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Healthcare 3.0
Healthcare for
the new normal

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Healthcare 3.0

Introducing the Healthcare 3.0 model

Systemic changes in daily human behaviour will undoubtedly influence and affect lifestyle. Economic prosperity, aging population, the growing middle income population and sensitive public policy are key demand drivers of better healthcare and infrastructure. This will ultimately manifest in a gradual but undeniable shift in health outcomes of the population together with the related areas of the healthcare ecosystem. The concept of the Healthcare 3.0 model is inspired by the

Web 3.0 movement in reference to its collaborative and evolutionary journey of development.

Aligned with the Healthcare 3.0 model is the increased focus on the Consumer-Patient archetype. Essentially, the Consumer-Patient archetype brings together two previously well-established and pre-defined approaches to healthcare, namely the patient-centred care approach and consumer-directed commercial models.

Web 1.0

- “The mostly read only web”
- Focus on companies
- Homepages
- Owning content



Web 2.0

- “The widely read and write web”
- Focus on communities
- Blogs
- Sharing content



Web 3.0

- “The portable personal web”
- Focused on individuals
- Live streams
- Consolidation of dynamic content



Healthcare 1.0

- Medical provider as the source of ultimate reference
- Focus on **institutions**
- Advertising



Healthcare 2.0

- Medical provider as an advisor on health matters
- Focus on **doctors**
- Word-of-mouth recommendation



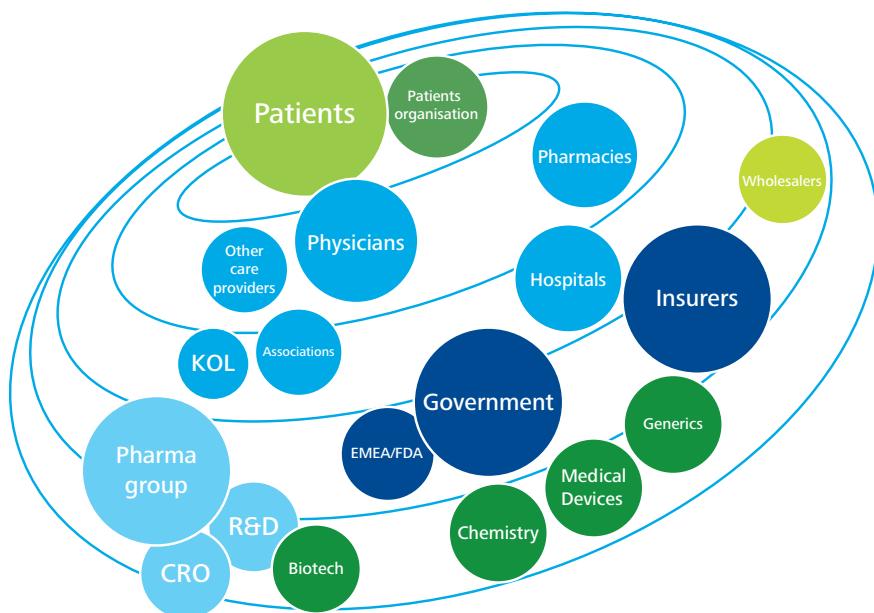
Healthcare 3.0

- Multi-sourced influencers and enablers
- Focus on the **Consumer-Patient archetype**
- Self determination/conclusion



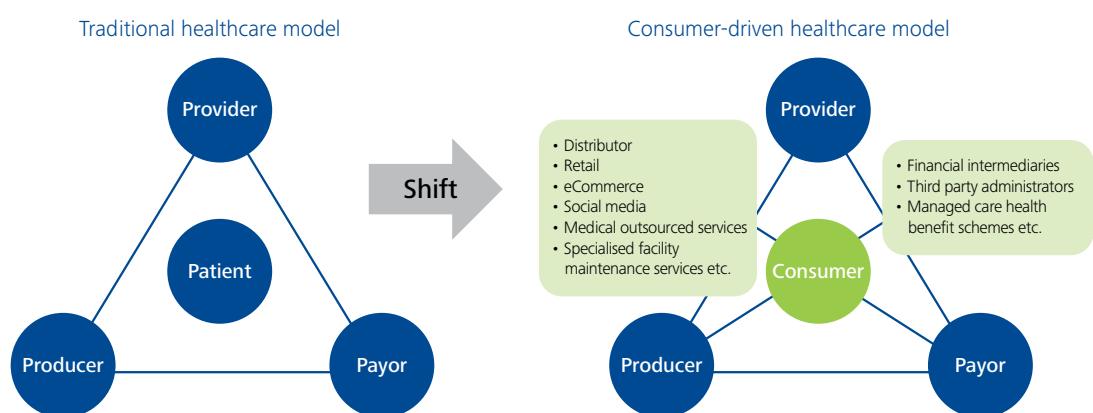
The patient-centric care approach

The patient is the centre of the healthcare universe with the other healthcare component elements revolving around the focal point.



The shift from traditional to consumer driven healthcare model

In the traditional healthcare model, the links between stakeholders often bypass the patient entity in terms of business engagement. Moving forward, it will be critical to establish a direct connection to the Consumer-Patient archetype.

