

# *Connected and coordinated:* Personalised service delivery for the elderly

November 2015



# About this report

We are entering a new era of health – new health.

Health matters. It matters to each of us as individuals and to society – it connects us all like no other. It lies at the heart of our economic, political, social and environmental prosperity and is one of the largest industries in the world.

Two assumptions underpin the traditional approach to healthcare: that it's about the treatment of disease; and that it's the domain of a particular professional group. We need a different approach to cope with the ageing curve and increasing incidence of chronic conditions – an approach that expands the focus from care and cure to vitality and wellbeing, and from episodic intervention to personalised integrated services. We must also bring care closer to the

citizen and manage health collectively.

New entrants from outside industries are already blazing a trail, but preserving the health of the populace will ultimately become a shared endeavour.

This PwC global paper focuses on the need to shift our mind-set to reform and create more innovative and effective ways to deliver services in ageing societies. We believe those that quickly respond and make sense of the changing landscape will be the winners in the new paradigm.

In addition to the global cases and views, I am also keen to share with you a few facts and figures from the China market.

The transformation of health is upon us. A new era of healthcare is emerging. Will you be ready?



**Mark Gilbraith**  
China Leader, Health

---

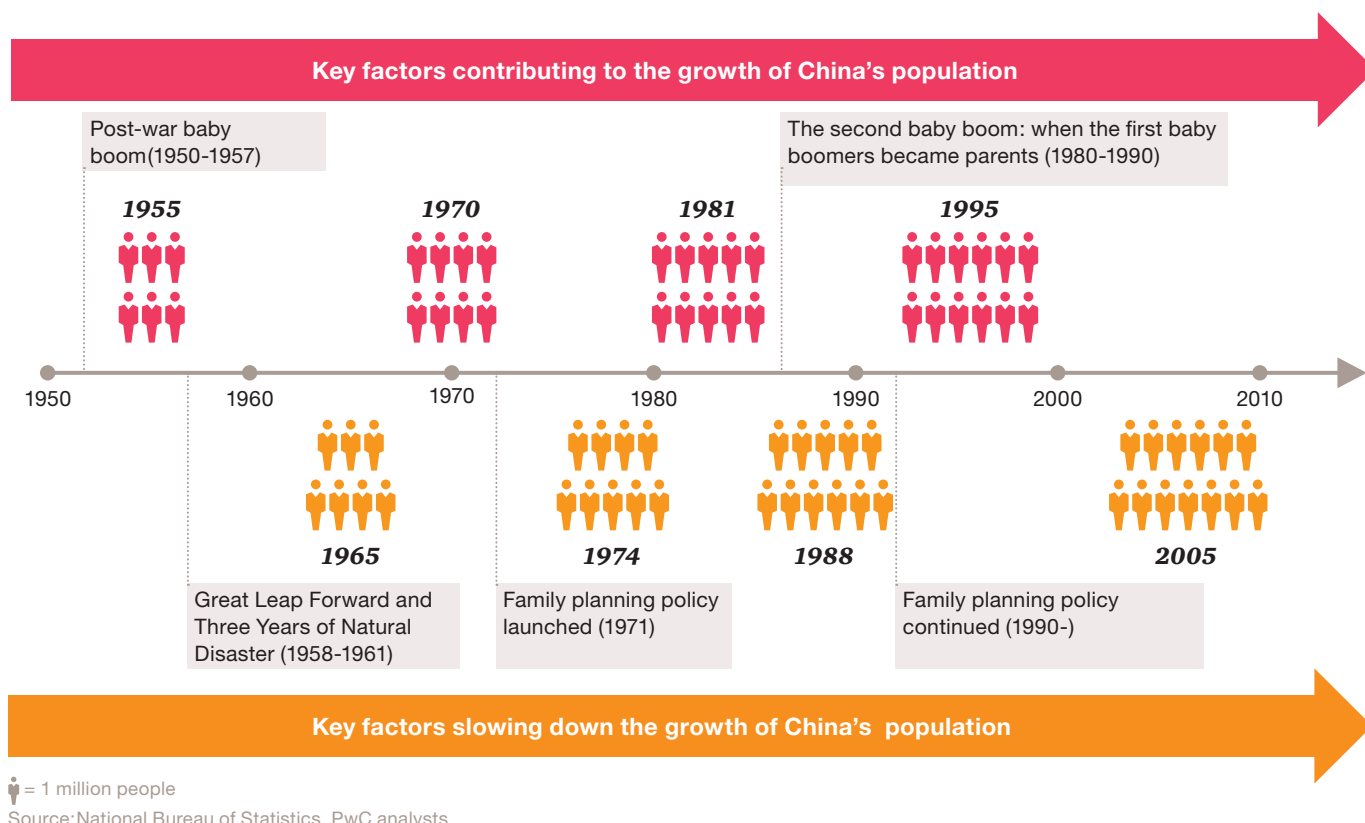
## *Table of contents*

Elderly care service in China	3
The price of progress	9
Why the current way of caring for the elderly is neither cost effective nor sustainable	10
A new service delivery model for the elderly	12
Addressing needs in a personalised way	13
Bringing everything together	20
The road to a new care model	21
A shared endeavour	29

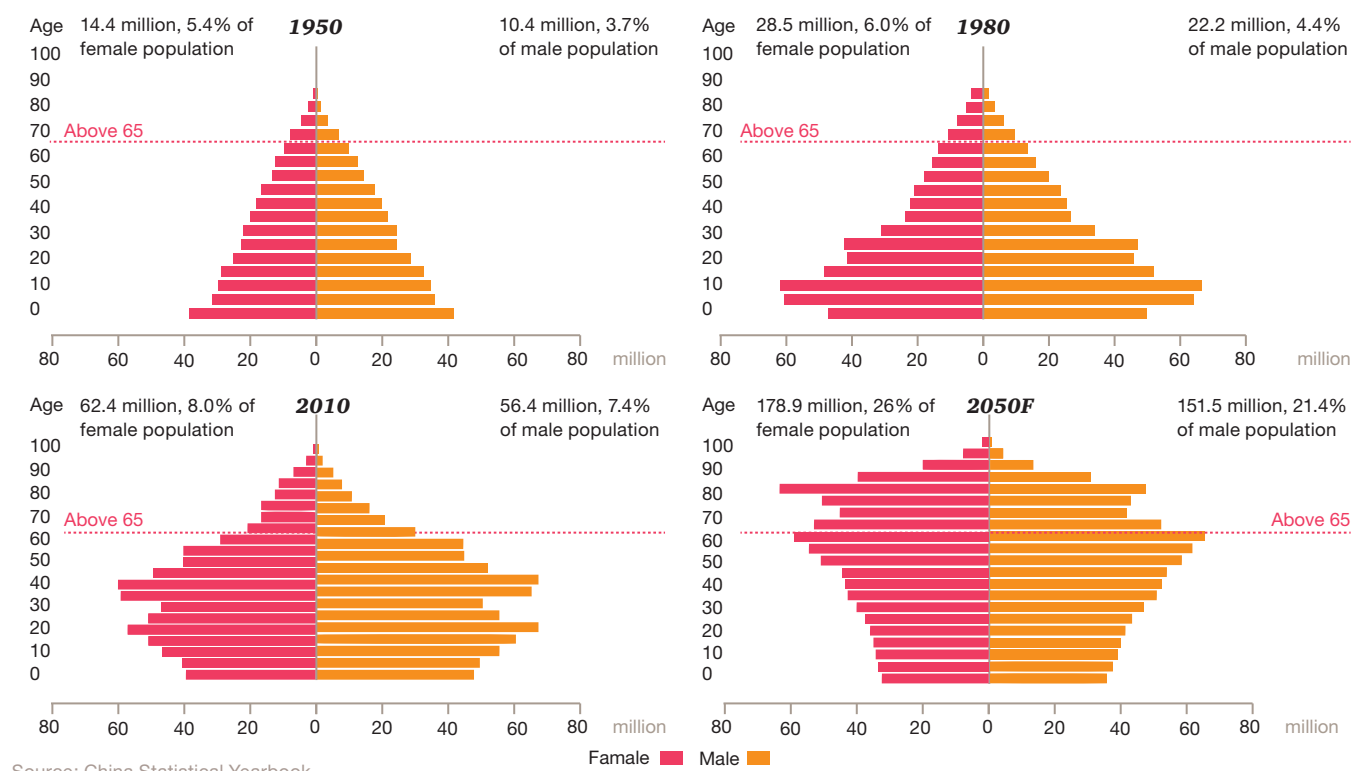
## *Elderly care service in China*



## China's demographic changes over the past decades have been influenced by policy



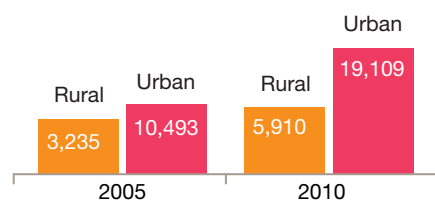
## A declining birth rate and extending average life span has led to an aging population spanning from 2010 to 2050



## Elderly citizens prefer to stay at home, however; higher incomes, smaller families and social shifts have led to a rise in senior citizens selecting nursing homes

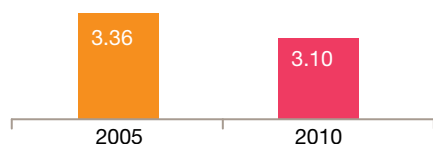
### Higher disposable income is resulting in higher payment capacity in elderly care

Per capita disposable income RMB



### Smaller family scale results in heavier burden for young generation in elderly care

Family scale person/family

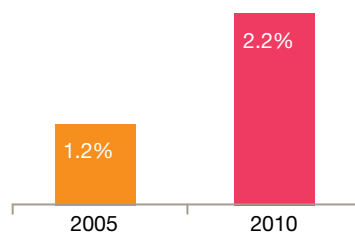


### Nursing homes are increasingly popular as social ideals shift

- Reason for staying in nursing homes has shifted from lacking family care to seeking a preferred form of retirement

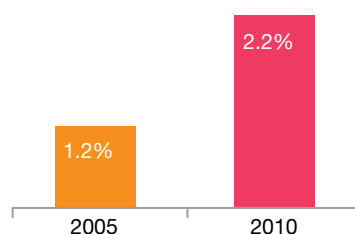
### Proportion of Chinese seniors staying in nursing homes

%



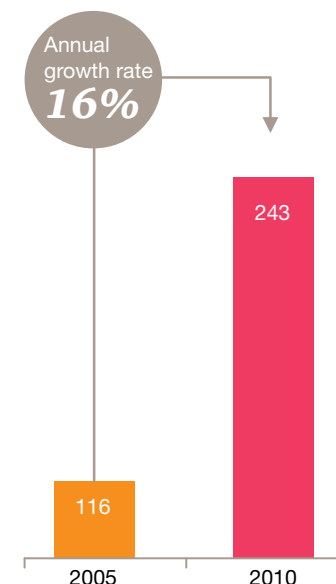
### Chinese population above 65

Unit: million



### Population of Chinese seniors staying in nursing homes

Unit: 10,000



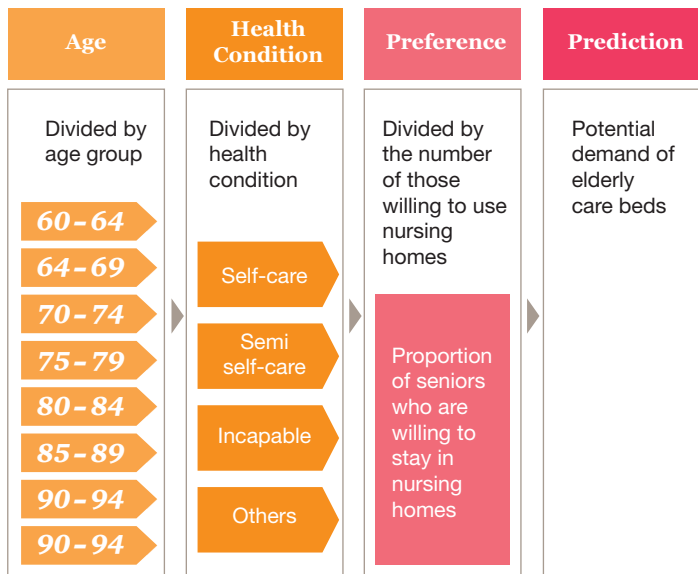
Source: China Civil Affairs Statistical Yearbook, China Statistical Yearbook

