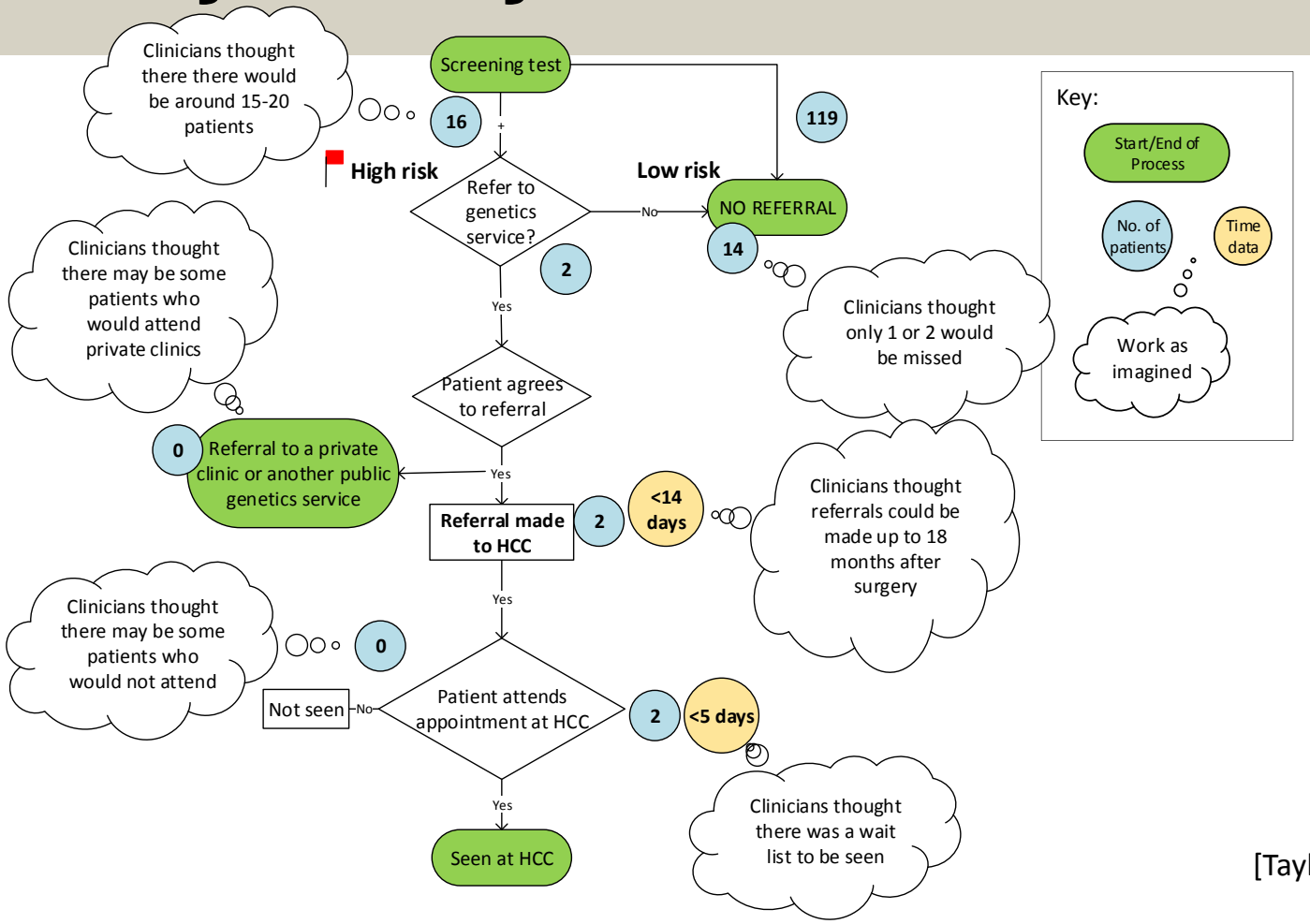
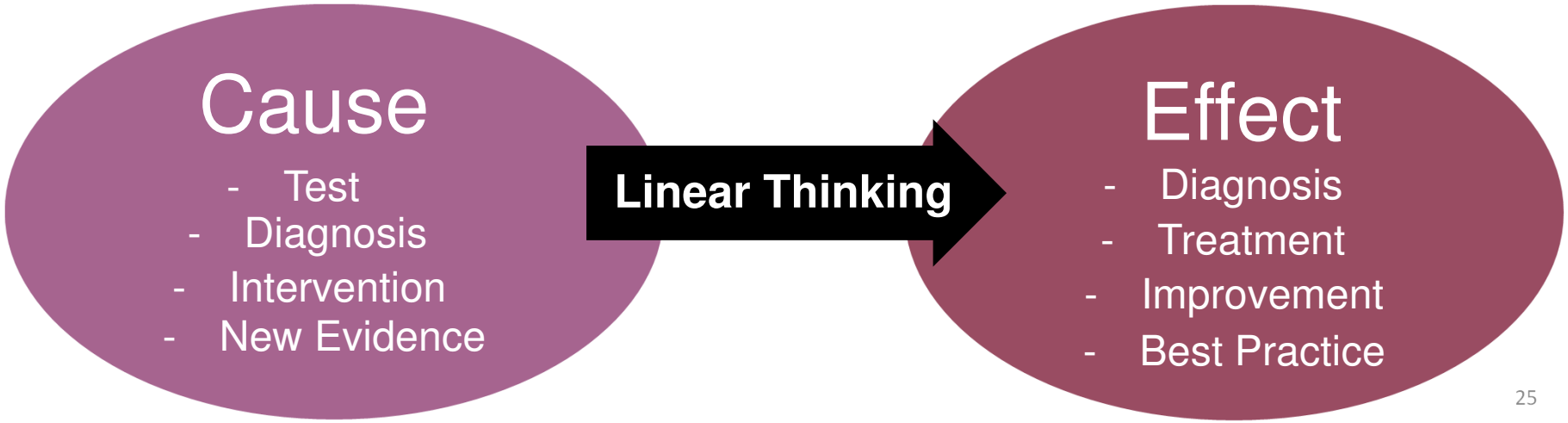
Example: Lynch Syndrome



[Taylor et al 2016]

In healthcare improvement…



But it's rarely that simple

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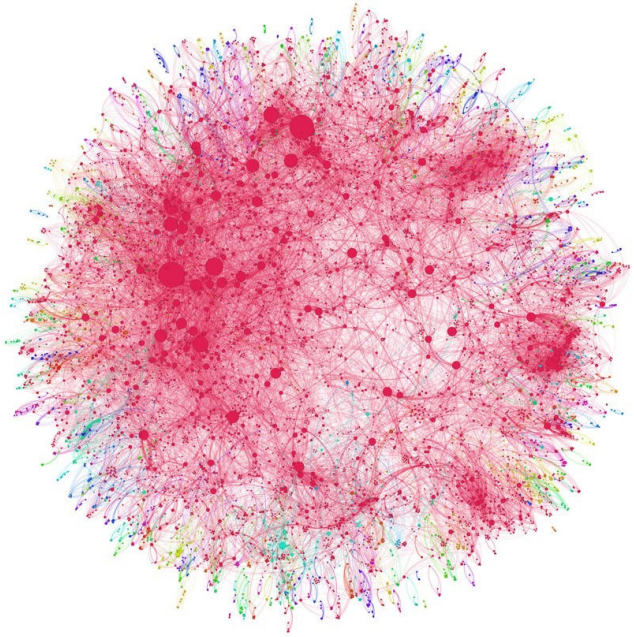

Remedies for linear thinking

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1. Look for *interconnections*.
2. Consider that *you can't actually see very far ahead*.
3. Look for *patterns in the system's behaviours*, not just at events.
4. Be *careful if attributing cause and effect*. It's rarely that simple.
5. Generate *new ideas beyond your own resources* when tackling problems.