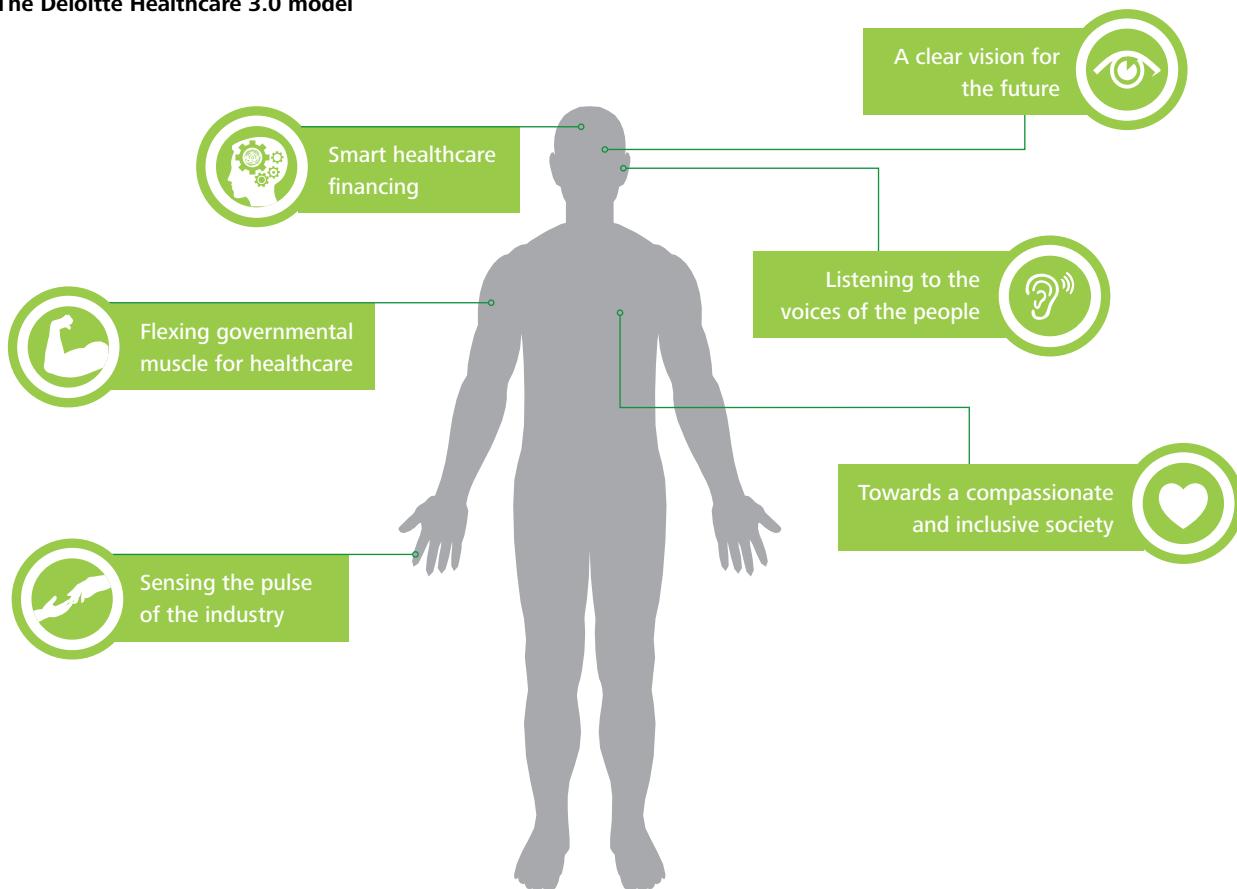


The Deloitte Healthcare 3.0 model

The human body is a complex system which owes its continued survival to the fact that individual component organs are simultaneously working independently, and yet in unison in a fully integrated and synergistic

manner within a self-regulated environment. Deloitte draws a parallel to this metaphor to illustrate key areas within the Healthcare 3.0 model and provide insights on the future and evolving state of healthcare.

The Deloitte Healthcare 3.0 model



A clear vision for the future

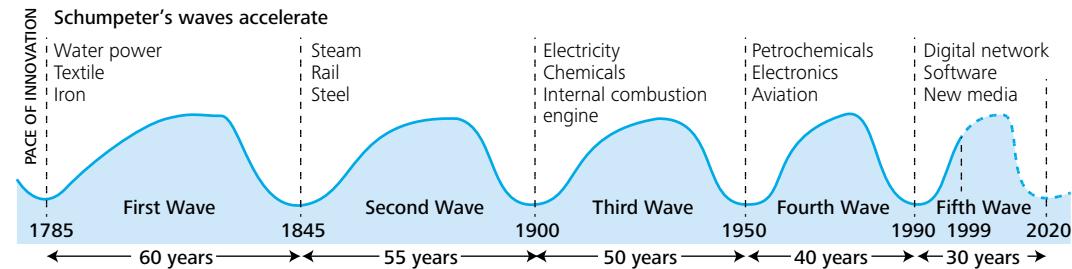


Businesses and resource planners alike should pay heed to the rise of megatrends and the increasingly rapid pace of disruptive technologies that affect baseline

norms within the healthcare industry. As capacities and practice mindsets are often slow to change, there is a risk of demand-supply mismatch.

The Schumpeterian cycle of innovation and entrepreneurship

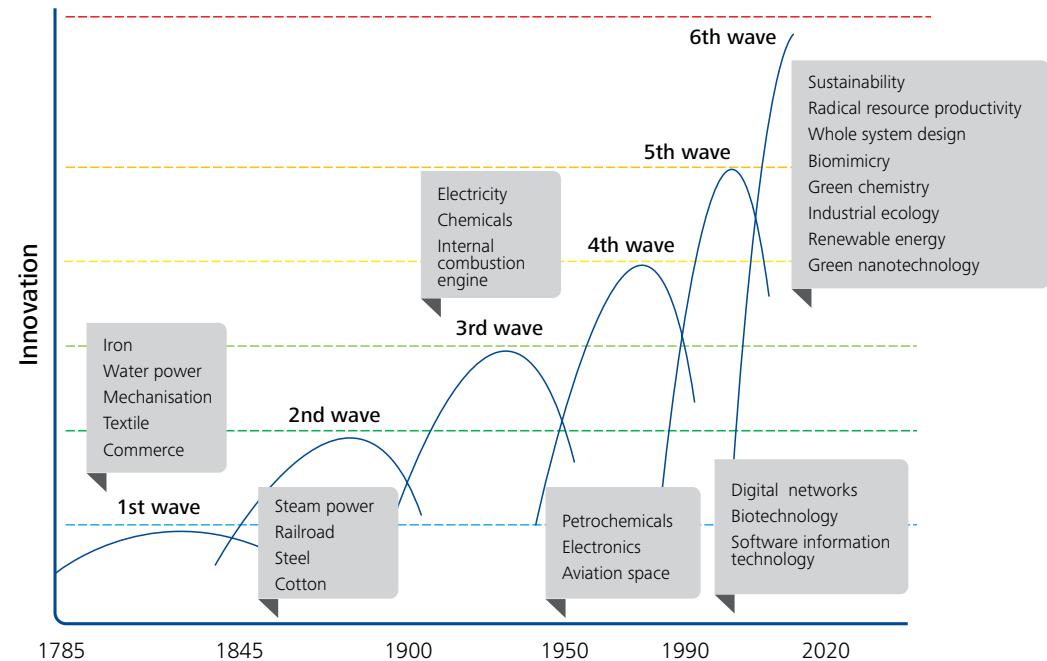
Progressively shorter cycles of innovation with each wave