## A declining birth rate and extending average life span has led to an aging population spanning from 2010 to 2050

Characteristics	Care Provider	Quotes
<ul style="list-style-type: none"> <li>Living in senior living institutions</li> <li>Provided to people who prefer to stay with people of own age</li> </ul>	<ul style="list-style-type: none"> <li>Senior living facilities</li> </ul>	<p>"I feel more and more difficult to communicate with the young generation. And in senior living, I can have more same aged people to stay."</p> <p>- Hangzhou</p>
<ul style="list-style-type: none"> <li>The elderly live at home</li> <li>Mainly designed for the elderly who need care but fail to receive family care</li> <li>Serve as support to home care</li> </ul>	<ul style="list-style-type: none"> <li>Community senior care in day time, and self or family members at nights</li> <li>The healthcare is mainly provided by community hospitals and thus mainly focuses on day care or home help</li> </ul>	<p>"From my experience, taking care of old people requires a lot of time, and my son is very busy, so I will choose senior living"</p> <p>- Shanghai</p>
<ul style="list-style-type: none"> <li>Living in own home</li> <li>The elderly are traditional, and prefer to stay with family</li> </ul>	<ul style="list-style-type: none"> <li>Self or family members</li> </ul>	<p>"I still prefer to stay in my home, as I don't think the staff in senior living will treat me like my children"</p> <p>- Chengdu</p>

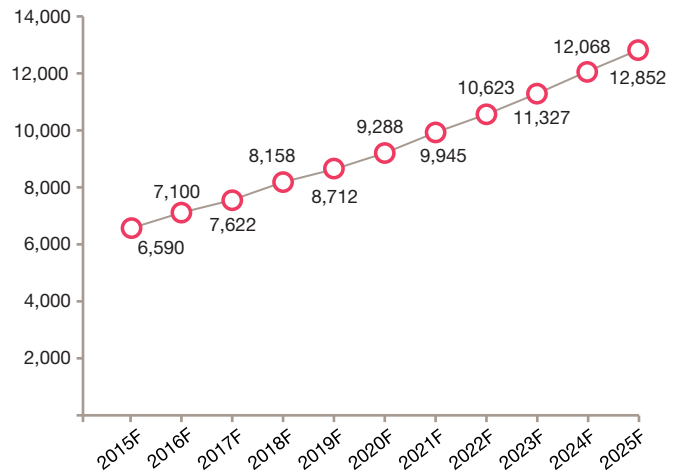
Source: PwC report; Literature research; Strategy& analysis

## Demand for beds in nursing homes predicted to increase rapidly



Prediction of demand for elderly care beds, 2015F-2025F

Unit: 1,000 beds



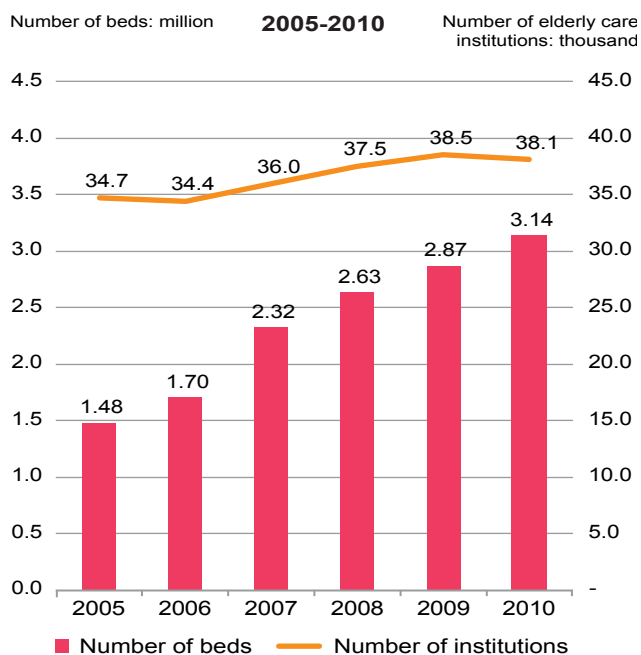
Source China Statistics Bureau PwC Analysts

## Rises in the number of China's elderly care institutions, and value of private investments are underpinned by government support and market demand

Number of elderly care institutions in China went up by 3,400 in the 11th Five-Year Plan period, and the compound annual growth rate of beds reached 16.2%.

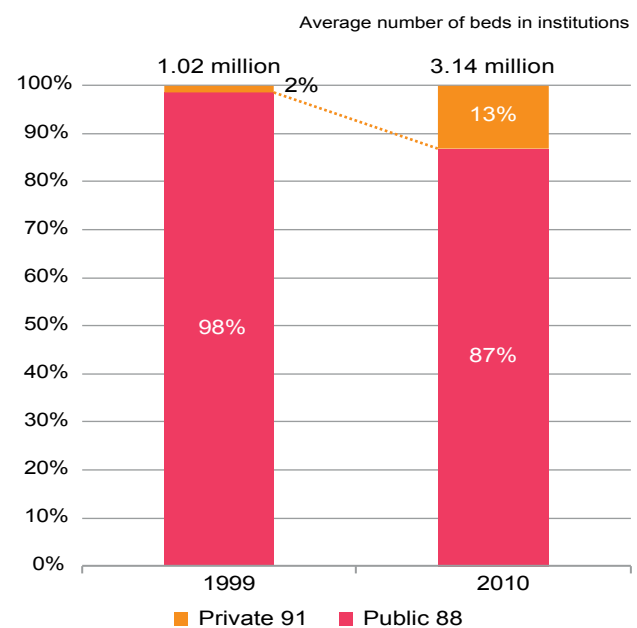
Number of beds in private elderly care institutions went up from 2% in 1999 to 13% in 2010, while the average bed number of private institutions is higher than public institutions.

### Number of elderly care institutions and beds in China



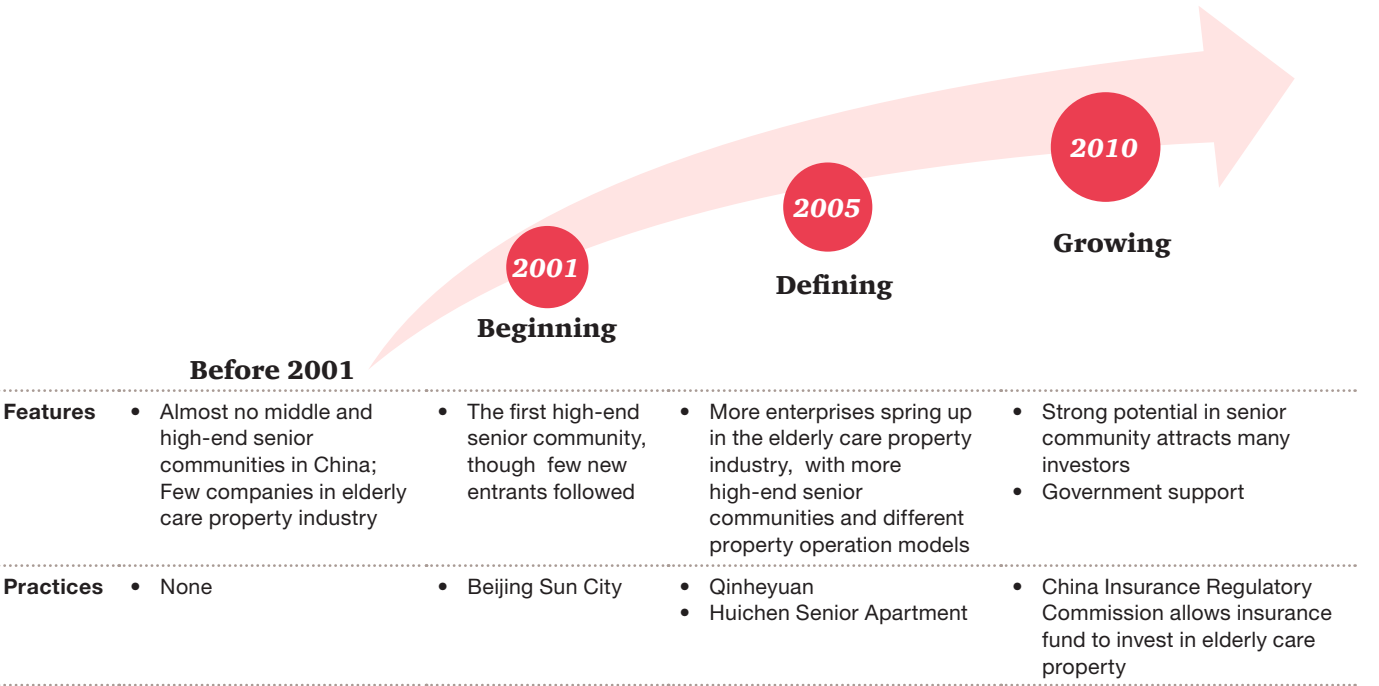
Source: Literature research; Strategy& analysis

### Number of beds in private/public elderly care institutions



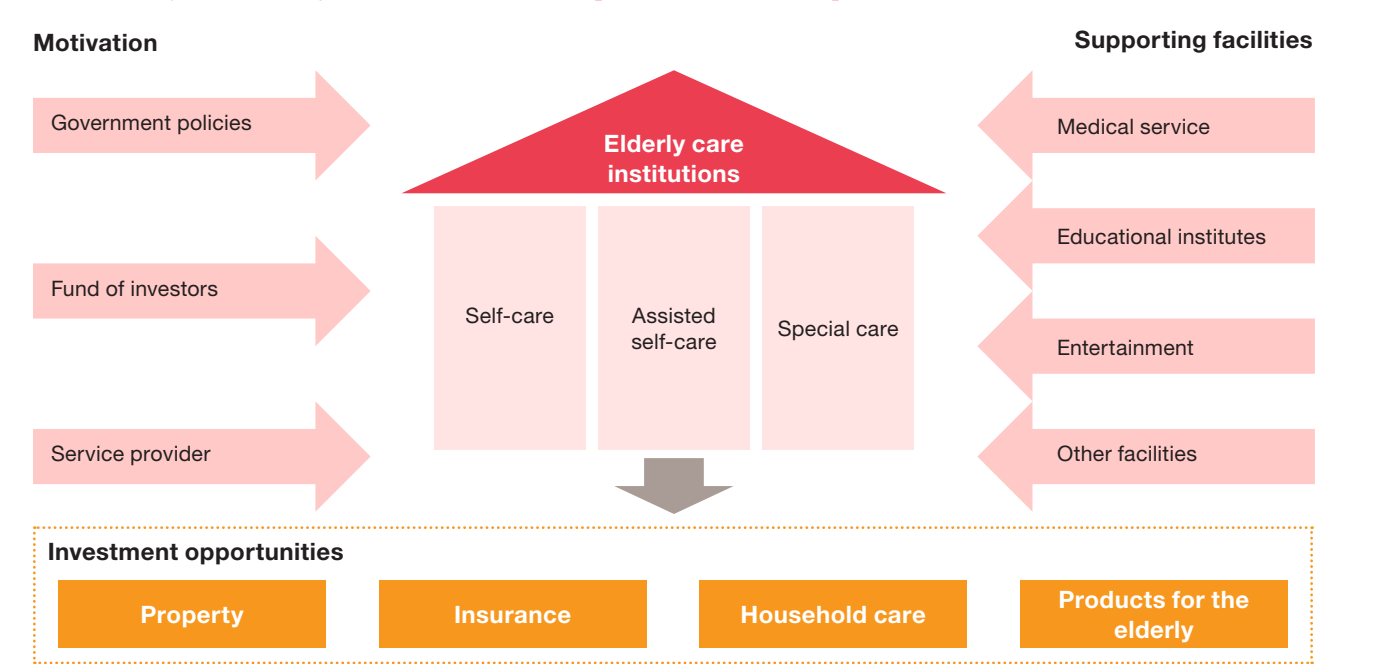


Increasing income and social shifts since 2001 have seen demand for high-end elderly care in China grow, resulting in more high-end senior communities