Remedies for linear thinking

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6. Keep in mind *systems never change in a 1:1 relationship between what's intended* and what actually eventuates.
7. If you have sufficient resources, *model the system properties* surrounding the problem you are trying to address.
8. *Use systems tools* at your disposal: these range from sociograms, to social network analyses, to systems diagrams, to soft systems methodology, to role plays, to simulation.

Part 2: Another way of looking at change: resilience

WAI/WAD

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WAI and WAD

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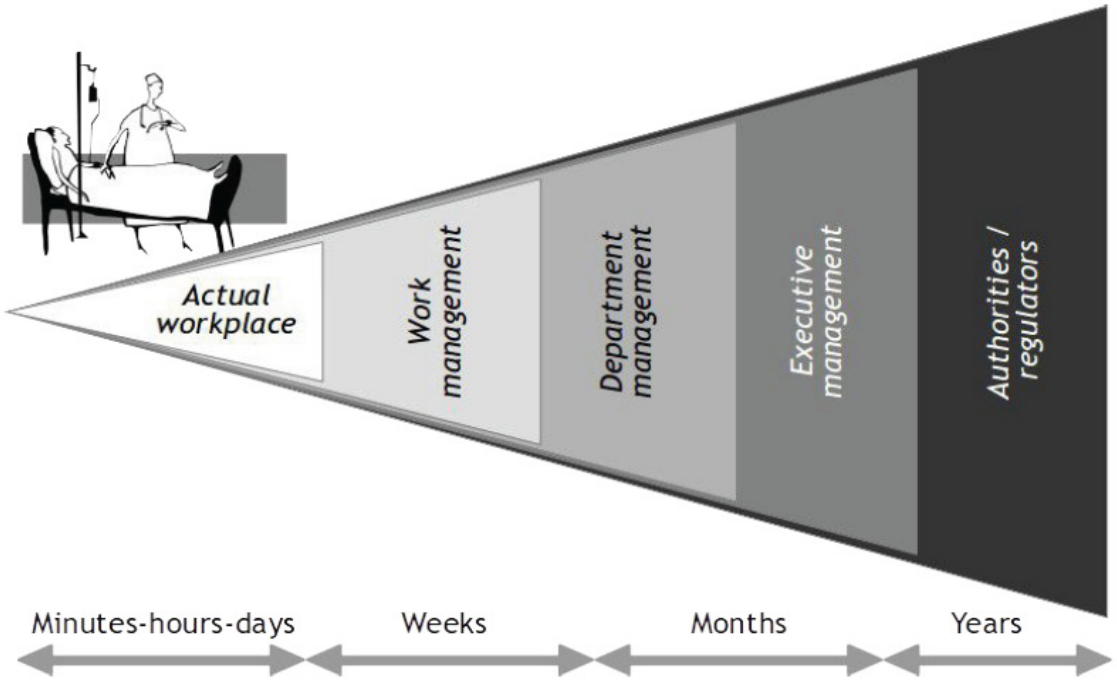
The sharp end: work-as-done



The blunt end: work-as-imagined

[Hollnagel, 2015]

Are you on this list?

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Policy-makers, executives, managers, legislators, governments, boards of directors, software designers, safety regulation agencies, teachers, researchers …

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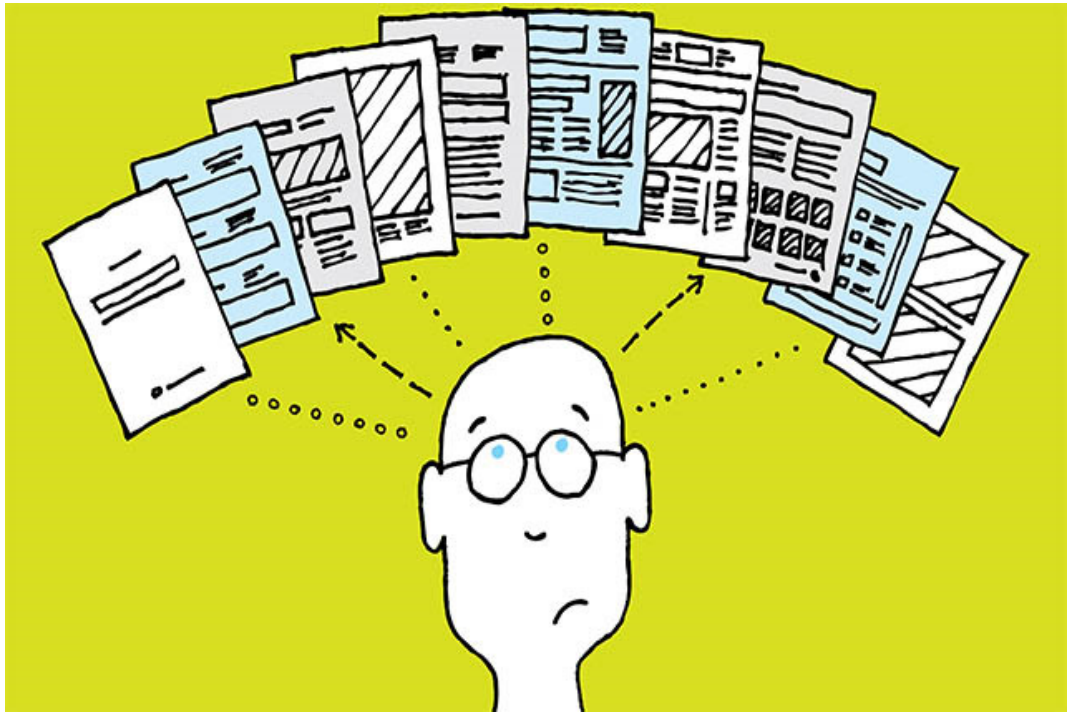
The blunt end tries to …

shape, influence, nudge behaviour



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What they do seems perfectly logical, obvious and feasible

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In healthcare, those doing WAI have designed, mandated or encouraged a bewildering range of tools, techniques and methods, to reduce harm to patients

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But …

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Meanwhile work is getting done, often *despite* all the policies, rules and mandates

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WAD—workarounds

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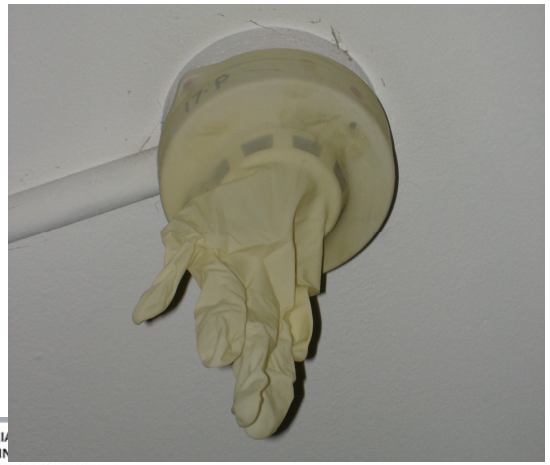
Glove placed over a smoke alarm, as it kept going off due to nebulisers in patients' rooms



