

# Improving quality – leadership and culture change

This paper represents the personal views of Robin Youngson and is not necessarily the view of the National Health Epidemiology and Quality Assurance Advisory Committee (EpiQual).

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## Executive summary

Those who attempt to improve the quality of healthcare, and ultimately the health status of the nation, face a number of 'wicked' problems. These problems are wicked because they resist almost every strategy for improvement, even though substantial resources for improvement are applied in a determined way. Typical examples include high rates of healthcare error and patient injury, the persistence of ethnic differences in health status, the overwhelming burden of chronic diseases and now the epidemic of obesity. These wicked problems seem to defy rational analysis. Even though we know much about the determinants of these problems, our intervention logic fails us. We are stuck in the swamp and the energy of our efforts seems to sink us deeper in the mire.

As Einstein said, "We can't solve problems by using the same kind of thinking we used when we created them". Fortunately there is a large body of knowledge, residing almost completely outside the world of healthcare, that allows us to reframe these wicked problems, to interpret and understand examples of successful change, and to make very specific recommendations for future strategy. This knowledge includes the theories of complexity and system dynamics, of learning organisations (Senge), of organisational culture and leadership (Schein), and the roles of leadership in adaptive change (Heifetz).

The core problem is that healthcare is a highly complex, non-linear system characterised by multiple feedback loops and self-reinforcing modes of behaviour. Such a system will endlessly resist external efforts to control it. Superficial measures, including most health board performance metrics, give no clue to the system dynamics. The conventional tools of management - strategic planning, project management, authority, measurement and control - are largely useless in this domain. Such techniques are valuable approaches to a subset of "technical" problems within the system (most, have been solved already) but they don't help us solve wicked problems.

In contrast, a system dynamic approach can give us great insight into the underlying patterns of behaviour and why these wicked problems are so persistent. The important insight is that the unspoken assumptions, beliefs and behaviours (what Schein describes as "culture") are inherently part of the system dynamic. The beliefs and behaviours of the different stakeholders interact in powerful ways to sustain extremely robust modes of system behaviour that continually reinforce the status quo.

An example is the set of interacting assumptions, beliefs and behaviours of doctors, managers and patients in the area of healthcare error. The system is locked in a persistently 'unsafe' mode characterised by fear, blaming and defensiveness.

An understanding of the dynamic allows us to design highly specific, targeted interventions, which are aligned with the natural properties of the system. Quite small interventions can flip the system dynamic into alternative, self-sustaining modes of

behaviour that lead to safer or better outcomes. An example is the use of open disclosure after healthcare error, as opposed to defensive responses. Apology and open disclosure fundamentally change the belief of the injured patient about the motives and intent of the doctors and the hospital managers. The modified behaviour of the patients, in turn, affects the beliefs of the medical practitioners who become less defensive and more open to share learning on errors.

Wherever we see very persistent patterns of system behaviour, such as the unchanged ethnic differences in life expectancy over the last two decades in NZ, we should suspect that a similar, self-reinforcing dynamic is at play among the assumptions, beliefs and behaviours of key stakeholders.

This system dynamic approach, which includes the beliefs and behaviours of the key players, is really just a holistic approach to healthcare improvement. Much as the narrow, bio-medical model of medicine fails to address many chronic health problems, the management approach to healthcare systems is similarly very restricted in its application.

A holistic approach such as the Maori “Whare Tapa Wha” (four cornerstones of health) goes beyond the physical domain of the human body or the structures within healthcare (taha tinana), to consider the mental/emotional (taha hinengaro), the social (taha whanau) and spiritual (taha wairua) domains. All these aspects profoundly affect the system behaviour and dynamics.

Senge believes that New Zealand is in a unique position to adopt a cross-cultural approach that overcomes the limitation of Western mental models. Indigenous cultures have theories of knowledge that relates closely to the natural world and therefore have an innate understanding of complexity and interdependence. Maori models of engagement and dialogue are also much better adapted to complexity than Western ways of doing business.

These approaches allows us to tap into the very positive and powerful motives of health professionals – a deep desire to care, to be compassionate, to help, to prevent harm and to achieve better health outcomes. Compassion becomes a valid concept in healthcare improvement. Interventions that align with these ‘natural properties’ of the system lead to powerfully self-reinforcing and sustainable improvements. Through such approaches we might create a safer and healthier work environment in which all professionals find deep meaning, purpose, joy and satisfaction in their work. Such a transformation could solve the NZ healthcare workforce crisis.

Healthcare improvement will be extremely limited unless we adopt this holistic model as the basis for thinking about health and wellbeing of the individual, the family, the community and the whole healthcare system. Similarly, the strategies for healthcare reform need to broaden, from the technical management and control of structures and processes, to the leadership of effective change within the complex system dynamic. Success in this domain requires a very specific set of knowledge and skills among our leaders, largely missing from the training of both health professionals and managers.

