ISQua®

The International Society for Quality in Health Care

Health systems and their sustainability:

Dealing with the impending pressures of ageing, chronic and complex conditions, technology and resource constraints

INNOVATIONS AND SYSTEMS CHANGE WORKING GROUP

2 May 2016

Founded in 1985, ISQua, The International Society for Quality in Health Care, is a non-profit, independent organisation with Members from over 70 countries.   ISQua is a society which provides services to guide health professionals, providers, researchers, agencies, policy makers and consumers, to achieve excellence in healthcare delivery to all people, and to continuously improve the quality and safety of care.

Our network also develops partnerships which improve the delivery of health care for patients, their families and the organisations administering that care. One of our key partners is the World Health Organisation (WHO) who we assist with technical and policy advice as well as knowledge sharing as part of WHO initiatives.

Contents

Overview

Ageing populations worldwide are placing increasing pressures on healthcare systems, and transforming the nature of care needed. Healthcare systems must continuously innovate and adapt if they are to meet the challenge of delivering safer, better care to more complex patients within limited healthcare budgets into the future. At a one-day symposium in Doha, Qatar in October, 2015, the Innovation and System Change Working Group (ISCWG) of the International Society for Quality in Health Care (ISQua) invited representatives from Britain and Europe, North and South America, Africa, Asia Pacific and the Middle East to share visions, diagnoses and current and potential solutions. In this White Paper we aim to:

› Describe the magnitude and characteristics of the ageing challenges for healthcare systems worldwide

› Identify a range of challenges and solutions

› Assess current and potential solutions and scenarios

› Share ideas and champion solutions

› Provide recommendations from ISQua to move the debate forward.

An ageing, technologically advanced world

Between 1960 and 2015 the global population grew from 3.0 billion to 7.3 billion, and is projected to reach 8.0 billion by 2025. In developed countries, people aged over 60 today make up more than 20% of the population. This group will approach or exceed 30% by the 2030s and in some countries, such as Japan and Switzerland, 40%. While approximately 15% of the populations of low and middle income countries are in this older age group today, significant demographic change is imminent. By the 2030s, 27% of Chinese will be aged over 60, rising to 40% by the 2050s, making China one of the world's oldest societies by the mid-21st Century.

Given the co-morbidities, complex medical histories and the chronic conditions associated with ageing, these very large, older cohorts present significant planning and budgetary challenges across acute, primary and aged care. We are simultaneously facing a revolution in treatment modalities, often spreading from wealthier to less wealthy communities as new things become widely available. Sophisticated rehabilitation protocols, early testing and diagnosis, and the progressive replacement of aggressive treatments with oral prescriptions or less invasive techniques, are facilitating the shift of care out of acute settings and into primary, community or home-based care. Over the past 30 years the average length of hospitalisation has been decreasing. By the 2030s the proportion of patients requiring lengthy hospitalisation will contract even further, and more care will be provided entirely outside of hospitals.

Reconceptualising and redesigning healthcare systems for the future

To meet these unprecedented challenges, networks of complex, interconnected healthcare services—delivered within and outside hospitals—are needed. So too, are effective systems to transfer those discharged from acute care to primary, home or aged care, or to rehabilitation. Eventually, we might dispense with primary, secondary and tertiary distinctions, as the person seeking treatment wants seamless care, not setting-specific divisions. To achieve this historic transformation in models of care, a similarly profound conceptual shift is required. The conventional focus on particular episodes of care, like admissions or surgery, must be replaced by a broader view, taking in the entire patient journey. That is, a system-wide perspective is needed, that appreciates the complexities of navigating the entire care environment. Although many developed countries are already taking steps to provide care differently, most reforms are currently in the local or pilot phase and there is not yet an established template to help us respond to an ageing world. For both rich and poor countries, a key challenge is to balance the pressing demands of the present with the urgent need to plan and prepare for the future. This White Paper analyses this reality further and details a range of tested and proposed approaches, including current and future scenarios for change.

Next steps

We make a series of suggestions about next steps, including possible leadership roles for ISQua in the future. We do not say much in this White Paper about prevention or the possibility that people may age and be reasonably well. This of course will be true for a great many cohorts. This is simply because these further issues are too big for one White Paper and also because we needed to canvass change responses now.

This being the case, it does suggest a next topic for the next series of discussions amongst the ISQua community. We think one aspect of this larger question might be: Does older have to mean sicker? Prolonging health across the lifespan.

Background

1.0 ISQua's vision for quality and safer health care

The International Society for Quality in Health Care (ISQua) is an international not-for-profit organisation comprised of a network of healthcare systems researchers, professionals, policy makers and other stakeholders. ISQua is committed to sharing and promoting insights, ideas and solutions, engaged in helping people continuously improve healthcare delivery and outcomes worldwide. Since its inception in 1984, the ISQua network has grown to cover more than 100 countries in five continents. ISQua aims to:

› Lead the transformation of healthcare quality and safety globally

› Inform responses to the many changes that are transforming both healthcare systems and patients' needs, such as advances in treatments, approaches and technologies, external evaluation processes, patient empowerment and burgeoning aged populations worldwide

› Support healthcare systems to meet today's demands for high-quality safe care, while simultaneously planning and preparing for tomorrow's challenges.

1.1 The preliminary work of the Innovation and Systems Change Working Group

In 2013, the ISQua Board commissioned a new Innovation and Systems Change Working Group (ISCWG), charged with scrutinising, identifying and responding to significant organisational, methodological and technical innovations in healthcare, while understanding their impact on the quality and safety of care.

The ISCWG's priorities for 2013-16 involve assessing the challenges posed by rapidly ageing populations worldwide. The group aims to help facilitate effective planning for the large scale restructuring, innovation and change necessary to meet the health care needs of ageing patient cohorts into the 2030s. This systems-wide integrative approach is a necessary departure from and complement to the conventional focus on the quality and safety of particular episodes of care (e.g. a surgical procedure, or hospital admission) and within a specific medical specialty (e.g. obstetrics, or cardiac).

The ISCWG's initial work on the current, imminent and future impact of ageing populations included interviews with international experts, an academic literature review and an analysis of published data and grey literature. This was followed by the one-day seminar in Doha, Qatar with experts (which we called the International Working Group) in October 2015, development and circulation of this White Paper, and a second symposium open to a wider audience to be held in conjunction with ISQua's annual international conference, in Tokyo, Japan, in October 2016.