A leg strap holding an IV to a pole, as the holding clasp had broken

Plastic bags placed over shoes to workaround the problem a of gumboot (welly) shortage

WAD—fragmentation

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Doctors in Emergency Departments in a study:

- Were interrupted 6.6 times per hour
- Were interrupted in 11% of all tasks
- Multitasked for 12.8% of the time

[Westbrook et al. 2010. Qual Saf Health Care]

Doctors in EDs in a study:

- Spent on average 1:26 minutes on any one task
- When interrupted, spent more time on tasks
- And … failed to return to approximately 18.5% of interrupted tasks

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[Westbrook et al, 2010, Qual Saf Health Care]

Reconciliation

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And therefore the only real solution is to try and *reconcile work-as-imagined* (WAI) and *work-as-done (WAD)*

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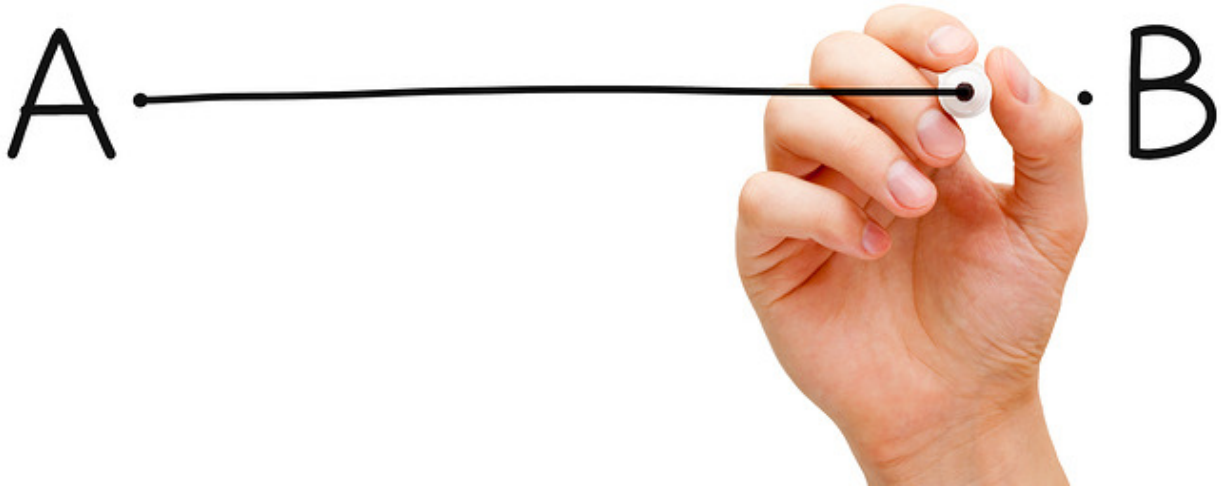
So some work-as-imagined folks often have some sort of linear, mechanistic view of the system



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Instead, health care is a complex adaptive system delivered by people on the front line who flex and adjust to the circumstances

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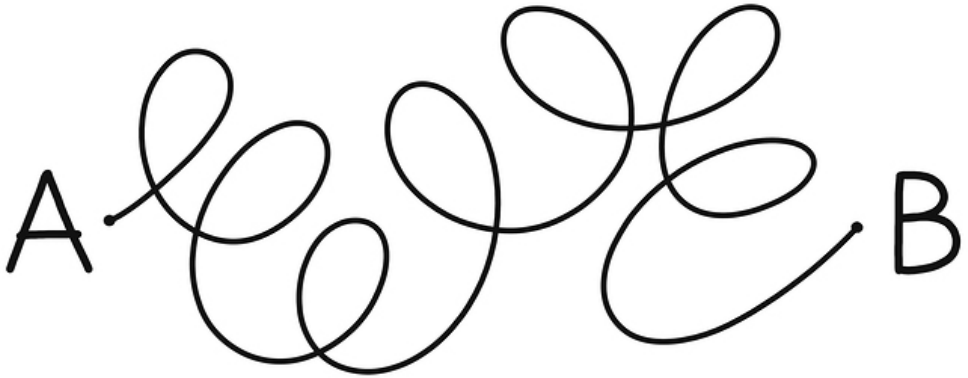
And don't deliver care in the way blunt end prescriptivists want them to



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Part 3: Changing views of patient Safety

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Safety in Patient Care

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"After decades of improving the health care system, patients still receive care that is highly variable, frequently inappropriate, and too often, unsafe."[1]

[1]Runciman WB, Hunt TD, Hannaford NA, Hibbert PD, Westbrook JI, Coiera EW, Day RO, Hindmarsh DM, McGlynn EA, Braithwaite J (2012) CareTrack: assessing the appropriateness of health care delivery in Australia. *Medical Journal of Australia,* 197:549.

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There is some reassurance, however: We have been successful e.g. …

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Heart bypasses on eighty year olds, key hole surgery, treatment for HIV/AIDS

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Safety in Patient Care

But the rates of harm haven't reduced far enough

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They seem to have flatlined at 10%

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So we needed new ideas and innovations in thinking about patient safety

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Safety-I and Safety-II

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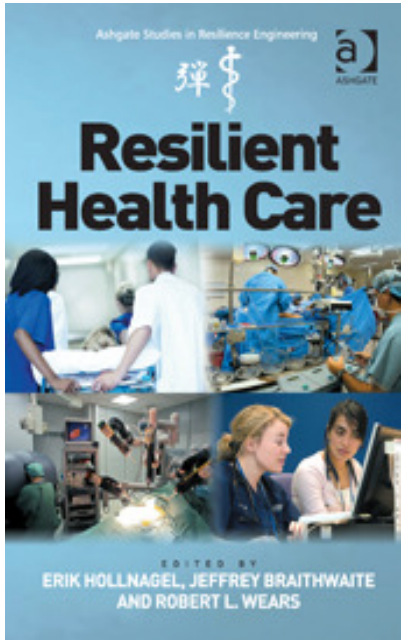

