

FUTURE  
CARE  
CAPITAL



## Securing the future:

planning health and care for every  
generation

## About us

Future Care Capital is a national charity committed to engaging, educating and involving all generations in the development and delivery of unified health and care provision. Beginning life as the National Nursery Examination Board in 1945, the charity has evolved throughout its 70-year history and we continue to have Her Majesty the Queen as our Royal Patron.

We have set out an overarching positive vision for the health and care system in 2030. We want to see a new agreement between the state and public, which sets out a commitment to support the health and care needs of everyone throughout their life. We envisage that this could be achieved through a Care Covenant, which we are developing, to set out a renewed strategic ambition to deliver the best possible outcomes for the public, that are socially and organisationally borderless.

More information about us can be found via our website: [www.futurecarecapital.org.uk](http://www.futurecarecapital.org.uk)

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The Editors would like to acknowledge all contributors for their time and considered input in the course of producing this report.



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Emily Holzhausen has worked at Carers UK for the last 21 years as Director of Policy and Public Affairs. She is responsible for UK and England strategic development and direction of policy, research, media and advice and information. She has run campaigns about broad-ranging issues, including employment, finances and social care – amongst them, two in respect of successful Private Members’ Bills giving carers new rights: Carers and Disabled Children Act 2000 and Carers (Equal Opportunities) Act 2004. Prior to working at Carers UK, she worked at the National Federation for Women’s Institutes where she was responsible for public affairs work. She was also a Trustee of the Fawcett Society, and in 2015 was awarded an OBE for services to carers.

# From crisis to opportunity: valuing later life to tackle the care deficit

Annemarie Naylor MBE

## Introduction

Society is rapidly changing and our population is getting older. Traditional voting patterns in the UK were disrupted in the Brexit referendum and, more recently, in the 2017 General Election. One of the key dividing lines was age, and the growing gap in outlook between different age cohorts in our society has potentially profound implications for the future of the post-war welfare consensus. This presents a major policy dilemma for Government. Where do resources need to be prioritised across public services to meet the demands of modern life? The situation is now critical in its impact upon health and care service provision in the United Kingdom, which need to keep pace with the requirements and costs of managing long-term health conditions.

The current consensus is premised upon an intergenerational settlement with the tacit assumption that each generation will do better than the last, and whether the situation we now face flows from the financial crash of 2008 and represents a temporary phenomenon, or has deeper roots and points toward a longer-term trend, younger people today are not doing better than the last (Corlett, 2017). The implications are highlighted by clashes over, for example, the cost of higher education, changes to working age benefits, and how best to deliver improved living standards. They are also affecting policies and spending decisions in respect of health and care service provision, to the extent that a political impasse now characterises whether, how and when to increase funding for both.

Most people, irrespective of age, say that they would be willing to pay more tax to increase funding for the NHS (Gershlick, Charlesworth and Taylor, 2015). There is, however, disgruntlement at the inherent unfairness of the so-called 'postcode lottery', and it is not unreasonable to expect that growing talk of 'rationing' will further expose the disparity in NHS spend upon older as compared with younger and middle-aged groups over time. There is, by contrast, a relative lack of understanding and, with it, consensus amongst the general public when it comes to the scope of state funded adult social care services and who should pay for them. This situation is compounded by the welcome growth in the number of disabled and elderly people living independently for longer on the one hand, the lack of a private insurance market and the ill-preparedness of younger generations to fund their own care needs in future on the other. Opinion amongst political leaders regarding next steps is, understandably, divided – although 9/10 MPs agree that our social care system is no longer fit for purpose (Independent Age, 2017).

The net result of this impasse is that we face a growing 'care deficit' in the face of rising demand – with NHS delayed transfers of care or 'bed-blocking' at record levels, over a million older people with unmet care needs (Age UK, 2016), a projected 500,000 additional paid carers required by 2030, and circa 10% of the UK population already engaged in caring beyond formal service provision. Our increasing longevity affects every generation. If we are to tackle the care deficit head-on, we urgently need to revisit the post-war welfare consensus and formulate a new 'Care Covenant' to underpin the institutional and cultural shift that will enable everyone in our society to flourish.

## Planning ahead

The word 'crisis' has been deployed so frequently in media coverage of both our health and care services of late, that one could be forgiven for thinking we face a situation that no one saw coming. And yet the prospect of increased longevity and an ageing population, with its attendant challenges, has been widely understood for fifteen years or more. It is against this backdrop that we were particularly concerned to note the findings of two Committees in recent months:

- The House of Commons Work and Pensions Committee concluded, in its Intergenerational Fairness Enquiry: Third Report of Session 2016-17, that *"the skewing of the welfare state has placed the intergenerational contract under strain"* (2016:3)
- The House of Lords Select Committee on the Long-term Sustainability of the NHS Committee reported that: *"a culture of short termism seems to prevail in the NHS and adult social care. The short-sightedness of successive governments is reflected in a Department of Health that is unable or unwilling to think beyond the next few years...Almost everyone involved in the health service and social care system seems to be absorbed by the day-to-day struggles, leaving the future to 'take care of itself'"* (House of Lords Select Committee on the Long-term Sustainability of the NHS, 2017:3).

How did the skewing of the welfare state come about? Why are we facing a crisis in health and care today? What are we doing to 'fight the fire' in the short-term? And, crucially, how are we going to prevent further conflagrations in the medium- to long-term?

## Expert perspectives

We invited leaders with pertinent expertise from the public, private and third sectors to help us explore this terrain in more depth. We asked them to look ahead and consider how policies and spending decisions across Government that will impact health and care outcomes could better reflect the challenges and opportunities we can expect to face five, ten and fifteen years from now. We, then, challenged them to think about the extent to which it might be feasible to better plan for and design the different facets of our future health and care infrastructure – approaching the wider social determinants of health and care as elements of a major transformation project – to help move us beyond the current crisis to a discernibly 'better place'.

In *Longer lives are worth paying for*, Lord Filkin sets the scene and discusses intergenerational fairness and the economics of ageing as it pertains to the provision of adult social care services for the elderly. He outlines the projected scale of the challenge and argues that the cost of doing nothing will, by dint of growing demand, mean increased rationing of access to state funded care services and poorer quality services in future. He underlines the significant costs involved in responding to growing need – if the state continues to play a role in funding care for our elderly. He also poses the questions we all need to ask ourselves about how those costs should be met in the interests of fairness. His call for a national debate and plan of action is welcome, and in emphasising that longevity is something to be celebrated, we are encouraged to consider how it might be approached as an opportunity rather than as a burden – how valuing later life might help us to tackle the care deficit, now and in the future.

Arup's Dave Pitman turns to *The future health of the built environment*. He highlights the capital funding and time needed to transform the NHS estate from a district general hospital model to one better suited to communities in which new technologies facilitate an increase in self- and community-based care over the next five to ten years. He calls for a concerted effort to be made

in the short-term to adapt our homes and our public realm such that they are age and mobility friendly in readiness. He also points to growing use of Geographical Information Systems (GIS) which, he suggests, will improve planning and design to positively impact health and care outcomes through the harnessing of data.

