

Health System Redesign

Joachim P. Sturmborg

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How to Make Health Care Person-Centered,
Equitable, and Sustainable



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This book is dedicated to my patients for their patience in educating me about the true nature of health. I am indebted to their generosity in sharing with me their experiences of what it means to “be in good health,” and how one maintains the “experience of good health” by adapting to the consequences of disease.

Foreword

Notes from the New World

Over the past few years, our work at the Lown Institute has been focused on the deep problems of delivering the right medical care to all. Since our first annual conference in 2012, there has been growing recognition of the failure of modern health systems to deliver needed and wanted care while avoiding unnecessary care. The serious consequences of these twin problems, both in harms to patients and in costs to communities, are staggering.

Our recent series of papers in the *Lancet* attempted to move these issues to a more prominent place in the global health agenda, alongside the traditional focus on communicable and noncommunicable diseases and the newer one on universal health coverage. Fortunately, we are now in the early stages of a worldwide movement to address poor care. However, the more I have reflected on our work, the more I have become convinced that we will not be successful unless we face a key fact: the problems of overuse and underuse are not mere aberrations of an otherwise healthy system, but instead arise from the very fabric of modern medicine and its current paradigm.

The old medical world is in turmoil, turmoil unprecedented in the past century. The issues and problems are piling up faster than solutions are being found. Across the globe, patients are feeling a need for care that is not being met and becoming sceptical of tests and procedures that could bankrupt them. While ageing populations and rising technology costs are core drivers of concerns regarding the efficiency of healthcare delivery, clinicians worldwide are also feeling something more emotional: a sense of loss as care has become more and more transactional and less and less relational. A lot of this is a consequence of the neoliberal era out of which we are emerging, but I am convinced that something deeper is going on.

The evidence is accumulating that the scientific paradigm of the last hundred years has run its course and that we are now encountering dilemmas in every direction. One consequence is that the explosion of technology has made it harder and harder to have an integrated view of the human being at the heart of medicine's

purpose. In moments like these, we need to completely reexamine our worldview and revise it to conform to the stubborn reality that confronts us.

The author of this book, Joachim Sturmberg, is one of the many extraordinary people I have encountered in the course of my work in recent years. He is someone whom I know only through the magic of the internet—we are on various listservs together and are connected by a shared passion for reimagining healthcare systems.

Dr. Sturmberg is a remarkable physician, a family practitioner with on-the-ground experience caring for people in rural settings who is also a consummate systems thinker focused on models of integrated care for the individual patient. His capabilities and passion have led him to become an international leader in applying complexity theory to healthcare.

In this capacity, Joachim Sturmberg is clearly a pioneer, an explorer of a new world.

In this book, Sturmberg rightly identifies scientific reductionism as a central problem of our current paradigm. Reductionism deconstructs a complex process, such as the workings of a clock, into its component parts to enable better comprehension of its underlying mechanisms. We have harvested the fruit of this method in the past century with spectacular, almost magical advances in vaccination, antibiotics, surgical techniques and devices. Our knowledge of the intricate molecular components and processes involved in all aspects of health and illness has exploded.

But reliance on a reductionist paradigm is now exposing its disadvantages as continued pursuit of novel, targeted therapies is yielding slower advances at greater and greater cost, as a plethora of examples in cancer and cardiovascular care can attest. This is due in no small measure to the fact that biological systems are highly interconnected and non-linear. The search for a “silver bullet” like penicillin for conditions with complex biology such as cancer or heart disease or behavioural illness is unlikely to succeed.

Beyond biological reductionism, a similar lack of systems thinking is ubiquitous in attempts by health systems to address problems of high costs and poor outcomes, which have so far yielded meagre results. Despite rhetorical flourishes, the real effort is usually small, primarily because new incentives, processes and technology are still largely embedded in the old system.

This is unsurprising because our current healthcare systems focus on transactions rather than relationships. To realise a system that is truly relationship based, we would need to remove transactions—and in fact change everything about the clinical encounter: payment models, delivery models, the technology platform and most importantly the culture. Sturmberg quotes Max Planck, the German physicist who said “When you change the way you look at things the things you look at change”.

In Sturmberg’s view current health systems have reached a tipping point and are no longer reformable. We must change everything. His book is a welcome contribution to showing us the way forward.