1.2 The International Working Group

Participants in the 2015 Doha seminar were drawn from Argentina, Australia, Canada, Colombia, Denmark, United Arab Emirates, France, Ireland, Jordan, Qatar, Malaysia, Norway, Oman, United Kingdom, USA, South Africa, and Switzerland and formed an International Working Group (IWG). IWG participants shared their country/region's visions, analyses, diagnoses and solutions at the seminar.

1.3 Objectives of the White Paper

In this White Paper we document the deliberations of the IWG. We also provide an analysis of the ageing situation worldwide, and make recommendations for health systems in the future.

2.0 The background and extent of the problem

2.1 A rapidly ageing world, creating a domino effect

Rapidly ageing populations are the result of numerous, interrelated factors. During the 20th Century, the world's population increased almost four-fold—from around 1.65 billion to more than six billion. Yearly growth was double that of the 19th Century, and approximately four times that of the entire millennium (Eberstadt, 2000). This unprecedented population growth coincided with many other significant changes and advances that are enabling many more people to live longer. This creates new challenges for healthcare systems, in both scale, and in meeting changing care needs effectively and efficiently (Amalberti, Nicklin & Braithwaite, 2016).

2.1.1 A generation 'peace time'

The first wave of older people, worldwide, is the post-1945 'baby boomers', born during the population explosion characterised by the optimism that followed the end of World War II (WWII). The global population has not since been depleted by a conflict on the scale of either WWI or WWII, which killed a total of over 100 million people and greatly reduced birth rates up to 1945. Although numerous subsequent conflicts have imposed terrible losses on localised populations, they have had limited impact on the global population. There have been steadily rising population and longevity curves since the mid-20th Century.

2.1.2 Significant improvements in the environment and in living conditions

Widespread improvements in living conditions, particularly the provision of sanitation, clean water and adequate food, as well as the multiple benefits of poverty alleviation on well-being, have greatly reduced deaths from hunger and disease. Although benefits have been unevenly spread—and the various poverty initiatives are themselves the subject of much debate—the World Bank reports that the first Millennium Development Goal target, to cut the 1990 global poverty rates by half, was attained in 2010, five years ahead of schedule. According to a recent World Bank estimate, in 2012, 12.7 percent of the world's population lived at or below $1.90 a day, down from 37 percent in 1990 and 44 percent in 1981. Progress has been slower when measured using higher poverty levels, however. Over 2.1 billion people in the developing world lived on less than US $3.10 a day in 2012, compared with 2.9 billion in 1990 (The World Bank, 2016). There are huge inequalities across cultures and within them—due to factors such as economic status, class, religion and ethnicity.

2.1.3 Significant changes occurring in care management and access to care

Major advances in biomedical science and public health have led to improved prevention programs, treatments and cures that are saving and extending many lives. A generational reduction in mortality due to severe illnesses and infectious and viral diseases has been achieved thanks to population vaccination programs and targeted initiatives, such as those tackling maternal and infant mortality. Biomedical science has also conquered many diseases and illnesses enabling people who would have previously died to survive decades longer. Patients who, until recently, died from acute episodes (cancer, AMI, stroke, infectious diseases) or early complications of chronic disease (diabetes, renal, cardiac and respiratory diseases) are now surviving for up to several decades longer. This means the number of people living with chronic diseases is growing rapidly, and could represent over 50% of the total population of some rapidly ageing countries by the 2030s.

2.1.4 Differential ageing across the globe

On a global level, the world is facing a massive increase in the total number of people aged over 60 and a corresponding increase in demand for care. However, as the impact of the factors noted above varies significantly, different countries and regions are ageing at different rates (Table 1). In developed countries, people aged over 60 currently make up more than 20% of the population. This group is expected to approach or exceed 30% by the 2030s and in some countries such as Japan and Switzerland, to reach 40%. In low and middle income countries, the proportion of people aged over 60 is currently about 15%.

However, the demographic make-up of some societies means their proportion of older people will increase rapidly by the 2030s and 2050s. China is facing the most acute ageing challenge. The 16% of the population aged over 60 today is expected to increase to 27% by the 2030s, and to over 40% by the mid-2050s, making China one of the world's oldest nations by the mid-21st Century. Other countries with a high proportion of young people today are also projected to age rapidly, such as Iran and Chile.

Longer life expectancies mean four or even five generations will be alive at the same time, placing new strains on caring responsibilities within families. This is historically unprecedented. One issue is that the construct of the extended family is what we used to have; from a sociological point of view, will we need to move from the nuclear family to the extended family to implement the changes we envisage. Within the older age groups significant changes and challenges are also unfolding. Retirement from active employment is shifting from an average age of 65 today and is expected to be delayed until 70 by the mid-21st Century. By 2030, some 1.5 billion people worldwide will be aged over 60, and about 900,000 of these will be in the working age group of 60 to 70 (United Nations, 2015). This means that healthcare systems will be supporting two streams of aged patient cohorts; those working, often while also managing chronic conditions and co-morbidities, and retirees. Many of these older workers will also be the primary carers within families for their even more elderly parents and relatives, creating potentially very complex circumstances for healthcare delivery and potential new pressures on communities and families.

Countries are ageing at different rates (Table 1). They can be categorised into three main groups:

The **rapidly ageing** group—such as, Japan, Canada and Switzerland—will have 35% or more of their population aged over 60 by 2050.

The **ageing at a moderate pace** group—such as, France, Denmark, Norway, Australia, Ireland and the United Kingdom—will have some 25% or more of their population over 60 by 2050.

The **ageing more slowly** group—such as Argentina, Colombia, Emirates, Jordan, Qatar, Malaysia, Oman and South Africa, will have less than 25 per cent of their population aged over 60 by 2050.