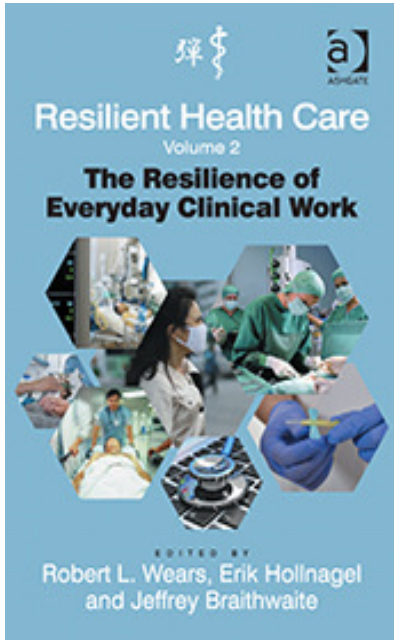

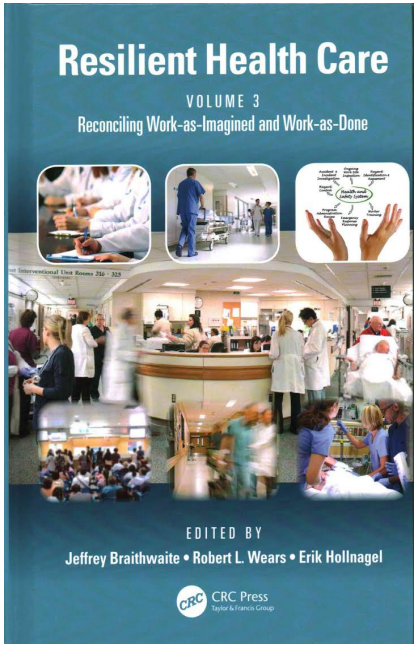

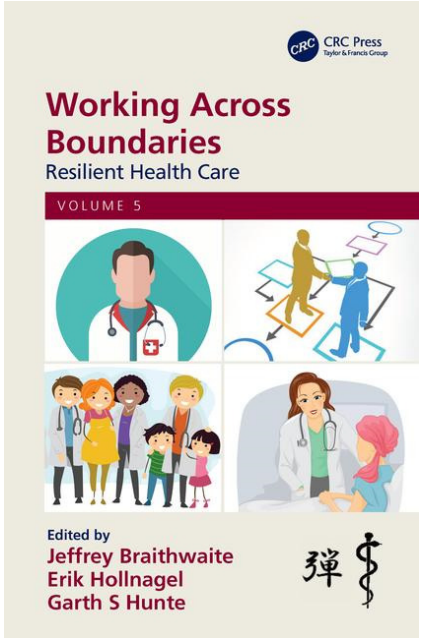

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Safety-I and Safety-II

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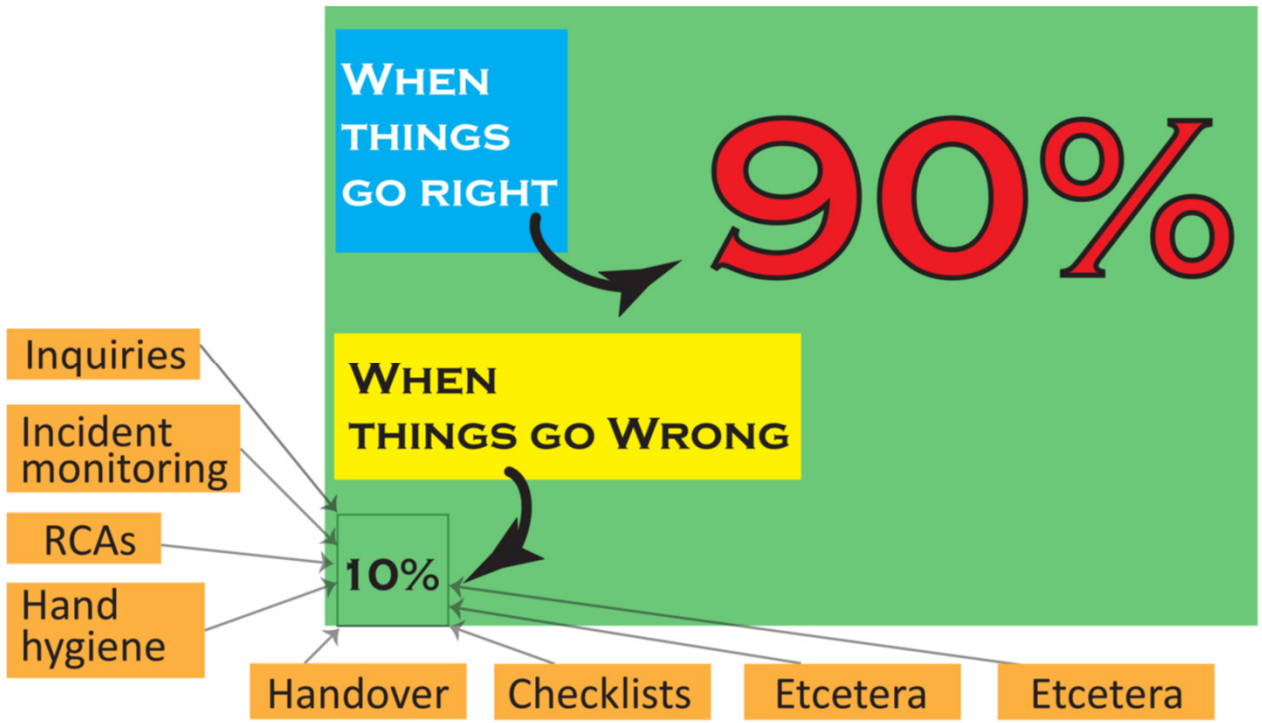
The amazing thing about health care isn't that it produces adverse events in 10% of all cases, but that it produces safe care in 90% of cases



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Safety-I – where the number of adverse outcomes is as low as possible

Trying to make sure things don't go wrong

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Safety-II – where the number of acceptable outcomes is as high as possible

Trying to make sure things go right

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Few people have ever looked at *why things go right so often*

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So:

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Can we shift the emphasis to a more positive approach?

To make sure things will go right more often?

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Part 4: Claims about change, and the reality

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Claim 1: Healthcare has changed

“After 25 years of evidence based medicine, care is evidence based.”

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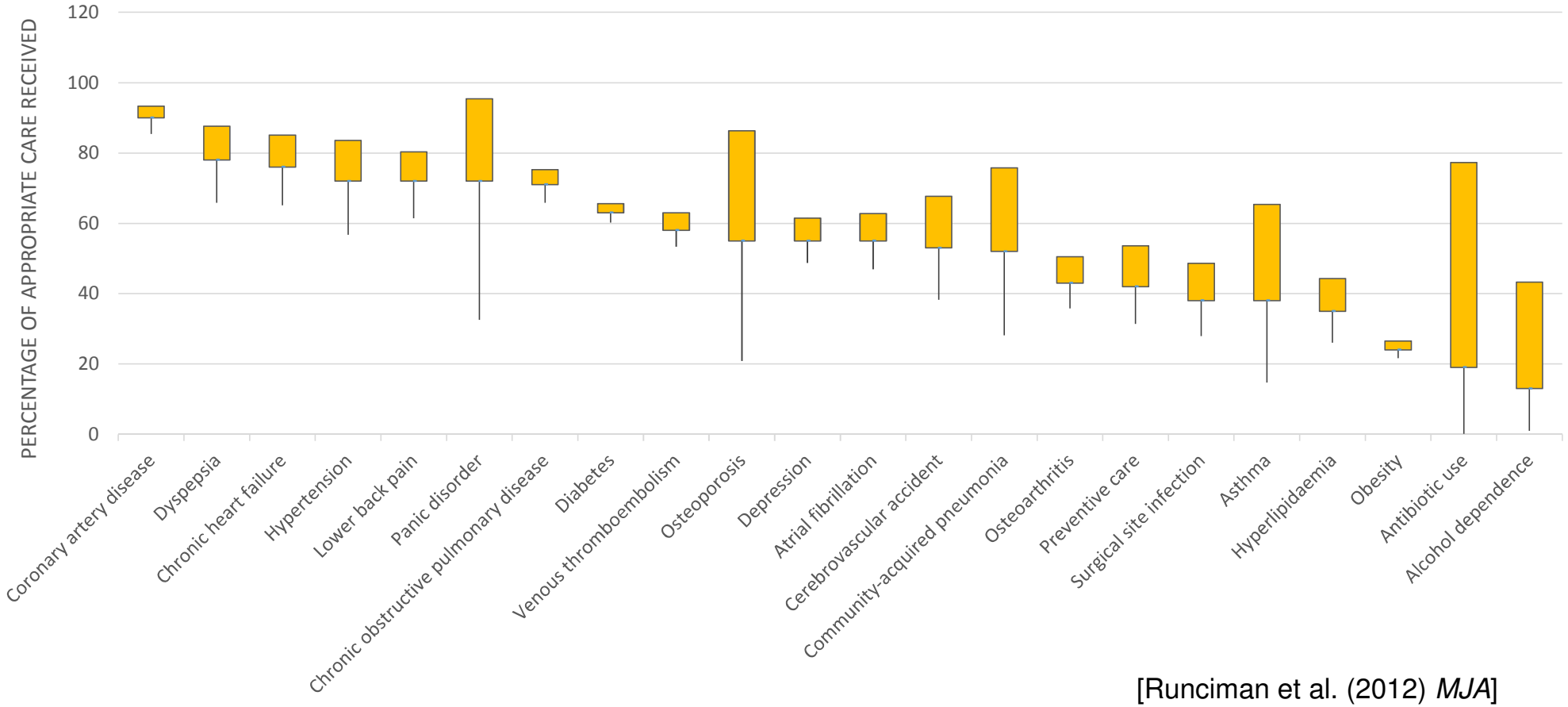
Large scale appropriateness studies