Source: Document retrieval, PwC Analysts

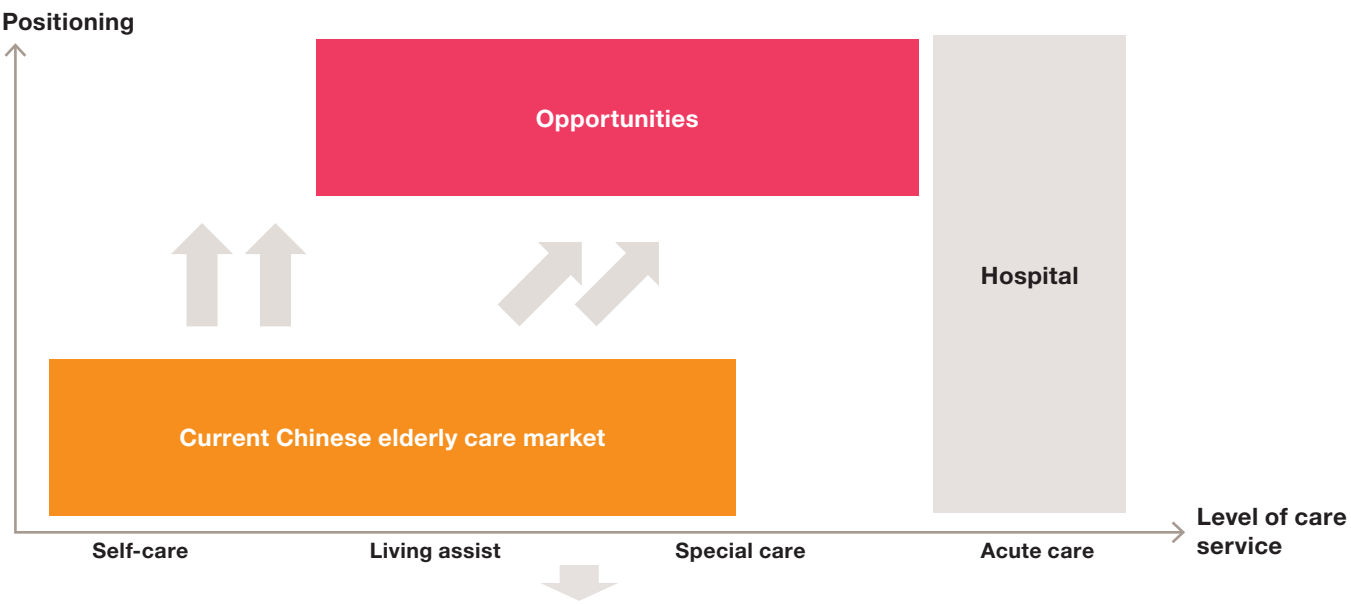
A mature elderly care industry attracts customers with professional care and promotes investment in related areas



Source: Document retrieval



Opportunities in China’s elderly care market are wide spread, particularly in the high-end market



Although China’s elderly care market is still growing, and not as mature as developed countries, there are strong business opportunities. High-end elderly care currently makes up less than 1% of the whole market, which indicates great potential for future expansion.

Source: Document retrieval, PwC Analysts

## The price of progress

Two related –and remarkable– changes have taken place in the last century. Thanks to sanitation, safe water, improved nutrition, modern medicine and better housing, we have triumphed over many of the maladies from which our ancestors died. And the average human lifespan has more than doubled. In 1900, infectious diseases were the leading cause of death, even in developed countries like the United States. Today, the big killers are heart disease and cancer.<sup>1</sup> Global life expectancy at birth has soared from about 30 years to 70 years over the same period.<sup>2</sup>

Yet this huge improvement in human longevity carries a price. Whereas infectious diseases strike down young and old alike, chronic diseases become more prevalent with age. So within current health systems, elderly people consume more healthcare. In the United States, for example, older citizens account for 14.7% of the population but 33.9% of the healthcare bill.<sup>3</sup> A similar pattern prevails in the EU15, with per capita expenditure on healthcare roughly doubling between the ages of 66 and 86.<sup>4</sup>

Moreover, declining fertility rates have created a demographic double-whammy: as the number of older people is rising, so the number of workers available to provide, and pay for, their care is falling (see Figure 1). And changing lifestyles mean that fewer elderly individuals will be able to rely on their relatives for help. Nearly a quarter of all North

Americans and Western Europeans now live alone. In Australia, if current trends continue, there will be a 90% rise in 65+ single person households from 1996 to 2021.<sup>5</sup> Solo living is also on the rise in many emerging countries. Indeed, research firm Euromonitor International predicts that there will be 288 million single-person households by 2020—up from 240 million in 2010.<sup>6</sup>

In addition, the quality of the care individuals of every generation seek is increasing. Widespread access to digital information due to new technology and greater personal expenditure on healthcare (in the form of higher insurance premiums, deductibles and prescription fees) have both raised people's expectations. So have their experiences as consumers, where having a voice, choice and convenience are the norm. As a

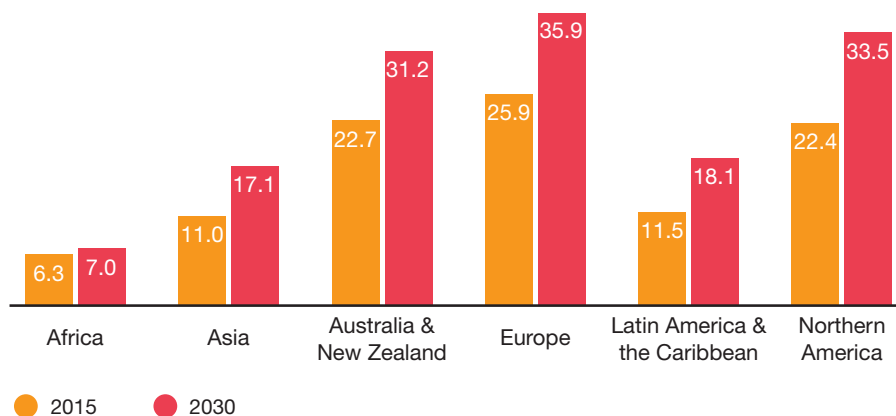
result, people want more options and information about the care they receive, more input into decisions about their care and higher standards of treatment.

Increasingly people want to receive services in their own homes. One Australian study found that almost 60% of Australians aged 70 years or over would prefer to receive formal care at home in the event that they are unable to care for themselves, compared to 28% who would prefer to receive residential care. The remainder would prefer to receive care from family.<sup>7</sup>

The question is: how can we deliver this care? If the number of people aged 65-plus swells by some 60% in the next 15 years, and the care they require mounts with age, yet there are fewer workers to support them, how can we look after them all?

**Figure 1: The ratio of retirees to workers is rising**

*The number of people aged 65 or older per 100 people of working age (15–64)*



Source: United Nations, *World Population Prospects: The 2012 Revision* (2012).

## *Why the current way of caring for the elderly is neither cost effective nor sustainable*



The current way of caring for the elderly is economically unsustainable because it is based on a costly, hospital-centred health system. If we are to devise a better alternative, we need to start by understanding the real needs of the elderly and why we currently spend so much on their care.

Culture is one key factor. Health is usually defined in terms of ‘disease’, and older people have more diseases than younger people do. Hence, seen from a clinical perspective, the elderly suffer more illness –and the solution is more healthcare. But older people themselves often view things differently. In one survey of 650 elderly citizens in the Netherlands, for example, two-thirds of the respondents– irrespective of age—said their general state of health was good or very good.<sup>8</sup> In other words, they enjoyed life, didn’t see themselves as sick and didn’t want to be medicalised.

Research by British gerontologist Ian Philp reinforces these findings. When you actually ask older

people what they need, he notes, their top three priorities are pain management, companionship and financial advice—in that order.<sup>9</sup> So healthcare providers are focusing on the wrong thing: what’s the matter with the patient, not what matters to the patient.

However, engrained clinical assumptions are only one reason why caring for older people costs so much. The other factors are structural. In most countries, primary, secondary, community and social care are organised separately, with professionals who operate in an environment that encourages specialisation and segregation. At best, this means that those who need care have to navigate a circuitous path through the system. At worst, it causes friction between different care providers and unnecessary expenditure on duplicate tests and services, as the elderly get shuffled from one department or organisation to another. Faced with the difficulty of navigating a fragmented system, the simplest option for many is to go to the Emergency Department.

Similarly, in most countries, funding is allocated to individual institutions rather than networks of organisations with shared goals. Each institution is a financial silo, with its own income from central or local government, health insurers and patients or a mixture of the four. Many of the reimbursement mechanisms that are used also provide perverse incentives (see sidebar, *Volume versus value*). And no one agency is responsible for coordinating the care people receive or accountable for outcomes and total costs.

The net effect is to direct expenditure towards the costliest part of the healthcare system: the hospital. Many older people who could be treated within the community and helped to live independently end

up in hospital, sometimes for quite lengthy periods of time. Yet hospitals were originally designed to isolate people with infectious diseases, not to care for those with protracted, non-communicable conditions.

In short, cultural biases, systemic flaws and historical precedent have all driven up healthcare spending on the elderly, creating a model that is neither suitable nor sustainable.

If we are to cope with the ageing curve, we must adopt a new approach: one in which health and wellbeing services are seamlessly coordinated to meet the needs of individual elderly citizens, many of whom may have complex co-morbidities, effectively and efficiently.

## ***Volume versus value***

All the most common reimbursement models have drawbacks. The fee-for-service approach rewards productivity but actively discourages efficiency, while payment per day (where hospitals and nursing homes are paid an agreed fee per bed-day) provides an incentive to treat patients for longer than is really necessary.

Payment per case (where hospitals receive a single, standard payment for every case, regardless of the actual cost of care) encourages the opposite problem: early discharge and frequent readmission. And diagnosis-related grouping (where hospitals receive a bundled payment covering a number of treatments and services for a specific condition) is very difficult to administer.

Capitation (where healthcare providers receive a fixed amount of funding per capita to cover the medical needs of a specific population for a specific period of time) is probably the best model. But this must also be managed very carefully to prevent skimping on care at the expense of outcomes.