Table 1: *How fast are countries ageing? A sample of countries (shaded rows identify countries represented in the working group) (Source: Global Age Watch).*

Countries (ranked from the oldest in 2050)	Percentage of the population over 60		
	2015	2030	2050
Japan	33.1	37.3	42.5
Spain	24.4	33.5	41.4
Portugal	27.1	34.7	41.2
Greece	27	33.2	40.8
Italy	28.6	36.6	40.7
Germany	27.6	36,5	39.3
China	15.2	25.3	36.5
Switzerland	23.6	30.6	34.5
Chile	15.7	23.7	32.9
Canada	22.3	29.4	32.5
France	25.2	29.9	31.8
Iran	8.2	14.4	31.2
Ireland	18.4	24.4	31
UK	23	27.8	30.7
Denmark	24.7	29.3	29.9
Sweden	25.5	28.3	29.6
Norway	21	26.2	29.5
Russian Federation	20	24	28.8
Australia	20.4	24.6	28.3
India	8.9	12.6	28
USA	20.7	26.1	27.9
Colombia	10.8	18.3	27.6
Mexico	9.6	14.9	24.7
Oman	4.4	9.4	24.5
Argentina	15.1	21.5	23.6
Morocco	9.6	15.1	23.4
Qatar	2.3	7.9	19.8
Malaysia	8.2	13.2	19.2
Indonesia	8.2	13.2	19.2
Jordan	5.4	8.6	15.8
South Africa	7.7	10.5	15.4
Botswana	5.9	7.9	15.7
Cameroon	4.8	5.2	8.1
Angola	3.8	4.2	5.5

In short, ageing will continue, in some countries, quite rapidly. Figure 1 provides a snapshot.
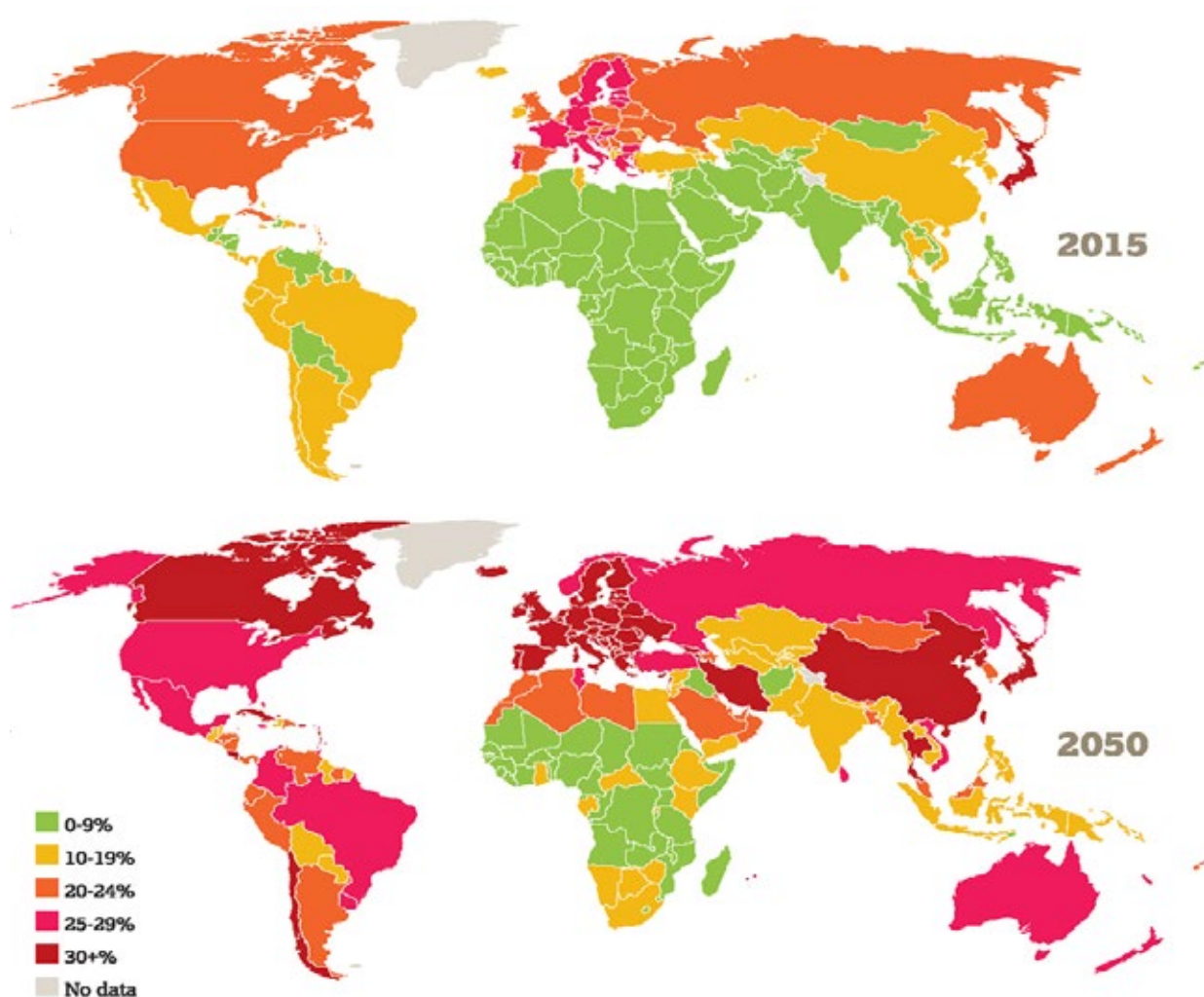
Figure 1: *Population ageing, 2015 and 2050 (projected)*

3.0 Necessary changes and actions

3.1 More patients, more co-morbid patients, more care needed

Healthcare systems will be required to manage many more patients with the co-morbidities, complex medical histories and the chronic conditions associated with ageing. For example, in France by 2025, up to 40% of citizens will be cancer survivors by the age of 70, 13% will be on anticoagulation for life, and 30% will have received at least one hip or knee prosthesis. French healthcare providers will simultaneously be coping with the impacts of widespread chronic conditions such as diabetes, heart disease, Chronic Obstructive Pulmonary Disease (COPD) and asthma (Lapostolle, 2009). Such scenarios will demand more collaboration across medical specialities—including the integration of geriatric medicine into many different aspects of treatment and care. This will be reflected in new models of integrated care. To ensure the delivery of evidence-based care to growing numbers of aged and co-morbid patients, a new research agenda is also essential. This must include the recruitment of aged and co-morbid cohorts for clinical trials and for research related to personalised medicine. Older patients have been overlooked in much research, thus the data and the current knowledge base do not reflect their characteristics or needs.

3.1.1 Changing treatment modalities

The challenge of ageing populations is coinciding with a revolution in treatment modalities, as the average length of hospital stays is progressively reduced, and much care is shifted out of acute settings altogether. Thanks to scientific and technological advances such as minimally invasive surgery, early testing and diagnosis, rapid discharge, and sophisticated rehabilitation protocols, patients are spending less and less time in acute care settings. And, as stated previously aggressive treatments (e.g. oral chemotherapy, peritoneal dialysis, and remote monitoring) are progressively replaced by less invasive techniques compatible with community or home care, fewer procedures, conditions and treatments now require any period of hospitalisation (The NHS Confederation, 2004). Over the past 30 years the average length of hospitalisation has been steadily declining. By the 2030s, the proportion of patients requiring lengthy hospital stays is expected to be even further reduced. Further, many more procedures and treatments will be successfully provided in the community, with patients recovering at home with community-based support. In addition, the technological revolution will continue to be costly. It is hard to imagine how every patient, even in rich societies, will be able to obtain everything they need for their care, given pressures on health budgets.