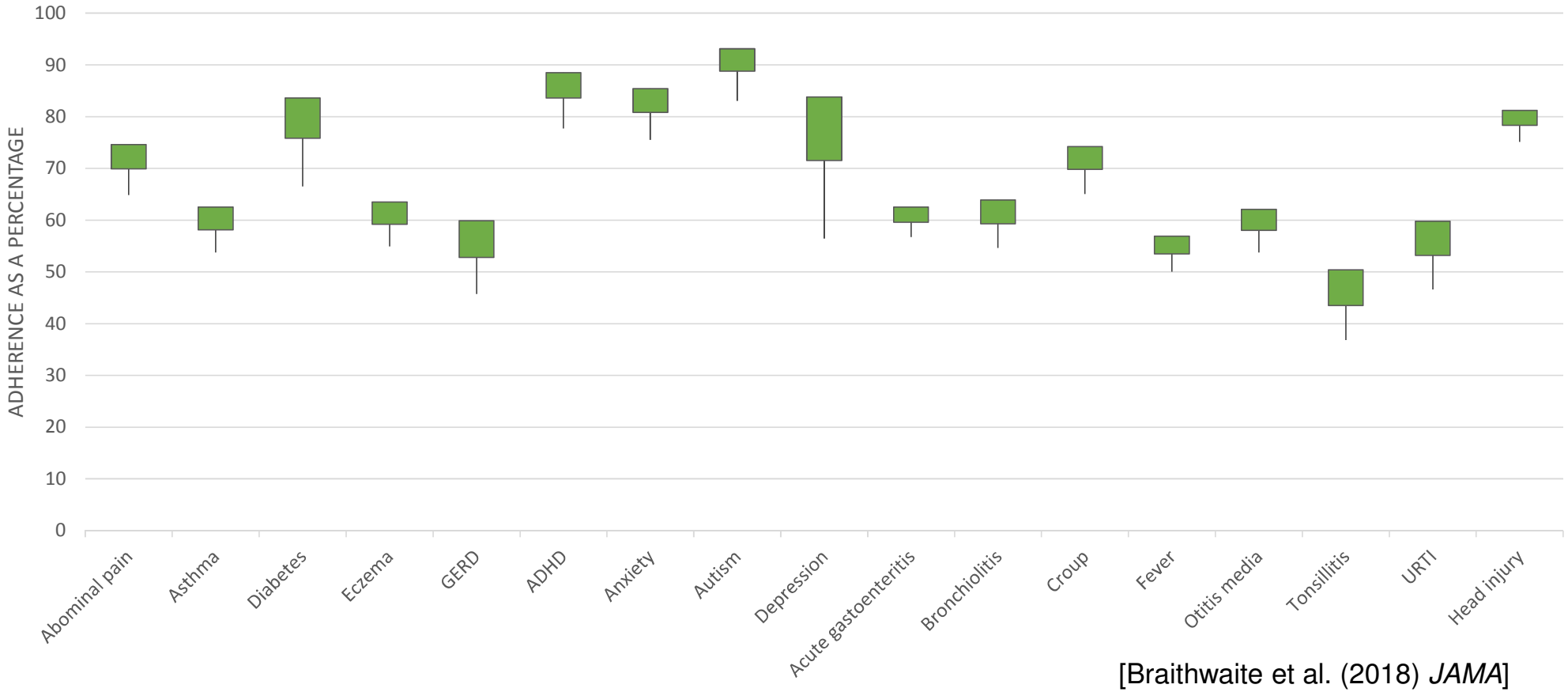
	Adults (Australia 2012)	Adults (UK 2018)	Adults (US 2013)	Children (Australia 2018)	Children (US 2007)
UCI	60	63.2	55.5	62	48.5
LCI	54	61.5	54.3	57.5	44.5
● Mean	57	62.3	54.9	59.8	46.5

CareTrack Adults



[Runciman et al. (2012) *MJA*]

CareTrack Kids



[Braithwaite et al. (2018) *JAMA*]

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Claim 2: Healthcare has changed

“We are a high performing hospital.”