Professor Raymond Hill explores *Pharmaceutical futures* with case study content from Carol Routledge and Clare van Lynden of Alzheimer's Research UK. Together, they highlight the long lead-in time that is implied by drug discovery efforts and other challenges impacting research and innovation. They also draw attention to opportunities to plan for anticipated developments in pharmaceuticals – including the likelihood that drugs will not emerge to help tackle some issues, unless changes are made to the operating and regulatory environment. In particular, they offer comfort that progress continues to be made where the development of effective treatments for dementia is concerned, but they also flag the cost implications that will shift from adult social care to impact the NHS as and when those efforts come to fruition. Their message is less hopeful when it comes to the development of new and effective medications to tackle mental ill-health, such that they point towards a growing area of concern which will need to be considered carefully, planned for and approached in other ways in years to come.

Technological advancements that are expected to transform services and improve health and care outcomes is the focus of Dr Bertie Müller's contribution. His assessment of developments as broad-ranging as artificial intelligence, robot surgeons, nano implants and automated vehicles suggests that technology harbours significant disruptive potential. He is, however, cautious about the claims made by those apt to evangelise about our brave new world being 'imminent'. In some instances, the technological advancements he highlights are to be welcomed – in particular, for the improvements in self- and community-based care they are expected to help realise. We are, nonetheless, encouraged to keep in mind a 'darker side' to developments and to prioritise planning ahead, such that the general public and ethical frameworks keep pace with them. There is, otherwise, the potential for health and care to become characterised by surveillance, he suggests, which could rapidly take us from a social contract that is premised upon tax and entitlements to one that is machine- rather than means-tested (and verified).

Health and care are, ultimately, reliant upon people - the 'careforce' - and colleagues from Skills for Care introduce us to developments impacting the social care workforce, whilst Emily Holzhausen fleshes out the fast-evolving situation from the point of view of unpaid carers. Jim Thomas and Liz Burtney discuss the recruitment and retention challenges that social care providers are expected to face over the coming decade as demand for services in both formal and community settings continues to rise. They underline the importance of involving younger generations in the planning of tomorrow's care services to ensure that they are fit for purpose as both needs and expectations change. In particular, they point to a technologically-enhanced future for social care ten to fifteen years from now, in which the workforce will need to be more digitally skilled than is perhaps the case at present, and where there is the potential for robots to play a role in our own homes as well as formal care settings.

Emily Holzhausen presents a comprehensive assessment of the challenges facing unpaid carers as well as the opportunities for Government to intervene to help overcome them. She details the implications of caring for carers' health and well-being, and the impact of caring upon carers' paid employment prospects – both of which, she argues, will give policy makers growing cause for concern over the years to come. She draws attention to the ways in which health professionals might better resolve and plan to support unpaid carers and those they

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look after. In particular, she highlights the need to address ‘failure demand’, or having to speak to or meet numerous professionals before a problem is resolved, with implications for the total time elapsed and invested, together with related stress. She also underlines the economic cost of doing nothing as the number of people called upon to juggle work, life and caring continues to grow, and calls for a review of the rights base on which we look at caring through the age spectrum, to help bring about what we have, elsewhere, referred to as a ‘work-life-care balance’.

## Securing the future

A detailed appreciation of how the skewing of the welfare state came about is beyond the scope of our work here. Meanwhile, much continues to be written about today’s health and care crisis, such that commentary is, overwhelmingly, oriented toward calls for short-term remedial measures. We have opted, instead, to focus upon the future.

This report explores how we might move from where we are now, to a point in time when we have tackled the care deficit. For, if we fail to fashion and take determined steps towards a clearly defined end-goal or goals, we implicitly accept having to remain on the back-foot for the foreseeable future – caught in the grasp of political short-termism. The Government’s social care green paper and any successor to the NHS *Five Year Forward View* must address this critically important issue of planning to transform health and care outcomes and secure the future.

We are immensely grateful to our contributors for their enthusiasm, time and considered input. Our own reflections upon the diverse contributions that follow are incorporated in the form of an end-note to this report – together with eight Future Care Guarantees or ambitious goals we believe could underpin a transformative approach to planning and designing health and care for generations to come. They are premised upon a belief that we must move beyond policy-making that approaches care as something that is needs-based or, in some senses, ‘burdensome’, to one which regards it as an asset and opportunity that flows from our living longer, healthier lives.

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FUTURE CARE CAPITAL



## Intergenerational Fairness and the Economics of Ageing

Longer lives are worth paying for

Lord Filkin CBE, non-affiliated member of the House of Lords and  
Chairman of the Centre for Ageing Better

## Longer lives

Increasing life expectancy is the greatest wonder of our age; many of us will live until we are ninety or more. At the same time there is a large 'baby boomer' cohort entering into retirement. Increased longevity and this demographic bulge means that there will be 2.5 million more people aged 65 and over by 2025, a 19.5% rise from 2015. The same year, there will be over half a million more people aged 85 and over – a 36% increase. These big shifts were considered four years ago by a House of Lords Select Committee and its report, *Ready for Ageing* (House of Lords Select Committee on Public Service and Demographic Change, 2013), concluded that we were woefully unprepared with a failure by government and society to address the implications of our ageing society.

## Missing the point - the opportunities

So are things better now? Regrettably the picture is still one of insufficient action and missed opportunities. There is more discussion now about our ageing society but the public discourse is mostly about the cost and the burdens of a larger older population and very little about how to realise the potentially great benefits from longer lives.

Some government departments have addressed aspects of this. The Department for Work and Pensions has reviewed state pensions, increased the state pension age, acted to help more people stay in the labour market and introduced automatic enrolment to begin to address the big risks of living longer but with insufficient money. Other government departments have done little. Locally, twenty councils have a goal to become age friendly places, 300 have not and two-thirds of local authorities' planning policies have not addressed the housing needs of the growing number of older people.

Simon Stevens, CEO of NHS England recognised in the NHS's *Five Year Forward View* that it had to transform - to promote health, prevent ill-health and treat people much more in the community than in hospitals. Yet these essential system changes have been largely swamped by the challenge of the NHS trying to cope with increased demands with lower funding increases since 2008, well below the historic 4% real per annum. Managing these financial pressures has impeded progress in the service transformations needed.

In social care the picture is much worse – no plan to define and address the scale of increased demand that is happening, nor to develop the breadth of services that will be needed and no consensus on who should pay for what. Meanwhile, public funding for social care has been reduced whilst demand has been rising, leading to acute rationing.

## What ought to be happening?

Our society ought to be celebrating our much longer lives and we ought collectively and individually to be discussing what we do to benefit from this – for both today's and tomorrow's older people.