The sheer volume of demand for episodes of care will be further multiplied as more and more patients seek comfort care to preserve their wellbeing into old age, such as hip and knee surgery, hearing and vision treatment, and dental prostheses. These older patients have an increasing number of co-morbidities, making such care comparably complex as targeted short patient journeys are mapped against the backdrop of the long patient journey associated with various chronic conditions or diseases. For such older patients, self-managed care where appropriate will be essential, and a given. Healthcare systems must be designed to minimise the role of healthcare professionals and para-professionals and to maximise the role that patients, and carers (or caregivers), play in managing care. Likewise, technology-enabled supports such as telehealth and telemedicine will be increasingly essential if we are to meet growing care demands without overwhelming healthcare systems and budgets.

In such circumstances, healthcare systems will be required to find a new balance between the needs of the increasingly large numbers of aged patients, the reduced demands for beds in acute hospital settings and the escalating requirement for community-based health organisations. The number and type of hospitals and other healthcare organisations will be affected. Smaller hospitals and medical facilities without the capacity to deliver a full range of services will likely be consolidated into a reduced number of sophisticated technical hospitals. Alternatively, such smaller facilities will be converted for use by different services, such as regional or national networks of local facilities offering triage, primary care, after-care and rehabilitation.

3.1.2 Early discharge and massive transfer of post-acute—and now new chronic patients—to primary care

Early hospital discharge protocols and the move away from acute care is triggering a domino effect that will reshape healthcare systems. While the shift towards primary and home care has begun to varying degrees, this will become a massive shift towards primary and home care requiring considerable effort to formally design, reorganise and fund the provision and co-ordination of much more care via networks of interconnected healthcare services delivered entirely outside hospitals. Similarly sophisticated and well co-ordinated systems will be required to facilitate the seamless transfer of those discharged from acute care to primary, home or aged care, or rehabilitation. Much more attention will need to be paid to home care and means of supporting chronic, co-morbid, elderly patients to live independently at home (Clayton et al., 2009). Within healthcare professions a much greater knowledge of, and competencies in, care of the elderly will be required.

3.1.3 Moving from a provider and diagnosis-centred approach to person-centred approach

Only a conceptual shift from a focus on particular episodes of care (e.g. the consultation, and the admission) to a person-centred approach can enable healthcare systems to meet the needs of growing cohorts of aged patients. That is, a system-wide perspective that appreciates and understands the complexities of the entire patient journey as patients and their carers navigate complex care environments. Table 2 summarises some key shifts involved.

This new model will move away from today's disease-oriented, episodic rationale—and its management via a loose network of specialists, general practitioners, nurses and other allied health professionals. Instead, closer co-ordination will be needed within community settings, involving both very different models of oversight and very different organisational structures. This will be characterised by a structural shift away from a hospital-centred model of care to a community-centred model of care. The emphasis will be on socio-cultural aspects of care as much as the technical aspects. Hospital care, primary care and home care will be integrated under this new organisational umbrella. It is not yet clear which organisations or groups will be responsible for designing and implementing this new approach or how multiple stakeholders will be coordinated and organised to manage increasingly long healthcare journeys across the lifespan of individuals. This is a key issue to be addressed.

At the same time, we acknowledge that differences in patient/consumer/citizen expectations of healthcare will be determined by their values, beliefs, knowledge, experience and personal preferences, and that failure to pay attention to their unique perspectives and requirements could impede the implementation of necessary health system changes. For example, rapid advances in digital information and communication technology mean patients, including ageing populations, have virtually ubiquitous access to information. Consequently, and as currently being experienced, they will have higher expectations of the type and quality of the care they receive, and expect more consultation, input and active involvement in their own patient journey.

Table 2: *A summary of the healthcare paradigm shifts needed for the future*

From…		…To
One size fits all	Approach	Personalised medicine
Fragmented, one-way	Patient information flow	Integrated, two ways
Provider-centric, diagnosis-centric	Focus	Person-centric
Centralised-Hospital	Monitor	Community-centric
Invasive	Treatment	Less invasive, image-based
Procedure-based	Reimbursement	Episode-based, outcome-based, predicated on the long term condition
Treating sickness	Objective	Preventing sickness - "wellness"

3.1.4 Multiple implications for quality and safety

Healthcare systems must be able to effectively track and manage quality and safety as they innovate to deliver optimal patient outcomes at scale within evolving organisational structures and limited healthcare budgets. This involves:

›   Modifying behaviours aligned to goals, to flexibly meet needs

›   Cascading organisational challenges

›   Requiring different outcome measures

›   Changing public expectations and education towards increased self-management.

Effective change management models will be needed to cope with the changes envisaged. Co-ordinated management of the long-term patient journey is a significant organisational challenge. This requires collaboration between acute care services, rehabilitation and other sectors with primary, community or home-based services managing chronic conditions with stakeholders from government through to care providers and patients involved.

Patients will proceed not on a linear journey, with a single acute episode followed by chronic care, but across a system characterised by much more complexity. Each journey will be unique, for every individual patient. Healthcare systems must be able to coordinate and follow interactive care trajectories as many patients transition in and out of acute care, primary or community-based care and self-care at home, over extended time frames. Such long patient journeys will be characterised by numerous interchange points and multiple interactions with a range of different healthcare professionals and services, as well as other important variables such as the capability, or willingness of patients/consumers/citizens to engage more effectively in their care other than just through the ways offered by health service providers.

Parallel changes to standards, tools and clinical pathways that support and reflect these multifaceted journeys will be needed. New, responsive standards and outcome measures, will need to be incorporated into accreditation and other external evaluations systems. Quality and safety measures will be introduced that can go beyond the conventional focus on healthcare organisations on episodes of care, and it will be necessary to track all stages of increasingly complex patient journeys.

We will all be challenged to find approaches that will simplify this inevitable complex and tortuous journey in order to ensure that quality of care indeed improves and is not put at increased risk.

