



A NEGLECTED RESOURCE: TRANSFORMING HEALTHCARE THROUGH HUMAN CAPITAL

Dr Victor J. Dzau with Natalie Grazin,
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The Global Health
Policy Summit

A partnership between

Imperial College
London



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Qatar Foundation



Report of the Innovative
Delivery Models
Working Group 2012

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Foreword



Dr Victor J. Dzau



Professor the Lord Darzi of Denham

Countries in every corner of the globe are going through unprecedented change; the global economic recession has created challenges in a way that has not been experienced since the Great Depression of the 1930s. Governments are under pressure to provide a large part of the solution to the financial crisis, while at the same time improving public services. At the core of this pressure on public spending is healthcare, in many countries representing the single largest expenditure in the entire economy.

Not only are our economies in turbulent times, but our health systems find themselves under strain as well; they need to improve the way they serve the population by extending access and raising quality, while maintaining financial sustainability. The starting point and extent of the challenge vary from country to country, but the essence of the challenge remains constant everywhere. The question on the mind of every Minister of Health is how to improve affordable access to quality care or, in layman's terms, how to get more for less.

This overall challenge is compounded by the rising tide of non-communicable diseases, which abound everywhere from the mid-western United States to the new middle-class of India to Sub-Saharan Africa, where the challenge is increased by the persistence of infectious diseases. Accordingly, many health systems are experimenting with structural and system changes, with institutional reform, payment innovation, and new system-level initiatives.

What is also true in every country, and often lies right at the heart of the problem, is the need to get the most out of human capital – everything from the medical workforce, to local communities, to caregivers and families to (most critically) patients themselves. In order to change the trajectories of health systems around the world, strong leadership and disruptive thinking will be required.

What is clear is that some individuals and organisations – imbued with an entrepreneurial spirit and a willingness to think creatively – have seized the opportunity to reinvent healthcare delivery. Unbounded by orthodoxy, they have found new ways to reach more patients, at lower cost, while also maintaining or raising quality and improving work attractiveness and professional motivation. They are proven examples that excellence in quality, efficiency and productivity is possible.

These organisations succeed despite legacy health systems, not because of them; they stand out as isolated beacons within established systems. This report aims to learn more from what these individuals and organisations are doing, and to provide a framework for action for government and policy leaders to enact changes that can enable such innovations to spread further.

Organisations such as the International Partnership for Innovative Healthcare Delivery and the Institute for Global Health Innovation can play a pivotal role in helping governments and policy leaders, by identifying different ways and models that can help address health challenges. In the years to come, the hope of both these organisations is to maintain this progress and to push it forward, to build on the work of current trailblazers, and to forge a path towards a more innovative, healthier world.



Dr Victor J. Dzau

Chair, Innovative Delivery Models Working Group and Chancellor for Health Affairs, and James B Duke Professor of Medicine, Duke University; CEO & President, Duke University Health System. Chair of International Partnership for Innovative Healthcare Delivery.



Professor the Lord Darzi of Denham

Paul Hamlyn Chair of Surgery and Director of the Institute of Global Health Innovation

Executive Summary

“Health is all about people. Beyond the glittering surface of modern technology, the core space of every health system is occupied by the unique encounter between one set of people who need services and another who have been entrusted to deliver them.”¹

Over the past two decades, healthcare policy has emerged as a pressure point for dozens of governments, both in higher and lower-income countries. Indeed, health policy experts now commonly refer to the “iron triangle”² of cost, quality and access in healthcare, and thereby acknowledging the difficulty of positively impacting all three of these factors across any healthcare system (for example, improving quality and increasing access without increasing costs). Research launched through the World Economic Forum – now being taken forward by the newly launched International Partnership for Innovative Healthcare Delivery (IPIHD)³ – has identified healthcare delivery innovations that provide step-function improvements in cost, quality and access, and are fundamentally changing the traditional model of healthcare delivery.

This paper looks at some of the most compelling models, with a particular emphasis on how they relate to one critical and underexplored area: **innovation in human capital**. The paper examines how the principles and lessons from successful models can be translated for use in other countries, focusing on the role of government and policy leaders in supporting these innovations.

There could not be a more appropriate time to discuss this topic. The “iron triangle” seems to be emerging as a pressing theme globally, and all three factors of it are addressed by the utilisation of human capital. At the same time, evidence is mounting to show that the labour productivity of healthcare workers has flat-lined, or even decreased, across many high-income countries.

In Chapter One of this report, we examine the how and the why. We first study the roots of the problem – how did the current challenges in human capital and the recent stagnation of labour productivity come about? We then establish the rationale: why solving these problems requires a renewed focus on innovation in the utilisation of human capital.

There is good news, however, as much progress is already underway in this domain. Chapter Two outlines the most important lessons that we have synthesised from the innovations examined in our research in the form of five main principles of innovation:

- Reduce variation for a standardised operating model
- Right-skill the workforce
- Treat patients and communities as assets
- Optimise talent through technology
- Motivate everyone to play their part

Any single successful model of human capital innovation would not necessarily incorporate all of these factors.

What is true, though, is that across different models of healthcare delivery that have effectively made innovative use of human capital, the five success factors have all strongly informed the design of the delivery of care. Details on the most innovative approaches we found are in Appendix 2 including:

- In Sweden, in Ryhov County Hospital, Jönköping, the clinical team has introduced a system that enables patients to administer their own haemodialysis, making the procedure more flexible for patients and freeing up nurses to work as patient educators
- In Kenya and Rwanda, an organisation called CFW Clinics runs small medication distribution centre franchises, concentrating on highest-value-add medications for a short-list of critical illnesses afflicting children
- In the U.S., a company called InstyMeds makes and distributes automated dispensers of prescription medications – enabling more flexible access for patients and freeing up highly trained pharmacists to focus their attention on giving advice to patients, rather than manually filling pill bottles
- In China, Microsoft sponsored the development of an open-source smartphone app that enables diabetes patients to manage their condition more effectively
- In Denmark, a system to give patients online access to their own health records has been established – a move that produced several positive side-effects, from getting patients more involved in their own healthcare to substantially reducing the number of errors in record-keeping

Taken together, these case studies tell a reassuring story that change is possible and, more crucially, that it is already underway.

In Chapter Three, we turn our attention to what can be done by governments and policymakers to enable innovation. Our analysis identified four core enablers as well as specific actionable recommendations to unlock the power of these enablers:

- Reform the regulatory and legislative environment
- Align financial rules and incentives with human capital goals
- Equip patients and communities for co-production
- Modernise professional education and training

There is a great deal that governments, policymakers and regulators can do to support innovation. At the end of the final chapter, we propose two paths that a country can follow in parallel towards a reform agenda; the first path involves demonstrating to the population that change is possible and that the government is committed to change; the second is more strategic, and enables the stakeholders to focus on a specific “pain point” or issue where enabling innovation in the use of human capital is especially important.

The target audiences for this paper are health ministries, regulators, industry leaders, and entrepreneurs interested in forging a more effective and efficient health system. The case studies that our research has highlighted, and the lessons around innovation uncovered through these case studies, should be taken as encouraging signs for all these groups.

The inertia of health systems is not inevitable, nor is the under-utilisation of patients, communities and the workforce as critical resources in healthcare delivery. By harnessing the full range of talents within their populations, countries can better address the challenges of cost, quality and access across healthcare.

Chapter 1 - Healthcare Delivery Innovation: Human Capital as an Obstacle and Enabler

The 20th century saw unprecedented improvements in health. A combination of public health measures and medical advances reduced disease prevalence and lengthened lifespans considerably across most of the world. These improvements have not only increased the quality and length of life for billions of people; they have also translated directly into stronger economic growth and greater social equity. The total impact of health advancements is hard to overstate.

At the same time, however, improvements in human health have come at a major economic cost. In OECD countries, growth in healthcare spending has outstripped GDP growth for decades. In many developed economies, spending on healthcare now exceeds 9% of GDP each year. In many middle-income countries, healthcare already accounts for 5% or more of GDP (see Figure 1).

Cost is not the only issue that is troubling healthcare systems. Inefficiency is another. The money going into healthcare is not being efficiently used. In 2010, IBM economists ranked healthcare as the least efficient industry in the world, owing to the extensive fragmentation and wastage within the system.⁴

Exacerbating this efficiency problem is the problem of access. In low-income and middle-income countries, access often remains the primary issue, as large swathes of the population cannot obtain reliable, affordable healthcare. These countries must find ways to increase access while also ensuring adequate standards of care quality, and most of them must do so within strict budget and resource constraints.

Problems with access to high-quality care are not, however, limited to the poorer countries. Many high-income countries have found that the quality of care in their health systems is highly variable.

Some experts have described this combination of problems – cost, quality and access – as healthcare’s “iron triangle” (Figure 2).

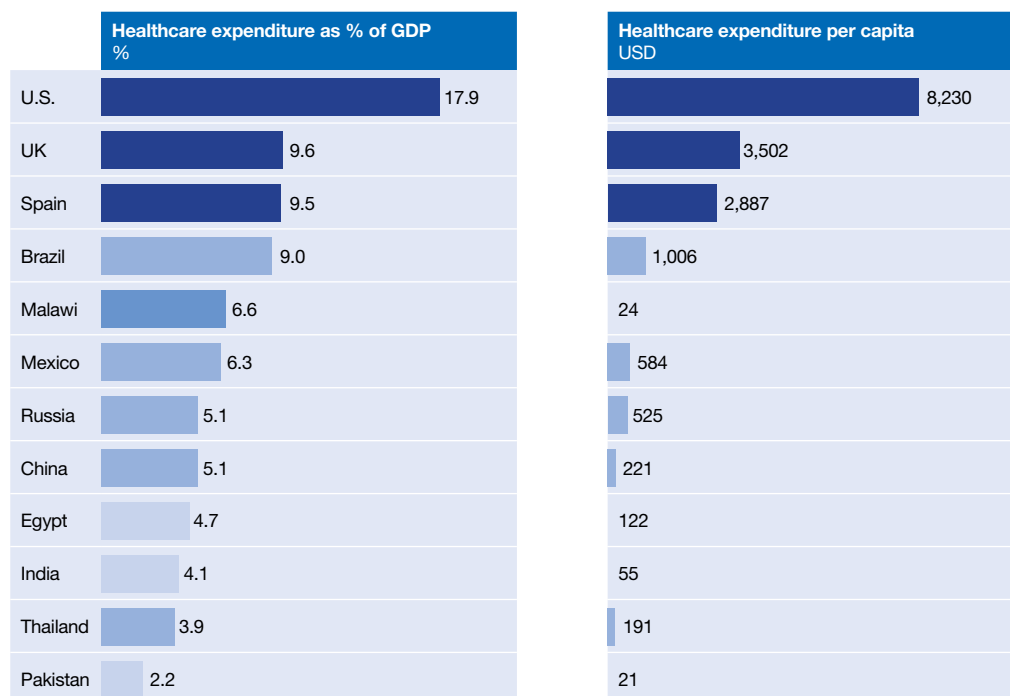
Overcoming the “iron triangle” requires a renewed focus on human capital

The iron triangle persists only because a deep underlying issue exists – a bottleneck at the point of delivery of health services. Two of the three sides of the triangle, high cost and poor access, are due at least in part to this bottleneck. In short, the problem is this: healthcare services are typically funnelled through highly skilled professionals (doctors, nurses, technicians, pharmacists, and so on), yet the productivity of these professionals has stalled in recent years, at the very time that demands on healthcare systems have spiked; in some countries, including in the U.S., the productivity of health professionals has actually fallen (see Figure 3).

Figure 1

National healthcare expenditure comparison and World Bank income classification

- High Income (GNI > \$12.3k)
- Upper middle Income (GNI \$4.0k to \$12.3k)
- Lower Middle Income (GNI \$1.0k to \$4.0k)
- Low Income (GNI <\$1.0k)



SOURCE:
World Health Organisation 2010,
The World Bank

Figure 2

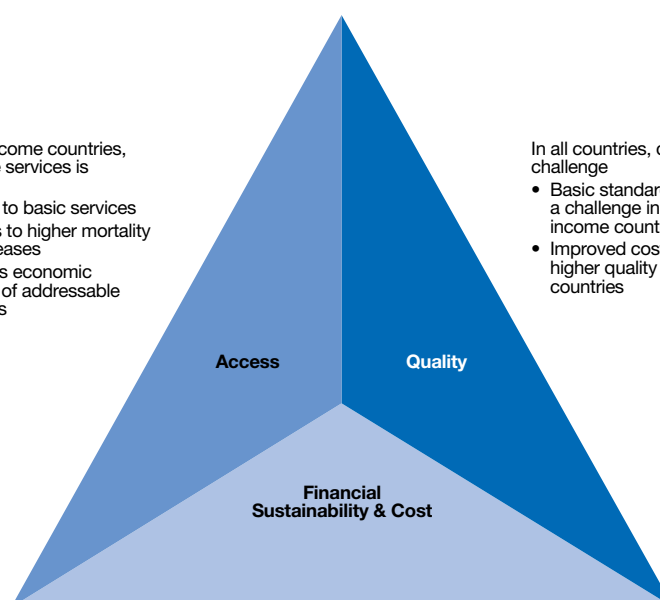
Around the world, health systems face the challenge of breaking the iron triangle and improving affordable access to quality care.