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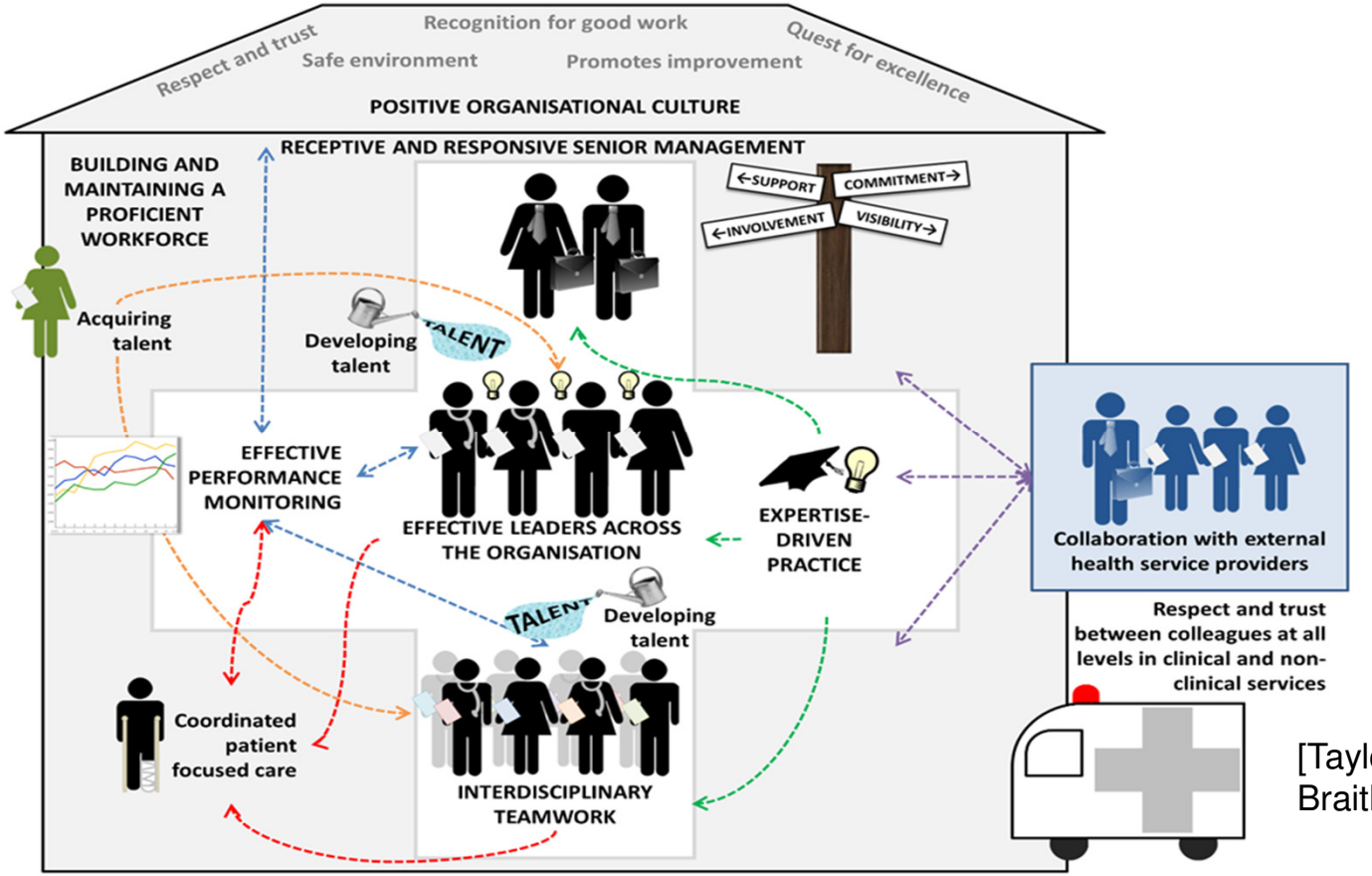
High performing hospitals



[Taylor, Clay-Williams, Hogden, Braithwaite, Groene. 2015.]

High performing hospitals

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- Positive organization culture
- Receptive and responsive senior management
- Performance monitoring
- Building workforce

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[Taylor, Clay-Williams, Hogden, Braithwaite, Groene. 2015.]

High performing hospitals

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- **Expertise driven practice**
- **Inter-disciplinary teamwork**
- **Effective distributed leadership**

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[Taylor, Clay-Williams, Hogden, Braithwaite, Groene. 2015.]

So, what works? EPOC evidence

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- **Audit and feedback** (which can lead to small but potentially important changes in provider behaviour)
- **Local opinion leaders** (the best way to make use of local opinion leaders is unclear)
- **On-screen point of care reminders** (which can lead to small to modest improvements in provider behaviour)

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[EPOC; Flodgren et al 2011; Balas et al. 2000]

So, what works? EPOC evidence

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- **Interventions to promote safe and effective use of medicines by consumers** (no single beneficial strategy)
- **Educational outreach** (AKA academic detailing) (consistent, small and important impacts on prescriber behaviour)
- **Tailored intervention strategies to change health practitioner performance** (small to moderate impacts, but the effect is variable)

EPOC; Flodgren et al 2011; Balas et al. 2000]

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Part 5: Thinking about healthcare change

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What will you do to change this and improve the system?

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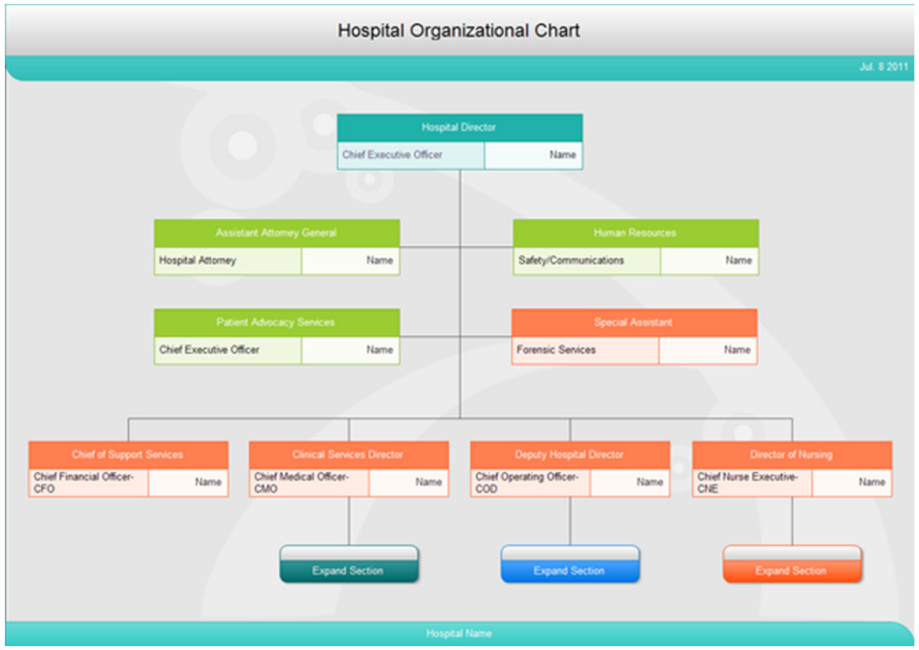

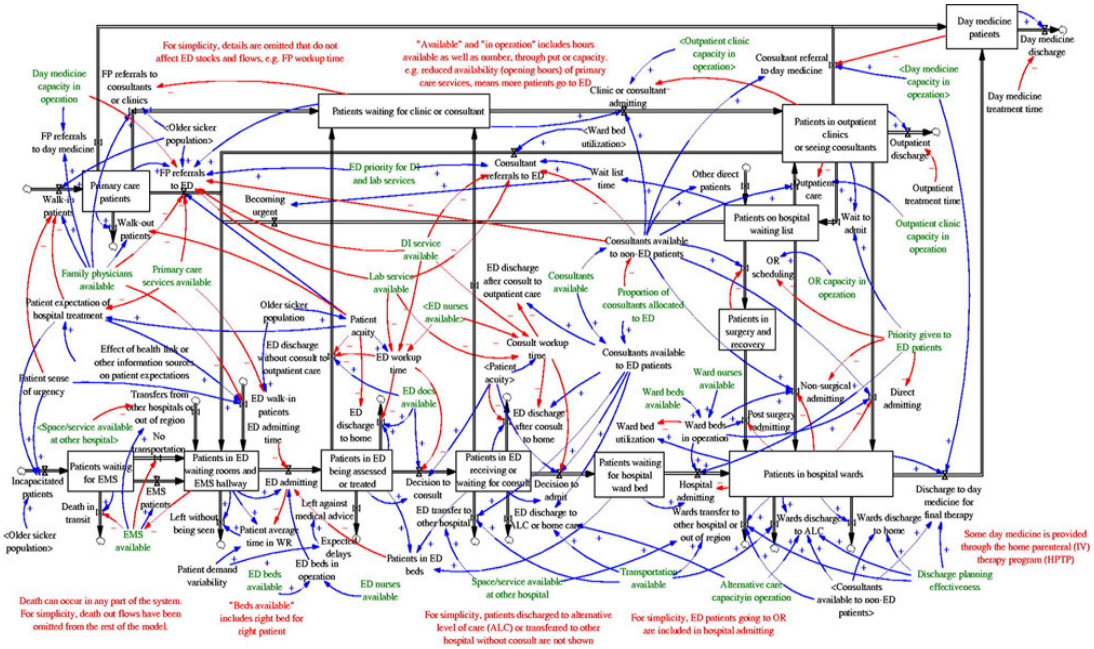

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Remember ...