Source: Joseph Schumpeter, The explanation of the business cycle (1927)

The Kondratiev cycles

Progressively increasing levels of disruption associated with each wave



Source: Hargroves, K. and Smith, M.H. (2005)

Keeping in pace: Evolution of the medical practice vs. progress in medical technology

Practice progress

- Rooted in natural sciences – biology and chemistry
- Aspires to be rational and yet pragmatic
- Depends on experience and evidence
- Self-regulated, self-credentialed and self-disciplined
- Based on a special relationship between the doctor and patient

Basic clinical tools
and equipment

70% Generalist
30% Specialist

Use of sophisticated
diagnostic and
therapeutic technology

30% Generalist
70% Specialist

VS.

Main service offering: Time and counsel

1900 | 1920 | 1940 | 1960 | 1980 | 2000 | 2020 |

| | | | | | | | |
|------|---|------|-----------------|------|-------------------------|------|------------------------|
| 1903 | Electrocardiography | 1953 | Ultrasound | 1985 | DNA sequencing | 2000 | Human genome completed |
| 1921 | Insulin discovered & epidural anaesthesia pioneered | 1943 | Kidney dialysis | 1988 | Cardiac stent | 2008 | Full face transplant |
| 1928 | Penicillin | 1947 | Defibrillator | 1971 | CT scan MRI scan | 1998 | Stem cell therapy |
| | | 1949 | Ventilator | 1960 | Oral contraceptive pill | | |
| | | | | 1967 | Heart transplant | | |

Main service offering: Procedure-based service

Medical technology progress

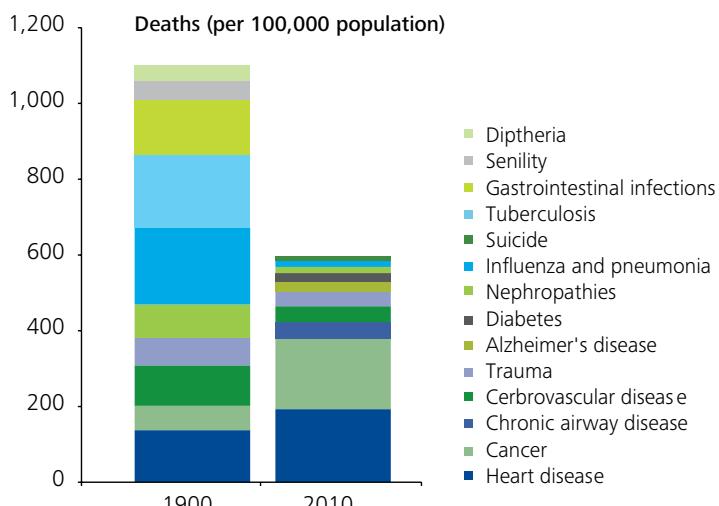
Case study

In this case study, the United States (US) will be used as an example of a population residing in a developed economy with a characteristic and influential consumer behaviour profile.

With today's permeability of information, prevalence and reach of social media, and ongoing rapid spread of technology advancement via the globalisation movement, nations are currently undergoing the process of growth and advancement. In particular, the emerging economies will experience a "fast-forward" effect in the form of sudden affluence as well as changes in lifestyle and diet.

This will in turn result in a shift in the baseline disease patterns and subsequent downstream healthcare demand. Consequently, there is a significant risk of the respective healthcare systems becoming overloaded and unable to cope due to the lack of foresight planning and unpreparedness.

Top 10 causes of death in the US: 1900 vs. 2010

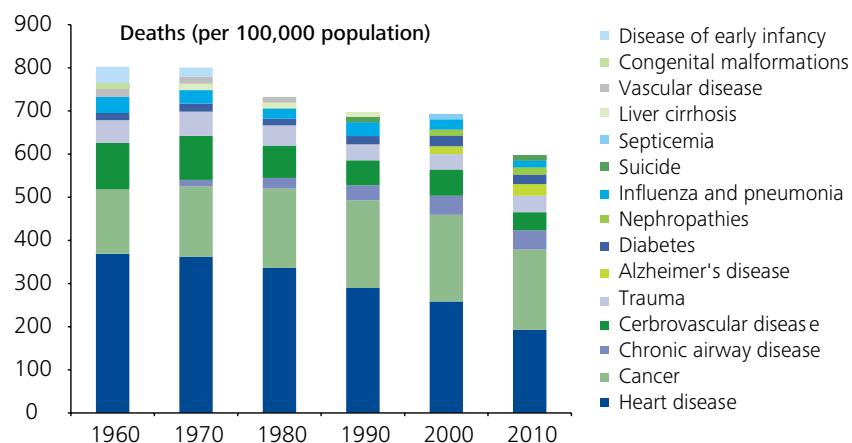


Source: New England Journal of Medicine

Key observations

- Total number of deaths has reduced as a whole but as a proportion of total disease burden, chronic diseases have become increasingly prevalent. There is hence a change in the nature of healthcare demand, which is shifting away from the acute care model.
- Modern treatment modalities for chronic diseases such as cancer and lifestyle diseases are contributing significantly to the overall cost of sustaining the healthcare system. It is indeed a boon to humankind that medical and technological advances have been successful in prolonging the overall human lifespan. However, it is ironic that the very same achievement leaves us with the burden of striving to lead a healthy lifestyle during these extra years.
- The cost of healthcare continues to rise at a significant pace.