In low and middle-income countries, access to healthcare services is severely limited

- Many lack access to basic services
- Poor access leads to higher mortality from treatable diseases
- Poor access stunts economic growth, limits size of addressable healthcare markets

In all countries, quality is an enduring challenge

- Basic standards of medical care are a challenge in many low to middle-income countries
- Improved cost is not leading to higher quality in high-income countries



In high-income countries, the cost of delivering health care is unsustainable

- Growth in spending on healthcare outstrips GDP growth
- Burden is unsustainable if not checked
- Continued growth in these markets will be challenging for healthcare firms to achieve

In low and middle-income countries, the question of how to optimise the utilisation of human capital is just as urgent. In many of these countries, the workforce needed to match the burden of disease simply does not exist. Nor will it materialise if we merely rely on long training processes characterised by increasing sub-specialisation, and restrict care to in-person encounters between a doctor and patient for all types of services. As Figure 4 shows, it is simply not feasible (and probably not wise anyway) for these countries to replicate the human capital models that high-income countries use for healthcare delivery. So innovations in human capital are vital.

Rather than copy those existing models, low- and middle-income countries have an opportunity to avoid the key flaws of high-income countries' systems – in particular, the flawed belief that more and more highly-trained providers will lead to better and better health services.

The human capital available to improve population health and deliver healthcare is not confined to the formal healthcare workforce. Patients are on their own for most of the time, so for many people the bulk of healthcare already takes the form of self-care. There is vast potential to harness the capacity of patients and communities to be effective change-agents and partners in improving health.

Other industries have significantly reduced costs by encouraging greater consumer-involvement through new delivery models – cash-dispensing machines, for example, or online travel booking, or peer-to-peer networks such as e-Bay, PayPal and Napster. But these “co-production” approaches have to date largely bypassed healthcare. Given the increasing prevalence of non-communicable diseases (NCD) in low- and middle-income countries – diseases which above all require the patient to take an active role in their management – we can no longer afford this neglect of patients as assets.

Currently, very few healthcare-delivery models view the patient as a resource. On the contrary, patients' enforced passivity is illustrated by their lack of voice even in framing the reason why they are seeking healthcare: it typically takes doctors about 20 seconds to interrupt a patient.⁵ Healthcare not only fails to take advantage of the patient's capabilities, it diminishes them: many studies have shown that during hospitalisation, older people actually lose the ability to function independently.⁶ Patients with NCD can profoundly change the development and progression of their conditions through effective self-care, goal-setting and adherence to prescribed medication, exercise and nutrition regimes. Yet as research by the Commonwealth Fund in 2011 shows, this opportunity is being lost, owing to the professionals' failure to ready patients for this role (Figure 5). Across all forms of healthcare, the role of the patient needs to change from a liability to an asset.

Innovation in human capital is possible

In the light of these challenges, many governments, policymakers, regulators and industry leaders have begun to wonder if current approaches to healthcare delivery are sustainable, whether from a financial, social or a clinical perspective. Their concern is not limited to problems of cost, quality and access; they also know that a variety of macro-level forces, ranging from population ageing to increased information and technology availability, are likely to drive up both the demand for health services and the cost of these services. Governments have begun to ask whether other approaches would enable them to reduce demand; to provide higher-quality, more accessible care within current spending levels; or to reduce their healthcare spending levels without harming quality and access.

With these questions in mind, health systems, NGOs and social entrepreneurs around the world have started experimenting with new forms of healthcare delivery. Low and middle-income countries have proved to be especially fertile ground for these innovations, because they are less shackled by legacy labour practices and infrastructure. In India, for example, an explosion of private-sector innovations has helped address the needs of the country's growing middle class. Reassuringly, examples of such innovations can be found many other countries.

Figure 3

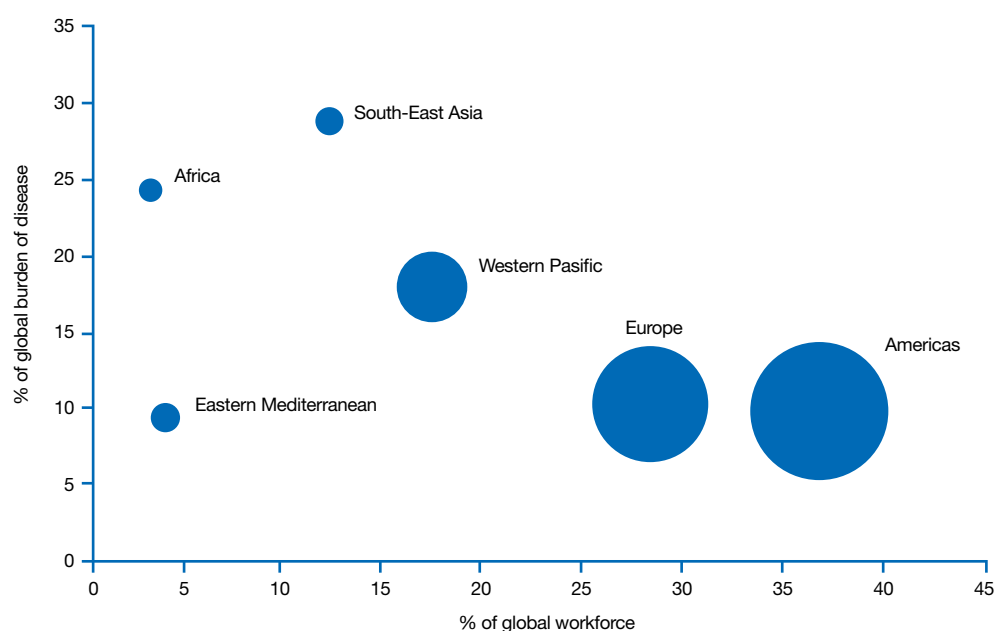
Overall, labour productivity and employment growth in US economy by sector



Source:
Kocher and Sahni, NEJM, 2011

Figure 4

Distribution of health workers by level of health expenditure and burden of disease, by WHO region



Note:
size of the circles shows the absolute numbers of healthcare workers in each region

Source:
World Health Report 2006

Figure 5

Patient Engagement in Care Management for Chronic Conditions

Percentage of patient responses regarding their consultations with a health professional

Health professional in past year has:	AUS	CAN	FR	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
Discussed your main goals/ priorities	63	67	42	59	67	62	51	36	81	78	76
Helped make treatment plan you could carry out in daily life	61	63	53	49	52	58	41	40	74	80	71
Given clear instructions on symptoms and when to seek care	66	66	56	64	64	63	44	49	84	80	75
Yes to all three	48	49	30	41	42	45	23	22	67	69	58

Source:
2011 Commonwealth Fund International Health Policy Survey of Sicker Adults in Eleven Countries

Methodology

As part of this effort, we examined more than 550 papers and peer-reviewed empirical studies available within bibliographic databases, including Medline, Embase, ScienceDirect and GoogleScholar.^a In addition, we studied non-empirical material from public-policy journals and wider grey literature. Alongside the literature review, we conducted interviews with more than 40 experts and analysed a diverse set of over 45 case studies.

Three years ago, the World Economic Forum, in partnership with Duke Medicine and McKinsey and Company, undertook a project to identify successful healthcare delivery models, and suggest what the successes had in common and what factors were inhibiting their scale-up or replication.⁷ This initial evaluation of more than 30 successful innovations revealed several themes: many innovations, for instance, involved repurposing proven technologies from other industries, or borrowing assets such as fixed infrastructure to hold down capital investments.

One theme emerged as particularly striking: that innovations can modify the labour intensity of healthcare delivery. Many innovations, for instance, defied professional assumptions about who should be allowed to do what, and thereby enabled healthcare provider organisations to “right-skill” their workforce. Others focused on enlisting patients and community members to increase patients’ engagement in their own care. Some innovations used both approaches.

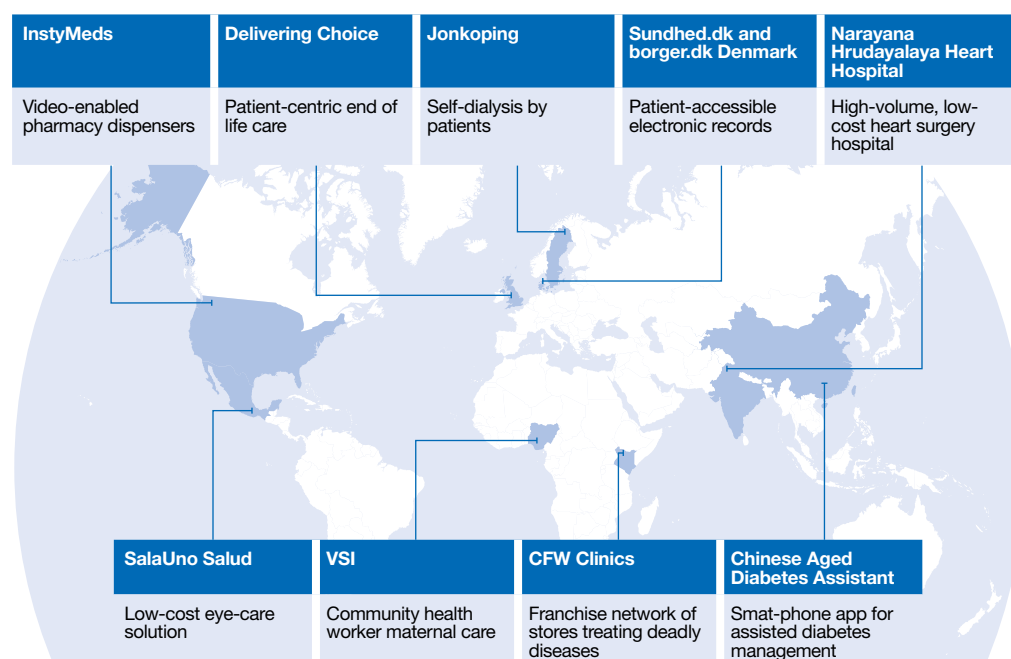
This theme confirmed our view of human capital as a critical, and underexplored, element of improving healthcare systems. Our investigation was launched in order to probe more deeply, and to focus directly on how successful innovations are using “human capital” – clinical staff, patients and their families, other carers, and communities – to improve healthcare delivery.

Public- and private-sector health systems can address challenges in their systems by following the example of successful innovations and changing the way they use human capital in healthcare delivery. Doing so can be difficult, because many of the changes required are not supported or encouraged by government policies, legacy systems, regulations and long-standing legislation. Those factors need to be addressed before the innovations can be scaled up or replicated elsewhere.

^a The scope of the initial literature review was defined to incorporate peer reviewed empirical research papers published since 1990 and published in the English language.

Figure 6

Nine case studies from around the world illustrate the potential for successful delivery innovation through innovative use of human capital



Chapter 2 - How Successful Delivery Innovation is Driven by New Approaches to Human Capital

Our research shows that five principles help successful healthcare delivery innovations to utilise human capital more efficiently and effectively:

- Reduce variation for a standardised operating model
- Right-skill the workforce
- Treat patients and communities as assets
- Optimise talent through technology
- Motivate everyone to play their part

Most successful innovators simultaneously use several of these principles to maximise the results they achieve, but they don't necessarily rely on all of them. The principles below are each illustrated with reference to the innovators whom we studied in depth when developing this report. These case studies are listed in Figure 6, and are summarised in the Appendix.

The nine case studies are far from the only successful innovations that are changing the approach to human capital utilisation. However, they illustrate the range of options that organisations can consider when they want to transform healthcare delivery.

Reduce variation for a standardised operating model

In many countries, health systems have been designed and managed to accommodate variation – variation in the number of patients requiring treatment, variation in the complexity of the patients' clinical presentations, and variation in the needs of the larger population.