## A new service delivery model for the elderly

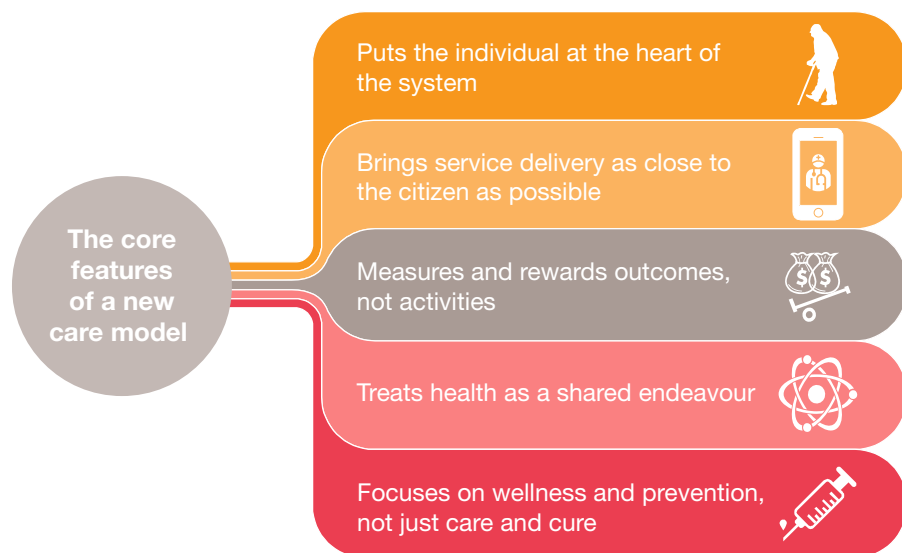
A new service delivery model for the elderly should possess several fundamental characteristics, as illustrated in Figure 2. It should be far more holistic, with the emphasis on vitality and inclusion as much as on care, and focused on self-rated quality of life and wellbeing, instead of focussing on illness. It should also be organised around communities, not institutions, with clusters of care providers sharing accountability for the budgets they manage and quality of the personalised services they supply.

It should, furthermore, bring support services as close to the citizen as possible. Companies like Apple, Google and Amazon have upended retailing by taking the store to the customer—and the online experiences they offer are shaping the expectations consumers carry over to other industries, as many of the companies now breaking into the healthcare business recognise. These disruptive new players are capitalising on wireless connectivity and advanced mobile devices to erase traditional healthcare boundaries and deliver health and wellbeing services anywhere.<sup>10</sup>

The new model should also reward outcomes—as defined by elderly people themselves—rather than activities, since it is not the number of interventions but their effectiveness that counts. But for many systems this will require a shift in *how* we measure results. If quality of life is the goal, client experience surveys can add valuable insight on how we rate outcomes, for example.

Lastly, it should be collaborative. Delivering individualised, integrated care entails dissolving ‘the classic divide between family doctors and hospitals, between physical and mental health, between health and social care, between prevention and treatment’<sup>11</sup> and between private and public. Indeed, many of the factors that influence wellbeing and quality of life—nutritious food, the right housing stock, a reliable communications infrastructure and the like—lie outside the control of healthcare and social care providers. Maintaining a healthy population is not, therefore, just a job for the doctor, nurse or social worker; it’s a collective challenge and opportunity for many organisations in many different industries. With the powerful disruption of new technologies and new entrants who are entering healthcare from outside industries, this collective approach empowers the elderly to co-create the health support system we all need, and in a cost-effective way.

**Figure 2: We need to adopt a more personalised and integrated approach to service delivery for elderly in healthcare.**



Source: PwC analysis

## Addressing needs in a personalised way

Attending to the diverse needs of an ageing society is a key challenge. A more personalised model would allow providers flexibility to address population heterogeneity—to cope with differences between genders, socio-economic class, social network, cognition, mood, loneliness and frailty.

So how does a new personalised service delivery model operate in practice? We'll touch briefly on the core features.

### **#1. Helping older people stay independent and healthy for as long as possible**

“An ounce of prevention is better than a pound of cure,” as the saying goes, and some of the main causes of disease are avoidable. The first step is thus educating older people to assume responsibility for their own wellbeing and providing them with the necessary support. Some measures –such as dietary guidance and smoking cessation aids– fall squarely within the realm of healthcare. Others –such as smoking bans, tobacco taxes and economic access to exercise facilities– may require political intervention.

The next step is reducing the risks to which the elderly are especially vulnerable. Older people are, for example, more susceptible to infection, more unstable on their feet and more likely to be lonely. Various studies show that immunisation against flu, pneumonia and shingles reduces the number of hospital admissions and associated mortalities.<sup>12</sup> Fall prevention

programmes have similar benefits, while (digital) befriending schemes and group activities can alleviate social isolation—which doubles the risk of early death.<sup>13</sup>

The right housing (in terms of size, location, layout and facilities in and around homes) is equally important in helping people stay at home as they age, so new housing stock should reflect the needs of more mature populations. Older housing stock can also be adapted with living aids, ranging from door-entry intercoms and stair rails to fully-fledged ‘smart homes’ and mobile technology. In fact, technology can make a major contribution to helping older people maintain their health and independence, be it through living aids, diet and exercise apps, gaming and e-books for mental stimulation or social networking for companionship. The elderly also need access to transportation to stay connected to their community, friends and family. The advent of driverless cars may be a solution in the future, but in the meantime the benefit of transportation services for the elderly should not be overlooked.



## #2. Helping older people manage simple chronic conditions

Much can be done to help older people manage simple chronic conditions, too. Early detection, supported by big data analytics which provide insights and *presights*, is critical, but the jury is still out on the value of annual health checks.<sup>14</sup> Conversely, national screening programmes have proved very successful.<sup>15</sup> Risk stratification also enables doctors to identify high-risk, high-cost patients and manage their care more proactively.

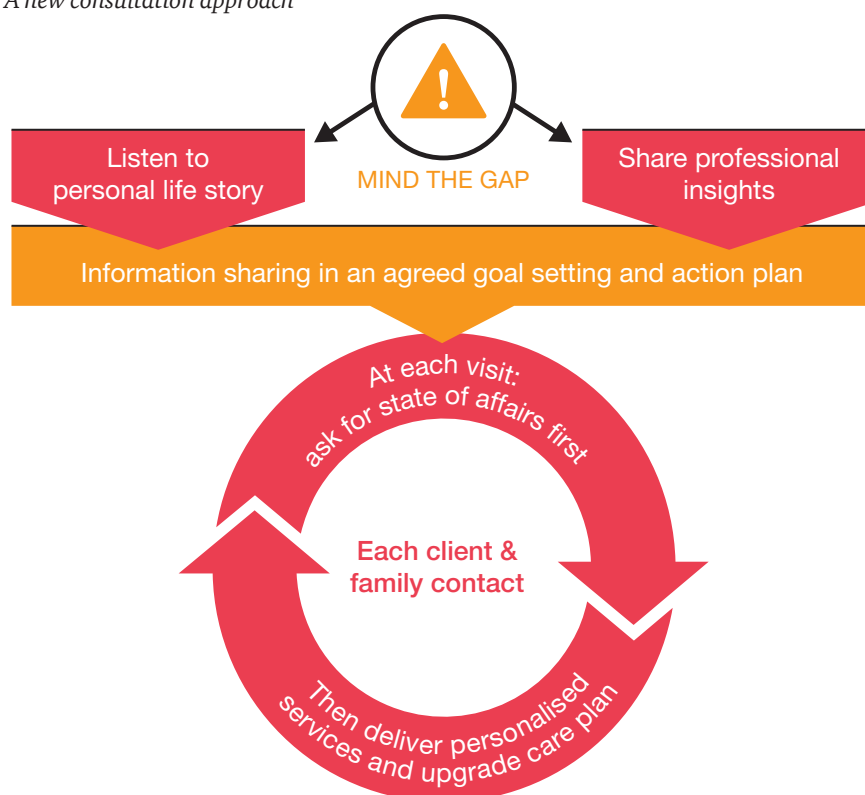
Effective intervention is likewise essential, and the key here is collaborative personalised planning (see Figure 3). People with chronic conditions spend relatively little time in contact with their professional care providers, relying more on their own resources or peer-to-peer healthcare communities such as C3N, Connected Living and PatientsLikeMe. Combining the perspectives and expertise of older people and their healthcare providers enables those with long-term diseases to express their needs and preferences for treatment. It also encourages them to take better care of their own health and wellbeing.

Technology, including telehealth, wearable devices, and sensor driven detection software in homes, are increasingly helping older people and their relatives to engage and communicate with service providers on their own terms.

The most progressive doctors, nurses and social workers already recognise this. They know that the best care is shared care—where people make choices informed by the expertise of the professionals they consult, but choices that are still theirs. Alloheim is a fast growing elderly care provider in Germany with a strong client focus. Alloheim's mission

**Figure 3: Collaborative personalised planning lets the individual participate in the care process**

*A new consultation approach*



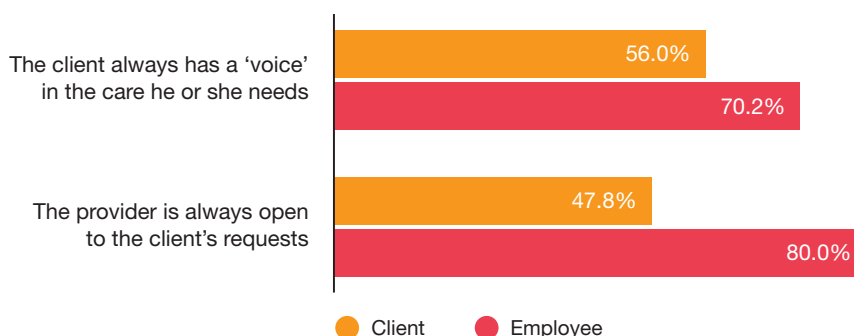
Source: Adapted from Angela Coulter et al., 'Delivering better services for people with long-term conditions: Building the house of care', The King's Fund, (October 2013).



“Wir dienen ihrer Lebensqualität” (We serve your quality of life) is an example of a successful company that proactively trains their workers to be focused on the needs and wishes of the elderly clients to deliver a personalised service. However, not all care workers are so enlightened. The multidimensional benchmarking surveys conducted from 2010 till 2015 by ActiZ, the Dutch association for healthcare entrepreneurs, show that those who receive care are much less likely to agree they have a ‘voice’ in their care compared to the professionals who provide it (see Figure 4).

**Figure 4: Some care workers don’t listen to their clients as much as they claim**

Survey responses from nursing home staff and residents showing percentage that agree with each statement



Source: Aad Koster (CEO, ActiZ) and Robbert-Jan Poerstamper (Partner, PwC Netherlands) “Multidimensional benchmarking in elderly care”, Presentation at IAHS 10th International Conference (Shanghai, 18 November 2013).

### #3. Helping older people with complex co-morbidities remain independent

Yet at some point in their lives, due to ageing, many older people will develop co-morbidities—no matter how well they look after themselves or how good the care they receive.<sup>16</sup>

In such instances, it’s crucial to perform a multidimensional frailty assessment covering the elderly person’s physical and mental health, functional capacity, social circumstances and home environment. This should form the basis for a holistic treatment, support and follow-up plan.

Since older people with co-morbidities often have to take multiple medications, it’s also important to review their regimens regularly to reduce inappropriate polypharmacy. One study of people aged 80+ in a Canadian

geriatric hospital found that, on average, they were each taking 15 medications, with 8.9 drug-related problems apiece.<sup>17</sup>

The final element in helping older people with complex co-morbidities stay out of hospital is round-the-clock access to support services within the community. Three components are vital: multi-disciplinary community teams to meet people’s everyday health and social care needs; ambulatory care clinics to provide specialist advice; and out-of-hours services to deliver urgent care. Current hospital-centred health systems are not designed to deliver care in a cost effective way for older people who have multiple co-morbidities.