Top 10 causes of death in the US: 1960 to 2010



Source: New England Journal of Medicine

Smart healthcare financing



With the challenge of evolving and growing healthcare demands set before us, there is a huge ongoing effort to review the financing mechanisms that are currently in place or potentially available to fund current or future healthcare systems.

Amongst the variety of healthcare financing options, the fundamental roles played by the financing mechanisms within a healthcare system are resource allocation, funds collection, and risk pooling. The harmonisation of these functions is dependent on the governance and organisational fine-tuning of the healthcare system.

A review of healthcare financing mechanisms that are currently in place in a majority of economically mature geographies reveal that the common issues faced are unsurprisingly cost containment of the spiralling healthcare costs and the comprehensiveness (or lack thereof) of coverage.

While there is no universally correct one-size-fits-all model, the smart approach would be along the lines of an adaptable, mixed financing model with segmentation capability in terms of level of coverage, population demographic profile and healthcare accessibility.

Having said that, there is a realistic need to state that the challenge lies in the implementation and administration of this idealised mechanism in a fair and equitable manner which many countries may not have the capacity to undertake.

Moreover, any outright change in financing mechanisms will be met with opposition, particularly in countries with aging populations. It will be challenging to try to enforce a different financial mechanism such as mandatory health savings or a co-funding approach for healthcare benefits after decades of generous social insurance and subsidies.

The common issues faced by healthcare financing mechanisms are unsurprisingly cost containment with spiralling healthcare costs and the comprehensiveness (or lack thereof) of coverage.



Case study

A non-exhaustive review of various healthcare funding mechanisms:

| Countries | Types of funding | Comment on fiscal viability |
|----------------|--|--|
| Australia | Voluntary insurance with tax subsidies paid by individuals | The open-ended subsidy potentially leads to wasteful spending. Australian private insurers fund treatment in public and private hospitals and have not widely adopted managed care contracting as in the US, although insurers have been allowed to contract with hospitals and individual providers since 1995. |
| Denmark | Local taxation with provider management by local authority | Denmark has higher tax rates than all other Organisation for Economic Co-operation and Development (OECD) countries with healthcare accounting for 75 per cent of the county councils' spending. |
| France | Social insurance co-funded by employer and employee with multiple non-competing autonomous insurers | The policy was established when there was a prevailing philosophy that medical care is a need to be met with little focus on cost control. Current financing measures are implemented through cost-sharing between employer and employee and limited benefits of health coverage. |
| Germany | Social insurance co-funded by employer and employee with competing insurers | The aim of the recent change in public policy is to increase competition to achieve cost-effectiveness. Employers are concerned that high healthcare cost will reduce their global competitiveness. |
| Singapore | Catastrophe insurance with a tax-protected savings account | The nation's healthcare inflation outpaces the inflation of the economy as a whole partially due to rapidly raising private sector salary costs creating knock-on effects on public sector compensation. The government heavily subsidises the majority of public hospital beds through general taxation. |
| Switzerland | Compulsory social insurance paid by individuals with competing insurers and a government-approved insurance plan | There have been steep increases in premiums since 1996 due to high pharmaceutical expenditure owing to domestic industrial policy which prohibits parallel imports. There is a continual debate on how best to encourage more competition on the supply side. |
| United Kingdom | General taxation | Taxpayers are unable to ascertain actual contribution towards healthcare funding, hence it is not possible to judge affordability. |
| United States | Voluntary insurance with tax subsidies paid by employers | The most expensive healthcare system in the world with widespread concern about its viability, particularly when many remain uninsured (to be addressed in the 2010 Affordable Care Act). |
| United States | Healthcare purchasing cooperatives | Large cooperatives like the Federal Employees Health Benefits Program (FEHBP) offers nearly 400 insurance plans to some 4 million civilian employees of the US Federal Government, including dependants. In total, about 9 million people are covered. The 75 percent government contribution rate reduces the incentive for enrollees to choose low-cost plans. |