As a result, most health services are delivered by practitioners with high levels of training and with the skill to recognise and manage outliers – the unusual, complex cases that only occasionally arise. Paradoxically, this over-training may make it harder to deliver consistently great care to the majority of patients, since many highly trained clinicians are most interested by, and are always looking for, the complex patients.

Yet in any clinical setting, most patients have a fairly predictable set of needs, and require only routine interventions such as vaccinations, eye tests for corrective lenses, and low-risk childbirths. These interventions are undertaken a great many times each day, and account for the vast majority of services delivered; and in many cases they clearly do not require a high level of training. Equally, the more complex patients require a specific, but higher-level set of skills. Once segmented from the less complex patients, these patients too can be efficiently treated on an efficient, high-volume basis.

Accordingly, many successful innovators design their delivery models for a very specific group of patients, and then train their workforce to focus on the interventions that this particular patient group specifically require. Commonly this is the majority of patients with predictable needs, not the minority with more complex needs, but it need not always be so: Narayana Hrudayalaya is a highly efficient Indian innovator organisation with very high productivity across its 12 hospitals, despite focusing on complex cardiac surgery, cancer treatment, and other medically and surgically complex conditions.

At the other end of the spectrum, CFW Clinics in Rwanda, in training the nurses who run each clinic, focus them on diagnosing and treating only a small selection of diseases. These diseases, however, account for more than half of all preventable deaths in Rwanda. For diseases that the nurses cannot treat, clear protocols for referral have been established. By using segmentation and stratification to reduce variation, innovators have successfully taken a critical first step towards developing a sophisticated staffing strategy.

Right-skill the workforce

Because successful innovators adopt very precisely defined target populations and clinical processes, they are able to develop highly focused and cost-effective human capital strategies. At the heart of these strategies is "right-skilling": ensuring that the most expensive human capital is used judiciously, such that each intervention is delivered by an appropriately qualified but not

overqualified professional – or to put it another way, by the person with the lowest amount of training needed to achieve high-quality outcomes.

SalaUno Salud, in Mexico, standardises the entire pathway for eye disease, from diagnosis to surgery, postoperative recovery, and discharge. Ophthalmologists perform the most technically demanding part of each operation, but staff members with far less training perform many of the highly specialised but repetitive tasks that are required during each operation.

In the UK, home-based end-of-life care has been revolutionised through a re-thinking of staffing models. Prior to the Delivering Choice programme in Leeds, the prevailing system was fragmented between multiple staff, each of whom came in and out of the patient's house each day. The Delivering Choice programme introduced a delivery model in which 75% of any patient's care is delivered by just one single Health and Social Care Assistant. He or she receives only three weeks' initial training, followed by on-the-job supervision. The new model has not only improved the cost-effectiveness of care, but increased continuity of care for patients and families. In addition, it has resulted in a 7% reduction in emergency hospital admissions at the end of life, saving the health system millions of pounds per year, and allowing more people to fulfil their wish of dying at home.

Treat patients and communities as assets

In most countries today, patients and communities are the passive recipients of health services. Few health systems draw on or develop the patients' capacity to manage their own health; even fewer regard patients and communities as assets who can help improve healthcare delivery for themselves and each other. Patients are either viewed as liabilities who consume scarce resources, or as passive vessels into which treatments are poured. The result is the neglect of the patient as a resource.

However, successful innovators take a different approach. They actively involve patients and their communities in care delivery. In Jönköping in Sweden, patients with kidney failure have been trained to use hospital dialysis machines themselves, thereby improving the efficiency, productivity, convenience, and safety of care delivery. These patients have also been empowered to provide advice to one another on ways of managing their illness.

Some successful innovators work effectively at both the individual patient level and the community level, requiring each to play a part in healthcare delivery. In Nigeria, a new model for maternity care is now being scaled up nationally by the government after successful piloting and evaluation by Venture Strategies Innovations (VSI), a maternal health NGO. This innovative delivery model builds knowledge and skills within village communities in order to reduce the numbers of women dying from postpartum haemorrhage after childbirth. But the model goes beyond community mobilisation, and really pushes the boundaries of human capital innovation: it allows community health workers and traditional birth attendants, rather than just doctors or nurses, to prescribe the life-saving drug Misoprostol.^b The drugs are given out to women in the final stages of pregnancy, along with advice about the circumstances in which it should be used; the decision whether to take the drug lies with the woman herself.

Optimise talent through technology

Technology increases the capabilities of both staff and patients. By enabling staff members to access information, obtain advice, or get direction through a phone, a website, or a service like Skype, technology increases their capabilities and reach, and makes them profoundly more cost-effective, safe, and accessible. Successful innovators ensure that new, virtual models of care replace traditional models, avoiding the mistake made by many healthcare providers of holding on to legacy models and thereby failing to reap the full benefits of the switch to digital.

^b This is particularly remarkable in that community health workers are not qualified nurses, although they are employed by the health service. Whereas traditional birth attendants operate entirely outside the formal health system, they do not receive formal education and training in health care provision, and there are no specific professional requirements such as certification or licensing. Prescribing of medication by any health professional other than a doctor remains a controversial issue in almost all countries.

CFW Clinics in Rwanda deploys nurses who run each facility with a basic Nokia mobile phone. Although the hardware is very cheap, it runs sophisticated software that has multiple functions. First, it runs clinical-algorithm software to support nurses in diagnosis and treatment. The software significantly reduces the likelihood of error and variability of care, and so enhances the nurse's diagnostic and prescribing capabilities instantly. Second, it acts as the conduit to the patient's electronic medical record, facilitating referral and linking the episode into the national public insurance scheme database. Finally, the phone is used to manage prescribing: it links into CFW's stock-management system, ensuring that CFW's nurses – unlike nurses in many low- and high-income settings – do not spend their time counting and ordering stock, and also ensuring that the clinics never run out of life-saving medications.

Prescribing is also revolutionised by another innovator that we have studied, the U.S. firm InstyMeds. InstyMeds has adapted the idea of a cash-dispensing machine for pharmacies. The machines have a dual purpose: they can enable patients to consult with a pharmacist via video-conference, and they can actually dispense medications. Thus technology enhances the reach and impact of the pharmacist, vastly improving cost-effectiveness, given that the virtual route can serve a far greater population than the traditional model ever can.

Basic technologies such as mobile phones, email and the Web also revolutionise the role of the patient, equipping him or her for co-production of health in previously unimaginable ways. More and more mobile phone applications now allow patients with long-term conditions to monitor and actively manage their own health.^c Some, such as the Chinese Aged Diabetes Assistant (CADA) developed by Microsoft in China, take the information entered by patients and transmit it directly to healthcare providers, who can then proactively intervene if necessary. The Internet now hosts many hundreds of thousands of patient networks, facilitating the crowd-sourcing of practical advice by patients with similar issues across the globe.^d

The Web has also prompted one of the most important innovations in healthcare delivery from the patient's perspective: the ability of each of us to access and use the healthcare records that health services keep about us. Denmark has been engaged in a large-scale innovative shift in this regard over the past ten years. Once patients can access their complete health record, they can play a far more active role in managing their own health and supporting efficient and safe healthcare. The system in Denmark has eliminated duplication of administrative and clinical procedures; and it allows patients to identify errors in their own medical records, monitor test results over time, and seek advice proactively.

Motivate everyone to play their part

Successful innovators are able to sustain their efforts over time because everyone critical to their success is motivated to play their part: physicians, nurses, other health professionals, technical staff, and importantly, also patients, their families, and the broader community. For the workforce, the value proposition offered by innovative employers includes not just reimbursement but also the congenial working environment and the enhanced support and development opportunities. SalaUno Salud in Mexico, for example, understands that doctors are not just motivated by their salary but are interested in training and research, and so it provides them with the opportunity to pursue both.

Often, successful innovators motivate their workforce simply by ensuring that the work runs smoothly. For many health workers, such a working environment is much better than the fragmented, bureaucratic, and frustrating services they worked in previously. Other important factors include: clinical leadership and autonomy, and the empowerment of senior clinicians to take serious roles in the design, improvement and development of services – these factors motivate many within the clinical workforce. The clinical team that leads the self-managed dialysis innovation in Sweden, for example, records their appreciation for the high level of autonomy they enjoyed in designing and developing their new model of care.

c See Know Your Own Health at <http://kyoh.org/> – for all chronic conditions; www.glucosebuddy.com – for diabetes; <http://www.myrefillrxapp.com/> – for hypertension

d See www.diabeticmommy.com/; www.healingwell.com; www.curetogether.com. Curetogether helps patients share and track data and exchange experiences, and offers quantitative information and open infographics on more than 500 medical conditions collected from people in over 110 countries.

To engage patients and communities effectively, successful innovators provide them with support, tools, and positive reinforcement. Some of their offerings even make engagement in healthcare fun. For example, CADA is designed to work as a “gaming app” on smartphones, simulating the experience of play while providing tailored advice on diet and exercise, and helping people to undertake the tedious task of monitoring their blood-sugar levels.

Chapter 3 - Lessons and Recommendations for Policymakers

In the previous chapter, we have shown that there are common traits among innovators who achieve success through their use of human capital. However, these innovations are successful not only because of what they do, but because of the health system context that allows them to succeed. The human capital framework within which an innovation functions is critical to its success.

This is good news for governments and regulators. It means that there is a role for them in facilitating and supporting innovators. Though none of the innovations described above was actually initiated or directly led by government, their success was facilitated by a government-established context that nurtured innovation in human capital. So governments, policymakers and regulators, in collaboration with other stakeholders, can act over both the short and long term to turn their countries into places in which the full potential of human capital can be realised.

Success will depend on a mixture of judicious yet powerful policies, genuine stakeholder support and mobilisation, and consensus-building. Given the vast differences among countries, the balance among these approaches must always be a matter for local judgment. Governments will need to work sensitively and collaboratively to engage professional bodies as well as other stakeholders in any process of change. There is no single formula that any country can use, because arrangements for the training, leadership, regulation, employment, and payment of health professionals vary so greatly, not only between countries but even within countries. Many countries, for example, regulate healthcare professionals at a regional, state, and/or provincial level.

Figure 7

The four enablers

★ First step

System levers	A. Reform the regulatory and legislative environment	Move from self-regulation to shared-regulation for health professionals	★
		Refine regulatory strategies using the “right-touch regulation” framework	
		Collaborate internationally for increased workforce mobility	
		Provide protection from countervailing regulatory and legislative forces	
	B. Align financial rules and incentives with human capital goals	Pay for email, phone, Web and group encounters as the norm	★
		Effectively motivate, recognise and reward individual performance	
		Drive down payments to providers to incentivise right-skilling	
		Give patients greater say to drive value for money	
Players in the system	C. Equip patients and communities for co-production	Give patients the right to access their own health records	★
		Invest to build health literacy for all	
		Incentivise and skill-up staff and patients for shared decision-making	
		Align incentives for patients and clinicians to increase self-management	
	D. Modernise professional education and training	Require multi-disciplinary training to prepare staff for team-based care	★
		Align curricula and training with current and future population needs	
		Instigate a competency-based and modular approach to lifelong learning	
		Teach the broad skill-sets for optimising systems and population health	

We propose four enabling actions from a policy and/or regulatory perspective to facilitate innovation. These enablers, listed below, can be organised into two categories: system levers (A and B) and changes to the players in the system (C and D).

- A. Reform the regulatory and legislative environment
- B. Align financial rules and incentives with human capital goals
- C. Equip patients and communities for co-production
- D. Modernise professional education and training

All the case studies described in the preceding chapter benefited to some degree from the positions and actions of their governments on these four fronts, or from their own internal ability to replicate these enablers. In order to define a tangible way forward to support innovation, we suggest four goals for each of these enablers that governments, policymakers, and regulators should pursue over 3-5 years (Figure 7).

Political cycles and public expectations make long periods of policy development and implementation difficult; patients and taxpayers are rightly impatient for change to take place. Political leaders must be the pace-setters, signalling the future direction of their systems. In this context, we have put forward one “First Step” under each enabler, where important changes can begin very practically within 12 months.

A. Reform the regulatory and legislative environment

A1) Move from self-regulation to shared-regulation for health professionals

In the course of writing this report, we heard many calls for deregulation. A simplistic reading of the case studies could suggest that it is the absence of regulation in India, for example, that allows innovative delivery to flourish. But that is not a constructive or indeed accurate interpretation. In many low and middle-income countries, the growth of regulatory systems is an important step towards strengthening health systems, protecting the public, and improving patient safety.