We know what makes for a good later life and makes people happy. We know who is missing out and we know some of the things we need to do to address this. There is little recognition of the great improvement in individual and collective well-being that would occur in later life if more people adopted healthy lifestyles, could remain in the labour market longer, could save more and could sustain their social connections and volunteering. We do not plan and prepare

for these amazing 30 and more years of later life, including ensuring our homes and support networks are ready for our own ageing.

We urgently need a public debate about the great opportunities of longer lives and how to realise them. We need our leaders to give voice to these opportunities and we need all parts of society - localities, business and the voluntary sector to recognise this as a great societal change with great potential benefits.

## **Fiscal challenges**

But it is the fiscal challenges of an ageing society that have dominated public and media discourse. There are indeed fiscal challenges from a larger and longer living older population - increased costs for state pensions, the NHS and social care. The Office for Budget Responsibility (2017) reported on the expected increased costs from our ageing population and other drivers from 2020/21 to 2066/67:

- Health spending - a rise from 6.9% to 12.6% of GDP
- State pension costs – a rise from 5.0% to 7.1% of GDP
- Public sector social care costs – a rise from 1.1% to 2.0% of GDP

In aggregate, public spending on these three is projected to increase from 13% to 21.7% of GDP over this period. This is a major change and a challenge to our welfare settlement, implying substantially increased taxation to fund the costs - and we need a public debate about how to fund them fairly.

But few politicians worry about long term projections - short term fiscal challenges have been the priority. The shrinkage of the UK economy following the 2008 global recession and the consequent persistent annual public expenditure deficits have increased the level of public sector debt to 87.4% of GDP. The government has sought to bring the account back to balance by the end of the decade largely by reducing public expenditure. As a consequence the NHS has had below trend budget increases each year and social care funding by local authorities has reduced by 17% since 2010.

## **Health and social care funding**

Longer lives and a larger older population have major implications for our health system and for us all. The NHS has failed to shift from a hospital centric system which consumes most of the budget to a community based one, and there is weak political leadership to promote the big shifts to healthy behaviours that will greatly improve our later lives and make a more sustainable health and social care system.

There will have to be substantially increased funding into the NHS and into health improvement over the next decade. Estimates vary but it looks likely that in ten years' time we may need to spend about 2% more of GDP on health and social care than we do now – over £1,000 per family more. This sounds frightening but it is natural that people will want to keep alive, healthy and cared for in later life and will place a high priority on funding these.

The strong public support for the NHS is likely to pressurise government to increase funding – even though it may often be too little and too late. People will demand that they are treated if effective treatments are available. The same is not true of social care - people

are unaware of what it is, do not understand who is responsible for funding it, and unmet needs often go unnoticed.

Government and society have not recognised that there will be a need for substantial increases in funding for the NHS and social care over the next decade. In 2017, the report by the House of Lords Select Committee into the Sustainability of the NHS was scathing about the failures of the Department of Health to forecast and expose these increased demands and costs. Consequently, there has been no public debate about this increased demand for NHS and social care and what this implies for funding and taxation.

## Social care

The social care system is in crisis now; harder rationing, insufficient funding, the quality and supply of domiciliary and residential services is insufficient with no system leadership for the rising demand or to develop the quality and supply of the care needed.

For there is a much greater crisis coming to social care over the next decade - driven by increased numbers of older people with long term conditions. Kingston and colleagues (2017) projected that the number of older people with care needs will expand by 25% by 2025, mainly reflecting population ageing. This report in the Lancet also forecast that if rates of dependency remained constant, there would be an additional 190,000 older people with medium dependency, and 163,000 with high dependency by 2025. Although the majority of older people manage most of their lives at home, a larger number are now spending more of their final years in care and nursing homes than in the past, leading to projections of an additional 70,000 care home places needed by 2027, double the recent rate of increase if there is no change in the model of care.

Increasing numbers of older people with long term conditions or frailty require more than an increase in institutional care. We need to prevent or delay the need for care and dependency; we need more and better domiciliary care and a much better and common system of support to carers who provide the crucial unpaid informal care. It will need a national plan to assess the likely increased needs, demand, standards and system that we as a society want for our own care and for our relatives and neighbours. And we need to assess what this will cost and consider the options of how it might be funded.

Government should address all the above in the proposed social care white paper and set out what the deal will be for social care for the future. Investors need to be confident that publicly funded care services will pay the economic costs of provision if they are to build and manage the new supply required. Individuals need to know what they have to do to plan and prepare and pay for their own future.

We also need a much stronger commitment to improve people's health and higher levels of physical activity which can reduce or delay their need for care and to make the changes to their own home to enable them to keep living there. There is as yet no national recognition of these elements or a plan to deliver them.

A good care system is about more than funding but funding is critical. The care system in England is unusual. Most developed countries have some form of national funding for aspects of care either through compulsory insurance or additional tax levies to fund the full costs of care or aspects of it.

In considering a new financial settlement for social care in England we need to consider questions of principle:

- *Should we and our families be initially responsible for our own care when we are able to do so?*
- *Should we be encouraged to plan and prepare for it?*
- *Is it unreasonable to expect others to pay in taxation for what we or our families could pay for?*
- *Yet should there be a limit to how much an individual or a family have to pay for care?*
- *Should we expect that the system applies equally across England and that people living in poorer parts of the country are not more severely rationed or face a shortage of care home places?*
- *Lastly, should a strategy aim to reduce the future incidence and burden of care by stronger promotion of healthy ageing and incentivise self-help and home help?*

Whatever conclusions we reach to these questions, there will still have to be increased public and private funding into care services over the next decade if we are to treat people with decency and minimise the number who end up in hospital or institutional care.

### **A fair and sustainable approach**

It is clear that as a society we will have to pay more in taxation to support good health and care services for today's and tomorrow's older people. This should not surprise us nor unduly alarm us but it will challenge a view that public expenditure and taxation can and should be kept resolutely low. A larger older population will want to spend more on their health and care. Some of this will have to be state funded either because it is the most efficient means to do so - as is the case with the NHS - or because we do not think it right that poor people are unable to cope alone with the activities of daily living.

How then should this extra funding be paid for fairly across the generations? There are big differences between the prospects for later life within generations and between generations - today's and tomorrow's older people. Not all baby boomers are well-off nor are all in younger generations facing hardship in later life. It is complex to compare generations but the Intergenerational Commission will report on this early next year.

We expect that younger people will live longer and often will live more healthily. Automatic enrolment into private pensions means that more of today's younger generation should reach retirement with some form of pension pot than their predecessors, though the adequacy of such pots is a cause for concern.

Older people with defined benefit pension schemes often have a more financially secure later life than will many of tomorrow's retirees with defined contribution schemes or none. Many pensioners have benefited from large tax-free gains from their homes and far fewer younger people can expect this.

Many younger people have higher housing costs, little wage growth and lower levels of wealth accumulation than today's older generation, all making it harder to save adequately for their longer later lives and they will retire later. Nevertheless, younger generations will have to pay additional taxation to fund decent health and social care for today's older population – that has always and rightly been how our welfare settlement has worked.