Source: Health Policy Consensus Group

Listening to the voices of the people

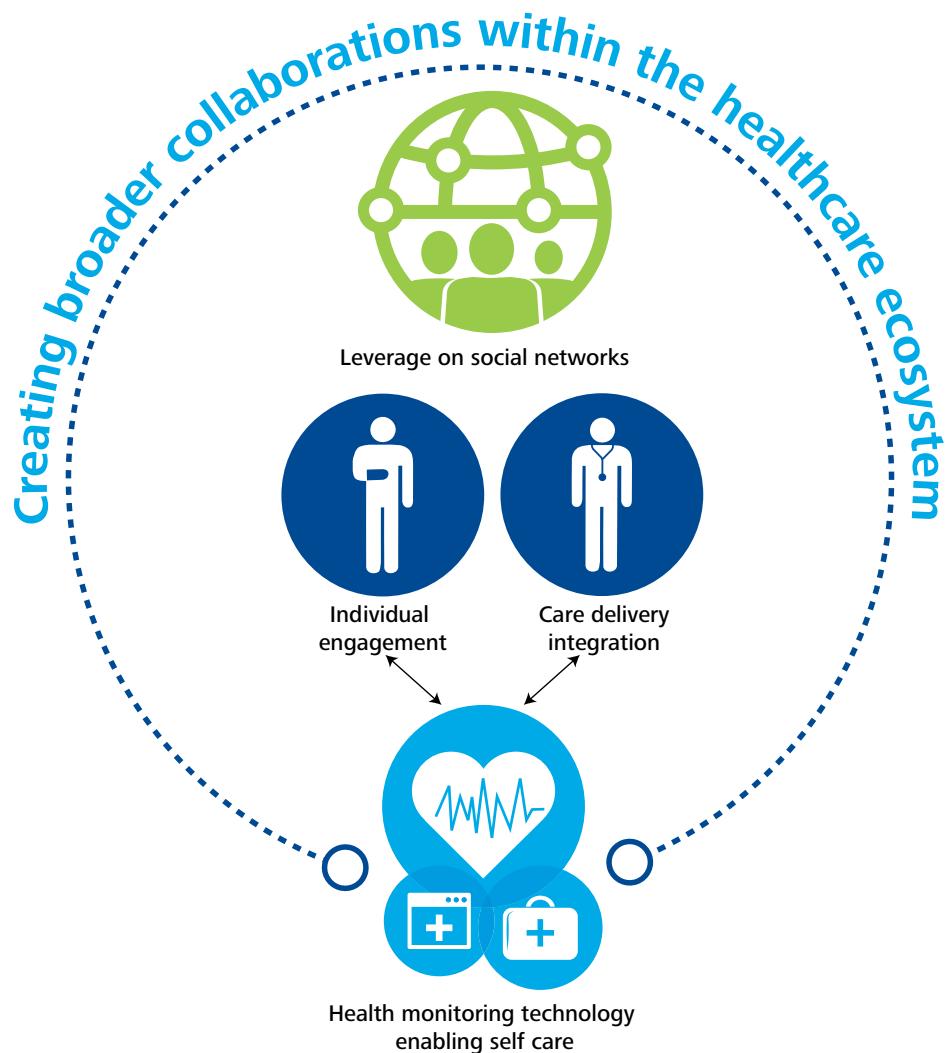


With reference to the Consumer-Patient archetype, the role of social media is becoming increasingly more dominant in the realm of healthcare. The implications of this are not only limited to an information dissemination or marketing standpoint. In fact, it requires a more interactive and better understanding of patient behaviour and values. Consequently, more can be done in terms of influencing lifestyle choices and in encouraging healthier behaviours.

Given that the upcoming challenge of rising treatment costs due to chronic diseases is one that health systems must find effective ways to deal with, a new patient-centred approach is likely to improve the odds of success.

In reality, the task of having increased patient engagement extends beyond just the social media component. It also involves a greater understanding of a redesigned paradigm for understanding and influencing patient behaviour.

Paradigm for understanding and influencing patient behaviour



Five key components of the paradigm

- Use insights from behavioural studies (psychology and economics) to increase individual engagement in health matters
- Integrate behaviour change as a core component within new healthcare delivery models
- Leverage the power of influencers and social networks to support and drive health behaviour change
- Adopt remote monitoring and self-care technologies to support and empower individuals and establish linkages to clinicians and influencers
- Encourage multi-stakeholder involvement which includes public and private sector partnerships across the healthcare ecosystem

Case study

- **Change4Life (UK):** A health campaign aimed at helping people exercise more. As part of the campaign, a virtual 'Walk4Life' website has been created. Users can log on to the website and create a walking challenge such as getting a company to collectively walk the distance of the Great Wall of China. They can also select from other popular challenges like a group walk of 10,000 miles for the Prostate Cancer Charity.
- **Food Hero (US):** Developed for US First Lady Michelle Obama's 'Apps for Health Kids' competition, Food Hero is a virtual game for children whose goal is to become a 'Food Hero' by eating right and completing a set of running, biking and swimming challenges. By eating right, the child also earns virtual gold, which can be used to purchase props that help to complete the challenges. Eating too much makes the player sluggish and the sports challenges become harder.
- **I Saved a Life! (Global):** A social web app that allows the tracking of blood donations, gives reminders for future donations and invites friends of donors to do the same. The application is currently in use in over 80 countries around the world.
- **Next Jump (eCommerce Company):** Company CEO Charlie Kim wanted employees to exercise regularly so the organisation installed gyms in their offices and created an app to reward employees for 'checking in' at the gyms. This yielded a result of 12 percent of the company's staff exercising regularly. Subsequently, the app was upgraded to include the element of gamification in the programme (e.g. staff can form regional teams to compete against one another with progress charted on a leaderboard). Today, 70 percent of its employees exercise regularly.

Source: Redbird Communications

The task of having increased patient engagement extends beyond social media – it also involves a greater understanding of a redesigned paradigm for understanding and influencing patient behaviour.

Sensing the pulse of the industry



With many moving parts in the system, it is often easy to forget that the healthcare industry is essentially dependent on the skilled staff and medical professionals who collectively drive the whole patient experience from the start to end. They are the custodians of a health organisation's brand and reputation.

Manpower issues will continue to occupy the agenda of the day but emerging ones such as career mobility and equality have to be dealt with promptly. The reality is that if a triple-dividend relationship (win-win-win) between the healthcare industry (employer), healthcare worker and consumer (patient) cannot be achieved, only limited progress can be gained for the industry.

The skilled staff and medical professionals who collectively drive the whole patient experience from the start to end are the custodians of a health organisation's brand and reputation.