### **Summary**

- We need to reframe our thinking, by understanding the limits of technical approaches and linear problem solving, and understanding healthcare as a complex, adaptive system
- We need to apply diagnostic tools (Heifetz) to distinguish “technical problems” from “adaptive problems”. The former will yield to management and authority

systems, the latter requires leadership to work through conflict and reshape beliefs and behaviours. Most improvement programmes will have elements of both

- We need to take a holistic approach to health and wellbeing at every level, from the individual person up to whole systems of healthcare. We need to consider physical structures and processes, the quality of relationships, personal beliefs and feelings, and the deeper meaning and context of peoples' work and lives (the spiritual aspects).
- Applying the lens of the system dynamic model to successful examples of change (for instance the positive impact of open disclosure) allows us to be highly specific about the interventions that will lead to sustainable improvement.
- There is an urgent need to educate sector leaders in a more realistic, dynamic, interactive mental model of the healthcare system and to shift away from prevailing linear models of thinking. Very specific skills are required of our leaders to make progress on these complex, adaptive problems. Unless these skills and behaviours are role-modelled by our most senior leaders, we are unlikely to make much progress.
- The performance and accountability frameworks for our health executives need to support leadership for adaptive change, and shift away from linear and deterministic models of authority and organisational function.
- Likewise, models of medical professionalism and medical accountability need to broaden from a purely "professional" approach governed by the medical colleges to an organisational form of accountability that recognises that patient outcomes depend on much more than individual competence of practitioners.

When interventions are aligned with the natural properties of the system, huge change can result from small interventions.

**"He iti rä, he iti mäpihi pounamu"** – a small contribution can be as valuable as a precious stone.

Interventions not aligned with natural properties will be endlessly resisted by the system.

## Introduction

This paper provides context for recommended strategies to progress the quality agenda in the NZ health and disability sector, particularly with regard to leadership and culture change.

The international experience of attempts to improve quality (including patient safety) is not reassuring. Massive resources, such as those co-ordinated by the Institute of Healthcare Improvement (IHI) have been poured into international patient safety programmes with little evidence of systematic improvement.

Berwick, the President and CEO of IHI, saw little evidence of gain after many years of effort (1)

*"How many patients will die in US hospitals tomorrow because of injuries from their care? I think it will still be about 100 - and 100 the day after tomorrow and 100 the day after that. And so it will continue until the will and ideas reflected in the Patient Safety series are translated into the actions that can actually prevent the added burden of medical injury and save our patients' lives."*

The response to this dilemma usually includes calls for greater will and determination to tackle patient safety, more "leadership" and demands for "culture change". However, commentators rarely define what these terms might mean in the practical implementation of successful quality improvement.

We argue that the lack of progress has a root cause in the unspoken assumptions and mental models that underlie our theories of organisational change and human dynamics.

Plsek explores the prevalent thinking in an exploration of the application of complexity science to healthcare (2).

*"Management thinking has viewed the organisation as a machine and believed that considering parts in isolation, specifying changes in detail, battling resistance to change, and reducing variation will lead to better performance. In contrast, complexity thinking suggests that relationships between parts are more important than the parts themselves, that minimum specifications yield more creativity than detailed plans. Treating organisations as complex adaptive systems allows a new and more productive management style to emerge in health care."*

Healthcare is a complex socio-technical system, where the assumptions, beliefs, values and behaviours of the health professionals (and also consumers) are an inherent part of the complex dynamic system. The beliefs and behaviours of different players interact in complex ways to sustain a system dynamic of persistently risky behaviour. In fact, the most striking aspect of system behaviour is the extraordinary robustness and persistence of these (unsafe) patterns of behaviour that are highly resistant to external influences.

However, we believe these dynamic interactions can be understood and modified by relatively small interventions that can flip the system into much safer modes of behaviour.

The large bodies of relevant knowledge around socio-technical systems, system dynamics, complex adaptive systems, organisational learning, organisational culture and leadership have scarcely been applied in the world of healthcare. We draw on seminal works by Senge (learning organisations), Schein (organisational culture and leadership) and Heifetz (adaptive change and leadership) to interpret and understand successful examples of culture change and quality improvement. This interpretation allows us to make very specific recommendations about strategies for sustainable improvement and the leadership competencies that need to be developed.

An example is the case of an operating theatre fire and severe patient injury at Waitakere Hospital (3). Waitemata District Health Board provided intensive caring and support for the injured patient, family and clinicians, used root cause analysis to uncover system failures and led a process of open collaboration among the many agencies involved in the investigation. A final report was issued six weeks after the accident. The patient and family retained their trust in the hospital and clinicians were exonerated. Open disclosure allowed the lessons of that tragedy to be widely distributed, reducing risk for other patients and professionals. This novel (at the time) set of behaviours led to profoundly changed beliefs among the various participants, which produced a mutually reinforcing set of interactions characterised by trust and openness.

The same health board has demonstrated how intervening to expose and modify beliefs within interprofessional teams can have a dramatic impact on clinical outcomes. The Caesarean Section rate at Waitakere Hospital fell by 30% over a two year period while neonatal outcomes were greatly improved, as were many other measures of system health (4).

The key to sustainable improvement is an understanding of the natural properties of the system and aligning interventions with those properties to create self-reinforcing change. All health professionals deeply desire to improve the quality of their care and they want to be sensitive and compassionate in their approach to patients and families. The prevalent system dynamic greatly inhibits those aspirations but they still remain as powerful core motives. Intervening to change the dynamic can liberate enormous amounts of energy for improvement.