4.0 Strategic options for countries

Many developed countries are already taking steps to provide care differently. However, significant meaningful reforms have not yet been realised at a national level in any country. Most strategies are currently at the pilot or local phase. One particular challenge is the perception that the sweeping changes needed to adequately care for ageing populations may expose governments to significant additional costs. In low and middle income countries there is growing awareness of the consequences of ageing, however this is seen as a longer term issue when considered against the current priorities of expanding access to care and paying for costly new treatments within limited budgets. In both rich and poor countries however, the real challenge is to balance the needs of the present with those of preparing for the future.

The Doha seminar discussed globally relevant solutions that are emerging via:

> Changes in healthcare delivery processes

> Structural changes in healthcare organisations

> New technologies and systems to support effective and efficient healthcare delivery

> Changing attitudes, competencies and expectations among care providers and patients.

Table 3 summarises the main outcomes from the Doha seminar, addressing the rationale for change, the expected benefits, and anticipated barriers to implementation. A more detailed account of the analyses and discussions for each category of nations can be found in the Appendices.

Seminar participants noted that much long term forward planning is currently framed not by future needs, but by today's issues. Many 10-year plans we reviewed in support of this White Paper tend to be reactive rather than forward-looking or visionary. Participants acknowledged that popular pressures on politicians tend to push governments towards immediate results or direct outcomes. This means responsibility for continually communicating the importance of initiatives with a longer term focus, and longer term measurable impacts will likely fall on the healthcare sector and clinical leaders, especially if needed reforms are not expected to bring about politically attractive 'quick successes'.

4.1 Changing modes of healthcare delivery

Rapid discharge via established protocols, less invasive procedures and short hospital stays are recognised as immediate benefits to healthcare systems worldwide, given the cost benefits not only within healthcare, but also to society. If the individual returns to work sooner, sustains better outcomes, and generally recovers faster, then there are many other related benefits.

However, the significant consequences for healthcare systems as an unprecedented number of ageing, co-morbid or chronically ill patients are shifted into community or home care, are not similarly appreciated or given only token acknowledgement, and in some countries have not yet been anticipated. Examples of delivery system changes are provided in Table 3.

Table 3: *Examples of delivery system changes.*

Action	Demonstrated and/or expected benefit/s	Anticipated barrier/s to implementation/uptake
Implementation of rapid discharge protocols, facilitated by day surgery, fast tracks, faster post-surgery recovery after surgery, day medicine, rapid discharge to rehabilitation centres	Substantial cost savings, better quality care, fewer infections Shift to continuous quality approach to patient journey – away from care episode based approach	Challenges in achieving continuity of care Need for well established, consistent health 'territories' Resistance to reduction in number of hospital beds Challenges for funding models in shift from episode based payments to single payments based on the patient journey
Adoption of preventive medicine, personalised medicine, genomics	Early diagnosis and treatment, anticipation of emerging health problems – costs savings, improved patient wellbeing Personalised healthcare plans for more effective, targeted care	Little concrete improvement today Need for enhanced professional education and the provision of more detailed, high quality information to patients Risk of over-screening that may define a significant proportion of older patients as 'chronic'
Transfer of monitoring of chronic conditions from centralised-hospitals / health care teams to decentralised, local primary care facilities and patients' homes	Multiple health and personal benefits for very large cohorts of chronic and ageing patients	Need for integrated care Need team work in Primary care and home care, integrated across the system to acute, rehab etc. Need for streamlined communication systems of patient's condition, treatment, progress etc. Need for medical homes Need for decentralised specialist consultations to offer chronic patients local care
Development and adoption of new quality and safety standards for home care	New means of providing and monitoring care at home	Need to consider the impact of greater patient autonomy, patient empowerment, role of family and aiding persons
Adaptation of quality and safety external evaluation (regulation, certification, accreditation) to the patient journey	External evaluation that reviews the integrated health system through the patient journey lens is critical.	Need for overarching strategies of external evaluation, not just the amalgamation of separate labels for each institution participating in the patient journey

4.2 Changing healthcare delivery structures

Health care and health systems are dynamic and as such one size does not fit all. Table 4 summarises some key structural considerations for the international community to consider.

Table 4: *Examples of structural changes*

Action	Demonstrated and/or expected benefit/s	Anticipated barrier/s to implementation
Reduction in the number of hospital beds, changes to territorial health care grid	Costs savings, reduction in hospital-related complications etc.	Fears of job losses Resistance to change among healthcare professionals Resistance to change among communities, particularly those facing the closure of a smaller hospital or its repurposing Political constraints
Introduction of new workflow models/structures to enable hospitals and other health organisations to work faster, thereby increasing the volume of patients diagnosed and treated	Shift away from hospital based care and long hospital stays into primary, community-based and home care	Need for updated technical services Need for new quality and safety schemes designed for high volume, short stay and the resultant care required at home and in the community
Increase in rehabilitation services, provided in facilities or in the community / home.	Cost savings, better care in shift away from expensive hospital-based care to less expensive rehabilitation for healing or recovery: rehabilitation centres, day rehabilitation, hospital at home (typical of patient journey)	Need for new schemes incorporating the responsibilities of patients, families, carers and aids Need for appropriate supports for the patients and family to self-manage effectively Need for changes to primary care (especially for hospital at home) Need for changes to payment scheme/s
Increase in expertise in long term conditions: no longer treating organs, treating people	Adaptation of treatments/ approaches to take into account the particular health challenges of aged patients	Extra costs Unresolved question over who pays for geriatric expertise, governments, patients Potential extra out-of-pocket cost for families

4.3 Changing technologies

Technological advances can support the transitions envisaged. Table 5 highlights some of these.

Table 5: *Examples of technological shifts*

Action	Demonstrated and/or expected benefit/s	Anticipated barrier/s to implementation
Implementation of unique and shared Electronic Health Records	Inescapable solution for best care continuity	Extra costs Potential IT incompatibilities Privacy Unresolved questions over access and control (by professionals and patients) Unanticipated risks e.g. data entry errors or incorrect lab results and the domino through a patient's record and subsequent treatment
Increase in use of tele-health	Addresses current limitations of the concentration of medical expertise in urban areas, expands access to care geographically, facilitates earlier access to 24/7 care (territory grid)	Dependant on the availability of healthcare professionals and their level of training Need for IT support Need for a specific quality and safety scheme
Increase in use of alert and monitoring technologies	Shifts monitoring out of healthcare setting and into homes using mobile phones, email, PDA remote centralised monitoring, intelligent ITs (domotics)	Set up and running costs, potentially significant for the most sophisticated systems Need for IT skills and literacy among patients and responders
Increase in use of mobile phone apps	Useful in resource rich and resource constrained environments	Possibility of having an individual's health records on an app available to be shared with clinicians with the patient's consent

4.4 Changing attitudes and expectations

Modifications to existing attitudes and expectations are also needed. Table 6 outlines some of these.