#### **#4. Helping older people minimise the time they have to spend in hospital**

Of course, proactive care doesn't preclude the need for good acute care in the event of an accident or emergency. But many older people don't have to be admitted—and the best way of helping those who do is to discharge them as soon as they are well enough to complete their recovery at home. This is not only more economical; it also produces better outcomes. Older people are more vulnerable to hospital-acquired infections, for example.<sup>18</sup> And recent research shows that most patients experience less anxiety at home.<sup>19</sup> Several proven techniques exist for

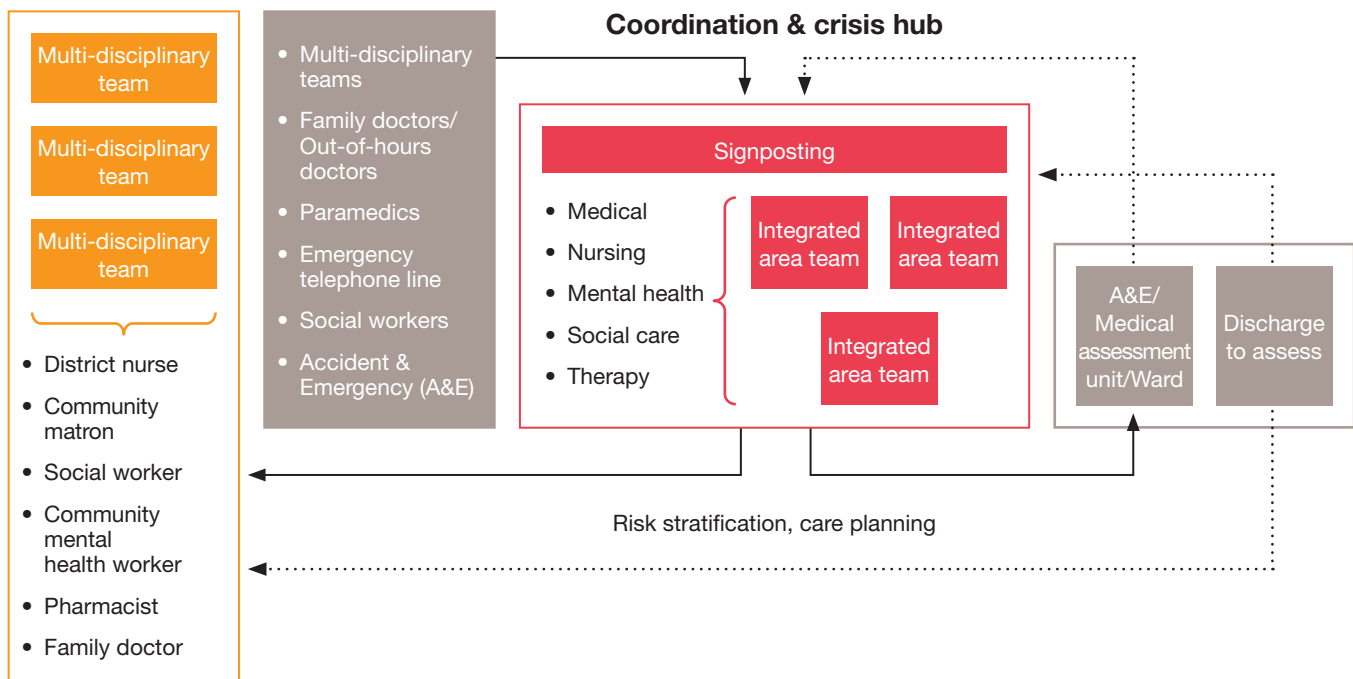
minimising the time the elderly have to spend in hospital. Many older people are admitted with 'non-specific' problems that are dismissed as social or acopic. Conducting comprehensive geriatric assessments, including screening for malnutrition and dehydration, makes it easier to identify reversible medical problems and plan all the elements required to discharge these patients safely. Specialist elderly care units and wards can also improve the quality of the care older people receive and reduce the length of hospital stays (see sidebar, *Rapid access delivers results*).<sup>20</sup>

Other techniques include discharge-to-assess and continuous discharge planning. The former entails stabilising patients and then referring them to a community care team to complete the assessment and organise support for them in their own homes (see Figure 5). The latter involves conducting discharge reviews every day. Many hospitals don't discharge patients on a Saturday or Sunday, partly because they have no senior staff qualified to discharge patients working at weekends. But it's far better to hold daily reviews, include patients and their relatives in the planning process and discharge patients as soon as they are ready.<sup>21</sup>

#### ***Rapid access delivers results***

In June 2010, Poole Hospital in Dorset, England, set up a specialist acute geriatric ward with a dedicated admissions system, rapid-access assessment clinic, 'triage' rounds every morning for patients who were thought to be well enough to discharge within 48 hours. There are daily multi-disciplinary meetings involving medical staff and social services representatives and close links with community care and intermediate care providers. The result? The proportion of patients discharged within 48 hours rose from 20.8% to 36.5%; the mean length of stay fell by 14%; and average monthly occupied bed-days dropped by 22%.

Figure 5: Discharge-to-assess models direct patients to the most appropriate sources of further care



Source: PwC whole system elderly care design with client in the UK

If such strategies are to work, though, there must be adequate community care facilities at all times—and this is one of several areas in which many countries at the moment are experiencing huge shortages. The US Bureau of Labor Statistics estimates, for example, that if we don't change the current health system, the United States would need another 580,800 personal care aides, 526,800

registered nurses, 424,200 home health aides and 312,200 nursing assistants by 2022.<sup>22</sup>

To prepare for this shortage, municipal governments can invest in 're-ablement' care in the home (including physical therapy and speech-language therapy) and other policies and programs that encourage recovery at home, which may save money and improve quality.

## **#5. Helping older people find the right residential care, when they require it**

Inevitably, some elderly people eventually reach the stage where they can no longer look after themselves. Care in a residential home or nursing home is more costly than care delivered in a patient's own home. Even so, it is far less expensive than hospital care. In the United States, for example, the average cost of a semi-private room in a nursing home was US\$222 per day in 2012<sup>23</sup>—nine times less than the average inpatient day rate of US\$2,090.<sup>24</sup>

The quality of the care provided in some care homes needs to improve dramatically as well. A recent inspection of nearly 1,000 care homes in England found “appalling” failings. Nearly one in ten residential homes did not provide adequate care and welfare. The situation was even worse in nursing homes for elderly people with medical problems.<sup>25</sup>

Detailed individual care plans and accurate record keeping –with up-to-date information on every resident's medical history, psychological and emotional profile, current medications, communication needs and preferences– would resolve some of these issues. Comprehensive staff training to ensure widespread understanding of clinical guidelines and best practice, including the importance of treating the elderly with respect, would alleviate others.

Systematic sharing of information with other care providers is also vital. The best care homes maintain regular contact with local family doctors, community health teams, chiropodists, gerontologists and the like. They routinely monitor their residents to detect avoidable conditions and organise activities to provide mental and physical stimulation. And, where it's feasible, they involve the residents in their own care.<sup>26</sup>

Australia has implemented an Aged Care Gateway to help consumers navigate the system to get formalized access to care and find the most suitable provider. It will over time also include performance and quality information about providers.<sup>27</sup>



Photo credit: Vivium zorggroep

The Hogeweyk village in the Netherlands provides an infrastructure which facilitates life as usual and wellbeing for people suffering with severe dementia.



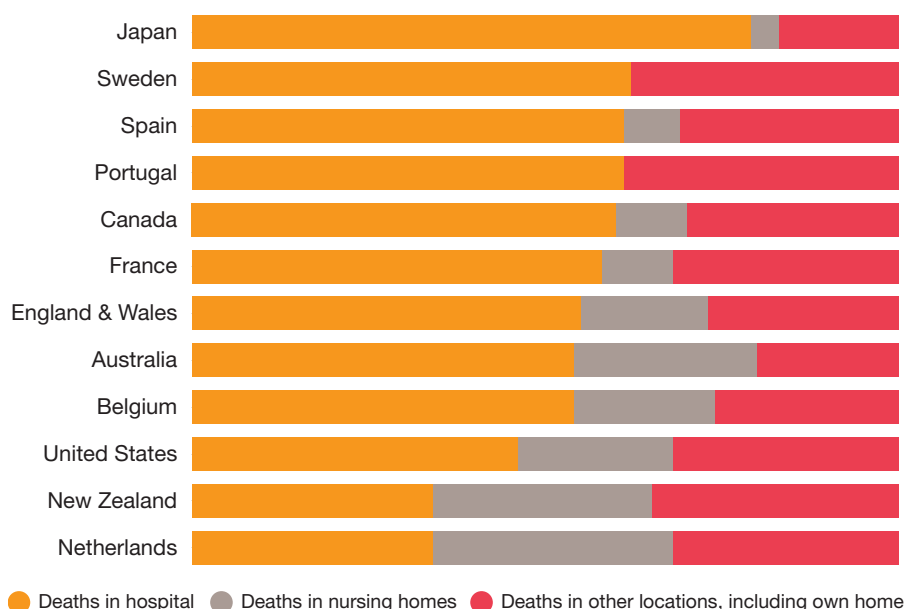
## #6. Helping older people to die as well as possible with palliative care

By far the biggest share of per capita healthcare spending typically occurs in the final phase of life. Various studies show that most people would prefer to die at home, yet most deaths still happen in hospital (see Figure 6). And the hospital is not just the place where people least want to die; it's also the most expensive.

In the United Kingdom, for example, the cost of a specialist palliative in-patient bed day in hospital is £425, compared to just £145 for a day of community care at the end of life.<sup>28</sup> Similarly, in Australia, the average cost of dying in hospital (based on final admission) is A\$ 19,000, versus A\$ 6,000 for community care in the last three months of life.<sup>29</sup>

Dying is an even more exorbitant business in the United States. Eighty percent of the 2.5 million Americans who died in 2011 were Medicare beneficiaries.<sup>30</sup> The care they received in the last six months of life cost about US\$ 170 billion—or US\$ 85,000 per patient.<sup>31</sup> Yet much of the money that is spent on end-of-life care makes the experience of dying worse, not better. Many people are subjected to aggressive and unwanted treatments rather than getting palliative care. The humanitarian argument for helping people end their lives well is as relevant and powerful as the economic one. How can we ethically balance the needs of the individual with those of society? Should we concentrate on preserving life at all cost? Can we—as political philosopher Michael Sandel asks—put a price tag on life?<sup>32</sup>

Figure 6: In many countries, most people die in hospital



Sources: "Where do people die? An international comparison", *International Journal of Public Health*, Vol. 58 (2013), pp. 257-267; Centers for Disease Control and Prevention, *Health, United States, 2010: With Special Feature on Death and Dying* (2011)

Again, several changes could make a big difference. One such measure is early identification of people at the end-of-life stage to facilitate advance care planning. Unlike people who are diagnosed with a terminal illness, many elderly people don't experience a single event that heralds their demise. So the UK Royal College of General Practitioners has issued guidelines to help family doctors identify the estimated 1% of people on their registries who will die within 12 months.<sup>33</sup> This makes it easier to ascertain peoples' end-of-life preferences and deliver more coordinated care. It enables the doctor to initiate a conversation

with them to assess their physical, emotional and spiritual needs, and allows them to draw up living wills that specify their wishes, thereby reducing the incidence of 'futile care'.

More investment in palliative care teams to provide pain management and emotional support at home would likewise allow many more people to die in their own beds, as would lending programmes for specialist hospital equipment. And all governments would do well to consider providing more financial support for hospices, which are mainly funded through charitable donations and voluntary work.