We must also consider inequalities in today's pensioner cohorts and in future ones and inequalities of opportunity for a good later life not just income inequality.

There should be an informed debate about the increased funding that will be needed for a good later life over the next decade. The money will have to come from somewhere to support these growing needs, costs and standards.

Our welfare settlement was founded when we had very short retirements and many older people lived in poverty. This is no longer the case so it seems right that today's older population as well as today's younger people should fund the increased costs of health and social care that they will rightly want. They may need to pay for some of these increased costs and taxes by foregoing some of the tax exemptions or universal benefits they receive.

The increased well-being from our longer lives will have costs and these are arguably worth paying so that we all benefit from longer lives, not just those who are well-off; these costs may need to be paid according to our ability to do so, whether from revenue or our capital.

Our society – and our government - should be debating the benefits of longer lives, not just the cost. We should expect our Government to set out why longer lives are such a phenomenal opportunity; what we need to do to realise them and develop a collective goal so that more people will benefit. This will require changes by us as individuals, in our public policies and discourse and in our welfare settlement. Government should be honest with the public and explain that our ageing society will require persistent increases in funding over the next decade and of taxation to pay for these, and that this will be worth paying for the great potential benefits from the longer lives we will lead.

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## Health and Care Futures

# The future health of the built environment

Dave Pitman, Healthcare Business Leader, Arup

## Context

The NHS was founded on the 5th July 1948 and since 1999 all NHS Trusts and Primary Care Trusts in England have been required to input information into an Estates Return Information Collection (ERIC) database. One of the input criteria is the age of a particular estate and recent analysis of this database has indicated that the NHS estate can be categorised into the following age brackets:

Pre 1948	1948 – 1954	1955 – 1964	1965 – 1974	1975 – 1984	1985 – 1994	1995 – 2004	2005 –
16%	1%	6%	14%	15%	15%	15%	18%

For nearly 70 years the NHS has responded to increasing demand by building new healthcare buildings - and more latterly and wherever possible, reorganising existing building stock. However, this traditional approach is not affordable and arguably is becoming in part irrelevant now that the digital revolution has taken hold. The natural progression for this thinking is that technology will allow us to keep all but the most serious cases out of hospital for longer.

The NHS championed the principle of the district general hospital, which provided a concentration of services, and large cities have more than one district general hospital. There is a view that the NHS performs too many treatments in hospital which has led to rising costs. The accepted theory is to move treatment out of hospitals and most likely into general practice. For a number of years the emerging plan has been that minor surgery, related radiology and some clinics will be moved to general practice. There is also a view that the services in the community will cost less because they will not attract the overhead of a large district general hospital. There are a number of services that cannot be moved including those provided by specialist and critical care hospitals and services that require emergency medicine. The strategy to move services in this way has been loosely termed the 'hub and spoke' model. At the centre are critical care facilities and radiating from these is general practice and the wider primary care setting.

Advancements in technology mean that more patients can access healthcare remotely. Looking ahead, I would envisage a further refinement of this model to the '*extended hub and spoke model*'. This model anticipates that healthcare will also be available in the home or indeed accessed by an individual using a variety of apps and online platforms (e.g. the NHS website).

## Emergent trends

In the opinion of the author, wholesale adoption of the hub and spoke model and the move to decentralised care has stalled primarily due to cost pressures in the NHS and the lack of available capital. Compounding this is the general lack of confidence in the Private Finance Initiative (PFI) process, this lack of confidence is mainly attributed to perceived high revenue costs.

Looking ahead over the next five years it is easy to imagine that large NHS estates will shrink as a consequence of further development of non-critical services in the primary care setting, adoption of digital technology and potentially competition for services. During 2017 NHS Property Services has already sold off 2.36 hectares (23,600m<sup>2</sup>) of NHS estate, realising circa £5.6m (NHS Property Services, 2017). This is a modest figure given the potential, however land receipts can be used as a mechanism to fund capital development.

However, technology is exponentially developing and in the opinion of the author the adoption of technology in the home and the integration with both primary and secondary care will not be unduly affected by the lack of capital development. In fact it could be an opportunity for health providers to take stock and evaluate the overall benefits of technology to provide front line care and more intangible support. This includes an opportunity to integrate more completely with social care provision to help improve both the local housing stock and general public realm.

Another consequence of the general lack of available capital is the general move to refurbishment and retrofit. There are a number of opportunities here to:

- Improve building stock to bring buildings up to current environmental standards. This provides an opportunity to improve U-values, general air tightness and reduce energy consumption. All of these issues will potentially improve the lives of people, particularly old people and people who are in or approaching fuel poverty.
- Undertake general public realm improvement to improve external lighting, remove trip hazards by installing for example drop kerbs and creating more accessible public amenity.
- Create neighbourhoods that encourage mobility.
- Redevelop homes to include state of the art high speed broadband.

## Health and wellbeing

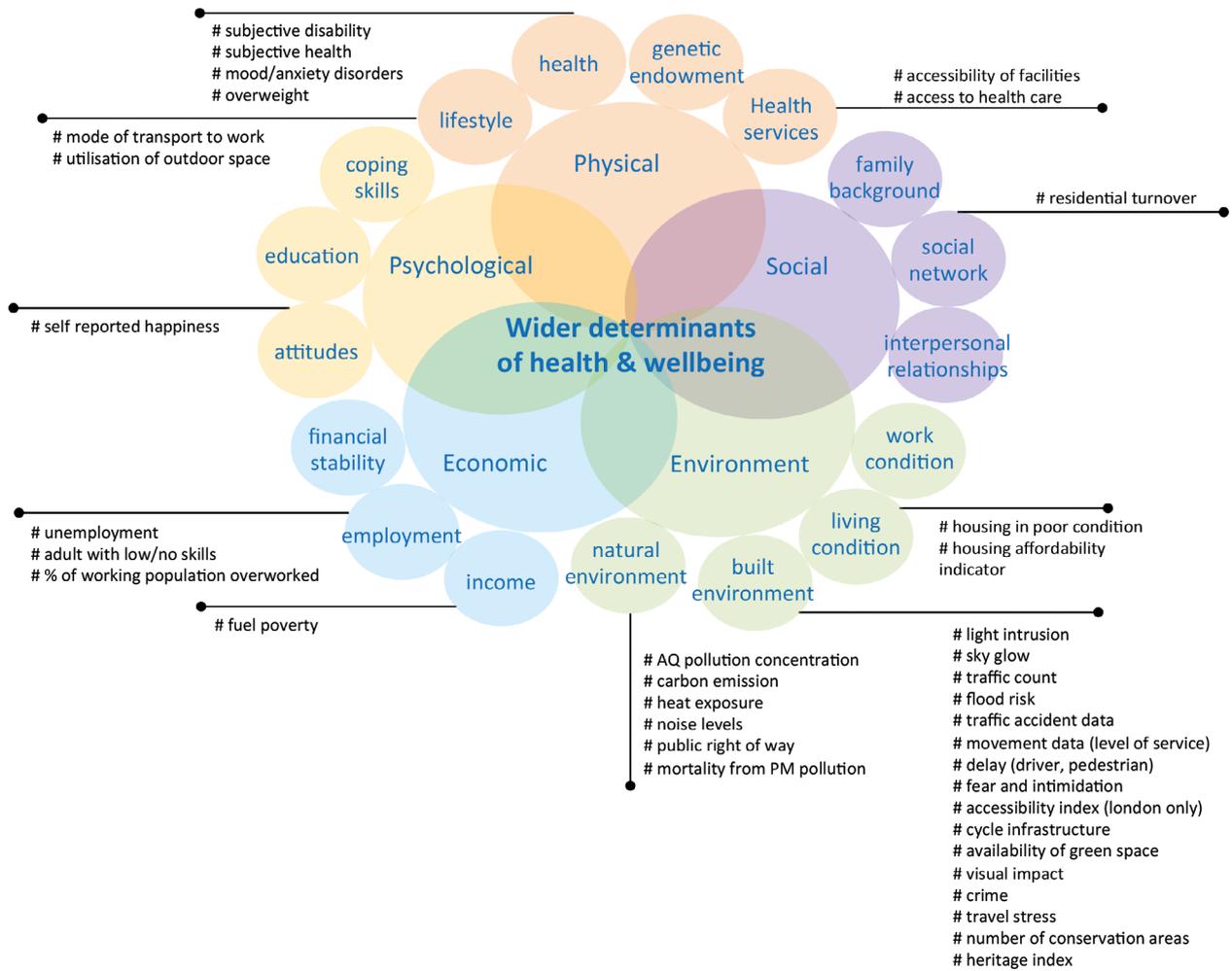
Outside the traditional healthcare setting, there is also a movement of organisations that are asking:

- *What aspects and underlying factors of the urban environment are key to human health and wellbeing?*
- *What data, technology and methods can be used to improve our understanding and the measurability of these underlying factors?*

Figure 1 provides a summary of data currently used to consider and evaluate the performance of the built environment in supporting health and wellbeing.

As the diagram highlights, the physical aspect of the built environment is much better supported by data in comparison to social, cultural and to a lesser extent, economic aspects. Over the next few years we need to consider how to bridge the data gap so that we are able to have a more general understanding that is less skewed to the physical aspects. Recognising this challenge, some initiatives have already started bridging the data gaps. For instance, the Happiness Pulse tool, developed by Happy City, is an online survey open to all citizens to gather data on self-evaluations of happiness.

Figure 1: Data used in assessments and tools to understand and evaluate urban wellbeing.



Source: Arup Publication, YCEO WP3 Delivering Wellbeing Through the Built Environment Workshop.

## Implications for generational planning and service design

As people age, their health needs tend to become more complex with a general trend towards declining capacity and the increased likelihood of having one or more chronic diseases. The UN predicts that by 2025 around 29.4% of the UK's population will be older than 60. This should be compared to a figure of around 21% in 2002. In 2002 only 4% of 64 year olds and above were regular internet users and considered themselves computer literate (Booz-Allen and Hamilton, 2002). These people will now be in their late seventies and it is this cohort of people that may be interfacing with new in home digital technologies and the first wave of applications associated with smart phone technology. There is therefore a disjoint at the moment between people who could/should be benefiting most from this technology, and their ability to properly use it. However, looking further ahead it is believed that the people now in their early 60's will have reasonably high levels of computer literacy and will therefore be able to use these healthcare digital technologies. It is therefore the mid to long-term view is that age will not be a barrier to implementation. What this will mean in practice is that there will be a greater uptake of technology from the cohort of people likely to be using the NHS, less perceived negativity as a result, and as a consequence of these factors, there will be less new build hospitals and more distrusted care.

Aside from specific applications for digital technologies, there is an opportunity with increased data - so called big data- to use this information in a more strategic way and perhaps to analyse data to derive better healthcare outcomes. Geographical Information Systems (GIS) are being used to plan healthcare development opportunities using inputs such as population age and socio-economic status, and air quality in a particular location to plan services. Public health is a growing field that is turning to GIS for research applications. In this way, public health bodies are able to carry out in depth disease profiling to better anticipate how to plan to deliver services. This will have a positive impact because of the ability of GIS to predict trends.

The benefits of such a targeted approach is likely to be:

- More appropriate use of scarce development capital. There is a further opportunity to build temporary modular facilities if GIS data predicts that disease profiles and number of occurrences will change over the life of an asset. This approach also may provide the opportunity to more fully engage in the principles of the circular economy.
- Reduction in revenue expenditure e.g. energy for purpose built facilities that are inherently more efficient.
- Potential reduction in pharmaceutical expenditure.

## Investment and initiatives

The authors view is that ongoing NHS development within the built environment will need to be in part supported by private enterprise. However, generally the NHS does not feel that it has had value for money from the first wave of PFI's and the fallout has seen a general wariness. The so-called wave of PF2 hospitals has improved PFI both in perception and in practice but it is the authors view that private finance still suffers from an image problem. There is also the issue of scale - to be attractive to PFI investors the facility has to meet a certain size criteria. The author feels that technology companies may also be able to play a part, potentially leasing their equipment. Again, there is a link here to the fundamental principles of the circular economy.

New funding will also be required to establish a transformation fund to help meet the costs of developing new community-based services and double-running during the transition between old and new models of care (King's Fund, 2015). This is a really important point that is often missed and consequently can be a barrier to implementation and real change.

## The future

Internet-enabled mobile devices such as smart phones, tablets, and PDAs are expected to become the main internet providers for users in the next decade. They will be capable of accessing, communicating, and sharing information anywhere. At the same time there will be more flexible and immersive ways of displaying information, including 3-D holographic imaging and augmented reality (which overlays data and images onto a physical environment). Wireless-enabled sensors embedded in everyday objects will be able to send information and enable us to interface with computing through touch using Internet of Things (IoT) technology. Flexible patient monitoring using remote monitoring products gives healthcare professionals the option to move patients to their home after treatment and retain monitoring of their status by doctors and nurses (Harpham, 2015).

Improved drug management is likely to return cost benefits and potentially to reduce the negative impacts associated with improperly prescribed drugs. The expense of creating and managing drugs is one of the biggest issues facing the healthcare industry today; Forbes reported the average cost to develop an approved drug at £55 million (Herper, 2012). In addition, there is a multi-billion sterling equivalent industry in fraudulent drugs. IoT devices and processes may prove helpful in better managing these costs. In 2004, the US Food and Drug Administration laid out guidelines for (radio-frequency identification) RFID and drug supply chain management. The first step was to add RFID tags to medication containers, enabling producers, consumers, and regulators to have greater confidence in the drug supply chain. The next step is embedding technology into medication itself. Drug companies are now producing edible IoT, 'smart' pills that can help monitor both medication regimens and health issues, which can in turn help drug companies and healthcare providers alike to mitigate risks and losses (Harpham, 2015). Potentially these smart pills could also be interfaced with smart phone technology.