This system dynamic approach to healthcare improvement, by examining the assumptions, beliefs and behaviours as part of the system dynamic, allows us to understand the elements of organisational culture and be very specific about the practical leadership roles and interventions that will improve quality and safety. It also makes abundantly clear why technical approaches to quality and safety, while they may successfully 'ring fence' particular patient safety hazards or sources of organisational inefficiency, have very little influence on overall safety or the prevailing "culture".

**An example of a stable dynamic: "Name, shame and blame"**

Although a full understanding of the system dynamic requires some appreciation of the theory of complex adaptive systems, the underlying mechanisms of feedback and interacting beliefs are intuitively easy to understand and accord with common experience. The key understanding is that the pattern of behaviour is deeply self-reinforcing when the whole dynamic is explored.

**Figure 1** shows some of the main feedback loops that reinforce the "name, shame and blame" culture and the resulting 'unsafe' mode of system dynamics. For the sake

of simplicity, only three major players are considered: the doctors, the patients and the hospital managers.

Doctors have a set of assumptions and beliefs, as a result of medical training, professional socialisation and the experience of dealing with patient complaints and hospital managers. It must be said that the prevailing culture and beliefs varying among different medical specialities (for instance the anaesthetists have long taken a system approach to quality improvement with major advances in patient safety).

However, the prevalent common beliefs include:

- Managers will protect the organisation by blaming individual clinicians for patient injury (“Name, shame and blame”)
- Complainants have unreasonable expectations
- Disclosure increases my risk
- Clinical detachment offers me psychological protection
- Harm is caused by individual error. I will not report the errors of colleagues because, “There, but for the grace of God, go I”.
- Managers care only about dollars, not about patient safety

These beliefs lead to characteristic behaviour patterns among doctors:

- Hide mistakes
- Don’t report errors
- Don’t disclose to patients
- Retain clinical detachment and avoid injured patients
- No engagement in system enquiry
- No system learning or sharing of lessons

Hospital managers also have a prevalent set of beliefs:

- Harm is caused by individual incompetence (“bad apple” theory)
- Identifying the individual at fault will protect me and the organisation – allege that the doctor “didn’t follow procedures”
- Complainants have unreasonable expectations (and some of them are mad)
- Disclosure increases risk
- Doctors don’t really care about safety (because they never report)
- There is nothing I can do to improve safety

The consequent (and understandable) behaviours include:

- Legalistic and defensive response to critical incidents and complaints
- No open disclosure and events concealed from the media
- Find a scapegoat
- Lack of system enquiry
- No system learning or sharing of lessons
- No proactive management of critical events (just react to complaints received)

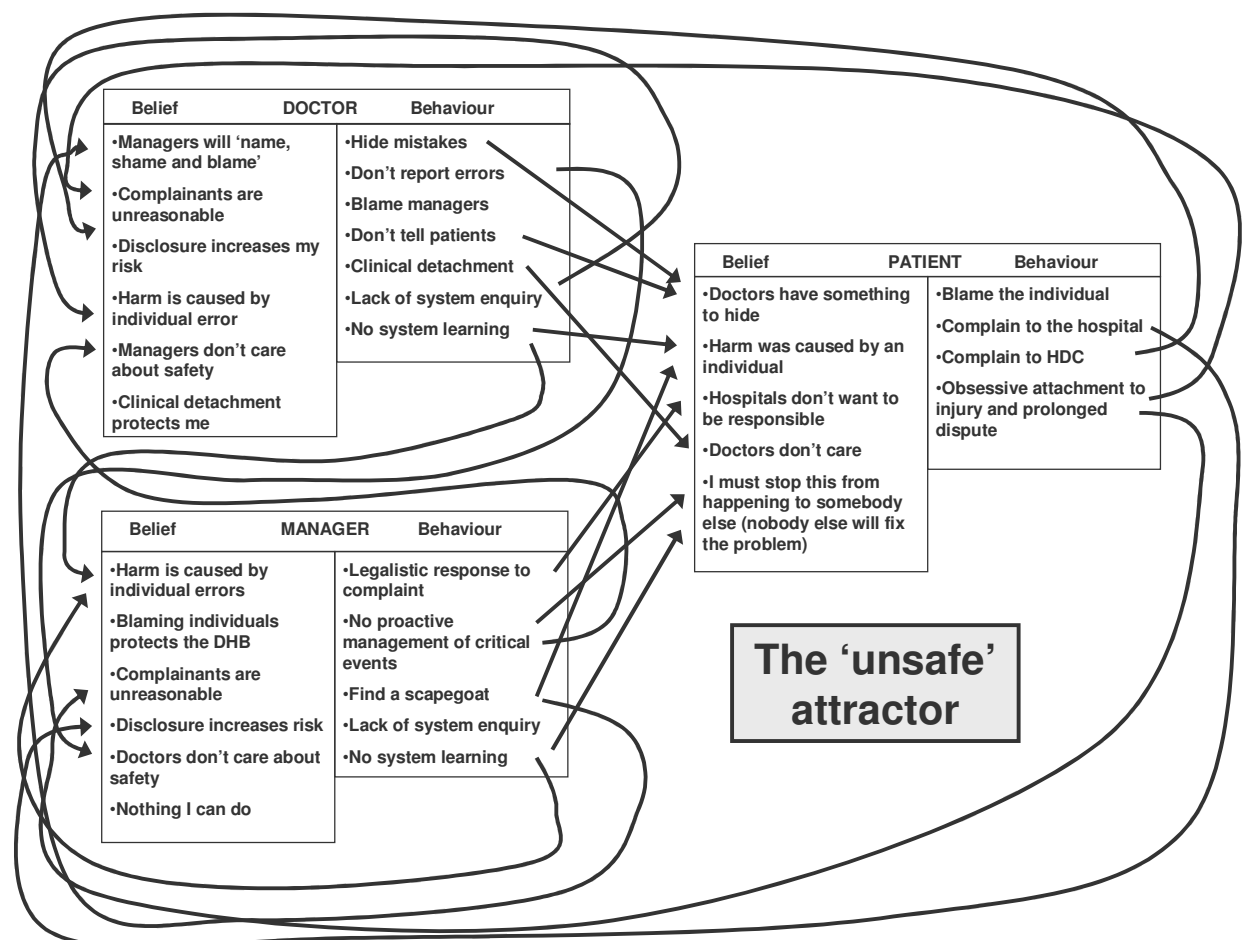
Health consumers (and the media, acting as their advocates) initially hold a positive set of beliefs. By and large they trust health professionals and are grateful for care. However, in response to the behaviour of the doctors and the managers following a complication or treatment injury, they develop a more negative set of beliefs:

- Doctors and managers have something to hide
- Harm was caused by an incompetent individual
- Health Boards don’t want to be responsible for addressing this problem
- The doctors don’t care
- I must stop this from happening to other patients because nobody else will fix the problem

The understandable response includes:

- Blaming the individual
- Complaining to the hospital
- Complaining to the Health and Disability Commissioner
- Recruiting the media to their cause
- Obsessive attachment to personal injury and prolonged dispute with authorities, including seeking compensation for injury

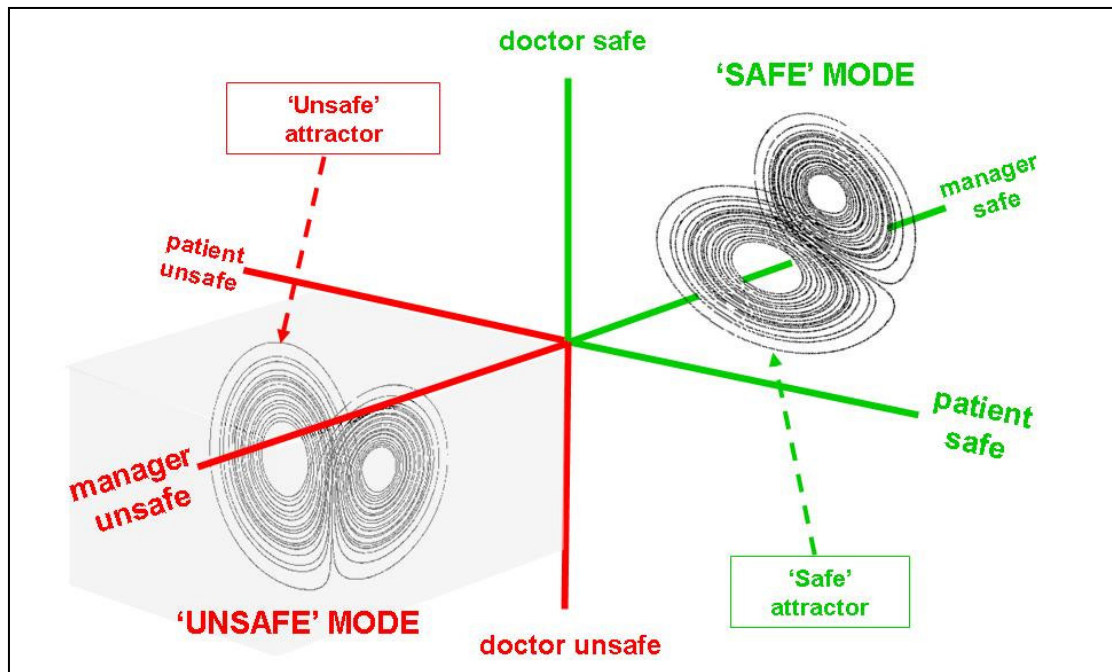
As shown in **Figure 1**, the behaviour of each party strongly influences the beliefs of other players in the system to reinforce those behaviours, which in turn further strengthen the beliefs. This dynamic is powerfully self-reinforcing and has sustained a system dynamic seen across the whole Western world for several decades. This dynamic has been strengthened by media attention and reporting of healthcare error, which only serves to amplify the gain in the feedback loops.