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1. Health care is complex; it's a CAS
2. It's adaptive without top-down initiatives
3. Behaviours are emergent
4. Bottom-up produces localised rules
5. Linear models only get you so far

So ...

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What should we measure?

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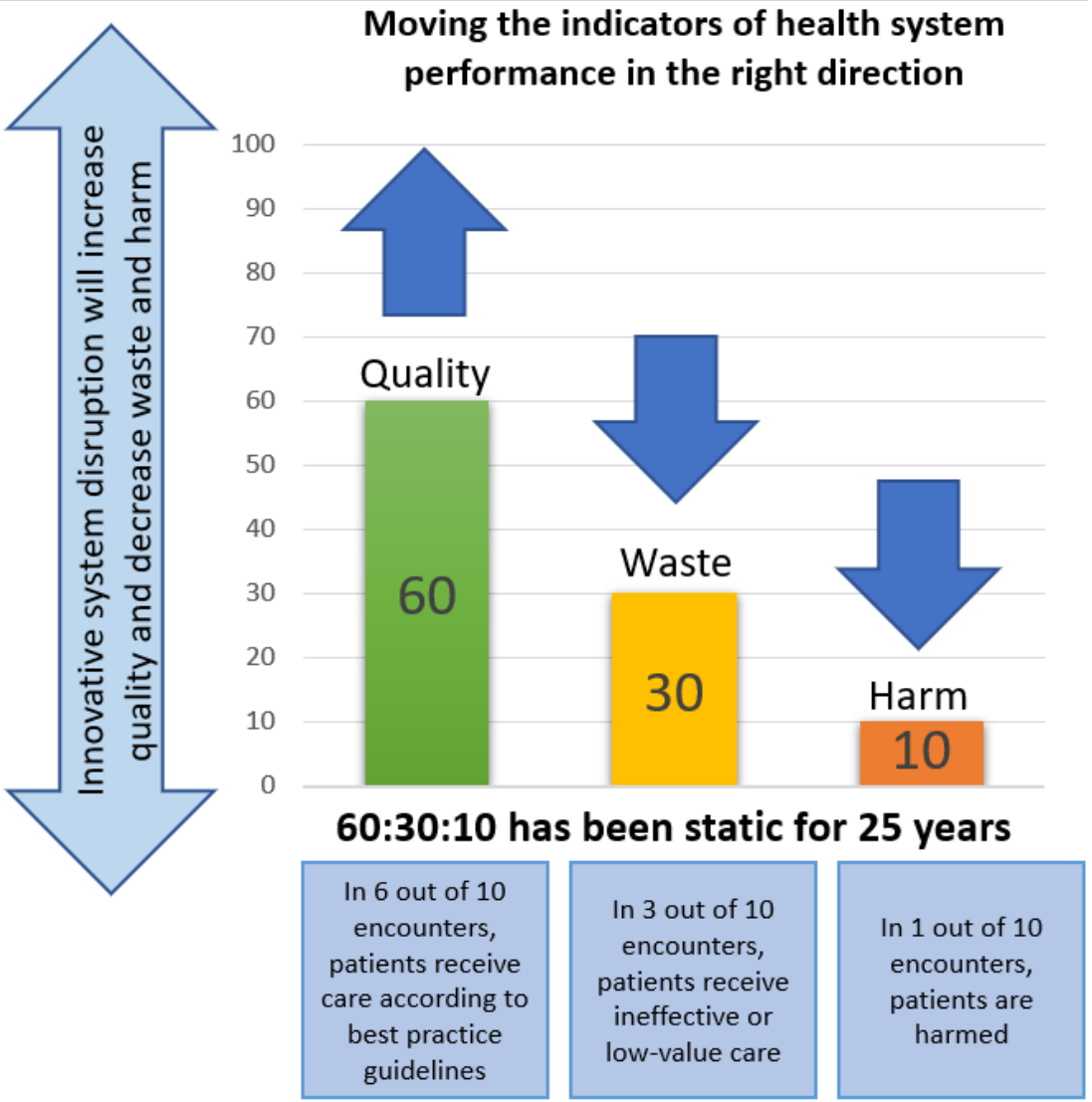
The context – 60:30:10



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System frozen in time

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- 60:30:10 challenge
- Change is often top-down (e.g. issuing more policy, introducing more stringent measures, etc.)
- Must move towards a learning health system
- Effective change must factor in system's complexity
- Recognise the challenges of implementing change in a CAS

[Braithwaite, J. 2018. *BMJ* 361:k2014.]

When do health systems change? When:

- Stimulated by medical progress (e.g. new tests)
- Incontrovertible evidence shows public benefit (e.g. immunising infants)
- New models of care emerge (e.g. shift to day only surgery)
- Clinical practices alter because of professional acceptance (e.g. laparoscopic techniques)

[Braithwaite, J. 2018. *BMJ* 361:k2014.]

When can systems reject change?

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- The primary or sole strategy is top down
- The change is not supported by parties with power to resist or reject
- The initiative encounters entrenched bureaucracy
- More policies and procedures are issued on top of a multiplicity of existing policies and procedures
- Attempts to alter deep seated politics or cultures are superficial

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[Braithwaite, J. 2018. *BMJ* 361:k2014.]

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To change a system, we need to look at the hardware and the software …

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How do we change a system's hardware?

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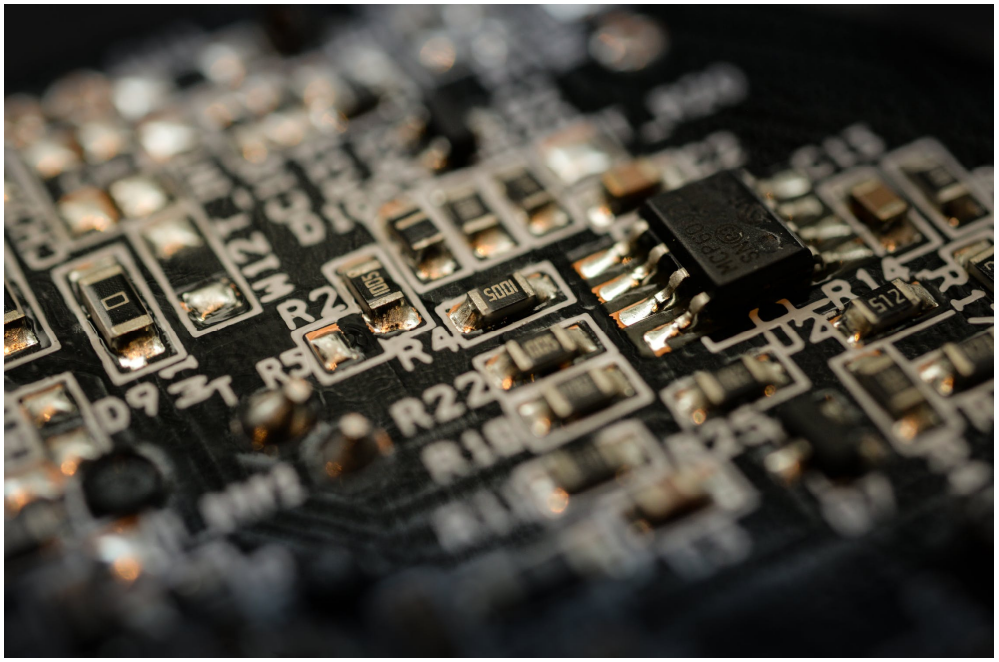
1. Restructuring organisations
2. Capital investments
3. Financial models and targets