---

## Bringing everything together

To sum up, this new care model isn't "rocket science". On the contrary, many of the changes it requires are simply common sense. But that doesn't mean they will be easy to make or to connect. Systemic reform is invariably more complex than piecemeal modification, and making the transition will entail managing two different systems in parallel for some years.

However, experience shows that it's possible to provide better, faster care more economically by integrating the interfaces between primary, secondary, community and social care (see sidebar *The Canterbury tale*).<sup>34</sup> There's much politicians, payers and providers can learn from the path the pioneers have forged.

### *The Canterbury tale*

In 2007, the healthcare system in Canterbury, New Zealand, was in crisis. The population was rapidly ageing and admissions were rising, but the main hospital in Christchurch was already 'gridlocked' on a regular basis. The district health board estimated that Canterbury would need another hospital by 2020. It would also need many more general practitioners and nurses, as well as an extra 2,000 residential care beds. This wasn't feasible, given a deficit of nearly NZ\$17 million on a turnover of just under \$1.2 billion.

So the district health board embarked on a major programme to introduce integrated care. Since then, Canterbury's acute admissions rate has fallen. It also has the country's third-lowest length of stay and acute readmission rates. The number of elective procedures performed has increased substantially, various conditions that once were treated purely or mainly in hospital are now provided in general practice and growing demand for residential care has flattened, thanks to better care in the community.

The health board's finances have also improved dramatically, although a big earthquake in September 2010 wiped out a projected \$8 million surplus for that year. Even so, Canterbury's health and social care system continues to improve, and the board projects that it will break even by 2014/15, despite incurring costs of \$25 million as a result of the earthquake.

# The road to a new care model

So what will it take to create a new health system to support the quality of life of older people? We've identified eight key factors.

## #1. Political vision and courage

Political vision –and the courage to enact change– is crucial. Governments alone have the mandate to formulate a national care strategy. And the move to personalised care for the elderly may require such intervention, especially in countries with market-oriented or hybrid healthcare systems. Where subsystems of competing payers exist, there is more fragmentation than in systems with single payers.

Governments are likewise the only entities with the power to involve stakeholders from other sectors. Witness the imposition of legal requirements on the packaging of cigarettes, despite fierce opposition from the big tobacco manufacturers.

Many countries may also need new laws to establish an overarching, coordinating body or harmonise incompatible regimes. The Finnish government has already tackled the first of these challenges. In March 2014, it approved plans to unify the provision of all social welfare and healthcare. Under the new model,

there will be five regional authorities, each constituting a single-tier administration for the delivery of care in the area it covers.<sup>35</sup>

In 2011, the government of Singapore responded to the needs of its “pioneer generation” and set in place the first-ever comprehensive policy

around elderly care. The so-called SPICE program was developed by the Agency for Integrated Care and will partner and collaborate with numerous groups to provide elderly day care centres in various regions of the island (see sidebar *SPICE from Singapore*).<sup>36</sup>

### SPICE from Singapore

The Singapore Programme for Integrated Care for the Elderly (SPICE) is a model of care developed by the Agency for Integrated Care (AIC) to provide comprehensive, integrated centre- and home-based services to support caring of the frail elderly.

SPICE enables frail elderly who have high care needs and are eligible for admissions into nursing homes, to recover and age within the community. Through SPICE Centres, a multi-disciplinary team comprising medical, nursing, allied health and ancillary professionals provides a suite of patient-centric services such as primary and preventative care, nursing care, rehabilitation services, personal care and social and leisure activities. These services are delivered both at the centre and at the patients' homes, depending on their needs.

AIC will partner Volunteer Welfare Organisations (VWOs) to operate SPICE centres in various regions of the island. The centres will collaborate with the Restructured Hospitals (RHs) and surrounding general practitioners (GPs) to form a seamless model of care, which will help lower the need for nursing home admissions, decrease hospital admissions and visits to the emergency department, reduce caregiver stress and increase patients' and caregivers' satisfaction with integrated care.



## #2. Embrace change and cooperate with new entrants



Driven by megatrends like demographic shifts and technological breakthroughs, there is another, even bigger change that care providers everywhere must make: namely, in the way they interact with companies from other industries and the elderly individuals they serve. New entrants from retail, consumer products, utilities, telecommunications and technology industries are expanding and reshaping the health sector.

Some of these firms are tapping into the growing market for wellness and fitness products and services. US pharmacy chain Walgreens is one such case; it recently acquired Alliance Boots in a move to become the first ‘global health and wellbeing enterprise’ on the high street.<sup>37</sup>

Other companies aim to help older people live more comfortably and safely in their own homes. So, for instance, Norwegian energy and telecoms provider Lyse has piloted a fire-alarm service in several homes with direct alarm to the fire brigade, and that is integrated with different home automation services like door locks, lights, ventilation and ovens or coffee machines to make the service safer and more preventive.<sup>38</sup> Similarly, Deutsche Post has launched a new service called ‘Personal Post’ for elderly citizens who live alone. Subscribers pay a small monthly fee to have a postman ring the doorbell and speak to them every Tuesday till Saturday. If something is wrong, the postman notifies the local help service, which immediately contacts a relative.<sup>39</sup>

Yet other new players are capitalising on technological innovations to ‘virtualise’ care. In 2012, for example, Telus Health, a division of

Canadian telecoms operator Telus, teamed up with Sanofi Canada, the Canadian affiliate of pharmaceutical firm Sanofi, to launch a web-based platform that offers patients diabetes self-management and monitoring tools.<sup>40</sup> A number of companies have also developed high-tech home diagnostic kits—and the X Prize Foundation’s contest to create a Star Trek-style ‘tricorder’ should yield even more sophisticated devices.<sup>41</sup> Furthermore, home devices and wearables are increasingly digital and internet connected. The internet of things will help the elderly and their families to manage medication, monitor diet and nutrition, or stimulate physical activity.

Collectively, these ‘new kids on the block’ are revolutionising the way in which care and support services are delivered and create a new experience. They are importing the economic discipline that characterises other industries, where the customer is king and revenues are based on results. They are also giving older people many of the tools they need to ‘co-produce’ their care.<sup>42</sup>

That has two consequences for traditional care payers and providers. First, it presents them with some critical decisions about whether to compete or collaborate with their new rivals. Second, it alters the dynamics of the relationship with the elderly who need support services. As healthcare becomes decentralised and democratised, older people will expect a greater say in determining the care they receive. They will no longer accept being defined in terms of disease and told what they need; they will insist that their opinions and preferences be part of the dialogue.

#3. Reallocation of resources from the secondary sector

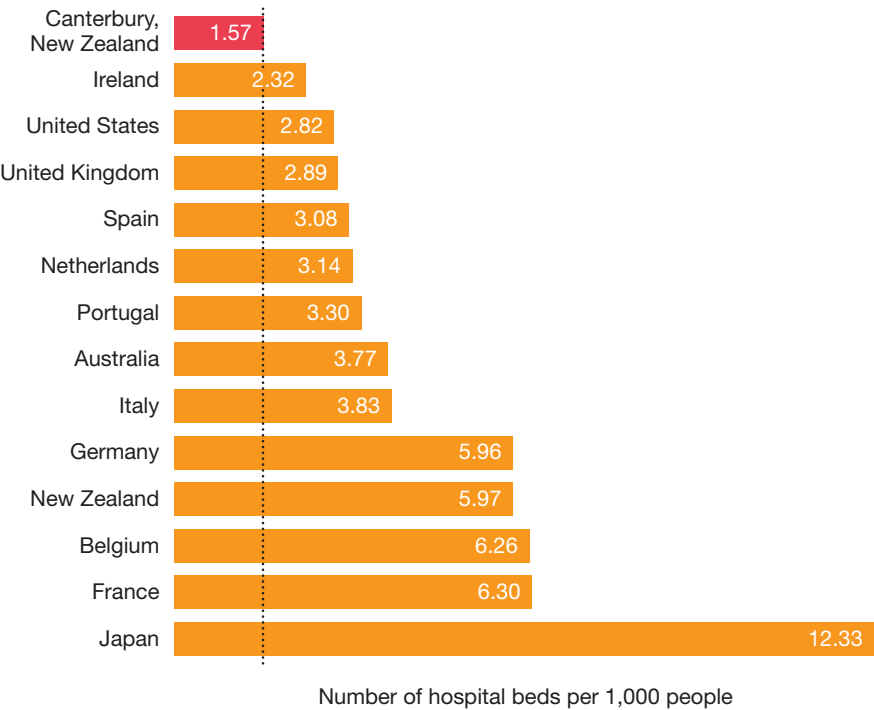
It will also be necessary to reallocate resources from the secondary sector to the primary, community and social care sectors. The most integrated care networks operate with about 1.57 hospital beds per 1,000 people without compromising the quality of the service they provide.<sup>43</sup> However, as Figure 7 shows, most countries are far from this ideal.

Concentrating acute medical services in fewer, bigger, more centralised units reduces wasteful duplication of services and enables staff to increase their skills by treating more people. But converting or closing hospitals is notoriously difficult, since it often engenders local opposition. To build trust in society, governments in this position need to offer access to an alternative supply of services for elderly care as they streamline infrastructure, whilst emerging market countries should leapfrog to new service delivery systems for the elderly and avoid copying the 20th century hospital-centred infrastructure of western societies.

Redirecting resources to other areas is imperative to close the ‘care gap’ that has emerged over the past few decades. Secondary care has become increasingly specialised as a result of scientific and technological advances. But though specialisation works well with single diseases, it is much less effective in treating medical conditions that span diseases, such as the co-morbidities that arise with age.

The primary care sector has been left to pick up the slack. Family doctors now have to provide the generalist care that has always been their remit

Figure 7: Many countries have too many hospital beds



Source: Business Monitor International and Canterbury, New Zealand, case

and the more complex forms of care a consultant would previously have supplied. This is driving up demand for generalists and gerontologists. The American Geriatrics Society predicts, for example, that the United States will need more than 30,000 geriatricians by 2030—up from about 7,500 today.<sup>44</sup>

However, the number of specialists is rising much more rapidly than the number of generalists. Many countries will therefore drastically have to improve the attractiveness of general practice and alter their educational systems, as well as exploring new roles for other healthcare workers. Incentives and redirecting resources from the secondary care sector will help to finance these changes.

The social, residential, home care and wellness services and palliative care

sectors will also need extra funding, if they are to play a part in providing personalised integrated services for the different types of elderly people we identified in the beginning of this report and managing the impact of the demographic curve. To support this many home care and domiciliary workers will need professional training focused on elderly people’s real needs and capabilities. As an example of taking the needs and abilities of the elderly into account, the Municipality of Copenhagen decided in 2010 to change home care for older citizens, from only providing passive help –where a home aid performs daily tasks for the client– to also offer *re-ablement*. Re-ablement is an approach focused on helping older adults to regain ability and maintain functional independence, thus allowing them to stay longer in their own homes.<sup>45</sup>

## #4. New payment models

Reallocating money from one part of the care system to others won't solve another problem: funding schemes that reward activities rather than outcomes. New financing incentives and mechanisms will be required to redress this issue, and several innovative payment models have emerged in those countries that are in the vanguard of integrated care.

Some of these new models employ outcomes-based payment incentives.