Ultimately, regulation per se is not a barrier to innovation or to flexible workforce deployment.⁸ Our research suggests that what matters is rather the way that regulation is undertaken. It is when the regulatory structure puts professional self-interests above the interests of the public that barriers to innovation and change are created.

The question for governments is not *whether* to regulate, but *how* to do so. Many countries are beginning to question whether in this era of greater transparency, self-regulation of health professionals can retain credibility as a system that serves the best interests of the public. Innovators are succeeding in countries that either have very little regulation or that have innovation-friendly regulations – regulations that effectively act to allow innovations that pose only manageable risk to patients.

Self-interest plays out in various ways, at times negatively. For example, one professional group may use the regulatory structure to exercise control and influence over another group, or to keep hold of their monopoly on very profitable services. Alternatively, a professional group may use the regulatory structure to shift low-status work from themselves to another group, or to shift unwelcome focus and responsibility onto another group. In many countries, the professional bodies representing doctors have resisted allowing nurse practitioners and physicians’ assistants to prescribe drugs without medical supervision. In all of these cases, the arguments are presented in terms of patients’ safety, but other motivations might well be at play.

The key question for policymakers, then, is one of governance: to what extent are health-professional regulators sufficiently independent of the groups they regulate – and to what extent do they act in the best interests of patients and the public?

To be fit for purpose, regulators need to be able to make independent, timely and sound decisions; the composition of their decision-making structures is critical. Good governance is fundamental. To this end, all regulators of health professionals should be able to demonstrate that:

- “Shared-regulation” is manifest through a visible public-private partnership, whereby the government and other credible experts from outside the regulated profession sit with members of the profession around the table. The proportion of places around the table is a matter for each country to determine, based on local context. For example, Canada requires that lay, expert members constitute at least 40% of regulatory bodies, and these individuals must not be part of any other regulated health profession.
- The size of the Boards or Councils are optimised for good governance and to facilitate effective decision-making.^e
- Members of the regulatory body are selected and appointed on the basis of their competence for the job, with a portfolio of expertise around the table, including members of the regulated profession, members of other health professions, government officials and lay-people. Individuals are required therefore who have experience of, knowledge of and expertise in governance, patient safety, patient experience and regulation from other sectors. Decisions must be made that are in the interest of patients and the public at large rather than in the interest of health professionals. Appointments can be managed either by the government, or through a public framework, as many private companies prefer. The critical requirement is that members of the profession and other members are alike selected on a competency basis, for their expertise, knowledge and ability to make a valuable contribution.

A2)

Refine regulatory strategies using the “right-touch regulation” framework

Once the structures of regulatory bodies are appropriate, the next challenge is to ensure that the actual regulatory strategy for each profession in each particular geography^f is fit for purpose: what is the evidence that the strategy is proportionate to the risk? How well can the regulatory approach adapt to changing contexts? Are regulatory resources focused on the areas of greatest risk?

Regulation of health professionals is designed to protect the public and ensure that patients are kept safe, but providing such protection needs to be balanced against the regulatory burden and the need to retain sufficient freedom for innovators to succeed. There is no one right way to do this: the right regulatory strategy will be different for every single profession in every different context.

In order to help regulators and governments with the task of evaluating and adapting their regulatory strategies, the UK’s Council for Healthcare Regulatory Excellence^g has developed an approach known as “right-touch regulation”.^g It works by applying a set of tests that regulators or other stakeholders can use to develop a new regulatory strategy, or to evaluate and adapt an existing strategy. It can be used in any regulatory situation, public or private, local or national, system or professional. The six tests of the approach assess the degree to which a regulatory strategy is: proportionate, consistent, targeted, transparent, accountable, and agile. This framework does not impose any single solution, but provides a tool to help governments, regulators and stakeholders to assess jointly what the right strategy is for any particular situation.

In the two years since this approach was developed, it has attracted attention around the world. Stakeholders across a number of countries, including Australia, New Zealand, Canada, Hong Kong, Qatar, the USA and Brazil, have begun to consider how “right-touch regulation” might be applied within their specific contexts.

e Currently, the senior decision-making bodies of many regulators internationally are of a size more akin to a Parliament than to a Cabinet or a Board. Such large size lends itself to a model based on the representation of constituencies with conflicting interests, rather than one based on a collective endeavour towards a shared goal.

f Many countries have regulatory systems that operate at sub-national level, varying across regions, provinces or states.

g The Council for Healthcare Regulatory Excellence will become the Professional Standards Authority for Health and Social Care during 2012.

Does it make sense for each country to be undertaking this work in isolation? Some experts have called for an international framework (similar to the one that governs air transportation) to address the regulation of healthcare professionals. The framework would be based on a harmonised, competency-based set of professional regulations.

The challenge, however, is that the main professional regulatory functions^h are often not carried out by any one single organisation within each country, but are instead distributed across national, regional, and local organisations. Furthermore, different countries use different terms for the same processes, and in some cases a single term is used to describe different processes in different countries. Thus, complete harmonisation of all regulatory mechanisms and approaches is not feasible at this time.

Governments can initially utilise opportunities for creating regional right-touch regulation frameworks. As a starting point for discussions, we suggest that such frameworks be based on the following three elements of the “right-touch regulation” approach:

- Regulation should be focused on the patient and should be independent of professional interests
- Statutory regulation should be used to protect the public in areas of high risk, but other processes should be used when the risk is low
- Regulation should be supportive of innovation wherever this is in the interests of patients and the public

Of course, not all regulation is governed by statute; governments might have very limited power or influence over regulators. That will of course constrain governments’ ability to achieve change in relation to both governance structures (A1 above) and the refining of regulatory strategies as set out in this section (A2). Under such circumstances, an ideal approach is to develop private-public partnerships between the government and the appropriate stakeholders, particularly members of the professional body themselves, health system leaders and patient organisations. But even where governments do have direct ability to make change, it will be crucial to engage the above stakeholders.

A3)

Collaborate internationally for increased workforce mobility

Innovators seeking to internationalise their models often attempt some movement of clinical staff across international boundaries.ⁱ As Narayana Hrudayalaya has begun looking at expanding to Malaysia and the Cayman Islands, it has needed to ponder two questions: how to increase the capacity of medical talent in these countries, and how its own talent can operate within the new setting.

Some regions such as the European Economic Area (EEA) already permit professional qualifications to be automatically recognised by other EEA countries in the case of certain professionals, including dentists, doctors, midwives, nurses and pharmacists. Such regional agreements are, however, limited in number and coverage. For example, in the U.S. (where regulation is state-based), only 24 of the 50 states have an agreement to recognise each other’s nursing licenses.

To facilitate the replication of innovative delivery models across international boundaries, governments should therefore investigate how the mobility of health professionals can be made easier. As they do so, they should identify the sources of the barriers to entry, and determine to what extent the barriers serve to protect vested interests rather than public health and patient safety.

However, governments should be cognisant of the unintended consequences of the migration of health professionals (or the medical “brain drain”), particularly in developing countries. By focusing the collaboration at the regional level, governments might improve their chances of striking the right balance between benefits and risks – the benefits of international collaboration and the risks that such agreements might increase the inequitable migration of health professionals.

^h The four functions of regulators are: registration of health professionals, quality control of educational/training programmes, promotion of practice standards, and action when standards are not met.

ⁱ Despite the move of clinical staff across boundaries, they are rarely able to undertake exactly the same roles; the scaling of innovations across international boundaries rarely allows for direct replication; more often, adaptation is needed to reflect different contexts, cultures, and health systems.

A4)

**Provide protection from
countervailing legislative
and regulatory forces**

As governments contemplate regulatory reform, they should consider whether other types of regulation, or the wider legislative context, are inadvertently acting as barriers to innovation.

In some countries, for example, the prospect of liability in the event of error represents a serious constraint on many providers, who therefore require that certain tasks, even fairly simple routine tasks, have to be performed by the most highly trained professionals rather than by less expensive but equally competent professionals. There is currently no system for explicitly evaluating new delivery models – nothing comparable to the well-established processes for evaluating the development of new drugs or devices, for instance. In the absence of such a system, there is no protection for healthcare organisations and individual clinicians participating in delivery model innovation. Innovators might feel at risk if they attempt to deviate from the standard model of care, for instance by re-specifying the type or level of experience that a workforce member needs to perform a given task.

To address this very significant constraint on innovation, governments could develop a new regulatory system to govern and support delivery model innovation. Such a framework would be based on a process akin to that of the regulation of drugs or devices, whereby innovators would be able to introduce and operate a new model of care within an explicit context of evaluation, with a commitment to measuring and sharing their outcomes. While such evaluation was being undertaken, patients being treated within this model would, like patients participating in other clinical trials, provide informed consent based on full disclosure of the nature of the evaluation in progress.

For innovators, the benefits of this approach would be considerable: first, the approach would give the innovators a significant degree of protection from malpractice litigation during the time that an innovation is being developed; following on from the testing period, it would provide a very explicit route for the innovators to share their results and scale-up the models of care.

For governments and payers, this approach would also provide benefits, by driving the scaling of innovation in an evidence-based way: where innovators can demonstrate the health and/or economic benefits of their models, this framework should greatly increase the pace at which the models are replicated, adopted, and reimbursed.

In the same way that malpractice legislation acts as an inhibitor of innovation, so other legislative or regulatory issues are bound to act as countervailing forces, and in all countries. Examples given by innovators during the course of this research included privacy- and data-protection legislation that restricts the sharing of clinical and patient information between professionals and/or with patients. Governments should review their particular context, in order to identify what the barriers are for potential innovators and act to reduce these barriers and their impact.

B. Align financial rules and incentives with human capital goals

B1)

**Pay for email, phone, Web
and group encounters as
the norm**

One invaluable way of helping health services to break the “iron triangle” is by harnessing the capabilities of available technology to create alternatives to the traditional face-to-face interaction. Non-traditional methods of accessing health services, including email, phone and Web-based approaches (as demonstrated by InstyMeds, for instance) should be recognised as legitimate access points. Where healthcare costs are met wholly or partly through out-of-pocket patient expenditure, such models are able to grow more rapidly than in contexts in which payer organisations resist these new possibilities.

In many systems, the current barriers to such innovative and cost-effective forms of healthcare access are so rigid that they exclude any such “virtual” consultation from the reimbursement framework altogether. In the U.S., a code has been created to permit billing for e-visits, but it still requires the patient to initiate the online visit. Any other kind of communication between physicians and patients – such as an e-mail follow-up after an appointment – fails to meet the criteria. Such restrictions obviously hamper the uptake of technology.¹⁰

In the course of conducting this research, we heard all too often that various innovative models of care could not transfer to particular countries because payers there would refuse to reimburse healthcare providers and organisations for their services, and would only recognise and pay

for classic in-person models of delivery. Another debate considered whether it would be in providers' interests to facilitate forms of self-treatment similar to the "self-dialysis" model in Sweden, outlined above. Providers risk making their services "non-reimbursable" by moving to the more cost-effective model. Similar challenges have been facing innovators in a number of countries seeking to implement group appointments and self-management support programmes – both of these are key evidence-based, effective and cost-effective new models of care for NCD, but they have not yet been effectively adopted en-masse in most healthcare systems.

In this context, appropriate incentives can be created to encourage more cost-effective methods of accessing health services, wherever clinically safe and appropriate. In some health systems, this could involve capitation or bundled payments, while in other systems expanded fee-for-service might apply. In health systems where some degree of out-of-pocket payment applies, making patients more price-sensitive can also act to drive innovation via the demand side: differential levels of co-payments for email, Web and in-person visits could speed up the adoption of more efficient service models in place of face-to-face contact models.

B2)

Effectively motivate, recognise and reward individual performance

Attracting the best talent to work within their organisation is one of the most important challenges for any innovator. Recruiting and retaining the right people can make the difference between success and failure for any organisation. The most successful organisations carefully identify the specific value proposition for each targeted group of employees: that is likely to include both short- and long-term financial incentives (salary, pension), as well as a wide range of non-financial motivators including the intrinsic rewards of the role, excitement at association with the brand, work/life balance, freedom and autonomy, and opportunities for professional development and career progression.

For example, SalaUno Salud not only focuses on financially incentivising its ophthalmologists, but has also put together a benefits package that includes access to research and publication opportunities, and also attendance at conferences and training events. By such means, the ophthalmologists remain motivated in their professional career development within the organisation.