**Figure 1. The 'unsafe' system dynamic**

The complex interactions and feedback loops are characteristic of complex adaptive systems that display highly non-linear behaviour. The usual mechanistic assumptions of organisation management include a belief that the organisation is inherently measurable and controllable and that a linear cause and effect can be understood in terms of management interventions and results. The preceding analysis shows that these simplistic beliefs about organisational dynamics are very unrealistic.

Non-linear systems often show surprisingly stable patterns of behaviour within all of the chaos and complexity of the myriad interactions. These patterns are recurring cycles of behaviour within the system dynamic that can be thought of as “orbits” within the complex, multidimensional space of the system. In the theory of complex adaptive systems, these are called “attractors”. The system dynamic tends to fall toward these attractors, which represent very stable dynamic states of oscillation around a mean. A commonly known representation of this concept is the “butterfly attractor”, a complex woven, figure-of-eight patterns of repeating and overlapping orbits in the system dynamic.



**Figure 2. 'Attractors' in the healthcare safety dynamic**

The complex set of interactions shown in Figure 1 represents the 'unsafe' attractor in the system dynamic. This unsafe mode of system dynamic is characterised by fear, mistrust and blaming.

Fortunately, there is an alternative stable and self-reinforcing system dynamic which we call the 'safe' attractor. This safe mode of system behaviour is characterised by openness, trust and confidence.

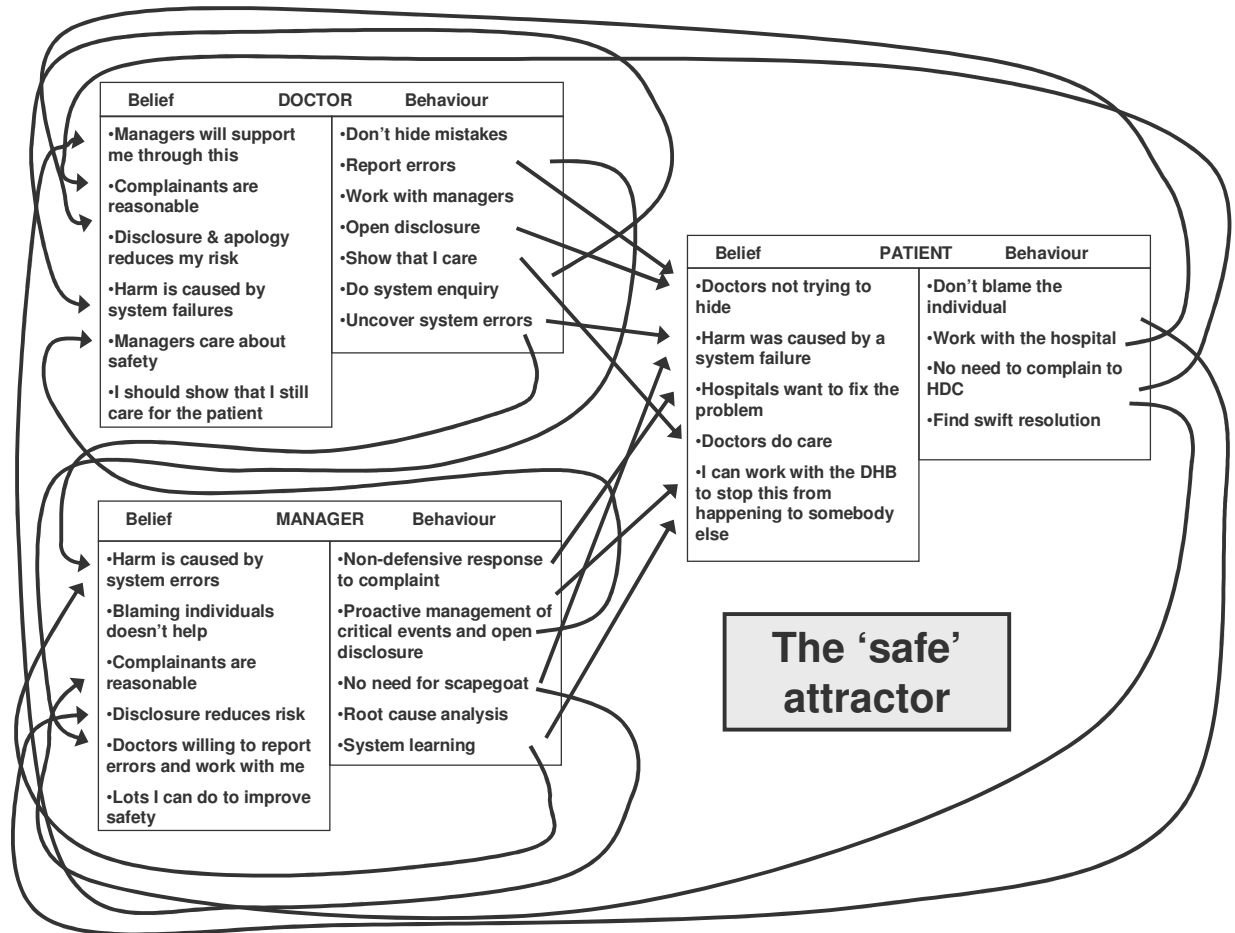
**Figure 3** shows the detail of dynamic interaction in the safe mode. The same three sets of players interact but the core beliefs are different, which lead to an alternative pattern of behaviour that is also mutually self-reinforcing. This pattern of interaction describes the system dynamic that occurred at Waitakere Hospital following the operating theatre fire. A young mother having an emergency Caesarean section sustained a severe burn injury.

