

Perspectives on Quality

Resilient health care: turning patient safety on its head[†]

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[†]We describe a paradigm shift underway in health care. It is time to appreciate its nuances and help make it a success.

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Abstract

The current approach to patient safety, labelled Safety-I, is predicated on a ‘find and fix’ model. It identifies things going wrong, after the event, and aims to stamp them out, in order to ensure that the number of errors is as low as possible. Healthcare is much more complex than such a linear model suggests. We need to switch the focus to what we have come to call Safety-II: a concerted effort to enable things to go right more often. The key is to appreciate that healthcare is resilient to a large extent, and everyday performance succeeds much more often than it fails. Clinicians constantly adjust what they do to match the conditions. Facilitating work flexibility, and actively trying to increase the capacity of clinicians to deliver more care more effectively, is key to this new paradigm. At its heart, proactive safety management focuses on how everyday performance usually succeeds rather than on why it occasionally fails, and actively strives to improve the former rather than simply preventing the latter.

Key words: patient safety, resilient healthcare, Safety-I, Safety-II, human factors, health system reform

Patient safety: progress to date

Every clinician tries to keep patients safe, but currently, patient safety approaches primarily rely on concepts and methods developed to meet the needs of industrial and occupational safety in the period of the 1960–80s. This includes ideas such as root cause analysis, accident reporting, failure assessment and risk management—to name but a few. The approach assumes that adverse outcomes can be explained by linear cause–effect chains, as originally proposed by the Domino metaphor [1], and later, by Reason’s Swiss Cheese model [2]. It also assumes that all adverse outcomes, whether mild or serious, have causes which can be found and fixed, and that these differ from the causes of ordinary, successful care.

The purpose of this approach, which has come to be known as Safety-I [3], is to ensure that the number of adverse outcomes is as low as possible. This is achieved by a regime of reactive interventions, such as

enforcing compliance with policies and increasing bureaucratic constraints, reducing failures, malfunctions and hazards, training staff (to wash their hands, communicate at the end of shifts, or conduct audits, for example) and erecting barriers to block performance deviations.

While a Safety-I logic brought the challenges we face to the attention of clinicians and the public and has led to some improvements, they have been largely limited to niche areas such as central line infection bundles in the intensive care unit (ICU) [4] and checklists in theatres [5]. Such activities are tractable, meaning that the underlying principles are well understood, that problems are amenable to decomposition, that conditions of work are relatively well specified, stable and controllable, and that dependence on external events is limited.

Most healthcare activities however are intractable, because care settings are complex and unpredictable. This means that the underlying principles are incompletely known, that problems are complex and

resist decomposition, that conditions of work are underspecified and unstable, and that there is a high degree of dependence on what happens externally. Since conventional methods do not reflect these characteristics, they obviously do not work well on such problems.

The fact is that patient safety cannot be readily managed via the simplistic means offered by Safety-I and the strategies mandated by well-intentioned people far from the front line. There is a growing realization that orthodox thinking [6] has taken us as far as it can. Times change and we must change with them.

Limits of Safety-I

Despite huge efforts, progress on patient safety under Safety-I has been limited and there has been little measurable improvement at the systems level. So far as we can determine, adverse events occur in up to 10% of acute admissions in all modern health systems, and this rate has not altered for more than 50 years [7, 8]. One important reason for this stagnation is that the Safety-I logic simply no longer matches the reality of today's delivery systems—if it ever did. We have to acknowledge the intricacies and complexity of healthcare to overcome this limitation.

Health systems are mostly non-linear due to complicated interactions and poorly understood feedback loops. Their functioning becomes ever more convoluted and challenging because we are unable to envisage the full consequences of piecemeal but well-intended interventions such as the variable take-up of a new guideline or results from a randomized trial. To make things harder, healthcare is challenged by multiple industry-wide pressures: nurses and other healthcare workers are ageing and leaving the work force; costs are growing at an unsustainable rate; technologies are introducing more options and demands are increasing due to ageing patients with multiple chronic conditions and a public seeking more advanced services.

The response, of ever-more constricting regulation regimes, has trapped patient safety in a 'more of the same, more intensively' mantra. There are increased attempts at standardization with more policies and regulations, and re-packaged initiatives from the 1960s ranging from root cause analysis through accreditation standards to multiple guidelines to policies and procedures which can run to dozens or even hundreds of pages. The burden of these falls on clinicians on the front line, already facing an extremely busy working environment in clinics, wards, operating theatres and family practices.

These efforts have fallen short of hopes for them. One key reason is that politicians, regulators, policy makers, software designers, equipment providers, managers and researchers, all remote from the clinical front line, base their efforts on what they imagine everyday clinical work to be. But this work-as-imagined is based on second- or third-hand accounts of how work on the front line is actually done, and relies on aggregate data that often arrive with substantial delays.