Narayana Hrudayalaya, in India, has put an innovative approach to nurses' compensation at the core of its successful business model. The hospital recognised that their nurses were in high demand both in India and abroad, and viewed it as a positive opportunity for them. However, in order to keep at manageable levels the turnover of staff and the costs of training and introducing new staff, the hospital adopted a policy of paying higher wages to a core group of nurses in order to retain them, and at the same time filling other posts through a continuous flow of incoming cohorts from its own nurse-training institution. This approach to limiting recruitment costs through differential salaries continues to be one of the key success factors at Narayana Hrudayalaya.

What can governments do to help public and private healthcare organisations to adopt such innovations? First, they can encourage greater autonomy and clinical leadership, perhaps demonstrating their commitment through investment in leadership development activities. At the most successful innovators, a highly rewarding environment is created for staff to work in, thanks to various factors in combination: a high level of discretion and autonomy for clinical staff, the stringent adherence to clinical protocols, and a relentless emphasis on measurement of process efficiency and clinical outcomes.

Second, governments can eliminate constraints on providers' freedom to furnish financial incentives for staff. In many countries, national pay frameworks restrict provider freedom in matters of employee compensation, preventing them from optimising financial incentives internally.

To address this issue, governments need to review any such national pay frameworks in order to ensure that provider organisations have sufficient flexibility in the way they compensate their staff. In many contexts, this will mean some degree of decentralisation of pay systems. The OECD has produced a useful paper for governments, which provides practical advice on the various models for a decentralised payment system and the effective management of its introduction. The paper is based on analysis of the systems in New Zealand, the UK, Finland, Australia, the Netherlands and Denmark.¹¹

B3)

Drive down payments to providers to incentivise right-skilling

Many innovators have found that payment systems fail to reward them for using their staff or engaging their patients in an efficient way. For example, the barrier in the US to the widespread adoption of alternative models of dialysis is simply the payment model: haemodialysis is generally a profitable activity, and this inhibits the drive for change.

Governments can incentivise healthcare providers to adopt these more cost-effective models of healthcare delivery by supporting a move among payers to reimburse providers only at the cost-level of the most efficient delivery model. Over time, this use of payer-to-provider payment can significantly influence providers to adopt the best-practice model. Governments can encourage this process by being explicit about the basis for their best-practice payment level, and by pointing to those providers who have already adopted the best practice so that others can learn from them. The English health system has demonstrated some important shifts towards more cost-effective models of delivery; that reform is partly thanks to an approach by the government over the past five years, known as “best practice tariffs”.¹²

In the public-private partnership established with CFW Clinics in Rwanda, the Ministry of Health has set the reimbursement rate for different services and interventions in a way that incentivises right-skilling. Other providers, with a less cost-effective staffing model, would find the new reimbursement rate a challenge, CFW Clinics is growing and demonstrating that it has the right business model to succeed.

B4)

Give patients greater say to drive value for money

As shown by case studies such as the End of Care model in the UK, patients and communities – if given the opportunity to express their preferences – often develop very different, innovative ways of securing the care they need. The human capital solutions created when patients design service models demonstrate many of the characteristic of effective innovators: they make full use of the patient’s own capabilities; they draw fully on the social capital of community members; they blur the boundary between the formal and informal workforce; they integrate the work of multiple professionals to create a more integrated solution; and they up-skill people during the training and induction period for the very specific tasks required.

Given the variation in health systems, there are obviously numerous ways in which patients’ and communities’ voices can be heard. In some places, the voices will be mediated, as in Nigeria, where VSI deliberately brings community women together in a process of mobilisation in order to shape local solutions. Where healthcare is largely paid for out-of-pocket by individuals, as in India, patients directly and individually express their desire for safe and good-value solutions through making their own choice of provider.

Even in those systems where healthcare is entirely provided for through a state-based system or through a fully comprehensive health insurance system with no co-payments, it is still possible to give patients a direct financial means for driving innovation. Many countries – including Austria, Australia, Belgium, Denmark, Germany, Italy, Finland, France, the Netherlands, Sweden, the UK and the U.S. –are operating or testing the use of “personal budgets”. In this approach, the patient receives the nominal budget directly – that is, the budget made available by the patient’s payer, whether that be an insurer, a public body or an employer. The patient then chooses how to spend that budget, by contracting directly with providers. Evaluation of these programmes has shown that many patients choose to contract for services such as long-term home-based healthcare support with neighbours and community members.¹³ This approach can facilitate the integration of care, by using fewer and less expensively trained people. It can also create more cost-effective services, and maintain appropriate levels of satisfaction, safety and quality.

C. Equip patients and communities for co-production

C1)

Give patients the right to access their own health records

Substantial amounts of information accrue during the care experience, relating to the patient’s condition, its treatment, investigations and tests, check-ups, self-management techniques and instructions for emergencies. Historically, this information has been seen as the property of the provider caring for the patient. The fragmentation of this information across multiple providers, where personal health records do not yet exist, is a major challenge to efficiency and

effectiveness for health systems. However, there is another key dimension of the personal health records issue: the patient's access to this information, or lack of it.

If patients are to be useful members of the healthcare team, they need to be party to the information stored about them. Just as populations increasingly expect to manage their bank accounts online, so too the Web can provide the platform for sharing records with patients.

Evidence for the benefits of patient record access is accumulating for patients and health professionals alike. The evidence is in areas such as these: it improves patients' adherence to medication; it increases successful behaviour change such as smoking cessation; it improves the safety of care, thanks to patients' new-found ability to detect errors in their notes; it does not – despite the warnings of sceptics – increase the length of appointments, or increase the level of litigation.¹⁴ Patient record access is a particularly important tool in a world where, owing to urbanisation and migration, older people tend increasingly to live a long way away from their children. Where these older patients (or any other patients, for that matter) choose to allow family members to share their patient records access, these relative can play a practical role in supporting them to live independently, to understand advice, and to adhere to medications. In addition, electronic patient records often include the option for patients to access further information or explanation of clinical terms; this has the great advantage of reassuring patients and optimising their understanding of the health information they receive.^j

Governments that give patients the right to access their own health records are not only making an important symbolic gesture that signals that patients are no longer just the passive recipients of care; they are also taking a practical step that enables patients to play a more informed, active role.

Thanks to the development of patient record access across Denmark since 2003, patients have shown demonstrable improvement in their ability to manage their own health, and also to engage with health professionals. By logging securely into their individual profiles, patients can book appointments, request prescriptions, consult with various health professionals (such as their GP, emergency medical service personnel, or district nurse), view all medications prescribed to them, view a personal health calendar, receive e-mail and SMS reminders for appointments, and make plans for prevention, therapy, or rehabilitation.¹⁵

Governments should therefore encourage all healthcare providers to give patients access to their records (in either paper or digital format) and offer support for their efforts to do so. Many countries are already progressing the creation of personal health records that combine the information from multiple providers; a core part of that process should be the extension of this combined record to patients. In the absence of such wide-ranging personal health records, patients can still get much useful information: each healthcare organisation can at least provide patients with access at to the information held by that provider. This is increasingly common practice in the leading U.S. hospitals.^k

The way in which patient records access will evolve will differ from country to country. However, there are some common strategies that all governments are likely to use to some extent. These include: providing direct investment in infrastructure; mobilising stakeholders to create the desire for change by opening up debate and access to the evidence of benefit; using financial incentives to reward providers; working with stakeholders across the healthcare sector to agree to a voluntary deadline for records access; and giving patients a legal right to access their own records without incurring any charge.

C2)

Invest to build health literacy for all

Many of the case studies demonstrate that patients and communities can play a meaningful role within new models of healthcare delivery. In order to scale and replicate these approaches, governments need to be equip their populations to play their part. The set of requisite skills is known as "health literacy". This is not simply the application of basic literacy within a health context; rather, it is a set of competencies ranging from understanding health related information to talking with health professionals and applying healthcare advice at home.^l ¹⁶ Health literacy

^j See <https://www.renalpatientview.org> as an example

^k The Web-based interfaces for patients are increasingly user-friendly; for example, see http://www.dukehealth.org/patients_and_visitors/healthview/.

^l Coulter and Ellins define health literacy as incorporating the following competencies: basic health knowledge; reading, comprehending and evaluating health information; application of health-promoting and self-care behaviours; verbal communication with health professionals; health decision-making; and health advocacy and activism.

can make a significant difference to outcomes: the American Medical Association reports that health literacy is a stronger predictor of health status than age, income, employment status, education level, or race or ethnic group.¹⁷

The most effective ways of developing health literacy will differ from context to context. Key routes for effectively educating people include schools, work places and within natural communities, whether geographic communities, or groups centred around institutions such as places of worship. The evidence suggests that the most effective means of improving health literacy are peer support and coaching; community mobilisation; tailored and personalised written health information; and alternative format health information, including Web-based short films of the sort popular on YouTube.¹⁸

Nurses working in CFW Clinics in Rwanda are contracted through the public-private partnership to spend time in communities empowering individuals to look after their own health through improving health literacy. Similarly, the work of VSI in Nigeria to reduce maternal deaths includes a community education and mobilisation programme, which uses print materials, dramas, and community dialogues to disseminate knowledge about the causes, risks, and treatment of postpartum haemorrhage.

C3)

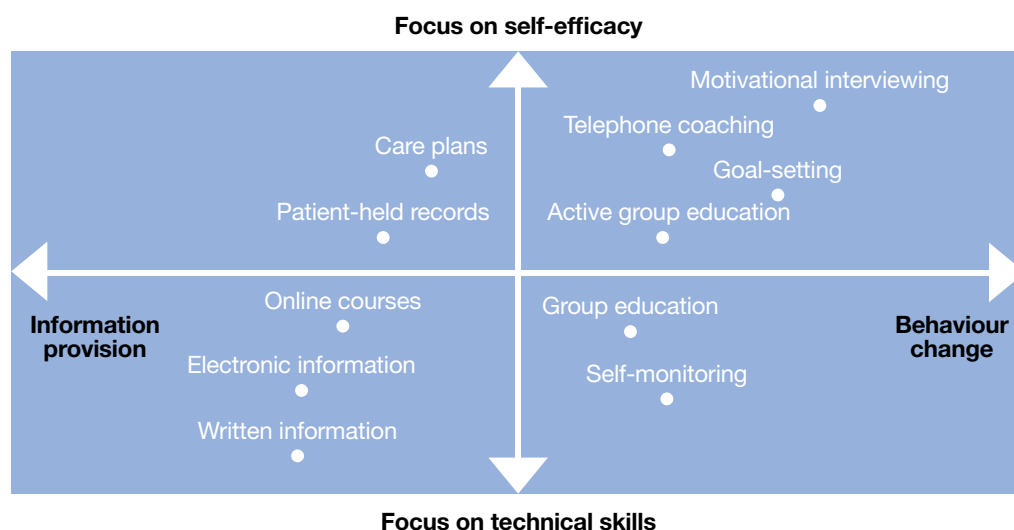
Incentivise and up-skill staff and patients for shared decision-making

In some countries, legislation at the appropriate level may be required to ensure that decisions about health management are made jointly by professionals and patients. Most countries already have existing legislation on informed consent; this legislation is an important platform that governments can build on to promote shared decision-making, particularly because informed consent is a well-understood and well-supported concept within clinical communities. Policies, regulations and best practices should facilitate shared decision-making, in order to address the mismatch of information, empower patients with the right tools, and create the right cultural context based on their preferences.

In addition, governments should invest in awareness-raising and skill-building programs to extend and enhance the roles played by family members and communities. In that way, greater support can be given to patients with ongoing medical challenges, in such areas as the need to make lifestyle changes or adhere to treatment recommendations. Studies show that family/community support makes a vast difference in the management of both acute and chronic diseases. For example, DOTS (Directly Observed Treatment Short Course) therapy for tuberculosis relies on peer monitoring. And families and community members can play key roles in helping patients with diabetes or hypertension to monitor their vital signs and take their medications as prescribed.

Figure 8

There are multiple ways in which healthcare providers can provide self-management support to patients



Source:
Helping People Help Themselves,
The Health Foundation, London, 2011

C4)

Align incentives for patients and clinicians to increase self-management

Of all the potential ways in which patients can play a meaningful role in delivering healthcare value, the most high-impact one is probably that of managing their own health effectively. In particular, if we are able to support the growing number of people with NCD to self-manage successfully, we could alleviate the pressure on health services, improve the morale of the workforce, and help patients to have a better quality of life and to feel more in control of their health.¹⁹

Some 80-90% of all care for people with NCD is undertaken by patients themselves and their families.²⁰ This self-management includes: eating well, exercising, taking medicines, keeping in good spirits, watching for changes, coping if symptoms worsen, and knowing when to seek professional help. In order to make our health services sustainable, we need many millions of people to become highly competent in these challenging areas.