England's Quality and Outcomes Framework (QOF) for general practitioners, which was introduced in April 2004, is one such instance. The QOF pays family doctors for meeting certain quality targets, more than half of which have to do with the management of common chronic diseases.<sup>46</sup>

Performance-based incentives are also used in the *Gesundes Kinzigtal* integrated care initiative, which serves the 31,000 members of two sickness funds in *Kinzigtal*, southern Germany.<sup>47</sup> Mexico is

also working on prevention and performance-based incentive schemes around the most prevalent and costly diseases: diabetes, cardiopathies, oncology and neurology.

Other countries are testing alternative approaches. The Dutch Ministry of Health has, for example, launched a bundled payment scheme for treating people with diabetes, chronic obstructive pulmonary disease and vascular disease.<sup>48</sup> Similarly, Denmark is trialling an incentive scheme under which family doctors receive an up-front annual payment for every diabetic patient on their registries in return for providing them with integrated care.<sup>49</sup>

Meanwhile, the United States is experimenting with accountable care organisations (ACOs), in which groups of doctors, hospitals and other healthcare providers come together voluntarily to provide coordinated care. When an ACO succeeds both in delivering high-quality care and in cutting costs it receives a share of the savings, in the form of an advance fee and monthly instalments based on the projected number of beneficiaries it will cover.<sup>50</sup>

The English National Health Service (NHS) is piloting an even bolder version of population-based care delivery, with the devolution of control over all health and social care in Greater Manchester. The region's 10 councils and 15 clinical commissioning groups will control a budget of £6 billion, the goal being to provide 'better, more joined-up care'.<sup>51</sup> But capitation payments to institutional networks rather than family doctors are still rare, despite the advantages they offer (see sidebar, *The Manises model*).<sup>52</sup>

### *The Manises model*

In 2009, Bupa-Sanitas contracted with the Government of Valencia to provide primary, specialised and long-term healthcare for the 200,000 residents of Manises on the outskirts of Valencia in eastern Spain. The agreement –which runs for 15 years, with an option to extend for another five years– has several distinctive features. It uses a per-capita payment model, with a fixed fee per person irrespective of the number of treatments received, thereby encouraging Bupa-Sanitas to maximise its efficiency and invest in disease prevention because a healthier population needs fewer treatments.

The agreement also allows the residents of Manises to attend a hospital in another catchment area, if they want. When a resident goes elsewhere, Bupa-Sanitas pays the other hospital a standard fee set by the Government. And when Bupa-Sanitas treats someone from outside its catchment area, it receives 85% of the fee. This creates healthy competition between hospitals and drives up the standard of care.

The results speak for themselves. In 2013, more than 90% of patients attended a primary care appointment within 48 hours, up from 76% in 2009. Meanwhile, waiting times for specialist consultations have fallen to about 16 days, less than a third of the Spanish average of 53 days.

Manises also scores highly on clinical quality and patient satisfaction measures. In 2012, it ranked first out of Valencia's 24 health districts for improvements in maternal and palliative care, and second for improvements in health outcomes. And, in 2013, the average patient satisfaction score was 8.17, out of a possible 10. Taxpayers have benefited, too; public-private partnerships have yielded savings of about 30-37% per capita, compared to the public-sector alternatives.



## #5. New contractual structures

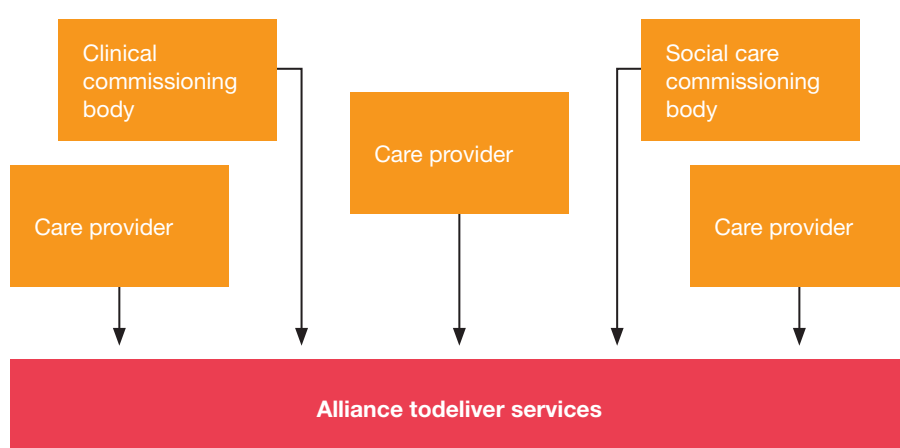
New contractual structures will also be needed to align the interest of payers, providers, new entrants from outside industries and citizens more effectively. The simplest solution is to merge all the providers in one single integrated organisation, but that is not always feasible or likely to happen. Another option is to borrow from the various contract types used in the private sector. These include the prime contracting model, the joint venture and the alliance. Each has its own strengths and weaknesses.

- In the **prime contracting model**, a commissioning body has a contract with a prime contractor for an agreed range of services. The prime contractor subcontracts some of these services to third-party providers
- In a **joint venture**, the commissioning body enters into a contract of contracts with various third party providers. Joint ventures are an effective way of pooling expertise and increasing operating efficiencies. But they require a strong hand to overcome different cultures and management styles, and since everything is agreed at the start, they may be unsuitable for managing projects that evolve.
- In an **alliance**, multiple commissioning bodies join forces with multiple care providers to deliver a range of services (see

and manages their integration. The advantage of this model is that it gives the commissioning body a single point of contact. The downside is that it restricts the commissioning body's ability to influence the behaviour of individual subcontractors

Figure 8). The parties enter into an agreement that specifies the principles to be used for allocating tasks, costs and any savings that are achieved. Each care provider maintains its own internal controls but is judged on the performance of the entire alliance. And since each partner shares in the profits, they all suffer if any one of the partners fails to fulfil its obligations. Alliances are especially suitable for complex projects where budgets and deadlines can run out of control. But they only work when there is a good pre-existing relationship and the interests of each partner are aligned with the aims of the alliance. Moreover, the model has not yet been thoroughly tested in the healthcare arena, although experience in the commercial world shows that when alliance contracting works well, it promotes a more collaborative spirit.

Figure 8: Alliances are ideal for handling complex projects but largely unproven in the care space



The particular contractual form a commissioning body chooses will obviously depend on the services and outcomes it wants and the market in which it operates. But, whichever structure it selects, it should be prepared to enter into a long-term arrangement. At present, most contracts only last between one and three years, which is a deterrent to serious investment. In an industry facing change and disruption, healthcare networks will need to be agile and adaptive, supporting care providers to partner with commercial companies like Apple, Google, Amazon, Facebook, energy providers, telcos and many other big and start up organisations from different industries.

## #6. Integrated information systems and digitalisation

The ability to deliver integrated and personalised services depends as much on integrated information systems as it does on the right financing and contractual models, though. Care services improve when doctors, social workers, and family have immediate access to information. But integrated information is not a challenge solely for providers. Increasingly, the elderly and their caretakers will need to be proactive owners of their own health data. New technology, including devices and wearables connected to the internet, collects more and more data (big data), increasingly outside existing care providers. As such, the citizen becomes the central node in the use of his or her own information, and therefore involved in the seamless delivery of the personalised services they need.

The wave of digitalisation that transformed industries like banking, travel and entertainment is now disrupting healthcare. This wave will merge consumer technology and medtech and bring services closer to the consumer.

Unfortunately, the IT systems and software care providers use vary widely. This creates numerous problems, including errors as a result of duplicate data entry and difficulties in comparing data from diverse sources. Furthermore, much of the software that is commercially available can't be easily adapted to reflect the requirements of individual organisations.

Four general guidelines apply in building an IT system that supports personalised service delivery:

- The needs of each of the stakeholders must be identified. Clinical safety should obviously be a top priority, as should the security of the system itself. The information stored in electronic care records is highly sensitive, so privacy should be a key consideration for both ethical and regulatory reasons.
- The system must work horizontally as well as vertically. Most health IT systems are designed to perform a specific set of functions in a specific department or organisation. But patients move from one department to another and from one organisation to another, so it's vital to build a system that spans the patient pathway.
- The information contained within the system must also be accurate and instantaneously available. Users must thus be able to update it wherever they are, which means that mobile access is essential.
- Lastly, the terminology and formats different care providers and administrators use must be standardised to encourage more effective utilisation of existing IT assets and minimise the amount of additional investment that is required.

These guidelines will facilitate the construction of a truly interoperable client centred IT network. That, in turn, will enable multi-disciplinary service delivery teams to manage the elderly's journey more effectively, let people own and share their personal records, and pave the way for other advances based on the insights and presights 'Big Data' produces.

## #7. Effective governance and performance management

Shared information is also, of course, a prerequisite for effective governance of any network—and this is a much harder task than managing a single organisation. The absence of a unified chain of command is one obvious distinction. But what is being managed differs, too; orchestrating a network involves managing interactions rather than people.

Moreover, while the diversity of the participants in a network is one of its greatest strengths, it poses equally great challenges. Each partner specialises in a particular form of care, so it must have sufficient freedom to do its job properly without compromising the performance of the network as a whole. And since the other partners lack its specific expertise, discerning where to draw the line can be difficult.

Robust multidimensional performance management and measurement is critical in these circumstances—and numerous measures of clinical performance have already been developed. But there are many other areas in which the indicators required to evaluate personalised integrated care are still missing: like the professional involvement and capabilities to act as a coach for elderly.

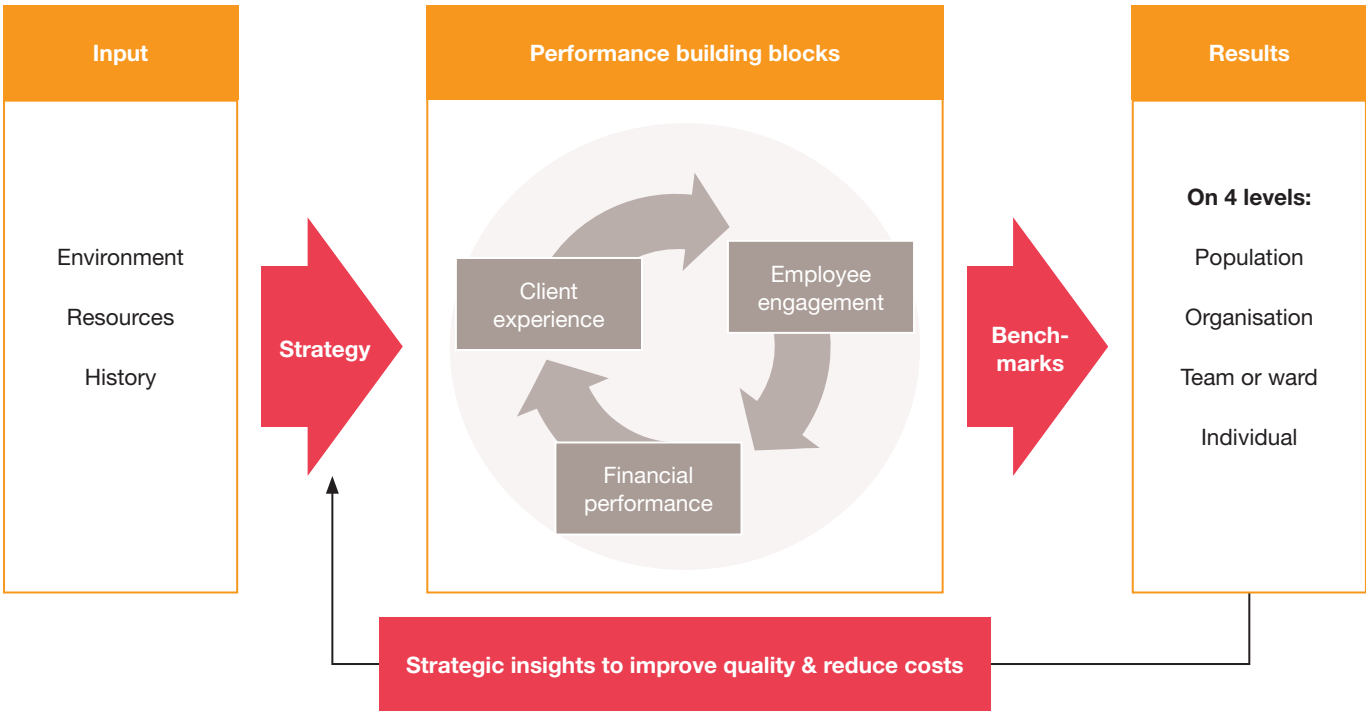
They can be loosely divided into two categories. The first is organisational—the extent to which processes are integrated and the ease with which people can be transferred from one form of

care to another. The second is the impact of personalised integrated care and service delivery—the extent to which it produces a better

client experience, more efficient use of resources, cost savings and improved outcomes at both the personal and population levels.