In this instance, the manager and professional leaders of the hospital had a set of values and beliefs about the response required to minimise the ongoing harm to the patient. The beliefs included the importance of apology and open disclosure and the need to investigate the root causes of the accidents while supporting the patient, family and involved professionals through this difficult time.

The general manager of Waitakere Hospital travelled to meet with the family on the day of the accident and waited many hours patiently for the opportunity to speak with them, to apologise, and to promise they would do everything we could to help their daughter recover. The hospital maintained daily contact with the injured mother and her family and, as they began to uncover the root causes of the accident, they openly shared that information with the family. The clinicians involved in the case maintained a caring and therapeutic relationship with the mother. Before each media conference, the hospital manager negotiated with the family about what would and would not be revealed. All the investigating bodies were brought together to work in collaboration as a team, to uncover the system failure underlying the accident. In the process, the clinicians were exonerated and significant system failures were identified, which were also present in many other hospitals. International alerts were raised and there was widespread system learning from the accident.

The injured patient and her family retained their trust in the hospital. No complaint was made and, indeed, the patient has sought to protect the reputation of the hospital and the clinicians in media coverage of the event. Her sister subsequently chose to have her baby in the same hospital.

The response of the manager and the patient profoundly changed the beliefs of the involved professionals. They learned it was possible to be supported through a major incident, rather than blamed. They also learned that a patient could be very generous in forgiving accidental injury and would not blame individuals. They also gained important new understanding of the contribution of system failure to patient injury. These new beliefs led to new behaviours that created a strongly self-reinforcing system dynamic that we call the 'safe' attractor (**Figure 3**).



**Figure 3. The 'safe' system dynamic**

This example is very heartening. It demonstrates convincingly that carefully targeted interventions can flip the whole system dynamic into a sustainable 'safe' mode despite the robustness and longevity of the 'unsafe' mode.

### Strategies for quality improvement

The implications for strategies in quality improvement are profound:

- Interventions not aligned with the system dynamic ("natural properties") will be endlessly resisted because of the feedback loops
- Even small intervention that align with natural system properties (the desire to improve and to provide compassionate caring) and which set up self-reinforcing dynamics can flip the system to a much safer mode
- Assumptions, beliefs and behaviours are an inherent part of the system dynamic. Technical approaches to quality improvement have very little influence on this dynamic and only cause localised improvement, which may have perverse effects elsewhere in the system.
- Two very specific interventions are needed to shift the dynamic to a safer mode: these should be given high priority in quality improvement strategies. Every health manager and professional needs to be taught about human factors, system behaviour and root cause analysis. This shifts the belief about the need to blame individuals. The practice of apology and open disclosure needs to be taught, coached, reinforced and ultimately mandated. This shifts the perception and belief of health consumers.

## **The role of leadership in quality improvement**

Effective interventions operate at the level of beliefs and behaviours, therefore the role of leadership is crucial:

- The safe dynamic depends greatly on openness, trust and confidence. Values-based leadership and role modelling of these qualities by senior managers and clinical leaders is of the greatest importance. Many features of emotional intelligence can be coached and developed. Performance appraisal systems for senior managers and clinical leaders should focus on these qualities and behaviours
- An understanding of complexity, of human factors, system behaviour and root cause analysis is a mandatory skill set for all health leaders
- Managers need to be able to distinguish between technical problems, where authority and control are appropriate responses, and adaptive problems that require leadership to facilitate the change in values, beliefs and behaviours (see Heifetz below). Applying technical solutions to adaptive problems is the commonest mistake seen in almost every institution.
- Clinical outcomes depend heavily on the quality of interaction and trust between different professionals who share the care of patients. Senior managers and clinical leaders need to be skilled in facilitating group process to uncover hidden assumptions and interacting beliefs among professional groups (an example from maternity services at Waitakere Hospital is given below)
- Empathy and compassion are qualities of emotional intelligence of great importance in sustaining a safe dynamic. Because of the profound interconnectedness of different parts of the system, patient safety is unlikely to be achieved if the system is not also safe and healthy for the people who work in the system. Managers need to act on workplace bullying, which is endemic in healthcare, and to create a supportive workplace environment.

## **The contribution of Senge, Schein and Heifetz**

These three international thought leaders bring a wealth of research and knowledge that underlie the system dynamic model presented above.

### **Senge**

Senge is the renowned author of "*The fifth discipline; the art and practice of the learning organisation*" (5). He asks,

*"Why do we confront learning opportunities with fear rather than wonder?  
Why do we derive our self-esteem from knowing as opposed to learning?  
Why do we criticise before we understand? Why do we create controlling bureaucracies when we attempt to form visionary enterprises? And why do we persist in fragmentation and piecemeal analysis as the world becomes more and more interconnected?"*

Senge believes that there are three characteristics of society at large, which are reflected in the basic dysfunction of large organisations:

- fragmentation
- competition
- reactivity

These characteristics are deeply rooted in our attitudes, mental models and instinctive approach to the solution of complex problems. Together they cause a

profound *learning disability* in organisations. Healthcare reforms of the 90's, which created competition and fragmentation, have worsened that learning disability.