First, governments should ask themselves whether their effort, attention and spend on supporting behaviour change sufficiently reflects the importance and scale of this opportunity. Traditionally, behaviour change is not only a neglected area of healthcare with low status amongst professionals, but is also low on government agendas.

Second, governments need to check that the most effective approaches are being used to support behaviour change. A wide range of interventions is included in the term “self-management support” – for instance, handing out of leaflets, tele-monitoring of symptoms, intensive telephone coaching, and patient education. But there is strong evidence that some of these methods work far better than others in affecting behaviour change.²¹ In particular, it is not enough simply to give patients health information. That alone will not lead to better outcomes, because although it improves patients’ knowledge, it doesn’t lead them to change their behaviour. So too with tele-monitoring of symptoms by remote clinicians: it is likely to play a key part in the healthcare systems of the future, but its value lies in alerting clinicians to patients at risk, not in supporting patients to act differently.

To support behaviour change, governments need to supplement information-campaigns with other interventions that increase motivation, teach practical self-management skills, and develop people’s capabilities (see Figure 8).

The CADA application exemplifies one of the key success factors in this area. Its design has been underpinned by extensive use of Microsoft’s expertise in developing software that is simple and fun for users. The application duly facilitates self-monitoring as a key behaviour change by using the “gaming” approach to motivate and reward patients for what otherwise may be seen as a thankless, tedious task.

In order to drive a scale-up of effective self-management support, governments can use the full range of levers available to them to align healthcare payers, providers and patients on this goal. A solid starting point would be to insist that every patient with an NCD should have access to evidence-based self-management support interventions, notably those in the top-right quarter in Figure 8. The evidence is that these interventions can deliver improvements in patients’ behaviour change and so can save money eventually.

Some governments might also want to experiment with other types of self-help and peer-support groups, and then invest in and scale up those that show the greatest impact on patient outcomes.

D. Modernise professional education and training

D1)

Require multi-disciplinary training to prepare staff for team-based care

Education for healthcare professionals remains stubbornly uni-disciplinary, even though most patients today need multi-disciplinary care. In successful innovations in healthcare delivery, staff members typically work together within multi-disciplinary teams, and all of these healthcare workers have a common set of requisite clinical skills such as clinical reasoning, problem-solving ability, and team leadership.

Often, however, the staff need to be trained (or retrained) to work in this way, because they were not taught all of these skills initially. Their education had been designed to equip them with specific skills and professional qualifications, rather than the core set of competencies that multi-disciplinary care requires. To create a more agile workforce, the educational curricula for health professionals should be rethought so that the mix of skills can be rebalanced. The model of cardiac care at Narayana Hrudayalaya Heart hospital is a good example here: it is built around team-based care, which has been reinforced through training that optimises the roles that different professionals play within the team.

D2)

Align curricula and training with current and future population needs

Governments should ensure that the people with responsibility for the wider health system, especially those planning future models of care delivery, are given greater influence over education, training, credentialing, and standards for health professionals.

While working on this report, we were repeatedly told that the underlying problem with current education and training systems is one of “capture”. Decisions about the education, training, accreditation, and credentialing of doctors and nurses are disproportionately in the hands of their professional organisations. By contrast, the organisations responsible for population health and for actually providing healthcare have less influence over the training of the workforce. Of course professional organisations have a vital role to play in framing the standards for accreditation and qualifications, but that does not mean that they alone should determine key processes such as credentialing or curriculum development.

Many healthcare professionals are educated and trained by institutions that are distant from the direct provision of healthcare, especially in community settings. For example, although almost every country wants more patients to be treated in the community rather than in hospitals, yet the majority of training time for many professionals continues to occur within hospital settings. Furthermore, an increasing number of doctors and nurses are being trained in very narrow sub-specialities that require expensive additional years of education. Some experts^m argue that these additional years of training are unnecessary and are poorly aligned with the wider interests and needs of populations as a whole.²² The trend towards increased sub-specialisation illustrates the disjuncture that currently exists between those designing future models of healthcare delivery and those designing educational curricula for healthcare professionals.

D3)

Instigate a competency-based and modular approach to lifelong learning

Many successful innovators report that they train or re-train their own workforce for one reason above all: to align the worker’s skills accurately with the processes of care that he or she has to conduct. These innovators, backed by decades of research, show that there aspects of healthcare can be safely and effectively delivered by staff with lower levels of experience and training than traditionally required. Examples include physician assistants in the U.S., as well as community health workers and nurse practitioners.

Yet training and education systems tend still to be based on the acquisition of specific qualifications, with a continuing bias towards training at pre-registration stage. There is little flexibility in the workforce, because training systems require choices about specialisation at an early stage, and then propel people down increasingly narrow routes. The workers have little opportunity to switch to other routes, even in response to changing population needs, disruptive technologies or new delivery models. In many systems, there is also little support for ongoing competence-based training that would refine staff’s specific skills for the time and contexts in which they work.

Governments should engage with the institutions that educate and train healthcare professionals, and encourage them to re-focus their programmes; for example, to concentrate more on competencies than on narrow sets of sub-specialist skills; to develop curricula that can be quickly modified as health-system needs change; and to adopt a more modular approach – one that would reduce the cost and time taken to train professionals in the first place and to re-train them as needs change.

^m For example, Ezekiel Emmanuel argued in a JAMA article in early 2012 that “...the average length of medical training could be reduced by about 30% without compromising physician competence or quality of care”.

As part of this effort, governments should consider introducing mechanisms to educate, train, and credential providers with intermediate rather than full qualifications. That would help to address the skills shortage in specific areas; for example, physician assistants could boost the provision of primary care. In the U.S., a transition of this kind has already taken place in the legal profession, and has transformed the workforce: in the first decade of this century, the number of jobs for paralegals and legal assistants grew 2.5 faster than that for attorneys.²³ Healthcare urgently needs an equivalent transformation of its workforce.

D4)

Teach the broad skill-sets needed for optimising systems and population health

The innovators we interviewed during this research spoke passionately about the mismatch between the goals of current health-professional education and the skills that would actually help the innovations succeed. In Jönköping in Sweden, the haemodialysis unit found that they had to enhance the behavioural and communication skills of their staff in order to support patients effectively in becoming better self-managers. CFW Clinics in Rwanda provides management and marketing training for the nurses who run each of their clinics. Narayana Hrudayalaya in India trains its staff in the techniques of continuous quality improvement, so that they not only know how to do their job, but also know how to improve the processes and systems of care and thereby enable the hospital to function even better in the future.

In other service professions such as law, training has undergone a critical shift, and educational goals have broadened well beyond the technical aspects of the profession. The trend in legal training globally is one of fostering the wider skills that lawyers need: team-work and leadership, client relationship and communication skills; and a measure of expertise in business management and business processes. In the education and training systems for health professionals, the same fundamental re-focusing is needed worldwide.

Governments should encourage debate about the core aims of all institutions that educate and train healthcare professionals. To create the right workforce for the future, these institutions need to ensure that all health professionals do the following:

- Spend considerable time during training in the community, not just in hospitals
- Have sufficient communication and behavioural skills to work effectively with patients, not least in helping to promote treatment adherence and health-enhancing lifestyle changes
- Understand the social determinants of health and develop the skills needed to work with a wide range of stakeholders to address key variables in patients' lives, such as social and economic issues
- Acquire the skills to improve the processes and systems of care through proven actions and methods

Chapter 4 - How Governments Can Take This Forward

Progressing this agenda is not an easy task. Governments are under many political and policy pressures that constrain reform within health systems. Short political cycles create pressure to demonstrate that change is possible. The case studies in this report show that change at the frontline of healthcare is possible, but we recognise that there are complex factors that determine whether the actions of governments have any substantive effect – or the desired effect – at the frontline. Change will take time, negotiation and mobilisation.

In order to address the needs for longer-term reform and policy changes as well as for shorter-term change that at least demonstrates a willingness to reform, we propose that governments pursue two parallel and complementary paths over the initial 6-12 months. The first path is to accelerate the pace of delivery on the broad human capital reform agenda set out above: start with the four “First Steps” where rapid change is possible. The second path is to mobilise stakeholders behind this agenda by focusing human capital reforms on solving a specific and real challenge to the healthcare system. Progress on both of these paths will in turn enable broader system-level reforms of the use of human capital.

Path 1:
Take Bold “First Steps”

The first task of any government keen to pursue this agenda is to signal a new policy direction, and concentrate on actions that can demonstrate change to their population. Governments and policy-leaders can provide pointers to the future through a series of bold “First Steps” that set the stage for longer-term human capital innovations. These steps consist of the first of the recommendations set out in each of the four areas of reform outlined above (and in Figure 7). Figure 9 lists these recommendations again, in the third column, along with ideas on how to mobilise action quickly in each area.

The announcement and, more importantly, the rapid implementation of these initiatives would clearly signal a new policy direction, create momentum, and galvanise stakeholders to engage. Within 12 months, with active stakeholder engagement and consultation, it should be possible to have a clear process well underway for achieving all four of these steps. This momentum will in turn help with implementation of the longer-term agenda.

Path 2:
Focusing human capital reforms on a specific problem

Although the broad approach of the first path is desirable, it is much easier to mobilise stakeholders and win public and professional support for changes that will alleviate a specific pressure point, than for the abstract objective of “human capital reform”. So if governments wish to demonstrate how powerful human capital reform can drive innovation, they should also focus on a single, acute clinical or financial objective. For example, a government might choose to target the escalating human and financial costs of obesity, or the need to introduce new kinds of community-based service to help maintain the health of rapidly ageing populations.

The goal in every case will need to be compelling and clearly defined. That will ensure that everyone involved shares the clear objective of solving the problem at hand, and is less likely to act in ways that inappropriately protect existing workforce structures or professional groups.

Figure 9

First steps of four enablers

★ First step

System levers	Reform the regulatory and legislative environment	Move from self-regulation to shared-regulation for health professionals ★	Rapidly review the composition of Boards of health-professional regulators to create credible shared governance arrangements
	Align financial rules and incentives with human capital goals	Pay for email, phone, web and group encounters as the norm ★	Identify one area in the health system where the “access point” is outdated, and demonstrate intent for broader change by incentivising access via phone or email/Web
Players in the system	Equip patients and communities for co-production	Give patients the right to access their own health records ★	For countries that currently have health records, extend access to patients. For countries that don’t, ensure this is a guiding principle before development
	Modernise professional education and training	Require multi-disciplinary training to prepare staff for team-based care ★	Develop and launch one programme or statutory course for providers with a team-based element that opens the eyes of professionals to the benefits of this team-based approach

All governments, whatever the structure of their health system, have a choice to make about the stance(s) they adopt to drive forward action on their chosen problem.

Governments could set out to do no more than remove barriers that discourage the entry of new providers (such as regulatory or legislative obstacles to human capital innovation in healthcare). In many settings, innovators could find a path for themselves, but would still benefit from the removal or refinement of regulations that guard vested interests.

Or governments might choose a more interventionist stance, such as promoting healthcare innovation at scale by influencing incumbents via data transparency combined with regulatory and financing mechanisms. Germany, for instance, now risk-adjusts payments for people with chronic disease who enrol in disease-management programmes, which encourages primary care providers to adopt that particular innovation. It also ring-fences a portion of the budget for ambulatory care, in order to counteract the trend toward sub-specialisation. In addition, governments can work with professional bodies, and encourage the drive towards innovation through their membership.

A third stance would be to drive innovation directly, by means of centralised procurement of innovative models. England's National Health Service has attempted this by setting up focused factories known as "independent sector treatment centres", which provide high-volume elective procedures.

Different stances will work better or worse in different countries. The first stance described above may be more suited for countries with largely market-based care provision; the last one might be more readily accepted in centrally-driven systems. Policymakers should challenge their own assumptions about which stances will or will not work in their region, and think creatively about what role they can play – adapting financial incentives, perhaps, or redirecting investment, and so on. Singapore is a good example of a country currently making a valiant attempt to tackle a specific problem using this multi-factorial approach (see Panel 1).