Work-as-imagined always differs from what actually goes on—work-as-done—and the difference increases the further removed people are from the front line. Work-as-imagined cannot capture how circumstances vary, the diversity of patients, how goal conflicts abound, how expected resources may be missing, and so on. It can neither represent the context and nuances of clinical work, nor accurately predict the effects of changes and improvements. Deciding what to do on this basis quickly regresses to educated guesswork.

The revolution ahead

That is why we advocate a potentially powerful new approach which switches the focus from preventing things going wrong to purposefully

enabling them to go right. It seeks to reconcile work-as-imagined and work-as-done. It aims to ensure that the tools we use correspond to the problems of today, rather than the problems of yesteryear. It accepts that understanding performance variability is valuable because it explains how work goes well rather than how it fails [9].

The new approach recognizes that patient safety cannot be improved by imposing even more regulation. Attempts to simplify complexity, standardize local systems and reduce the number of variables are simply not feasible, and only increase the distance between prescriptive guidance offered by regulators, policymakers and managers, and everyday clinical work.

All levels of healthcare need to accept that it is impossible to reduce the number of errors by increasing the bureaucracy imposed on clinicians. Instead of accelerating efforts to constrain performance, or mandating how work should be done, we should pay attention to how clinical care can be supported so that the number of intended and acceptable outcomes becomes as high as possible. This turns things on their head. Just as the WHO defines health as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity', the new approach, Safety-II, defines safety as the ability to make things go right and not merely the absence of failures or adverse outcomes.

The solution is to change participants' mindset

The starting point is to accept that all performance—regardless of whether it goes well or fails—springs from the same source, and has the same behaviors and practices at its heart. Rather than counting incidents, hoping to drive out errors and focusing on the negative, we should strive to ensure that things go well, and accept that 'safety is better measured by how often everyday work goes well than by how often it fails'. This shifts the efforts from reactive and protective patient safety to proactive and productive patient safety.

We must learn to pay attention to how clinicians successfully adjust what they do to match the conditions. **Box 1** provides an example of how greater levels of resilience and safety were attained in a merger of two intensive care units.

We must understand how front-line staff facilitate and manage their work flexibly and safely, instead of insisting on blind compliance or the standardization of their work. Since well-adapted expert clinical

Box 1 Resilience in merging intensive care units in the University Hospital of Geneva [10]

The University Hospital of Geneva's 36-bed intensive care unit, with 350 staff, resulted from a merger of two ICUs in October 2005. Conjoining two different cultures frequently poses downstream problems for service delivery. The merged units, often previously in conflict with each other, at first struggled to find direction and cohesion. There was high absenteeism, burnout and turnover of nurses. Yet over succeeding years there was increased productivity, reduced re-admission rates, improved performance and measurably safer care. Success was attributed to efforts to foster interpersonal relations, and individual and collective commitment to the goals of the new unit. Resilience emerged over time, not from extensive planning, but as much from bottom-up clinicians' involvement as top-down leadership, and looking at how things go right.

Box 2 The second secret handover [11]

The English National Health Service mandates a formal handover of emergency patients from ambulance paramedics to receiving clinicians. Staff use a structured communication checklist providing information to the nurse in charge who passes it to the bedside nurse. Observational research showed that paramedics and bedside nurses conducted a 'secret second handover' whereby they informally discussed each patient and his or her condition. Senior nurses thought this represented duplication, but clinical front-line staff felt it told a more complete story and improved communication, reducing the risk that important information was missed. Clinicians were adjusting to circumstances, providing tractability and increasing the capacity for resilience in the everyday activity of handing over patients.

performance proceeds with a fluidity that hides the difficulties surmounted, we must learn how to perceive and understand that performance. **Box 2** shows how clinicians handing over patients did so informally when the bureaucratic systems were insufficient for effective transfer of care.

What should happen next?

These examples show the system acting informally, through the initiatives of local people, keeping things safer for patients, but not by blindly following rules. We need to move from the prevailing 'whack-a-mole', Safety-I approach which insists on people complying with demands placed on them, to one built on an understanding of how care is delivered so well, so often, under difficult and varying conditions. Healthcare is already far more resilient than we credit it. The crucial task is to help make it more so.

In essence, the system must be able to sustain its operations under both expected and unexpected conditions by adjusting its functioning before, during and after events (changes, disturbances or opportunities). Stamping out errors is reactive and encourages a 'find and fix' approach that often leads to unintended consequences. Sticking solely to a Safety-I approach is inadequate in both the short and the long run.

That said, Safety-II is intended as a complement to Safety-I rather than as a wholesale replacement. The two perspectives on safety must co-exist, at least for the foreseeable future. It is necessary to analyse the relatively few cases where things go wrong, but patient safety requires more than prevention, elimination and compliance. It is therefore essential to learn from the far more frequent cases where things go right and develop ways to support, augment and encourage these [12].

Changing the way we look at healthcare, embracing complexity, working with rather than against performance variability, and leveraging more of what we already have—a great deal of success in things going right—will take time and a willingness to shift the paradigm. But we must start to do things afresh.

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Authors' contributions

All authors contributed equally to the writing of this manuscript.

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Conflict of Interest statement

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