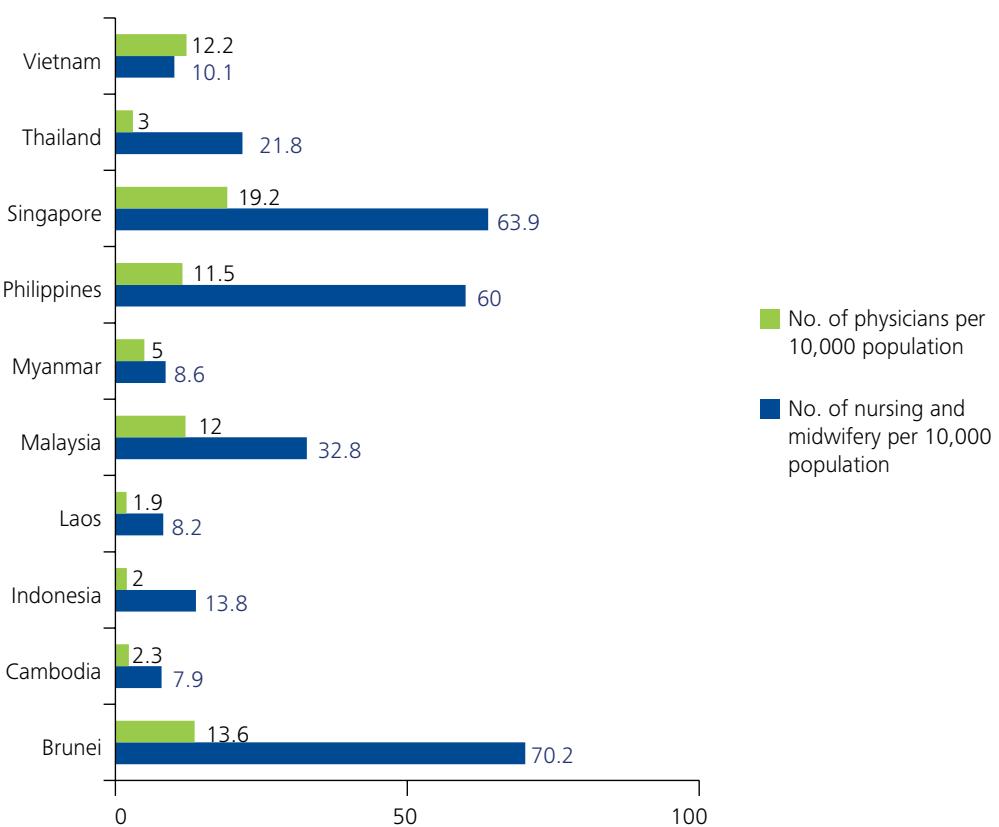


Case study

Looking at the ASEAN region, it is forecasted that there will be a future shortage of medical professionals to the magnitude of 1.6 million – this is among the highest in the world. As a comparison between the member nations, Malaysia, Singapore and Thailand are the region's net exporters of healthcare services as is evident in the strong medical tourism activity growth. Currently, these countries are also net recipients of skilled healthcare manpower.

However, as more medical professionals demand career mobility and markets become more integrated, these countries will be facing stiffer competition for healthcare professionals. As it is, countries like Singapore and Malaysia are transit countries for foreign nurses seeking further migration to end destination countries and this has created staffing gaps in the respective health systems.

Healthcare manpower ratios across the ASEAN region (2005-2012)



Source: WHO World Health Statistics 2013

Towards a compassionate and inclusive society



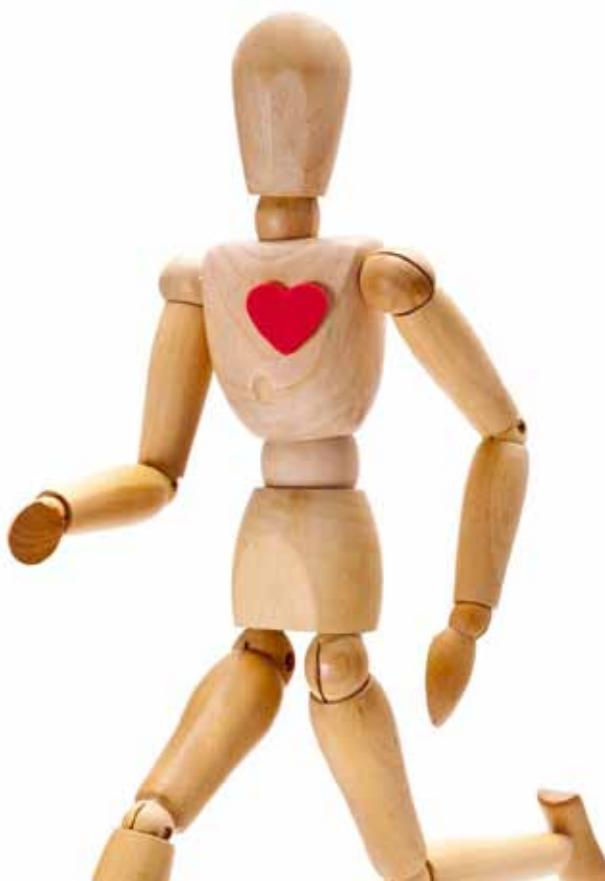
As global healthcare demand shifts from the initial predominant focus on acute care to an intermediate and long-term care model, the healthcare system will serve not only chronic disease patients but also a subset of the elderly population. This would encompass therapeutic services as well as social support mechanisms and welfare. Indeed, the 'care' component of 'healthcare' will become more pronounced and this has to be reflected in the overall approach.

It is arguable that efforts toward achieving a societal goal of inclusivity extend beyond the discussion of healthcare. However, at the same time, it is an undeniable fact that any pragmatic and enlightened approach will have to include the health system in the equation.

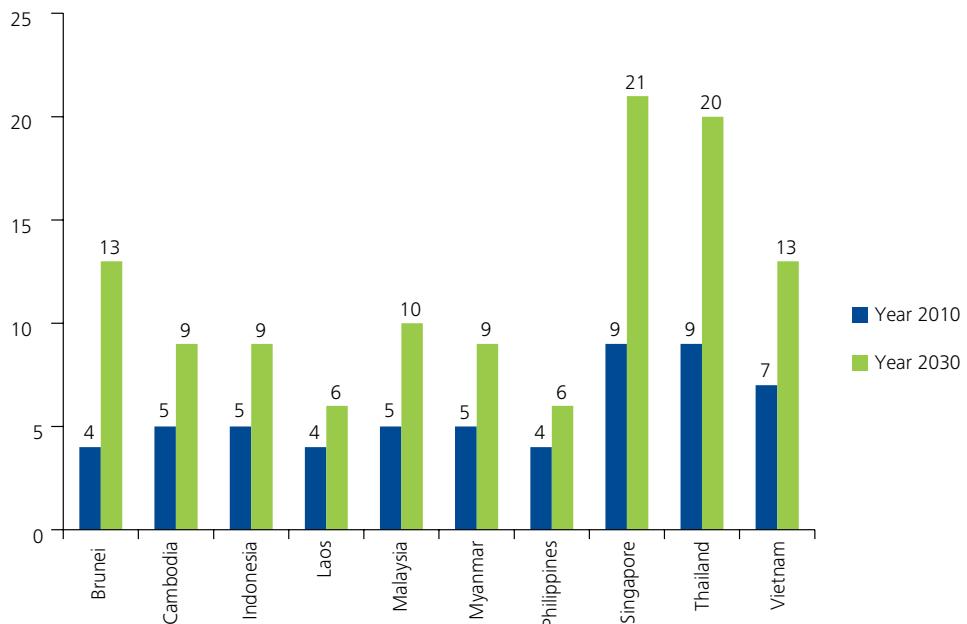
With the cost of healthcare escalating rapidly, it is also inevitable that a proportion of the younger demographic will be financially affected when an individual who is a close family member is afflicted with an illness.