Panel 1 - Singapore and Human Capital

Singapore's aim is to effect a cost-effective transformation of its primary care landscape to meet the challenges of a growing and ageing population, with an increasing burden of chronic diseases. The solutions include: reforms to education and training to upskill primary care professionals; enhancements to financing systems both for providers and for patients; more support services for primary care providers (including IT linkages); care pathways that span prevention to palliation; and regulatory enablers where necessary. Although it is much too early to gauge the success of this portfolio of initiatives, other countries may choose to keep a watching eye on Singapore, in order to help with key decisions about their own challenges.

Conclusion

Healthcare is fundamentally a people business. The framework that this report has proposed – for improving workforce and patient motivation and productivity – can facilitate the scale-up and replication of innovation. We look forward to supporting any governments that choose to embark on this journey.

Some of the broader changes suggested in this paper have the potential to spark fierce debate. Many are likely to draw vested interests out from the shadows into the daylight of vocal opposition. Nevertheless, the suggested changes are all firmly rooted in the long-term interests of the patient and the public.

The inertia of health systems is not inevitable. Nor is the under-utilisation of patients, communities and the workforce as critical resources in healthcare delivery. By harnessing the full range of talents within their respective populations, countries can more effectively address the challenges of cost, quality and access, especially by using innovation to enhance the delivery of healthcare.

Appendix 1: Working Group Members and Acknowledgements

This paper was written by a team from the International Partnership for Innovative Healthcare Delivery (IPIHD), led by Natalie Grazin, chaired by Victor Dzau, and supported by McKinsey & Company, with the expert advice and input of the following members of the Working Group:

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In addition, we thank the following experts who generously provided expert advice to this effort:

Deborah Bae, Program Officer, Robert Wood Johnson Foundation

Ivy Bourgeault, Professor, University of Ottawa

Harry Cayton, Chief Executive, UK Council for Healthcare Regulatory Excellence

Ezekiel Emanuel, Head of Department of Medical Ethics & Health Policy, University of Pennsylvania and Special Advisor for Health Policy to Director of the USA Office of Management and Budget

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Appendix 2: Case Studies

1. Ensuring reliable medicine supplies to communities: **CFW Clinics (Kenya and Rwanda)**
2. Making pharmacy services more accessible: **InstyMeds (U.S.)**
3. Helping patients cope with chronic diseases: **Chinese Aged Diabetes Assistant (China)**
4. Providing affordable eye care: **SalaUno Salud (Mexico)**
5. Preventing maternal deaths: **Venture Strategies Innovations (Nigeria)**
6. Reducing care fragmentation at the end of life: **Delivering Choice (UK)**
7. Enabling patients to perform dialysis themselves: **Jonkoping (Sweden)**
8. Giving patients access to their own health records: **Sundhed.dk and Borger.dk (Denmark)**
9. Providing cardiac care for the poor: **Narayana Hrudayalaya Heart Hospital (India).**

<p>What problem is the model solving?</p>	<p><i>Ensuring reliable medical supplies to communities: CFW Clinics (Kenya and Rwanda)</i></p> <p>Large portions of the developing world, particularly rural areas, do not receive a reliable supply of basic medicines, and this shortfall alone results in the death of approximately 30,000 children each day. The shortage of medicine is mainly due to a lack of health facilities, compounded by supply-chain problems. To address the medicine shortage cost-effectively, CFW Clinics adapted a delivery model from other industries, and focused on the needs of the majority of patients. The company also leverages social capital within communities to expand its business.</p>
<p>How does the innovation alter human capital utilisation?</p>	<p>CFW Clinics operates by using a private franchise network of small pharmacies and clinics, each of which is run by local health workers or nurses to complement the state health system. The clinics focus sharply on the specific needs of the population: they concentrate on the shortlist of diseases that account for about 70% of childhood illnesses and deaths in Kenya.</p> <p>These diseases are preventable and treatable with basic medical care and drugs that cost less than \$2 per course of treatment.²⁴</p> <p>To identify new franchisees, CFW Clinics leverages its social capital within community networks. Successful candidates are given marketing and management training, as well as additional, brief healthcare training. CFW Clinics typically loan 88% of the required up-front capital to approved franchisees, thereby empowering them to start their own businesses. To ensure the reliability and quality of the medicines sold, CFW Clinics source high volumes of the drugs through a central procurement group.²⁵</p> <p>The replication of CFW Clinics in Rwanda led to a fundamental change in the model. The initiative became part of the public health system under a public-private partnership, with multi-year up-front funding to ensure financial sustainability of the model as scale-up progressed. In addition, the model is covered by the health insurance plan within the country. Nurses deliver the care, but are now also required to spend time on helping to improve health literacy in the community within which they work.</p>

What problem is the model solving?

Making pharmacy services more accessible: InstyMeds (U.S.)

Poor access to medicines – or access only at specific hours of the day – is a common problem across many healthcare systems. At the same time, pharmacists are often utilised inefficiently, and spend most of their time sorting and bottling pills rather than answering customer questions. InstyMeds, a U.S.-based company operating in 34 states, addresses both problems by providing healthcare facilities with automated dispensers. These enable patients to fill their prescriptions efficiently, immediately after seeing their doctor, and thereby free up pharmacists to take more of a specialist, advisory role.

How does the innovation alter human capital utilisation?

InstyMeds invented a unit – rather similar to a cash-dispensing machine – that provides pharmacy services. The units, called InstyMeds Prescription Medication Dispensers, are fully-automated dispensers of prescriptions, and issue medications directly to patients at the point-of-care. The machines function 24 hours a day, seven days a week; they work through a touch-screen mechanism, and can accept payments and dispense medications. Software enables physicians to issue prescriptions, which can then be dispensed at any InstyMeds machine. The machines also read physical prescriptions, containing bar-codes, which can be issued directly by the patient's physician.

InstyMeds technology creates a compelling value proposition for patients by enabling them to access pharmacy services at any time of day or night, even in regions far from a traditional pharmacy store. The rental includes access to a 24/7 call centre at which pharmacists can answer patients' questions – a feature that simultaneously improves the efficiency of pharmacist utilisation. A "triple-bar-code check system" ensures that the proper medication is dispensed. Finally, the machines enable real-time tracking of the inventory of pharmaceutical products, as well as facilitating the adjudication of insurance claims. The InstyMeds dispenser technology has spread quickly since the company first rolled it out in 2008, and as of late 2011 the company had rented out machines to more than 200 medical facilities.²⁶

What problem is the model solving?

Helping patients cope with chronic diseases: Chinese Aged Diabetes Assistant (China)²⁷

By 2030, 129 million people in China will have diabetes, according to research by the International Diabetes Federation. Effective diabetes management programmes are scarce in that country, especially in rural areas, which typically lack a sufficient number of health facilities or health workers. To help China provide better healthcare for diabetes patients, Microsoft sponsored the development of a smartphone application with features similar to an online game. The app enables patients to take better control of their health, and enables doctors to provide medical assistance to patients at a distance.

How does the innovation alter human capital utilisation?

The smartphone app, called the Chinese Aged Diabetes Assistant (CADA), relies on basic yet proven technology, and provides two-way communication between rural, elderly patients and doctors who know how to manage diabetes. Patients use CADA to log their glucose levels and mood each day; their doctors then monitor the results and intervene when necessary. In addition, the app sends patients daily advice (evidence-based and personalised) and positive reinforcement regarding blood-pressure and glucose monitoring, physical activity, weight, and eating habits.

CADA has the look and feel of a game, and so encourages adoption and compliance. By getting patients to play a greater role in managing their diabetes, the app reduces the risk of disease complications, and helps compensate for the lack of trained healthcare workers in rural areas.

CADA's creators now distribute the code for the software in an open-source way, via their website, and they have been encouraged by the number of institutions that have approached them wanting to use or redistribute it. They are now working with a software developer in the U.S. to apply their learnings from the CADA Project, on a project aimed at helping overweight adolescents improve their health.

What problem is the model solving?

Providing affordable eye care: SalaUno Salud (Mexico)

Eye diseases are the second most common cause of disability in Mexico. Although half of the cases of blindness in that country could be avoided with cataract surgery, a severe shortage of doctors and nurses prevents the majority of affected patients from getting treatment. SalaUno Salud, a private enterprise, uses several innovative approaches to address the staffing shortages. Its operating model focuses exclusively on cataract surgery and certain other treatments for eye disease. In addition, the organisation trains many of its own staff, to ensure a high degree of right-skilling. And it offers a compelling value proposition, especially to the surgeons it employs.

How does the innovation alter human capital utilisation?

SalaUno Salud introduced small-incision cataract surgery into Mexico so that it could offer corrective procedures at one-third of the usual market price.²⁸ It employs ophthalmologists to perform the most technical parts of surgery, but staff members with fairly brief training perform many of the highly specialised but routine and repetitive tasks that are required during operations. To ensure that they can undertake those tasks with a sufficient level of skill, SalaUno Salud developed its own training programme, which is conducted by fully qualified doctors. As a result, SalaUno Salud is able to perform a high volume of procedures, and that helps to keep costs down.

In addition, SalaUno Salud put together an innovative compensation package geared to the needs and preferences of more qualified doctors. In that way it has been able to attract a sufficient number of them to the organisation. In addition to salary, SalaUno Salud offers the doctors research opportunities, sends them to conferences and training events, and equips them with the means and tools to conduct publishable research.²⁹

What problem is the model solving?

Preventing maternal deaths: Venture Strategies Innovations (Nigeria)³⁰

Each year, Nigeria registers the world's second highest number of deaths of women during childbirth. The most common cause of maternal death, postpartum haemorrhage (PPH), can be fatal if treatment is not given immediately, but it can be managed effectively through a medication called misoprostol. However, because Nigeria has a severe shortage of health workers, most women give birth without the presence of a skilled attendant who could recognise the onset of PPH and the need to administer misoprostol. To reduce the number of maternal deaths, VSI focused on empowering women, right-skilling birth attendants (even those outside of the formal healthcare workforce), and engaging the community to increase awareness of PPH.

How does the innovation alter human capital utilisation?

In VSI's delivery model, women in the late stages of pregnancy are given misoprostol tablets, either by lower-grade healthcare staff (notably, community health workers) or by people entirely outside the formal healthcare workforce (notably, traditional birth attendants). Midwives and nurses provide support, supervision, and technical backstop, but they are not part of the delivery process. The decision whether to take misoprostol is left to the women giving birth. The delivery model is underpinned by a community education and mobilisation programme, which uses print materials, dramas, and community dialogues to disseminate knowledge about the causes, risks, and treatment of PPH.

What problem is the model solving?

Reducing care fragmentation at the end of life: Delivering Choice (UK)

In the UK, as in many developed countries, end-of-life care is highly fragmented; numerous professionals each play a discrete, small part. Not only is this approach inefficient, but it also creates unnecessary complexity and confusion. Many patients and their families complain that, despite the number of professionals involved, their most crucial needs – practical advice about what to expect, as well as emotional and psychological support – remain largely unmet.³¹ And all too often, patients are admitted to the hospital at the very end of life, despite their stated desire to die at home. In response, the Delivering Choice initiative in Leeds is using a targeted operating model, right-skilling, and community volunteers to give patients a better end-of-life experience.³²

How does the innovation alter human capital utilisation?

Marie Curie Cancer Care, a UK charity, brought together the relevant statutory agencies to redesign end-of-life care from a patient perspective. The pilot programme in Leeds had two components. First, a new role was created: the health and personal care assistant. The people who took on this role were not qualified health professionals; they were given only three weeks of formal training, followed by on-the-job supervision. Nevertheless, Marie Curie found that the assistants were able to provide over three-quarters of the care required by end-of-life patients at home.³³

Second, Marie Curie Cancer Care developed a team of volunteers who provide practical advice about what to expect, as well as emotional support to patients and carers. The Leeds pilot has led to a 7% reduction in the rate of inappropriate hospital admissions near the end of life.³⁴

What problem is the model solving?

Enabling patients to perform dialysis themselves: Jönköping (Sweden)³⁵

Most patients who need haemodialysis must undergo treatment for three or four hours at a time, three times per week. At each session, nurses hook up the patients to the dialysis machines, observe them hourly, and adjust the treatment as needed. All too often, patients feel helpless and dependent. Most of the nurses' time is spent on routine, repetitive tasks. Ryhov Hospital in Jönköping, Sweden, is addressing both problems by training patients to self-administer haemodialysis.

How does the innovation alter human capital utilisation?

Patients are initially screened for their ability and willingness to self-administer haemodialysis. Willing and able patients are then taught to insert dialysis needles into themselves.