Figure 9 shows the conceptual design and building blocks for an effective, multi-dimensional performance measurement system.

Figure 9: Evaluating personalised service delivery entails measuring three building blocks



Source: PwC and ActiZ team analysis

The indicators used to assess these dimensions may vary from one care system to another, but they must all be relevant, reliable and viable. They must also be amenable to change in the short- or mid-term, since no country can afford to wait decades to find out whether it's pulling the right levers. And they must provide information on which the stakeholders can act. Indicators like the Net Promotor Score (NPS) or the Customer Effort Score (which

measures the effort it takes for a client to get things done) give further insight into how satisfied people are with the service they receive. In the Netherlands, nationwide benchmark research shows that best practice organisations have a balanced performance along the three building block dimensions: good client experiences driven by highly engaged professionals as a basis for financial sustainability.

## #8. Strong leadership and cultural transformation: professionals as coaches for the elderly

The transition to a new care model likewise entails a major cultural shift—and “the soft stuff is the hard stuff.” When two or more organisations join forces, the people working in them have to adopt new ways of thinking and behaving. If the organisations they work for come from different sectors, the changes that must be made are even greater.

This new vision of care entails knocking down the walls between different care providers, collaborating closely and sharing accountability. It means putting aside old habits and vested interests, overcoming professional tribalism and building a culture of mutual trust. Inspirational, strong and inclusive professional

leadership will be essential to effect such a huge alteration and create trust amongst all stakeholders.

But though many leaders excel at building the rational case for change, they are less skilled at appealing to people’s emotions, and this is where the impetus for real, sustained organisational transformation originates.<sup>53</sup> A clear vision and good communication are critical in winning hearts as well as minds. Those at the top will have to anticipate the thoughts and feelings of individual employees, communicate with them lucidly, consistently and persuasively, invite them to provide feedback and listen to their input.<sup>54</sup>

Moreover, even when people understand and accept the case for change, the battle is only half won. Adopting a more personalised integrated model of service delivery for older people requires new knowledge, skills and abilities, so it’s imperative to provide proper training. E-learning modules and practical exercises delivered online can be useful here in helping individual employees identify what they need to know and learn at their own pace. In an employee survey amongst Dutch professionals working in elderly care, 56% expressed their willingness to learn new capabilities.<sup>55</sup>

The migration from inpatient care to outpatient services also has significant implications for the way in which the workforce is distributed. Between 2002 and 2012, for example, the total number of qualified nurses working for the English NHS rose by 10%. Yet the number of community matrons, district nurses and health visitors fell by 24%.<sup>56</sup> This trend will have to be reversed, as care is pushed back from the hospital to the home.

The role less highly qualified employees play will probably become more important, too, as staffing pressures increase and technology reduces the level of skill required to perform certain tasks. Again, such people will have to be trained. And if low-paid workers are expected to assume more responsibility, they will have to be recompensed accordingly.

Lastly, the sclerosis that sets in with ever increasing layers of middle management must be eliminated. Excessive bureaucracy not only drives up costs, it also compromises the quality of the care that’s delivered (see sidebar, *Back to basics*).<sup>57</sup>

### Back to basics

In 2006, community care in the Netherlands was fragmented and largely staffed by poorly trained care workers who were paid by the hour. Jos de Blok, an experienced district nurse, was among those frustrated by the growing emphasis on protocol rather than care. So he founded an organisation that went back to the traditional principles of primary care: trusted skilled nurses working together in small teams and looking after all kinds of people who needed care and support.

De Blok made each team responsible for about 10,000 people with a need for support and gave the teams the freedom to decide how best to care for them, thereby eliminating swathes of middle management and keeping costs down. By 2014, Buurtzorg Nederland had 800 teams of 9,000 nurses serving 70,000 people, with a support staff of only 45 people and 15 coaches for the teams. Buurtzorg was elected as the employer of the year in the Netherlands from 2012 to 2015. In 2014 Jos de Blok was awarded in the UK with the Albert medal for putting humanity before bureaucracy. Buurtzorg has expanded outside the Netherlands and started branches in Japan, Sweden and the United States.



---

## *A shared endeavour*

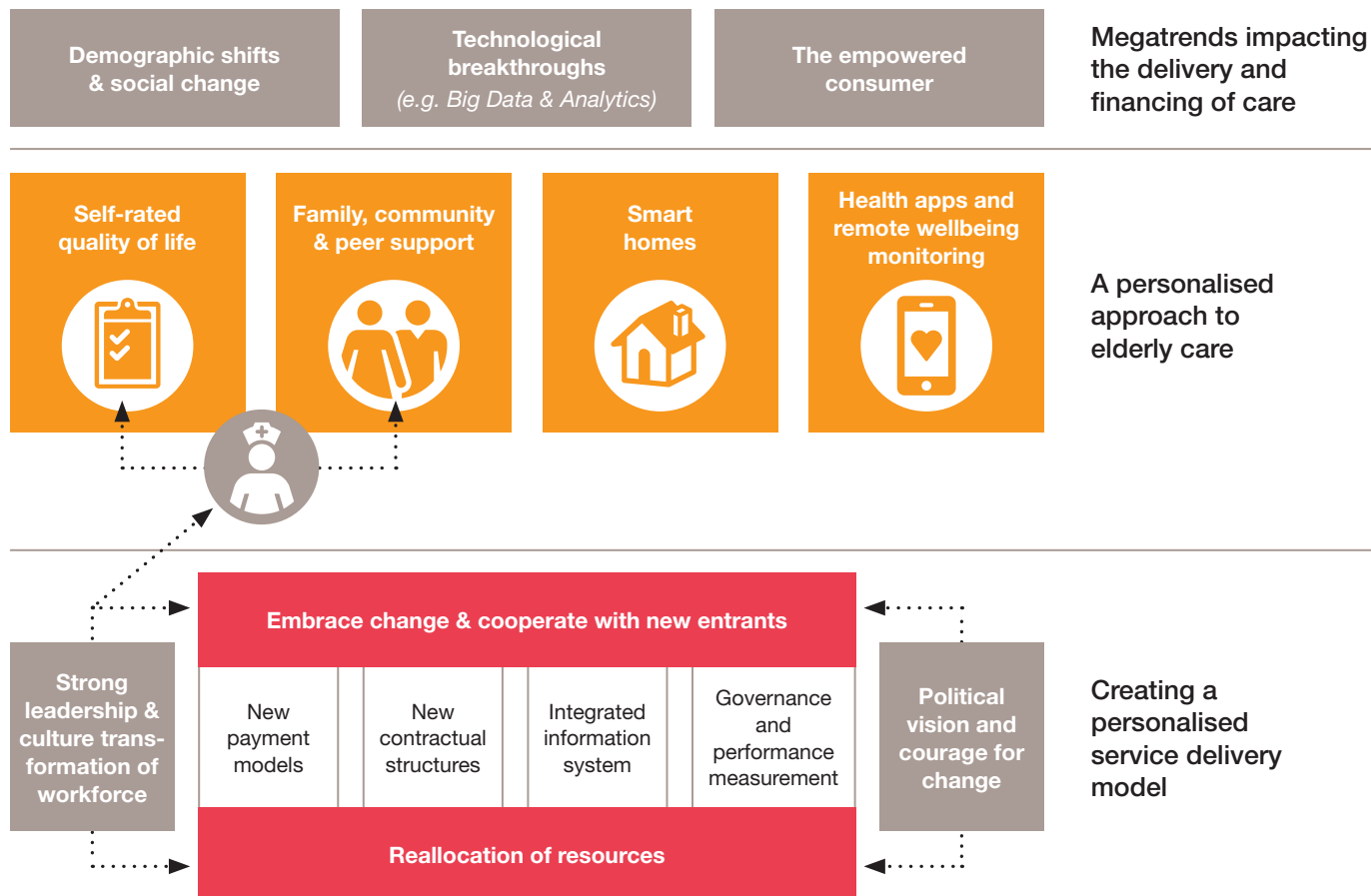
As we discussed, in the 21st century maintaining the health of an ageing population is not just a job and a mission for organisations that are formally involved in the health sector. Coping with the impact of the demographic curve is both a challenge and an opportunity that encompasses many players from a much wider range of industries and ultimately will be a collaborative effort.

Healthy food, well-designed, thermally efficient smart homes, transportation and affordable fuel, a decent income in retirement and access to social contacts are equally important for the wellbeing of older people. These fall within the realm of the housebuilding, energy, financial

services and telecom industries, respectively, but they impact the lives of the elderly and the amount of care services they need.

The roadmap to a new service delivery model for the elderly will vary from one country to another, based on the maturity and history of different health systems. But nobody can deny that megatrends –from demographic shifts to technological breakthroughs– will have an impact on all modern societies with repercussions on the delivery and financing of care. Figure 10 illustrates a personalised approach that is emerging in this disruption, and the building blocks for a new personalised service delivery model for elderly.

Figure 10: How 21st century dynamics reshape elderly care



Source: PwC Analysis

Although difficult, developing a new service delivery model for elderly requires alignment of change objectives and incentives, including contractual structures and payment, performance measurement and governance models. A successful transformational change strategy aligns all the building blocks in the model.

History shows that old age is a privilege, not a problem—a privilege our ancestors were largely denied. No matter what challenges the demographic changes of the next few decades bring, we should never forget how fortunate we are.





---

## Acknowledgments

PwC would like to thank the following for their contributions to this publication:

**Bettina S. Husebø, PhD**

Associate Professor

University of Bergen, Department of Global Public Health and Primary Care  
Centre for Elderly and Nursing Home Medicine

**Dr. Jonathan Steel MBChB MRCP FRCP**

Senior Clinical Associate, PwC UK

**Prof. Rudi GJ Westendorp**

Professor of Medicine at Old Age

Department of Public Health, and Center for Healthy Ageing

Faculty of Health and Medical Sciences, University of Copenhagen

---

## Contacts

**Mark Gilbraith**

China Leader, Health

+86 21 2323 2898

mark.gilbraith@cn.pwc.com

**Patrick Figgis**

Global Leader, Health

+44 207 804 7718

patrick.figgis@uk.pwc.com

**David McKeering**

Asia Pacific Leader, Health

+65 6236 4828

david.mckeering@sg.pwc.com

### Notes:

This content is for general information purposes only, and should not be used as a substitute for consultation with professional advisors.

© 2015 PwC. All rights reserved. PwC refers to the China member firm, and may sometimes refer to the PwC network. Each member firm is a separate legal entity. Please see [www.pwc.com/structure](http://www.pwc.com/structure) for further details. CN-20151029-1-C1