The defining characteristic of a system, such as healthcare, is that it *cannot* be understood as a function of its isolated components. The behaviour of the system doesn't depend on what each part is doing but on how each part is interacting with the rest. In healthcare organisations, people *are the system*. The widely divergent perceptions, beliefs and mental models of health consumers, nurses, doctors, and managers are part of the system.

*"In our everyday sense of the world, we see reality as 'out there' and ourselves as observers 'in here'. Our Western tradition compels us to 'figure out' how nature works so that we can achieve what we want. But what if, what shows up for us as 'reality' is inseparable from our language and actions? What if we are part of, not apart from, the world? What if our crisis is, at least in part, a crisis of perception and meaning, springing from a 'naïve realist' perspective of the observer as one who describes external reality? What if observation itself is the beginning of the fragmentation?"*

Among the five disciples Senge upholds are system thinking, mental models, team learning and personal mastery. Senge's work gives many profound insights into the nature of the system dynamics described in the paper and the strategies for working within complexity.

Senge has visited New Zealand on several occasions and is working in collaboration with leaders in health, in education and in the environmental sector (through connections in the State Services Commission). He believes that New Zealand, above all nations in the world, has the most outstanding opportunity to progress effective change in complex systems such as healthcare (personal communication).

### **Schein**

Edgar Schein is considered to be one of the 'founders' of organisational psychology. His seminal works, "**Organisational Culture and Leadership**" is a management classic (6). Schein describes organisational culture at three levels:

1. **Artefacts**: visible organisational structures and processes (visible but hard to decipher)
2. **Espoused values**: strategies, goals philosophies (espoused justifications)
3. **Basic underlying assumptions** (unconscious, taken for granted beliefs, perceptions, thoughts, and feelings – the ultimate source of values and action)

He argues that the pattern of basic underlying assumptions can function as a cognitive defence mechanism for individuals and the group, as a result culture change is difficult, time consuming and anxiety provoking. Cultures are deep-seated, pervasive and complex and it can be extremely difficult to bring the assumptions to the surface.

Remarkably, this work has hardly been applied to healthcare. The system dynamic interpretation offered above is a novel application of that theory. Schein gives practical guidance on the roles of change agents and leaders in interpreting culture and leading sustainable improvement.

## Heifetz

Ronald Heifetz is the director of leadership programmes at the John F Kennedy School of Government at Harvard. Unlike most USA writers on leadership, Heifetz has little interest in the corporate world and he concentrates his work in the complex and messy world of government, public leadership and politics 'Wicked' problems are his speciality. He is a physician and classical musician who brings wide-ranging mental models and analogies to his work.

Heifetz differentiates between "technical" and "adaptive" problems (7). In technical problems, the problem definition is clear and there is probably an agreed approach to the solution and implementation. In adaptive problems, there is no clear definition of the problem. Defining the problems requires learning, and adaptive work necessarily involves conflict and loss. We can look to *authorities* to provide answers to technical problems but adaptive work is the role of *leadership*. Adaptive work requires participants to change their values, beliefs and behaviours. Heifetz uses examples from medicine to illustrate his teaching. Curing disease is a technical approach where the primary locus of responsibility for the work lies with the physician. Healing the whole person is adaptive work and the patient, not the physician, is primarily responsible for the work.

Heifetz writes with great clarity about the practical roles of leadership in making progress on complex, adaptive problems. Leadership means influencing the community to face its problems, rather than influencing the community to follow the leader's vision.

His five strategic principles of leadership are

- Identify the adaptive challenge
- Keep the level of distress within a tolerable range for doing adaptive work
- Focus attention on ripening issues and not on stress-reducing distractions
- Give the work back to the people, but at a rate they can stand
- Protect the voices of leadership without authority

Authority can be used as a resource for leadership

- Providing a holding environment for containing the stresses of adaptive change
- Command and direct attention
- Access to information and control over the way it flows
- Power to frame issues
- Orchestrate conflict
- Power to choose the decision making process