Table 6: *Examples of shifts in attitudes and expectations*

Action	Demonstrated and/or expected benefit/s	Anticipated barrier/s to implementation
Increase geriatrics competencies and knowledge of long-term conditions	Shifts the balance in the skill set and experience of healthcare professionals towards meeting the burgeoning need for more and different care as populations age	Reluctance among healthcare professionals to invest in training/study in geriatrics Perceptions of geriatrics as a less desirable speciality/field
Increase delegation of tasks to nurses and allied health professionals	Significant cost savings achieved while delivering the same services/care Expands access to services/care Promotes/enhances the collaboration and teamwork essential in meeting the challenges of ageing	Reluctance of doctors and other health professionals to relinquish control of parts of care Need for corresponding changes to payment schemes
Increase the engagement of patients, their families and carers with healthcare service providers and professionals	Meets public expectations for greater patient and family roles in care Increased transparency in treatment and care Research is showing better outcomes and improved patient satisfaction/ experience results with effective engagement of patient/family Shared decision making participants	Reluctance of healthcare professionals to relinquish more control to patients/families Fear of judgments Fear of the next generation of internet advances (web 2.0) Fear of public reporting Liability and limitation of transfer of responsibility to patients Adopt patients as partners in the evaluation of quality and safety, develop PROMS
Increase shared decision-making	Chronic patient is better informed Reduce burden of care	Resistance to change in the doctor-patient relationship, provider-patient relationship
Promote patient knowledge, empowerment and autonomy	Safer and more effective care	Socioeconomic factors
Implement/introduce or expand self-management of many chronic and common conditions	Self-management is showing better outcomes and that the patient and caregiver are more capable than acknowledged Decreased # of visits for follow-up to the health professional / clinic	Concern by the clinician of letting-go and trusting that the individual can manage their own care – seeking assistance and support as necessary Ensuring appropriate education and supports to enable self-managed care
Increase community acceptance of disabled and ageing persons	Responds to the inevitable consequence that longer lives will mean much more chronic illness, dementia and disability within communities	Negative perceptions of disabled, ill and elderly persons Perceived burden of their care Extra care costs

4.5 Changing political and policy landscapes

Modifications to existing attitudes and expectations are also needed. Table 6 outlines some of these.

Table 7: *Examples of shifts in politics and policies*

Action	Demonstrated and/or expected benefit/s	Anticipated barrier/s to implementation
Take into account more fragmented political environments	Although politics is more challenging in the modern era as a consequence of social media and increasing polarisation of political views, paradoxically this provides space within which political advantage can be taken and new policies initiated	More political parties; greater polarisation; and more demands for bottom-up reforms Cost for politicians who want to create change
Make policy receptive and flexible	Measures to maintain or improve health systems have proliferated in recent years—so the expected benefits in helping health systems to cope with an ageing society will have to be argued and demonstrated	Fragmented and complicated policy environments can mitigate against improving health systems and supporting their ongoing sustainability
Sharpen levels of political and policy focus	Run demonstration or pilot trials and evaluate natural experiments in improving the system's capacity to cope, reform and improve services in increasingly challenging environments	Much more complex political and policy environments which can create inertia against which reform measures and improvement strategies become much more difficult

5.0 The pace of change: three scenarios

Major policy decisions, which will vary from country to country, are required to address both the changes that are required and the timing and urgency of change. The three scenarios outlined below were considered by participants at the Doha seminar and tested against the interests, circumstances and capacities of the three groups of countries; the **rapidly ageing** cohort (e.g. Japan, Canada and Switzerland); the **ageing at a moderate pace** cohort (e.g. France, Denmark, Norway, Australia, Ireland and the United Kingdom) and the **ageing more slowly** cohort (such as Argentina, Colombia, Emirates, Jordan, Qatar, Malaysia, Oman and South Africa). The scenarios are not mutually exclusive, but can be seen as examples, and best thought of as being on a continuum.

5.1 Scenario 1: Postponing major reforms

Scenario 1 involves doing little until the 2030s, then reacting only when the magnitude of the ageing challenge means that major reforms and changes are unavoidable. This position may be attractive to politicians and some decision makers and policy makers. It is based on short term thinking, and delays doing something until further down the road.

Some immediate actions can assist countries to postpone the major reforms and decisions, and their costs, as ever larger numbers of older patients increase demands on healthcare systems. These include: raising the retirement age, implementing rapid discharge protocols from hospitals, or promoting the transfer of more healthcare to primary care and into the community and home.

Optimists argue that healthcare systems have adapted and responded to many formidable challenges over the past 75 years, so there is no reason to divert from the 'business as usual' approach. This assumes healthcare systems are already sufficiently adaptive to adjust incrementally and to meet changing demands. Pessimists, however, argue that the magnitude of the ageing challenge surpasses, and differs from, any of the major challenges faced by the healthcare sector over the 20th Century. Rather than being comparable to specific 20th Century healthcare challenges, such as the creation of new specialities (i.e. intensive care), the ageing challenge is more akin to that of climate change. That is, globally, ageing populations present a relentless, large scale, systematic and qualitatively different challenge that may require simultaneous major social and (healthcare) organisational and systems adaptations and transformations.

Key Pros and Cons of Scenario 1:

Pros:

› The **ageing more slowly** countries have more urgent challenges to address (access to care). Postponing reforms or actions will enable funds to be spent on more immediate priorities

› Minimal reforms or actions, even by countries that are **ageing at a moderate pace,** may save money by avoiding major changes in the medium term

› This may be good for the future, say 15 years ahead, yet be seen as detrimental by professional workers in the present

Cons:

› There is a risk of financial or political crash as the pressures accelerate (accelerated increases of health care expenditures, i.e. Japan has increased its percentage of GDP on health care expenditures from 6.6% in the 1990s to 10.1% in 2015, running in parallel to the ageing of the population. It now faces the wall of national debt (240%); there is also a growing risk of citizens' dissatisfaction that could be consequential for governments.