Hence, there is an increasing importance for any healthcare system of the future to have its priorities set on equal and fair access regardless of social standing via a variety of funding mechanisms best suited to the context. Social, political and economic issues are bound to surface in the future if this is not achieved.

Social, political and economic issues are bound to surface if health systems are not equal and fair.

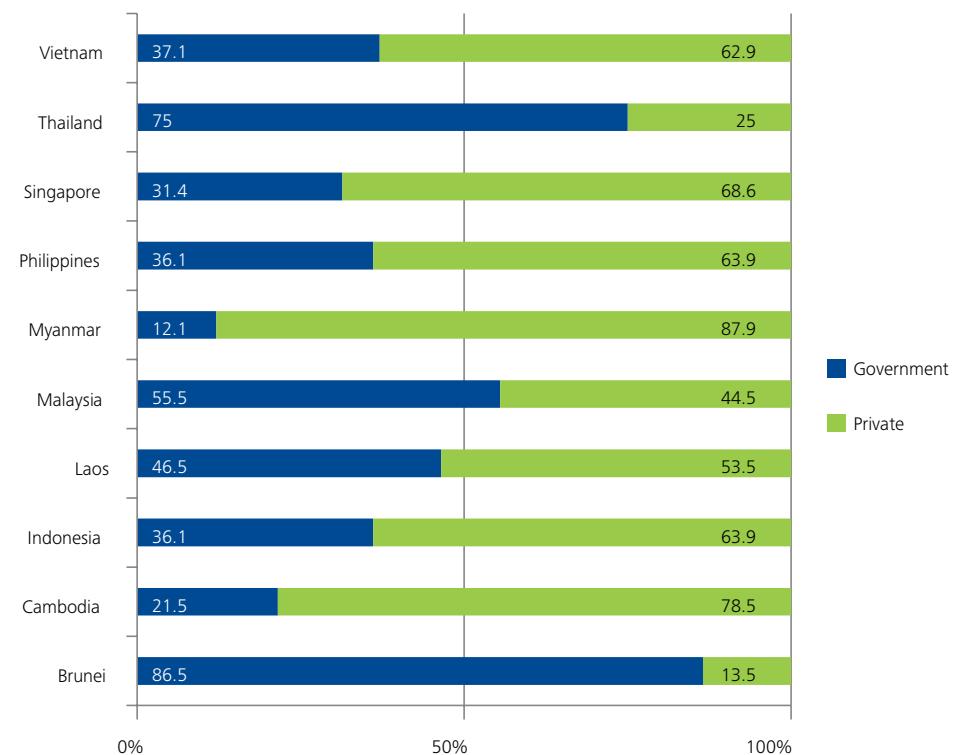


Percentage of ASEAN population aged 65 years and over: 2010 vs. 2030 projection



Source: United Nations, Dept. of Economic and Social Affairs, Population Division 2013

Percentage of government vs. private share of healthcare funding in the ASEAN region (2010)



Source: WHO World Health Statistics 2013

Flexing governmental muscle for healthcare



Governments will continue to play the de facto role in healthcare, propping up the pillars of national security (universal health), efficiency (cost leadership), affordability (accessibility) and assuming liability within the health system.

Rather than taking a single role of a custodian or regulatory authority, it is envisioned that governments will play a more active role in regional collaboration

(government-to-government relations) and become a mover of market collaborations (a catalyst for business-to-business partnerships).

For most markets, the public sector is the largest healthcare provider and payer with the majority of patients under its care, and is thus an influential stakeholder in the healthcare system.

As the public sector is typically the largest healthcare provider, governments will likely continue to play the de facto role in healthcare provision.



Case study

Looking at the ASEAN region again, the ASEAN Economic Community (AEC) movement — which comes after the ASEAN Free Trade Agreement (AFTA) — has designated healthcare as a priority sector (in the areas of pharmaceuticals, cosmetics, medical devices, traditional medicines, and healthcare services) with the objective of integrating the region into a single market and production base to allow equitable economic development for ASEAN member countries. Following this, numerous efforts have been put into place to lower barriers, both trade and non-trade.

| AEC harmonisation efforts | Role and effect |
|--|--|
| ASEAN Harmonised Cosmetic Regulatory Scheme | Signed in 2003, the scheme formed the reference regulatory framework for regional corporation in the field of quality standards and conformity assessments. Effective from 2008. |
| Common Effective Preferential Tariff (CEPT) | Tariff rates were first significantly lowered in 2008 and as of 2008, CEPT rates for most priority healthcare goods were at zero. |
| Mutual Recognition Agreements (MRA) on Good Manufacturing Practice | This agreement was signed in 2009 by ASEAN members to provide sharing of inspection and registration information. Effective from 2011. |
| ASEAN Common Technical Dossier | Implemented in 2009, the Dossier provides information and a standard format for pharmaceutical registration application submission to ASEAN regulatory authorities. |
| Mutual Recognition Agreements on Post-Marketing Alert (PMA) System for Pharmaceuticals | This agreement is in place in Brunei, Indonesia, Malaysia, Singapore and Thailand to enable efficient and effective post-marketing safety and quality standards of pharmaceutical products. |
| ASEAN Medical Device Directive (AMDD) | Formulated in 2012 and expected to be implemented by December 2014, the AMDD describes the basic requirements for a standardised risk-based classification system, device safety and performance protocols, assessments and a Common Submission Dossier Template (CSDT). |
| ASEAN Regulatory Framework on Traditional Medicines and Health Supplements (to be developed) | The expectation is that there will be a transposition of the ASEAN regulatory framework onto the national regulatory laws of the ASEAN member countries. |