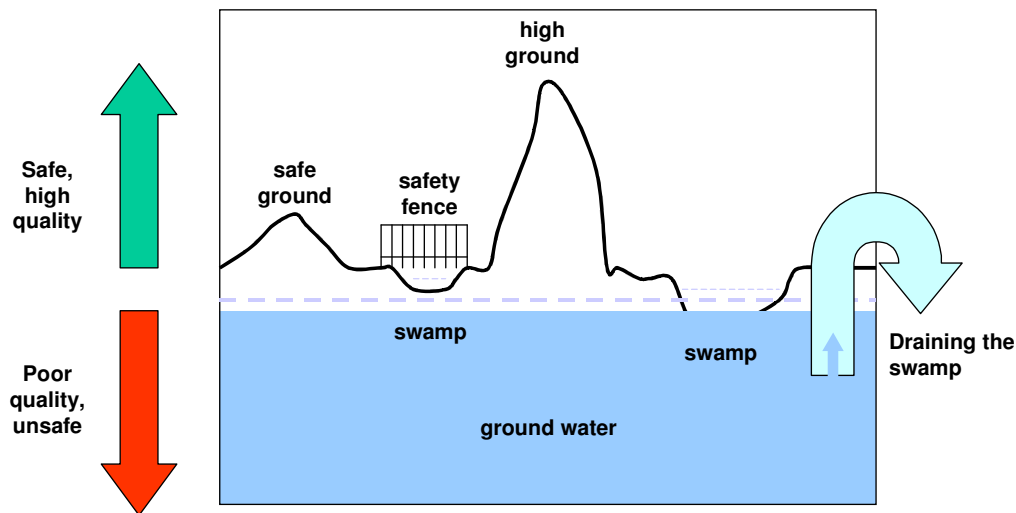
Heifetz writes with great insight and details about the practical steps in addressing adaptive problems:

- Diagnostic work:
- Directing disciplined attention to the issues
- Giving the work back to the people
- Regulating distress
- Surviving the personal challenge of leadership

The Leadership Development Centre (LDC) would like to sponsor a visit by Heifetz to New Zealand in the New Year.

## Technical and adaptive approaches to quality improvement

We do not argue the superiority of one approach over another – both are needed in parallel. We can conceive of healthcare quality as a wide landscape with a variety of geographic features. The mountaintops represent pinnacles of high achievement and outstanding quality. The low ground is less safe and contains a number of swamps representing defects in quality or dangerous hazards for the patient.



There are two potential approaches to improving quality and safety.

The first, technical approach is to identify specific hazards and ring fence the problem. An example is bar coding of medications to eliminate human error in recognising drugs. These technical approaches isolate local problems but they have little effect on overall system safety.

The second approach is to “drain the ground water”, which reduces hazards in the whole landscape. The adaptive approaches to altering system dynamics (open disclosure and so on) are an example of this broader strategy. Most quality improvement programmes have elements of both approaches.

### A further example of adaptive change

Another example of a ‘wicked’ problem internationally is the continuous rise in Caesarean Section birth rates. This change is costly in terms of resource use and large studies are now identifying excess mortality rates of both mothers and babies undergoing C-Section compared with vaginal birth. The drivers for increasing C-Section rates are a complex set of interacting beliefs and behaviours among the main players. Technical approaches to this problem – for instance, evidence based guidelines – have failed to influence this dynamic.

Many maternity hospitals in Australia and New Zealand benchmark outcomes and rates of intervention. One hospital has demonstrated a 30% fall in C-Section rates over a two-year period while improving neonatal outcomes – Waitakere Hospital, at Waitemata District Health Board (4). Hospital leaders did not explicitly set out to reduce C-Section rates. The intervention was in response to a crisis of confidence and the breakdown in relationship between independent midwives and hospital practitioners.

Increasing fear and conflict led to a rapidly rising rate of medical interventions and poor neonatal outcomes. It became apparent that the driving force for the crisis was

a set of mutually reinforcing beliefs and behaviours arising out of a series of crises. Independent midwives came to believe that hospital clinicians just wanted to do C-Sections. With this belief, they “protected” the mother from medical intervention by keeping the doctors away from their labouring mothers in the hospital. Poor management of labour complications eventually led to crisis situations where the midwife had no option other than to call the obstetrician to rescue the situation. Faced with dire emergency situations, the obstetricians had little choice other than recommending immediate C-Section. This behaviour further reinforced the beliefs of the independent midwives. Obstetricians and anaesthetists came to believe that independent midwives had no concern for patient safety. They blamed midwives for putting them in situation of professional risk by having to deal with sudden emergencies without any prior warning or patient preparation. This blaming further heightened the tensions and inhibited teamwork in managing developing labour complications.

Hospital leaders designed a series of interventions to expose and explore the dynamic of beliefs and behaviours by using socio-drama and role-play. The beliefs of key participants were challenged in a single day workshop, using very skilled facilitation. The consequent changes in behaviours created a ripple of change across the whole system, affecting the beliefs of those who were not part of the workshop. A self-governing process of quality improvement was set up, including hospital clinicians, independent midwives and consumer representatives.

No direction for improvement was imposed by hospital managers who gave complete autonomy to the interprofessional maternity forum (“giving work back to the people”, in Heifetz terminology). The professional group used a number of technical approaches, including clinical audit, case reviews and evidence based practice within the context of trusting relationships and shared goals. Multidisciplinary case reviews, including independent midwives, continue to this day without legal protection or privilege. There is mutual respect and shared learning on the basis of trust. The system dynamic has been flipped into an alternative ‘safe’ mode. The cost of the interventions was vanishingly small compared with traditional models of breakthrough change. The fall in C-Section rate was a by-product of the process of conflict resolution. Every other measure of system performance showed breakthrough improvement. Staffing levels recovered from critical shortage to full staffing. The rate of patient complaints fell threefold.

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