Sturmberg calls for a change in mindset, or worldview. He defines mindset as “a set of assumptions, methods or notions held by one or more people or groups

of people which is so established that it creates a powerful incentive within these people or groups to continue to adopt or accept prior behaviours, choices or tools”.

The new paradigm that he recommends is complexity theory, a relatively new branch of science that no longer sees the world as mechanistic, linear and predictable, but instead sees it as interconnected, non-linear and adaptive. Over the last 20 years, mathematical frameworks have emerged that help us understand the behaviour of complex systems: network theory, agent-based modelling, scaling theory, the theory of scale-free networks, non-equilibrium statistical mechanics and non-linear dynamics. This mathematics is as important for medicine and healthcare as the calculus was for physics.

Complexity theory allows us to model systems in which the sum of the parts interacts in novel ways far beyond what one might predict from reductionist models. When the interactions between elements are non-linear the behaviour of complex systems is more unpredictable. Sturmberg’s point that good and poor health are particularly non-linear and hard to predict is a fundamental truth that explains many of the failures of current approaches.

This framework answers some mysteries in healthcare reform efforts: Sometimes very small inputs may result in very large (“chaotic”) responses, but at other times, large inputs may result in no change whatsoever. Moreover, changes in one part of the health system can easily result in deterioration in another.

He points out that the word complexity comes from “complexus” meaning interwoven and show how this framework allows us to completely reorient ourselves in our thinking about health and healthcare. This applies to basic elements like the nosology of disease and the rendering of a diagnosis as well as to the health system itself. It also invites us to see healthcare as a narrow subsystem within the health system.

Sturmberg’s framework allows us to traverse and understand the necessary configurations across the many levels of organisation required in the pursuit of a seamlessly integrated health system. More importantly, this framework allows us to view the experience of health by the person as the principle outcome measure of care.

His approach also sets the stage for a comprehensive programme for the redesign of health systems and allows him to focus attention on all levels of organisation. His paradigm gives local health services permission to self-organise in such a way that achieves the goal of meeting the needs of their people. In Sturmberg’s view a sustainable health system principally arises from the local level, which is then influenced by the inputs of regional, state and national levels. Reciprocally, local level health system outcomes influence regional, state and national system functions. He emphasises that managing health system redesign must focus on coherent communication across the system.

One of the critical consequences of this view of healthcare delivery as a complex adaptive system is the empowering of the local care delivery network. His ideal is a local network that constantly improves its services by listening to people’s feedback and understanding their needs, then explaining the changes being made in

response to their feedback and finally communicating the organisation's successes in delivering what people requested.

Sturmberg also offers some intriguing practical implications of the complex systems approach: How a causal loop diagram of a patient encounter gives the primary care clinician new insights into the patient's illness experience and how it opens a new narrative approach to help the patient make sense of his illness, identify new intervention points and explore alternative treatment approaches in order to modify his illness experience?

I believe everyone in healthcare would benefit from engaging with the ideas presented in this book. The paradigm we seek and that Sturmberg offers holds the promise of a synthesis that liberates us from multiple constraints, greatly advancing our search for a unified image of health. It also restores relationship to the heart of healing.

I share Sturmberg's fundamental worldview, which I see as essential to medicine for the twenty-first century. That he and I have come upon it independently is, I believe, a hopeful sign that we are discovering important intellectual principles in the midst of turmoil, transition and new beginnings.

This book provides a framework for thinking about the new landscape we are entering and I expect that we will be refining and extending its themes and topics for many years to come. As such it is an essential explorer's handbook providing a comprehensive tour of the new world.

President
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September 2017

Vikas Saini

Preface

The recent *Lancet* series *Right Care* (<http://www.thelancet.com>, January 2017) highlighted that people in high- as well as low- and middle-income countries alike often do not receive the *care they need*. People are either over- or undertreated based on one or a combination of social, economic, political and psychological factors. These factors can be grouped into three domains—*money and finance*; *knowledge, bias and uncertainty*; and *power and human relationships*. Importantly, these factors affect the health system across and between all levels of organisation—global, national, regional and local. In addition, the health system—as opposed to its biomedical healthcare *subsystem*—lacks a clear definition of its specific purpose, goals and values. The dynamic behaviours of these factors amongst and between levels of organisation result in the observable behaviour of a country’s health system. Not fully understanding the configurations and relationships amongst the system’s agents limits the possibilities for successful health system change.