New devices, sensors, and screens, combined with access to ever-expanding quantities of data support the shift to what is known as 'ubiquitous computing' (Cave et al, 2009). The benefits of universal access will also be enhanced by cloud-based storage, which allows users to store data, applications and processing activities digitally to be accessed from any device (Harpham, 2015).

There is likely to be rapid growth in intelligent applications, machine learning and machine reasoning (Harpham, 2015). Intelligent technologies could enable increased automation and the delegation of routine human decision-making. The use of avatars could enable people to gain easier access to advice and support in all spheres of their life including health care. In the longer term, robots that can undertake tasks autonomously are anticipated.

These future trends will see a reduction in hospital visits, and consequently, a reduction in the size of hospitals alongside increasing numbers of people spending longer in the home setting. This would be of financial benefit to the NHS as well as improving patient wellbeing and reducing the risk of hospital acquired infection. Whilst all of the above is in the future, most if not all of the technologies exist now. What is required is a will to implement change on a scale that hitherto has not been attempted.

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## Health and Care Futures

### Pharmaceutical futures

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## Context: drug discovery and deployment cycles

Although it might be expected that drug discovery would become easier as our knowledge of the genetics and underlying pathophysiology of disease has expanded, there are still major barriers to the introduction of new treatments for unmet clinical needs. Some of the problem stems from insufficient knowledge of the topic being addressed, for example the workings of the human brain. The belief that drug discovery could be industrialised is clearly mistaken.

Our knowledge of the human genome has not yet paid off in full, although the large amount of genomic information now available and the falling cost of obtaining it, has increased the power of molecular diagnostics and our ability to choose validated drug discovery targets. The consequences of this have already been seen in oncology where understanding the genetic basis of survival and proliferation of particular tumour types has led to design of targeted therapies and the move toward use of these new drugs only in those patients most likely to benefit. We are thus learning more about disease processes day by day but much of this knowledge is difficult and slow to translate into drug discovery. For example, there have been advances in the field of dementia research so there is now a greater emphasis being put on drug discovery and translating discoveries towards tangible benefits for people with dementia and their families.

However, there are still big questions that need to be answered in the basic biology and understanding of disease processes. Repurposing of drugs is now a major topic of research for industry academic cooperation to jump start new therapeutic approaches by shortening the development pathway. Spin out companies are arising from the large companies as a result of downsizing and these are starting to be productive. There is evidence that the new model of research and development will be a triangular association of large pharmaceutical companies, small specialist companies and academic groups working very closely together. Open access initiatives where a common precompetitive objective is worked on cooperatively without intellectual property constraints are starting to take seed and are a logical way to achieve regulatory approval for a biomarker as a surrogate end-point for clinical trials. It has also been suggested that a systems biology approach will lead to better predictive modelling of clinical outcomes with novel approaches and that the lead in this will come from academic laboratories.

## Pharmaceutical trends

New drugs are continuing to be discovered, many of them coming from the biotech sector (Kneller, 2010) and there is an increasing use of proteins rather than small molecule agents. More than 50% of the new drugs that will drive profitability in future will be biologicals and the majority of these will be monoclonal antibodies (Nelson et al, 2010; IMS, 2011). Gene therapy, in particular gene editing, seems likely to reach mainstream therapeutics in the next 20 years. It is difficult to predict how long new therapies will take to reach the patient and our best yardstick is what has happened in the past. For example, Herceptin (trastuzumab) which has made a major difference to the treatment of cancer arose from research at Genentech in the early 1990s that built on work published in the 1980s on the link between cancer and the growth factor Her2. A pioneering study in human subjects showed that an experimental antibody could target Her2 in cancer cells leading to full scale clinical trials of trastuzumab that showed that it could improve survival in breast cancer. Its use was approved as part of a combination chemotherapy approach to late stage breast cancer in 2006. There is no reason to believe that the scenario for any equally novel biological approach will be significantly more rapid (see Gupta, 2017).

In the case of gene editing the scientific and ethical challenges are great and its clinical application will need new primary legislation. It is salutary to note that it took over a decade to approve clinical use of mitochondrial transfer techniques without the need for new legislation (The Lancet Editorial, 2017). We have also entered the world of precision medicine where diagnostics and therapeutic agents are paired to select just those patients who are most likely to benefit (as in the case of Herceptin) so that we have better treatments but for subsets of patients.

## Implications for generational planning and service design

The industry in many ways is a victim of its own success as the effective drugs discovered in the last 20 years that are able to control hypertension and many types of cancer together with general public health improvements mean that people are living longer. The neuropsychiatric arena as a whole is starved of new drugs and unlike the treatment of cancer it has not yet received a boost from the genomics revolution. Where will the new drugs for schizophrenia and depression come from? Patients in all age groups need these drugs urgently.

Incentives offered by regulatory authorities have resulted in a big increase in drugs targeting rare and orphan diseases and a record number of orphan drugs have been approved. This has resulted in small groups of patients, many of them children, being treated chronically with crippling expensive drugs. This raises the prospect of effective treatments being available yet having to be rationed on the grounds of cost or possibly not used at all. Schemes for allowing early access to breakthrough medicines may help get drugs to the patients who need them in the first instance but will probably not lessen the long term economic burden.

### Preparing for breakthroughs in dementia – Alzheimer’s Research UK

There are currently 850,000 people living with dementia in the UK with a person’s risk of developing dementia increasing with age, rising from one in 14 over the age of 65, to one in six over the age of 80 (Prince et al, 2014). By 2051, it is estimated over 1.3 million people over the age of 85 will be living with dementia (*ibid*). With more people living to an age where they’re more likely to develop diseases that cause dementia, the medical need and personal and economic costs are growing significantly, making the status quo unsustainable. The cost of dementia in the UK is expected to more than double in the next 20-25 years, from £26bn to £55bn in 2040 (*ibid*).

With no disease-modifying treatments that can slow the progression or delay the onset of the diseases that cause dementia, such as Alzheimer’s disease, there has been an increase in funding and attention to dementia research – with an ambition to find a disease-modifying treatment for dementia by 2025 (G8 Dementia Summit, 2013).

A disease-modifying treatment for dementia would significantly improve the lives of people living with dementia and their families. It is also likely to have a substantial impact on the health and care system, both in terms of its affordability and the way care is currently delivered. These treatments are likely to be expensive, have significant upfront costs, have limited data on long-term outcomes and only achieve savings in the longer-term, presenting challenges for NICE and healthcare commissioners. We also expect to see a greater focus on earlier detection and diagnosis, with current research suggesting

the earlier treatment of diseases such as Alzheimer's is started, the more effective it is likely to be.