Once patients manage their own treatment more directly, several positive outcomes emerge. First, most patients report feeling much more in control of their own condition, as they can perform the dialysis at any time that is convenient to them. Patients are given swipe-card access to the hospital unit, and some patients who can fully administer dialysis come in early in the morning or on weekends. A small number of patients have even had dialysis machines moved to their homes, and self-administer the treatment remotely.

Second, patient-led dialysis often leads to better vein management (for instance, less bruising and injury), and the total length of time patients spend in the dialysis unit has also decreased.

Third, patients who take responsibility for their own treatment often take a more active role generally in their own care.

At present, healthcare practitioners at Ryhov Hospital report that 38% of dialysis patients are self-administering their treatment. They note, however, that a much higher percentage is possible, once the practice becomes more commonplace.

Nurses now spend most of their time in the haemodialysis clinic as educators and trainers, particularly conveying to patients the importance of behaviour and lifestyle changes.

What problem is the model solving?

Giving patients access to their own health records: sundhed.dk and borger.dk (Denmark)

In most countries, patients lack access to their own healthcare records. The records are typically compiled by medical practitioners and stored in paper files or in official databases that patients cannot view. As a result, patients have little opportunity to be anything other than passive participants in their own care, and they cannot share their medical history with others when they want to do so. In many cases, they cannot even clarify instructions from previous doctor visits without booking another appointment. Denmark has decided to address these issues head-on by giving all citizens access to their healthcare records.

How does the innovation alter human capital utilisation?

Danish patients are now able to view data about themselves via the national health portal (sundhed.dk) and Denmark's citizen portal (borger.dk).³⁶ By logging into their profiles on these portals, patients can book appointments, request prescriptions, consult with various health professionals (notably, their GP, emergency medical service personnel, or district nurse), and see an overview of all medications prescribed to them. In addition, they can gain access to a personal health calendar, receive e-mail and SMS reminders for appointments, and make plans for prevention, therapy, or rehabilitation.³⁷

The result is that patients can easily convey their medical history to their doctors, thereby eliminating paperwork and bureaucracy. Furthermore, record-sharing reduces the risk of patients' receiving duplicate, unnecessary procedures. Patients commonly catch errors in their own medical records, so giving them agency is a simple way to reduce the risk of medical mistakes. Studies have also shown that access makes most patients better able to manage their conditions, more likely to take medications as prescribed and to follow lifestyle advice, and better able to understand what they discussed with their doctor during an appointment. Finally, giving patients access to their records also tends to give them more confidence in their family doctors. This increases their satisfaction with the care they receive, and encourages them to raise difficult issues.³⁸

Denmark launched sundhed.dk in 2003, and borger.dk in 2008. Access to health data has evolved consistently over the past decade, and continues to improve. The Shared Medication Record, which enables patients to access their medication records, was launched in 2010, and was fully operationalised in hospitals by 2011.

The National Patient Index is another innovation that will make health records fully accessible at the point of care; this initiative will be available by 2013 through sundhed.dk.³⁹

What problem is the model solving?

Providing cardiac care for the poor: Narayana Hrudayalaya Heart Hospital (India)

Risk of heart disease is extremely high in India. The country accounts for 45% of the global burden of coronary heart disease.⁴⁰ Though the infrastructure for cardiac care exists, the high cost of treatment prevents the vast majority of cardiac patients from receiving needed heart surgery.

The Narayana Hrudayalaya Heart Hospital (NH), based in Bangalore, maximises utilisation rates in order to provide high-quality cardiac care for the lowest per-unit cost in India. Further, NH provides care to all income levels by charging on a sliding scale, depending on patients' ability to pay. Revenue from full-fee paying patients (whose fees are still lower than the average fee for other private hospitals) subsidises poorer patients who cannot pay for the care. Quality is high, and NH records mortality and infection rates equal to those for heart surgery in the U.S. The hospital's mortality rate and hospital-acquired infection rate are comparable to those of the best hospitals across the world.

The high volume of procedures decreases the unit cost. Also, thanks to the high volume, NH is able to negotiate discounts on supplies and equipment.

How does the innovation alter human capital utilisation?

The model that NH has established for delivering cardiac care is based on the principles of right-skilling and team-based care. NH has designed its own training programmes to inculcate and reinforce the team-based approach.

NH doctors are paid fixed salaries, rather than a revenue percentage as at other Indian hospitals, and are expected to work longer hours and perform more operations. This involves optimising the time of senior cardiac surgeons, such that they are present in the operating theatre only for the critical parts of the operation. Apart from enabling the surgeons to perform more surgery, this approach also lowers the unit cost.

NH has invested in the use of tele-medicine and mobile diagnostic clinics to provide free specialised cardiac care to patients in rural areas who would otherwise not have access. In addition, doctors in remote areas can connect directly with specialists in the central hospital in Bangalore.

NH will be expanding its low-cost cardiac care model to Malaysia and the Cayman Islands.

Endnotes

- ¹ Frenk J, Chen L, Bhutta Z. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world, *The Lancet*. 4 December 2010; 376(9756): 1923-1958
- ² Wenzel RP, Rohrer JE. The iron triangle of health care reform. *Clin Perform Qual Health Care*. 1994 Jan-Mar;2(1):7-9. . PMID: 10135447
- ³ International Partnership for Innovative Healthcare Delivery, <http://www.ipihd.org>
- ⁴ IBM Healthcare and Life Sciences, *Redefining Value and Success in Healthcare: Charting the Path to the Future* (February 2012)
- ⁵ Beckman HB, Frankel RM. The effect of physician behaviour on the collection of data. *Ann Intern Med*. 1984; 101: 692-6; Marvel MK, Epstein RM, Flowers K, Beckman HB. Soliciting the patient's agenda: have we improved? *JAMA*. 1999; 282(10): 942-3.
- ⁶ Sager MA, Francke T, Inouye SK, et al. Functional outcomes of acute medical illness and hospitalization in older persons. *Arch Intern Med* 1996;156:645-52. Creditor M. Hazards of hospitalization in the elderly. *Annals Intern Med* 1993;118:219-23
- ⁷ Henke N, Ehrbeck T, Kibasi T. *Unlocking productivity through healthcare delivery innovations*. McKinsey & Company (2009)
- ⁸ UK Commission for Employment and Skills, *A review of occupational regulation and its impact*, Evidence report 40. October 2011. <http://www.ukces.org.uk/publications/er40-occupational-regulation-impact>
- ⁹ Council for Healthcare Regulatory Excellence, *Right-touch Regulation*. UK. 2010. http://www.chre.org.uk/_img/pics/library/100809_RTR_FINAL.pdf
- ¹⁰ Kocher R and Sahni N, Rethinking Healthcare Labor, *NEJM* 365;15 pp.1370-1372
- ¹¹ Rexed, K. et al. (2007), Governance of Decentralised Pay Setting in Selected OECD Countries, *OECD Working Papers on Public Governance*, 2007/3, OECD Publishing. doi:10.1787/210083427643
- ¹² English Department of Health, *Best Practice Tariffs*. 2011. <http://www.dh.gov.uk/health/2011/12/bpt-update>
- ¹³ Da Roit B, Le Bihan B, Österle A (2007). Long-term care policies in Italy, Austria and France: variations in cash-for-care schemes. *Soc Policy Admin* 41 (6) 653-671
- ¹⁴ Royal College of General Practitioners, Royal College of Physicians and Royal College of Nursing, *Enabling patients to access electronic health records*. UK, 2010
- ¹⁵ Interview with Ib Johansen, Deputy manager, MedCom on Danish centre for Telematics. 2012.
- ¹⁶ Coulter A and Ellins J, *Patient-Focused Interventions, A Review of the Evidence*, The Health Foundation, 2006
- ¹⁷ Ad Hoc Committee on Health Literacy (1999) Health literacy: report of the Council on Scientific Affairs, American Medical Association. *JAMA*, 281 (6): 552-557.
- ¹⁸ Coulter A and Ellins J., *Patient-Focused Interventions, A Review of the Evidence*, The Health Foundation, 2006
- ¹⁹ The Health Foundation, *Helping People Help Themselves: A review of the evidence considering whether it is worthwhile supporting self-management*, UK, 2011
- ²⁰ Vickery DM et al (1983). 'Effect of a self care education program on medical visits.' *JAMA* 250 (21): 2952-2956.
- ²¹ The Health Foundation, *Helping People Help Themselves: A review of the evidence considering whether it is worthwhile supporting self-management*, UK, 2011
- ²² Emanuel E, Fuchs V., Shortening Medical Training by 30%. *JAMA*. 2012; 307(11):1143-1144. doi:10.1001/jama.2012.29
- ²³ McKinsey Global Institute. *An economy that works: job creation and America's future*. June 2011. http://www.mckinsey.com/mgi/publications/us_jobs/pdfs/MGI_us_jobs_full_report.pdf.
- ²⁴ CFW Shops Presentation. *The Child and Family Wellness Shops Story: Using micro-franchising to improve access to life-saving medicines*, http://www.cfwshops.org/download/cfwshops_presentation.pdf
- ²⁵ GlobalGiving.org, "Sustainable Healthcare Foundation Newsletter"; Vol. 1, No. 1, June 2007 (http://www.globalgiving.org/pfil/975/SHF_CFWshops_Kenya_Newsletter_June_2007.pdf)
- ²⁶ Malcolm Garcia, "Popping Pills—Out of a Machine", *Chicago Tribune*, 28 September 2011
- ²⁷ Flaherty JH. "Smart Phones" for older Chinese with diabetes. *Aging Successfully*. (2008) 18(1):17; interview with Professor Cynthia Le Rouge; www.cadaproject.com ;
- ²⁸ Center for Health Market Innovations: SalaUno Salud. 2011 <http://healthmarketinnovations.org/program/salauno-salud>.
- ²⁹ SalaUno Salud. 2012. <http://www.salauno.com.mx/>
- ³⁰ Prata N et al. Community mobilization to reduce postpartum hemorrhage in home births in northern Nigeria. *Social Science & Medicine*. 74 (2012) 1288e1296
- ³¹ Marie Curie Cancer Care. *Committed to Carers: Supporting carers of people at the end of life*. March 2012 (<http://www.mariecurie.org.uk/Documents/HEALTHCARE-PROFESSIONALS/commissioning-services/committed-to-care-Mar-12.pdf>)
- ³² UK Homecare Association Ltd (UKHCA). *An overview of the UK domiciliary care sector*. July 2012 <http://www.ukhca.co.uk/pdfs/domiciliarycaresectoroverview.pdf>
- ³³ NHS Leeds, *NHS Leeds Annual Report 2008-2009*, (<http://www.leeds.nhs.uk/Downloads/Corporate/Publications/NHS%20Leeds%20Annual%20Report%202008-09.pdf>)
- ³⁴ Tom Hughes-Hallett et al., *Palliative Care Funding Review: Funding the Right Care and Support for Everyone*. July 2011 (<http://palliativecarefunding.org.uk/wp-content/uploads/2011/06/PCFRFinal%20Report.pdf>)
- ³⁵ Institute for Healthcare Improvement, *Progress report 2012*, http://issuu.com/mikesweeneyihi/docs/2012ihiannualreport?mode=a_p; Levy P. Not Running a Hospital. 2011. <http://runningahospital.blogspot.co.uk/2011/08/self-dialysis-in-sweden.html>
- ³⁶ Doupi P, Renko E., Giest S., Dumortier J. *Country Brief: Denmark*, eHealth Strategies, October 2010. http://ehealth-strategies.eu/database/documents/Denmark_CountryBrief_eHStrategies.pdf
- ³⁷ Interview with Ib Johansen, Deputy manager, MedCom on Danish centre for Telematics. 2012.
- ³⁸ Beard L, Schein R, Morra D. The challenges in making electronic health records accessible to patients, *Journal of American Medical Informatics Association*; March 2011 <http://jamia.bmj.com/content/early/2011/11/25/ami.ajnl-2011-000261.short>
- ³⁹ Statens Serum Institut, *Danish National Board of E-Health: What Initiatives Have We Launched*. 2012. <http://www.ssi.dk/English/HealthdataandICT/National%20Board%20of%20e-Health/What%20initiatives%20have%20we%20launched.aspx>
- ⁴⁰ Tarun K, Rangan V. Kasturi & Manocaran M. Narayana Hrudayalaya Heart Hospital: "Cardiac Care for the Poor. *Harvard Business School Case Study* 9-505-078", April 2006.