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[Braithwaite, J. 2018. *BMJ* 361:k2014.]

How do we change a system's software?

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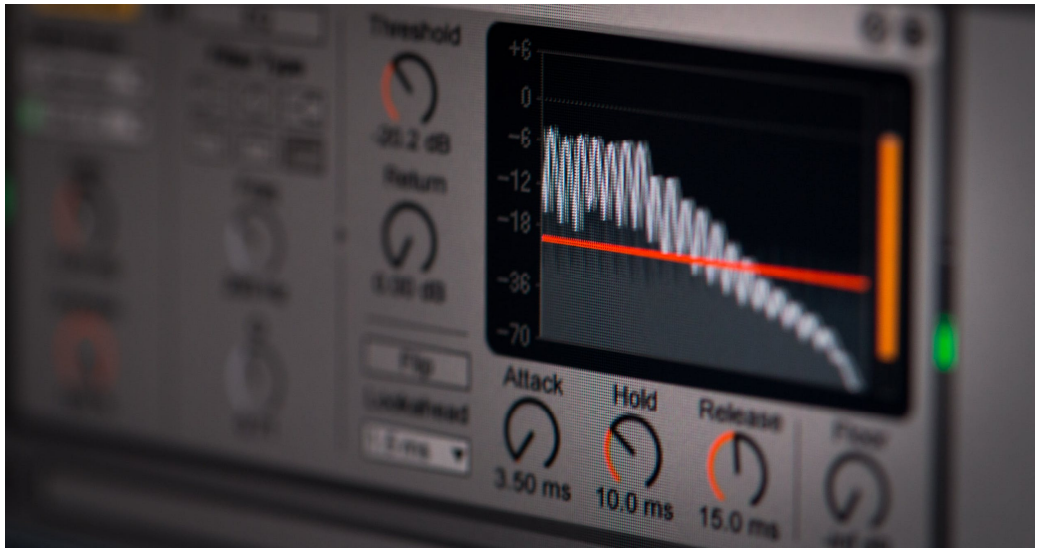
1. Enhancing organisational and workplace cultures
2. Implementation science and improvement over time



[Braithwaite, J. 2018. *BMJ* 361:k2014.]

Complexity oriented enablers and insights (examples)

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For policy makers:

- Work with, not against, trends
- Take multiple evaluations of what's going on
- Customise change to local contexts

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[Braithwaite, J. 2018. *BMJ* 361:k2014.]

Complexity oriented enablers and insights (examples)

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For managers and improvement teams:

- Leverage complexity thinking
- Look for things going right as well as things going wrong
- Focus less on the individual and more on the system

[Braithwaite, J. 2018. *BMJ* 361:k2014.]

Complexity oriented enablers and insights (examples)

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For frontline clinicians

- Beware excessive logic
- Understand that adaptation is almost always micro and granular
- Look for behavioural patterns in the system and listen to the language people use

[Braithwaite, J. 2018. *BMJ* 361:k2014.]

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Penultimately

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Lessons about change

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1. Don’t ever think doing change **is easy**
2. Progress will ***always*** be hard work
3. Linear will **only get you so far**—often, nowhere fast
4. Work with the **natural characteristics of the CAS**
5. Always look out for **unintended consequences**

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[Braithwaite 2018; BMC Medicine; Braithwaite 2015. Gaps in systems]

Lessons about change

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6. **Don't do it alone** … it's a system of systems
7. **Harness others**—mavens, cosmopolites, bridges, brokers, opinion leaders
8. You'll need **institutional leverage**, too
9. Look at **what goes right**, and think why
10. Do more of **things going right**

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[Braithwaite 2018; BMC Medicine; Braithwaite 2015. Gaps in systems]

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Discussion: comments, questions, observations?

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Recently published books

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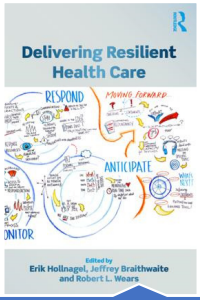
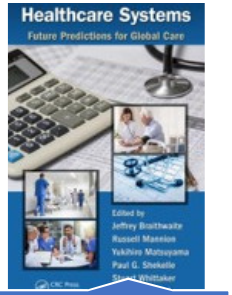
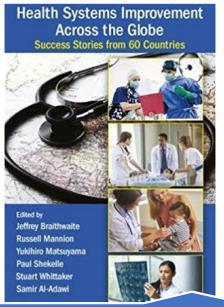


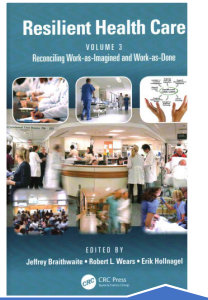
2019 – Delivering Resilient Health Care



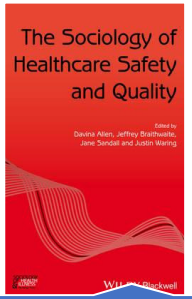
2018 - Healthcare Systems: Future Predictions for Global Care



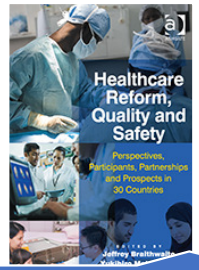
2017 - Health Systems Improvement Across the Globe: Success Stories from 60 Countries



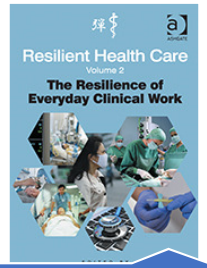
2017 - Reconciling Work-as-imagined and work-as-done



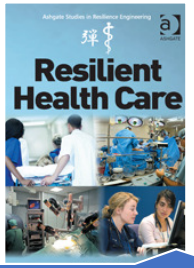
2016 - The Sociology of Healthcare Safety and Quality



2015 - Healthcare Reform, Quality and Safety: Perspectives, Participants, Partnerships and Prospects in 30 Countries



2015 - The Resilience of Everyday Clinical Work



2013 - Resilient Health Care

2010 - Culture and Climate in Health Care Organizations

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Forthcoming books

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Gaps: the Surprising Truth Hiding in the In-between

Surviving the Anthropocene

Counterintuitivity: How your brain defies logic

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