How the health and care sector plan for these developments will be key to their success (Alzheimer's Research UK, 2016). If we are going to be ready for new dementia treatments and successfully address the greatest medical challenge of our time, researchers, regulators, NICE, commissioners, industry and charities will need to successfully engage with each other now to better plan for the future.

## Investment and incentives

In the golden years for the industry (probably dating from the mid-1980s to the mid-1990s) drug discovery seemed relatively simple, regulatory hurdles were easily jumped and governments and insurers were prepared to pay a premium for new and effective medicines. In the early years of this century it became obvious that just doing more of what had been successful in the past was not working and that a new approach was needed. Much more money was being spent on research and development without any obvious increase in productivity. Industry has moved away from areas of research that were seen as too difficult (for example those focusing on the central nervous system) or where prospects for return on investment were poor (antibiotics).

The rise of governmental bodies concerned with cost effectiveness of new treatments (e.g. NICE) has also put constraints on the potential profits that can be made from new agents at a time when development costs are higher than ever before. 13% of the global burden of disease is attributable to mental, neurological and substance abuse disorders surpassing both cardiovascular disease and cancer (Collins et al, 2011). To make matters worse, at a time when the need for drugs to treat mental health problems has never been greater, many of the larger companies in the pharmaceutical industry have been making swingeing cuts in their worldwide research investment in this area. Part of the reason for this lies in the difficulty of developing such drugs and companies have decided that psychiatric diseases are too complex to allow profitable drug development. The required clinical trials depend on soft behavioural endpoints in the main and there are no established biochemical surrogate markers to inform such studies. The time taken to develop central nervous system drugs is longer than for other therapeutic areas (phase II and III take an average of 8.1 years and some drugs have taken as long as 18 years to develop). The rate of success for these drugs is also lower (only 8.2% become available for clinical use) – for details see Arrowsmith and Miller (2013), who also give comparator for other therapeutic areas.

Outsourcing, especially chemistry to India and China, and development to international contract research organisations, has been used across the industry. The driver now is to reduce costs where possible, get the investment right and only invest where probability of success is high. Major reorganisation of research and development departments has included the creation of virtual departments tasked with doing all or most research in a particular therapeutic area and the setting up of internal business units that have to compete for funding as though they were biotechs. This is coupled with a need to streamline development and kill drugs that are not clearly an improvement over what we already have as early as feasible. The crucial changes may already be in progress with much of the creative part of drug discovery moving over to the biotech sector or to academic centres for drug discovery. Academic collaboration and recruitment of staff at the cutting edge of their fields, facilitated by relocating research

operations to academic centres of excellence is also a move being followed by most of the major companies. In this context, it is also interesting to note that the academic contribution to drug discovery may have been underestimated in the past. The nature of many current drug targets is very different from what we have known in the past as are the diseases under investigation. Often the deep biological expertise and clinical knowledge required to prosecute these targets successfully lies outside Big Pharma, most commonly in academia. Pharma needs to take a more open and collaborative approach with academic institutions in order to facilitate that target validation and then development. At present, we live in a largely polarised world, one either works for pharma or academia; both are vital to successful drug development but there is limited understanding of one another.

However, there is development in this area and there are emerging examples of partnership working in dementia research, for example Alzheimer's Research UK's Dementia Consortium.

### **Case study: Alzheimer's Research UK Dementia Consortium**

Alzheimer's Research UK's Dementia Consortium is an innovative international charity-industry partnership accelerating the development of therapies for novel dementia targets. Bringing together Alzheimer's Research UK, Medical Research Council Technology and the pharmaceutical companies AbbVie, Astex, Eisai, Lilly and MSD, the consortium aims to close the gap between fundamental academic research and the pharmaceutical industry's drug discovery programme to develop a new dementia treatment. The consortium provides funding, expertise and resources to support target validation studies of new drug targets emerging from academic research that hold the promise of patient benefit. The first five projects are underway and are scrutinising novel targets in a range of areas including inflammation, protein clearance and repair mechanisms.

Alzheimer's Research UK's Drug Discovery Alliance is also a unique drug discovery venture, tackling the lack of dementia medicines by embedding industry standard drug discovery in world-class academic institutions and building on academic expertise.

Our world will look very different 10 years from now, with an increasingly complex social, legal, scientific and political environment but we should not lose sight of the fact that virtually all major advances in drug therapy have come from large companies and have been funded out of profits rather than philanthropy. Any remodelling of the drug discovery process needs to be in the context of a business model that allows recovery of costs and ensures that a fair reward for innovation is still achievable for those companies involved in this endeavour. It has been argued that state supported drug discovery might allow more cost-effective progress but where this has been tried (e.g. in the former Soviet Union) the outcome was not impressive.

### **Pharmaceutical futures**

The regulatory environment has also become stricter with greater demands for patient safety leading to ever larger clinical trials of increased duration and cost. One reason for the failure of the industry to sustain its productivity has been the patent expiry of the blockbusters discovered during the 1980s so that they became generics. Subsequent new drugs have had to compete with them both on efficacy and on price. In the future it may be necessary to perform an ongoing assessment of a drug's effectiveness and safety such that the benefit / risk profile is recalibrated during the whole life cycle of the drug in question.

These factors are driving a shift from proprietary medicines to generics. We are thus victims of our own success as the blockbusters of 2015 become the generics of 2025.

Open innovation initiatives where a common precompetitive objective is worked on cooperatively without IP constraints and reagents, compounds, information etc. (open access) are also starting to take effect e.g. the Structural Genomics Consortium. It has been argued that the regulators need help from the scientific community at large to help assess and license new therapies. The novelty of some new therapies (e.g. using a patient's own modified immune cells as a therapy for leukaemia) is such that the regulatory complexity is extreme and unprecedented (Nature Editorial, 2017).

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# FUTURE CARE CAPITAL



## Health and Care Futures

### Technology futures

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## The evolving contribution of technology to healthcare

Digital technology has been influencing the healthcare sector ever since the introduction of personal computers in the 1970s. The first impact was administrative, but soon other areas were covered, such as knowledge bases that permitted dissemination of specialist knowledge to a greater audience and in a more advanced way to traditional printed formats. Clinical processes started to be affected by digital technology in the last decade of the 20th century but both storage capacities and performance issues hindered the widespread application of computers that we have become used to seeing now. Modern surgeries and operating theatres would be unthinkable without the computational assistance of a variety of medical instruments and computer applications. The proliferation of health technology is now affecting the whole population on a day-to-day basis, even when people are not seeking specialist medical advice - through smart watches, wristbands and mobile apps that encourage the individual to lead a healthier lifestyle.

The proliferation will continue with the health and care areas most affected by technological advances in the next decade being in the areas of prevention, intervention, care and administration.

Imminent developments for the technological future of healthcare include the evolution of augmented reality (AR). AR is a technology that builds on virtual reality (VR) in creating a three-dimensional realistic digital world including the real environment as it would be perceived through the eyes and ears of a human beholder. There are a multitude of uses of this technology in medicine and healthcare:

- AR as a solution avoiding physical interventions: e.g. enhancing the vision in patients suffering from conditions that partially blur their eyesight by projecting the blurry regions to healthy receptors;
- diagnostics and treatment: e.g. assisting clinicians in performing surgery by enhancing precision; and
- education and training: e.g. benefits to patients and physicians from realistic visualisations of how drugs or interventions work on the body.