Source: Network ASEAN Forum 2013, CIMB ASEAN Research Institute

Balanced integration

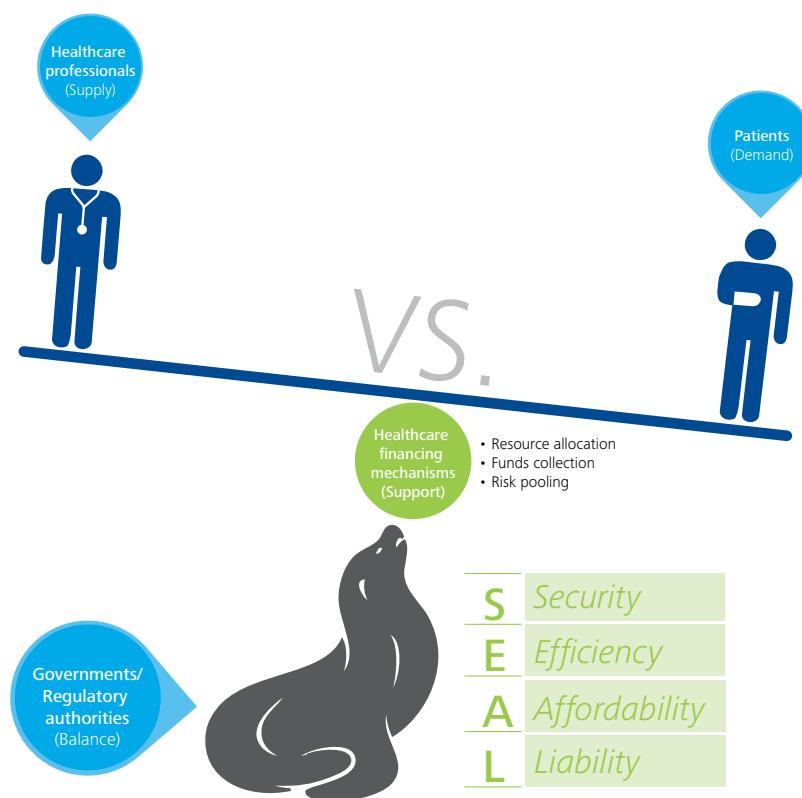
In Healthcare 2.0, the focus is on quality, technological advancement in the area of medical therapy, as well as physician brand-building.

In the new healthcare environment, the Healthcare 3.0 model proposes a balanced integration of the healthcare system with the following differentiators:

- With the patient-centred care model and Consumer-Patient archetype taking centre stage, there is a need for renewed business healthcare models to account for better individual engagement and to pay heed to the importance of influencers and social networks.
- Healthcare systems need to look beyond a purely 'local for local' setup to take into account the rapid lifestyle changes, globalisation trends, as well as the disruptions brought on by today's rapid technological innovations.

- A dynamic and integrated operating model and strategic collaborations are the way to solve future healthcare demand strains and runaway cost escalation.

From the outside, the healthcare system looks chaotic. In reality, it is a complex, balanced system that is subject to constant fine-tuning. The supply-demand relationship is supported by multiple financing mechanisms, while the free market forces and influences are balanced by the custodial roles of governments and regulatory authorities. All these elements should work in harmony to ensure a safe and equitable system with good patient outcomes.



In the new normal, healthcare will remain as one of the most sensitive areas in any government's agenda. It is therefore expected that the view of the industry is not merely a functional fulfillment to a population's need but also a critical strategic piece in defining a nation's agenda in support of the social compact.



About the authors



Dr. Janson Yap

Southeast Asia Life Sciences and Healthcare Leader
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Dr. Yap brings with him more than 30 years of professional experience. He has more than 15 years' experience providing management consulting, advisory and risk management services. This is preceded by another 15 years' of corporate experience in manufacturing, operations, customer service and IT. His experience proves invaluable in helping organisations transform businesses and also address areas of business and technology improvements and risks mitigation.

In his capacity as Regional Leader of Enterprise Risk Services function, he works with many large organisations in profiling and managing Business Risks (being 'Risk Intelligent') whilst trying to grow and transform their businesses in this increasingly challenging economic and regulated environments. With his background of having assisted many large multinational local companies in their Business Transformation and Operational Excellence programmes, this added focus of risk based approach to transformation adds substance and sustainability.

Dr. Yap also leads Deloitte Southeast Asia's Life Sciences and Healthcare industry group. He is responsible for the market strategy at a cross-border and cross-function level and drives Deloitte's growth and eminence in the Life Sciences and Healthcare industry across the region. In this role, he brings deep industry knowledge to support our multidisciplinary approach of audit, tax, financial advisory and consulting, including risk consulting, to market.



Dr. Yong Chern Chet

Director, Enterprise Risk Services
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Dr. Yong is a Director with the Enterprise Risk Services practice of Deloitte Southeast Asia. He has over 8 years of post-training working experience within the medical profession. At Deloitte, Dr. Yong is the cornerstone in projects within the Life Sciences & Healthcare industry in the areas of business process improvement and leading best practices. His expertise in clinical and operational risks in the Life Sciences and Healthcare industry is also crucial in this increasingly regulated industry. He functions as a subject matter expert and provides specialist knowledge for the region.

Dr. Yong's combination of clinical, strategic and operational experience, coupled with subject matter domain knowledge, has been instrumental in delivering effective and efficient results, as well as insights in recent regulatory compliance projects within the region.

Prior to joining Deloitte, he headed the 24-hour Emergency Medicine Department at a leading medical institution in Singapore. In addition to his clinical work, he also headed the membership services division within the company's specialist healthcare insurance practice and was a member of the group's core strategic management team.

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Comprising over 250 partners and 5,500 professionals in 22 office locations, the subsidiaries and affiliates of Deloitte Southeast Asia Ltd combine their technical expertise and deep industry knowledge to deliver consistent high quality services to companies in the region.

All services are provided through the individual country practices, their subsidiaries and affiliates which are separate and independent legal entities.