Health System ReDesign

Our health systems need to be redesigned; in their **current forms, they are no longer fit for purpose** nor are they **financially sustainable** beyond the very near term. Note the emphasis here is on the **health system** rather than the narrow subsystem part that comprises the *healthcare* system. Health system activities entail all aspects that affect human health—education, work, food supply, social and environmental infrastructures besides of the specific health services.

How then do we achieve a *health system* that is fit for purpose, equitable and financially sustainable? To that end, consider Economics Nobel Prize laureate Herbert Alexander Simon’s observations:

Engineering, medicine, business, architecture, and painting are concerned not with the necessary but with the contingent—not how things are but how they might be—in short, with design Everyone designs who devises courses of action aimed at changing existing situations into preferred ones.

This book takes its readers on a journey towards a *preferred health system*. Such a system *redesign goes beyond prevailing approaches to healthcare reform*—redesign approaches issues with a *new mindset*, re-examining the fundamental basis of the system, its purpose, specific goals, core values and its core drivers or operating principles (aka “simple rules”). In doing so, it considers the configurations and relationships of its agents across and between its various levels of organisation in the pursuit to achieve a seamlessly integrated health system.

Health system redesign thus is a *process* that requires input from all. As Julio Frenk emphasised, we are all agents of the health system in various ways:

- As patients, with specific needs requiring care
- As users, with expectations about the way in which they will be treated
- As taxpayers/service purchasers and therefore as the ultimate source of financing
- As citizens who may demand access to care as a right
- As co-producers of health through care seeking, compliance with treatment and behaviours that may promote or harm one’s own health or the health of others

Taking a *whole of system* perspective, all users (*ought to*) play a key role in determining the purpose, goals and values of the health system. As users have different needs in different contexts, the emerging configurations of local health systems will rightly vary in their specifics while fully embracing its overarching aims. Those emerging local health services will be the “best adapted” given local needs as well as restraints. Therefore, this book cannot—and does not pretend—to provide *easy answers* to the problem; rather, it aims to allude to important issues that underpin the health system redesign process. The book will address three key themes:

- Understanding complexity—what are complexity sciences, and how does complexity thinking shape our understanding of health
- Envisioning a “best adapted” health system—what would it require, examples that point in this direction and ways that might help us to get there
- Achieving a person-centred, equitable and sustainable health system—how can we translate the principles of systems and design thinking in practice, what can we learn from examples that have used these principles and how can we translate this learning towards the goal of achieving person-centred, equitable and sustainable health systems

Diversity of Views

Designing a preferred health system in the first instance will require all with vested interest to openly and transparently address the many issues that underpin the *status quo*. As highlighted above, the health system is conflicted on issues of money and finance; knowledge, bias and uncertainty; and power and human relationships. Will we be able to acknowledge amongst others that:

- The pathways to good and poor health are non-linear and hard to predict
- Health is *personal* and the product of complex dynamic relationships amongst biological, social, emotional and cognitive determinants
- To meet all of a person's health needs requires the engagement with those able to manage the underlying social determinants of health
- Health systems are expected to manage people's needs, not their demands
- Healthcare needs are inversely related to socio-economic status
- Healthcare is a service, not a commodity
- Efficient healthcare goes hand in hand with effective social care
- Health is a human right to be maintained on an equitable basis
- Powers and responsibilities within the health system are distributed amongst all its agents
- The health system provides a security system in case of need, especially for the most vulnerable in our communities
- A mutual approach to healthcare financing—regardless of public or private funding arrangements—is of benefit to *society as a whole*
- The greatest health gains may arise from investments into services outside the health system, e.g. draining standing waters to prevent mosquito-borne diseases, or building community food gardens in poor neighbourhoods

Moving Forward

This book is extensively referenced to allow readers to follow up on familiar as well as unfamiliar or contentious sounding statements. The addition of addenda provides the interested reader amongst others with excerpts from influential thinkers and practitioners covering an epistemology of systems sciences; adaptive leadership and change management; differing perspectives on what constitutes “value in healthcare”; and a brief introduction to understanding the “role and value of social service” for health and well-being.

I would hope that we can start an ongoing conversation about health system redesign. To that end, I have initiated a *LinkedIn Group*—<https://www.linkedin.com/groups/13553062>—with the aim of creating a movement that can influence the renewal of health systems around the world.

Holgate, NSW, Australia
May 2017

Joachim P. Sturmberg

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