5.2 Scenario 2: Moving now to make significant changes

Scenario 2 sets the scene for acting now to make immediate and far-reaching changes to healthcare systems, respecting the symbiotic relationship with the social care system as well. Anticipating future challenges by acting now assumes that many of the future economic, health and social impacts of ageing populations can be effectively offset by restructuring or reforming health and social care systems to better fit the changing demographic mix.

 This scenario requires significant and potentially difficult decisions (some of which have begun to occur to a degree already in many countries) such as: reconsidering the model of care, adjusting the number and role of hospitals, transferring much care out of acute setting and into primary care and 'hospital at home', and adopting new funding systems (i.e. single funding model and long term insurance). Substantial training programs would be required to build new cohorts of geriatric physicians and other health care professionals with geriatric expertise. Considerable investment in initiatives such as shared electronic health records (and their mandatory use) and telehealth, changes to quality and safety frameworks, the adoption of patient reported outcome measures (PROMS), and the enhancement of the participation and engagement of patients in their own care, would also be needed, with much greater penetration than currently exists.

This option suggests that future costs can be contained by refocusing finite healthcare budgets. It is opportunistic and incremental in nature.

Key Pros and Cons of Scenario 2:

Pros:

› As some changes require decades for implementation and the realisation of results, the sooner the action is taken the better chance it has of succeeding within the necessary timeframes

Cons:

› Substantial financial investment is required

› There is no certainty that solutions conceptualised today will prove sufficiently fit for purpose and so avoid any unexpected consequences for countries and communities. Any long-term solution must be flexible enough to ensure that it can be amended or redesigned, as progressive, ongoing evaluation, feeds back 'lessons learnt' over time

› Large scale changes and their costs, may be difficult to justify in the short term in the absence of immediate benefits, particularly given the expectations of the media, citizenry and politicians.

5.3 Scenario 3: Acting as evidence-based solutions become available

This middle road leverages the experiences and lessons learnt by those rapidly ageing countries that are already responding to demographic changes. Japan, for example, could (and already does) provide many valuable insights into what has succeeded and what has failed. Such country champions may enable many other countries to become intelligent followers by 2020. Another example is the Nuka System of Care Program in Anchorage, Alaska, which focuses on ensuring patients are assigned or self-select to a care team that suit their unique physical, mental and spiritual needs (Alaska Southcentral Foundation, 2015).

Global demographic trends suggest countries ageing at a moderate pace may have a five-year window of observation, research and development in collaboration with 'champion' countries, to assess promising projects and approaches identified within the rapidly ageing countries group. Globally, once successful strategies have been adopted and proven by their champions, many countries will be better placed to implement similar changes. This option would require international collaboration to identify promising or proven projects and approaches and to test them against the varying needs and challenges faced by different populations.

Key Pros and Cons of Scenario 3:

Pros:

› Evidence-based approach, may be combined with the implementation of some parts of lessons learnt from previous scenarios

Cons:

› There is no guarantee that success in one country is transferrable given the wide range of different local, regional and national conditions and circumstances across the globe. A thorough analysis of country contexts would be necessary for the generalisation of any approaches.

6.0 Conclusions and recommendations of the DOHA Seminar

The DOHA participants discussed these scenarios and the issues and ideas presented by the co-conveners. They made the following observations:

› Major reforms are needed to deliver effective, efficient, safe, timely, equitable, person-centred and transparent healthcare to ageing populations worldwide

› Understanding the patient journey across increasingly complex and rapidly changing healthcare systems is critical for future planning and redesign of care delivery

› No single country has yet designed, implemented and consolidated an evidence-based healthcare system template or model to meet the care needs of burgeoning ageing populations

› While no single country can yet be identified as an absolute leader or 'champion', countries in the rapidly ageing group are frontrunners, and offer valuable insights for countries in the other groups

› Many countries have valuable experiences and 'lessons learned' to share, despite the various local, regional, cultural and national differences that shape particular healthcare systems and care delivery models

› Many countries can act as 'champions' of emerging evidence-based solutions and provide a range of natural experiments that can be scaled up for wider implementation

› High, medium and low income countries all recognise the challenge of ageing populations—making it an ideal time to be sharing ideas and solutions.

7.0 ISQua support and recommendations

7.1 ISQua key programs

ISQua is developing several key programs related to enhanced models for accreditation, education, support to low and middle income countries, person-centred care and quality and social care for older people. ISQua is also developing partnerships with major institutions involved in healthcare quality and safety worldwide to advance health and health systems internationally. These programs and partnerships mobilise a huge network of experts and institutions worldwide enabling the necessary interchange to contribute to addressing the challenges described in this White Paper.

We do not say much in this White Paper about prevention or the possibility that people may age and be reasonably well. This of course will be true for a great many cohorts. Morbidity, for some people, may be confined to the last year or two but just happen at 90 instead of 80. This will have few implications for healthcare systems. Diabetes could, for instance, potentially be curbed, and perhaps joint replacement is just associated with longevity. Obviously these matters are complex but we do declare that we are basing our assumptions on what is happening now (more chronic disease, diabetes and the like) and that we have not considered possible improvements in population health and health behaviour. This is simply because these further issues are too big for one White Paper and also because we needed to canvass change responses now.

This being the case, it does suggest a next topic for the next series of discussions amongst the ISQua community. We think one aspect of this larger question might be: *Does older have to mean sicker? Prolonging health across the lifespan.*

7.2 ISQua follow up actions

The co-convenors of the Doha symposium on behalf of the IWG and the Innovations and Systems Change Working Group of ISQua propose the following follow up initiatives for ISQua and interested partners.

a. continue to promote academic and expert debates on healthcare system responses to ageing,

b. disseminate the results of research in this area,

c. engage the community in discussions,

d. hold a second symposium in Tokyo,

d. promote special issues of the International Journal for Quality in Health Care (IJQHC),

e. provide updates of this White Paper.

The development of a 'world observatory' on ageing and health systems sustainability would be beneficial. The goal would be to keep a watching brief on developments, act as a clearing house for ideas with international relevance and generalisability, and bring together those 'champions' who are already implementing original solutions.

