

Can we fix the uber-complexities of healthcare?

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No-one doubts that healthcare is becoming increasingly complex,^{1,2} with the rise of new tests, drugs, techniques, research studies and apps, to say nothing of creeping bureaucracy. The traditional NHS approach to problem-solving has been top-down³: issue a regulation, policy, or target; implement a new IT system or funding mechanism; or restructure part or all of the system. But this is no longer sufficient for the kinds of issues faced. In a complex system, no part is necessarily responsive to top-down demands or behaves predictably (see Box 1).

Characteristics of complex systems

Complex systems have four key characteristics.⁴ First, they are made up of individual agents – in healthcare, doctors, nurses, patients and allied health professionals – who have sense-making abilities and learn from past experiences. They do not simply accept top-down prescriptions, but interpret, customise or tailor them to local circumstances.

Agents interact with one another and their equipment; hence, connectedness is the second characteristic of a complex system. Such connections occur at multiple levels (e.g. among policymakers and frontline clinical teams) and involve agents influencing each other, either directly or through affecting organisational culture, leading to co-evolution of behaviour. Connections aggregate to networks, which are often embedded within other networks (e.g. a group of GPs and associated staff, the people swirling around a ward, a department of cardiology, an NHS Trust).

Third, complex systems are dynamic. Their moving parts (networks of individuals and groups of people), and the connections between them, change over time through learning, feedback and adaptation. The behaviour of the system emerges from these activities, meaning agents' actions and interactions form into more complex social structures and patterns. Non-linearity and unpredictability proliferate because there is no simple relationship between cause and effect. For example, seemingly small, although

disruptive, actions of one doctor who does not use an IT system may have ripple effects creating work for others, and diminishing morale throughout their team.

Finally, complex systems have bottom-up, informal, rules and governance arrangements, such as self-organisation,¹ where doctors conduct their work mainly through their own tacit, internalised principles, rather than strictly adhering to the policies that putatively 'manage' their role. Other aspects of naturally occurring governance mechanisms include social hierarchies, such as clinical pecking orders, and informal heterarchies, where clusters of agents work together without reference to formal team structures.

Taming complexity?

The reaction of those in charge, to what they often see as overly independent or even unruly forces at work, is to intensify the central power structures and attempt to wrest back the agenda. That has led to an explosion of management strategies of control over the past 40 years, including the introduction of laws, regulations, policies, guidelines, standard-operating procedures and performance indicators. These attempts to create standardisation, and tame intractable complexity, have the ultimate goal of improving efficiency and patient care.^{6,7} But they often fail miserably. They assume system linearity,⁸ as if there is a direct relationship between issuing an instruction and uniform take-up across the NHS. These failings are evident in the inconsistent adoption of policies^{9,10} and the variable performance levels across Trusts, which have never gone away despite decades of attempts to promote uniformity; not to mention the unintended consequences of imposed goals and targets.^{3,4} This raises the questions: Is it really possible to manage a system as complex as a health system and bring its complexity under control by top-down means? Can we? Should we?

Rather than simplifying clinical practices, top-down strategies often have the opposite effect.

Box 1. Proliferation and problems of NHS top-down performance indicators.

- Beginning in 2001, hospitals were measured against a basket of performance indicators, aggregated into a 'star system' that weighted efficiency above quality.
- Since then, numerous revisions to performance indicators occurred: annual health check (2005–2009), world class commissioning (2009–2011), CQC provider ratings (2013–) and the CCG Assurance Framework (2013–)¹⁵ for example.
- Pay-for-performance strategies have also proliferated,¹⁶ as have unintended consequences: gaming, a focus on things that are measurable but not necessarily important, and disincentives for improvement in some areas if others are prioritised.⁴

They add greater complexity; for example, new IT systems ostensibly increase efficiency, but do not often achieve that, and add burden,^{11,12} or 'innovations' in policies and regulatory regimes, which health professionals must incorporate into their practice while Trusts find ways to pay for the additional compliance costs.² With the dynamic nature of this system, its unpredictability, the interrelatedness among agents and the constant demands of frontline care, clinicians struggle to understand the proliferation of requirements on them.¹³

Looked at from a complexity standpoint, strategies to rule from the top may be a cure worse than the disease. Take the most popular ones: insisting on clinical homogeneity in an attempt to regularise care across the system; and imposed targets aimed at having the system perform in a pre-specified direction. These have spawned many responses. But the ultimate consequence is that they reduce the potential for localised and adaptive reactions among clinicians and the system as a whole.⁶ Hence, the natural resilience of people on the frontlines of the system – to respond to, monitor, learn from and anticipate the changing needs of patient care – is compromised through the myriad of prescriptive rules.¹³

Navigating the complexities of healthcare systems

Instead of attempting to bring the system under control, we suggest the best we can hope for, given that top-down demands do not seem to be going away, is that we develop resilience in people delivering care. We should teach them not to blindly comply with all the top-down rules but to build their capacities and empower them so they can figure out for themselves how to better navigate the intricacies of the system.

By navigating it, we mean recognising the formal requirements of the system but spending much more effort working with its informal properties, such as the local contexts and connections. Learning to be more comfortable with such unpredictabilities and ambiguities is important. The NHS is not a linear system amenable to simple responses from those wanting it to be subject to command and control, despite what Secretaries of State, policy makers and managers might think.

Working with, not against, these informal characteristics of the system is crucial. It may be much better for Trusts to leverage extant relationships, bolster clinicians' talents for flexing and adjusting to patients' circumstances and harness their potential for self-organisation, rather than to over-regulate clinicians to breaking point. For those with top-down proclivities, the message is: it may be more productive to cut clinicians some organisational slack, letting them work in ways useful to them, and embracing new models of care and interventions of their own design, on their own terms, according to their own norms and conventions.

A way out of the top-down paradigm

In short, we may need to stem the increasing tide of insisting on compliance and relax the stance that everything must flow from the top and that the frontline's job is to conform. Instead of overmanaging clinicians in the NHS tradition, we are arguing that it is time to work with, not against, the natural resilience of the complex system, recognising that by-and-large everyday clinical work succeeds much more often than it fails.¹³ In the face of perennially unpredictable conditions, we should allow more self-organisation and adaptive responses of clinicians, rather than rely on the restrictiveness of regulation and policy burden.^{7,14} We still need guidance, and standards, of course; but not to the point of over-reach.

How to inculcate this bottom-up, non-linear approach and stimulate its spread, then becomes a pivotal question. In addition to politicians accepting that they cannot really control healthcare, we should encourage those on the clinical frontlines to exercise their propensity for improvisation. This acceptance would need to be accompanied by measures to reduce the volume of policies, and agreement to have less bureaucracy and impose fewer regulations. More asking clinicians what works, rather than telling them what to do, may be a major step in the right direction. If we cannot altogether put a stop to the top-down, systematisation steamroller, perhaps we can at least recognise its limits, and that in a complex

system, different contexts will always do things differently, according to their own localised cultures, norms and conventions.

One size never did fit all in health systems, but we failed to acknowledge that. Tolerating varied solutions and liberating clinicians' natural propensities to do good things may allow a thousand flowers to bloom. Top-down advocates may wince, but would that not be a better system, one more fit for purpose than the over-constrained, demoralised one we have now?

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