Appendix 1

List of contributors

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Appendix 2

Notes from the Doha seminar

Changing care organisations: summary comments from the three blocks of countries

Rapidly ageing	Ageing at a moderate pace	Ageing more slowly
Reforms/changes	**Reforms/changes**	**Reforms/changes**
The progressive reduction of hospital beds well established. Japan aims to go from 8500 to 7000 hospitals over the next 10-15 years.	Hospital bed reductions agreed on, but implementation delayed or slow.	Rapid discharge already adopted (cutting costs).
Increase in retirement homes and long-term care facilities.	See need for redirection of resources to centres of excellence.	Primary care recognised as a priority, but still lacking competencies and engagement with communities.
Primary care reform started. Universal choice for an integrated model. Good tentative of Canada to make territorial communities of physicians a reality, but now stopped because too expensive.	General agreement, but no or little action yet on the need to:	**Barriers:** Reduction of hospital beds not recognised as a priority, hard to sell to the population.
Geriatrics training encouraged at University.	Expand the role of primary care	
	Close small hospitals and replace them with medical homes. Significant resistance from doctors	All agreed they had primary health care but the definition and scope of this differed markedly.
Adoption of Public long-term care insurance in Japan: compulsory solution for all citizens aged over 40 who must pay 1.5% salary for long term insurance (in addition to 9% standard coverage).	Expand the role for specialists/sub-specialists in primary care	Aged care facilities and retirement homes not considered as priorities at the present.
Q & S standards important, including accident reporting systems.	Evolve business models to help manage patients outside the consultation. Significant resistance from providers	Families consider aged care their responsibility, therefore need for community level training to ensure home care can be provided appropriately.
Barriers: Cost	Shift the power balance from healthcare service providers to carers.	
Japan was asked whether the reforms/solutions they are implementing now are appropriate models for other countries to follow. The response was that while the approaches, and their conceptual underpinnings are sound, the practical implementation of reform is proving extremely difficult due to high costs. Japan noted about 40% of govt. expenditure comes from the issue of new govt. bonds – therefore current spending on health and long term aged care (10.2% of GDP, 2013) is already unsustainable and cost continue to increase rapidly.	**Barriers:** Problem identified but see only relevant for the future, politicians slow to react.	

Changing healthcare structures: summary comments from the three blocks of countries

Rapidly ageing	Ageing at a moderate pace	Ageing more slowly
Reforms/changes	**Reforms/changes**	**Reforms/changes**
National medical accident investigation: Japan – the organisation and an external person investigate these accidents/incidents.	The concept of the 'patient journey' is, in many cases, the formalisation of a long term conceptual shift in understanding healthcare delivery that has been developing informally in some countries for many years.	General support for the concept of patient journey, but not yet implemented and only a medium term priority.
Barriers		Personalised medicine has not been considered. It is a medium term priority.
Group found it difficult to visualise the patient journey – birth to death or just within health care system? Tracer methodology may give some clues as to what the journey might be.	**Barriers** Need to specify processes and focus on outcomes.	Quality and safety and its importance, integrated into the healthcare systems of all countries in this group, and high on their agendas.
Personalised medicine is still a concept for the future rather than the present. It is very expensive and many of the questions (i.e. genetics) are still outstanding.	Need to empower the patient along Need to maintain the interests of the patient at the centre to ensure services are appropriate to the needs and desires of the patient.	**Barriers** Questions remain around compliance and implementation of standards etc.
Quality and safety ROPs Incident reporting systems Use of guidelines and care maps	(Health care professionals are central to the successful implementation of new models of care).	Some difficulty separating the concept of the 'patient journey' from that of 'personalised medicine'.
		Poor sustainability of services, difficulties in retaining healthcare staff and political instability in Middle East and Africa makes healthcare service provision and long-term planning difficult because of an absence of continuity. One potential solution is to strengthen research capacity and academic community so that they can seek to provide this continuity.

Adopting new technologies: summary comments from the three blocks of countries

Rapidly ageing	Ageing at a moderate pace	Ageing more slowly
Reforms/changes	**Reforms/changes**	**Reforms/changes**
Telehealth and greater use of mobile applications already adopted.	Increased use of robotics.	**Barriers** Telemedicine inadequate, but mobile applications may have a rapid success (low cost).
Barriers The potential benefits of new technologies not fully realised due to cost barriers.	A role for telemedicine - but consensus that it is at various levels of development in different countries.	Lack of recognition of the importance/potential of new technologies.
Despite massive advances in medicine (i.e. dialysis), comparable changes to service structures and payment models not yet in place.	**Barriers** Risk that new technologies will be monopolised by the younger, healthier, and better educated at the expense of those who are perhaps older, more infirm and more in need.	Potential reluctance of communities to accept technological solutions – persisting demands/preference for face-to-face medicine.
	Need to cope with big increases in the volume and types of information (PSA) generated by new technologies, and need to understand and respond to associated issues such as confidentiality.	
	Need for increased emphasis on health technology in assessment.	
	Need for wearable technologies to be integrated into traditional models of care.	

Changing attitudes and expectations: summary comments from the three blocks of countries

Rapidly ageing	Ageing at a moderate pace	Ageing more slowly
Paying on values	Need to address the social welfare mentality – that everything can be provided to everyone and communicate the need for prioritisation.	Home care model currently seen as a poor one because it is not being implemented with quality and safety at its core…leads to delayed diagnosis and treatment, increased complications in the long-run.
These changes are seen as relatively low cost, but hard and long to get effective.		
Systems are fragmented and therefore solutions may need to be fragmented as well.	There is a need to modify community expectations to bring them in line with what is possible/ feasible and what is not. (one suggestion given from Australia = citizen juries).	Dichotomy in what home care actually is – families and volunteer loved ones, versus skilled nurses etc. going into the home.
We need to understand that healthcare is political and therefore we must operate within this context.		
Patient journey not well understood, and personalised medicine only seen as effective for the very long term.	Suggested that we need to address problems one by one rather than trying to address the whole system. Example given of Canada, where >50% of healthcare expenditure spent on the last 6 months of life…? Solution to develop a system of truly informed consent.	Differences regarding discharge training and education for families – haphazard, unstructured. No national policy re same.
Little expected from extended families by significant tentative contribution on home care and the role of families.		Group struggled with understanding what is meant by 'shared care strategies'; is this at local or national level? Question mark around how much shared care is actually happening in practice.
Japan educate children about dementia (large national program).		Accepted that primary prevention is a key issue for this group.
Switzerland educate citizens to maintain Alzheimer at home (experiment).		Noted that poor sustainability, retention of healthcare staff in the Middle East and Africa, and political instability makes health service provision and long-term planning difficult because of an absence of continuity. One solution to this is to strengthen research capacity and academic community so that they can seek to provide this continuity.
Other options discussed included respite care.		

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