## Democratising digital healthcare

Self-diagnostics are viewed as a cost-saving measure that healthcare providers will increasingly facilitate. However, it is going to mature from a simple cost saver to a reliable monitoring and prevention tool. Those belonging to known risk groups will benefit from diagnostic tools embedded in mobile devices carried habitually, or wearables that observe behaviours and monitor biomarkers continuously and report anomalies before a critical situation can arise; initial systems for e.g. stroke detection are available.

As technologies become available, equality and democracy become a concern. The technological future will enable preventative healthcare at a yet unseen level, but this comes at a cost. The technologies need to be made available to all eligible members of society, and vulnerabilities resulting from data gathered by monitoring an individual's health need to be addressed adequately.

The built environment is rapidly changing. Health monitoring facilities are being integrated into smart homes and smart cities. These will become the norm in the not-so-distant future.

Current developments and funding focus on metropolitan areas. The infrastructure required to build smart homes is available to rural areas already, but additional infrastructure supporting services in smart cities will have to be made available to smaller towns and rural areas to avoid a widening gap of healthcare provision. This should be viewed as an opportunity to provide quality services for an ageing population and to meet the demands on care provision.

## Automation in healthcare

The role of Artificial Intelligence (AI) will be manifold in the area of healthcare and medicine, with major advances expected in:

- monitoring and prevention;
- administration of drugs;
- diagnostics;
- robotics in surgery; and
- companionship.

Will AI outperform human medical practitioners? Yes, but only in certain aspects, mainly driven by AI's performance in analysing huge datasets and in the precision that modern and future robotics can provide. However, there are aspects for which AI cannot and will not outperform human caregivers, such as compassion and creativity - widely believed to be one of the main factors enabling humans to invent.

While an AI system given the same information and data sets as a human expert will likely calculate its recommendation faster (by multitudes), it will also likely not be the best treatment plan. This is due to a number of factors in human decision making, including experience and the lack of recorded data supporting human decisions. On the other hand, there are thousands of known human diseases that could all be 'known' to an AI, whereas human doctors will typically only recall a relatively small fraction of these. Hence, AI-assisted diagnostics could dramatically decrease the possibility of misdiagnosis. To make automated diagnostics meaningful to human doctors and to support accountability, the rationale for decisions within the process will have to be recorded, so that steps in the decision-making process can be re-traced and evaluated. Typical data analytics methods that are the basis of current machine learning represent a black box and do not allow for such sanity checks.

Driverless cars will have a huge impact on society in general. For the disabled they will open up a new degree of mobility. Self-driving vehicles will also be introduced in public buildings like hospitals, train stations and airports. These will come in various form factors from wheelchairs to mobility scooters. Public spaces will benefit from sensors and beacons that will enable assistance with navigation for vehicles and pedestrians alike.

## Ethical dimensions of automated disease management

Monitoring a medical condition currently requires the patient to either be stationary (e.g. in a sleep lab) or to carry some apparatus for 24 hours or longer, hence interfering with the normal course of their day. Modern sensors allow monitoring various conditions for weeks or months in an unobtrusive fashion within the home. The continuous availability of data gives an unbiased picture of the studied condition helping the physician diagnose a disorder and optimise drug administration. With some limitations, this is already possible for dementia, Parkinson's disease,

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depression, epilepsy, learning disabilities, and sleeping disorders. The coming five years will allow similar monitoring techniques to be used even outside of the home. Ever smaller sensors and wearable devices (e.g. embedded in shoes or other items of clothing) make data collection unobtrusive (e.g. heart rate, blood glucose level). With advances in understanding the causes of anxiety, it will likely be possible to calculate a reliable real-time anxiety level from sensor data. The anxiety level can then be used to trigger events local to the patient (e.g. textual, audible, or visual notifications) or to alert a carer.

The most extreme form of unobtrusive monitoring can be carried out by sensors and nano-devices implanted or introduced otherwise into the human body. These devices can also be used for automated drug administration. Legal and ethical issues of such augmentation of living creatures with electronic implants will have to be resolved, since these implants will have some autonomy and decision making that can affect the life of the person beyond that of a pacemaker. The question arises whether an 'electronically modified' human is still a human, a cyborg, or a robot. Legislation must be able to deal with these creatures and implications for the accountability and responsibility of their actions.

All of the advances affecting the future of health and care afford a great deal of vigilance in terms of responsible and ethical use of technology. In an ever faster race to beat the competition in bringing new technology to market, it will become increasingly important to treat the issues of ethical and responsible AI systems as premier commodities from an early design stage and throughout the development process. Unless responsibility is built into applications, it will be nigh impossible to guarantee this characteristic in the finished product. Evidence of ethical use of data/information, as well as representative training sets are paramount to AI acceptance in healthcare by patients, carers, and medical practitioners alike.

Data collection in various areas is often carried out for the benefit of society, the greater good. Even if care is taken to keep personal data anonymised, privacy cannot always be guaranteed, because the combination of several anonymised datasets or the combination of these with freely available information can lead to re-identification and hence a breach in privacy. The future in data collection lies in so-called federated learning, a technique that keeps data private to the data-collecting devices (e.g. mobile phones or wearables) and uses the processing facilities of those devices to filter and pre-process the data, then communicate only encrypted portions of the pre-processed and filtered data to a centralised learning system. Correctly applied, federated learning can make reconstruction and re-identification impossible, thereby preserving privacy.

Health assistants have recently become available on mobile devices. They are conversational interfaces to knowledge from various sources and try to narrow down the possible causes for the user's symptoms. The main interest in such systems is that they can provide information tailored to the user's symptoms and might make a visit to the GP unnecessary. These systems currently work on the basis of textual natural language chatbots but will undoubtedly mature to speaking conversation partners in the next 5-10 years. Textual chatbots operating in specialised domains can easily be mistaken for human chat partners, in particular if they can access the internet for additional information retrieval. With rapid improvements in speech synthesis, it is imaginable that spoken responses will also be extremely human like in the near future.

## Robotics and the ethics of technology

The area of robotics is already well established in the operating theatre, where it is used to assist surgeons and increase precision, often in combination with AR. The future will bring more autonomy to medical robots if the prerequisites of responsibility and accountability as societal and legal constraints have been established. Other types of robots will be able assist the disabled and companion robots will be employed to combat symptoms of depression and solitude in an ageing society. The use of humanoid robots is controversial and should only be considered when it is clear to all parties involved what kind of entity they are dealing with. Rules along the lines of the Engineering and Physical Sciences Research Council's Principles of Robotics need to be considered, in particular: *"Robots are manufactured artefacts. They should not be designed in a deceptive way to exploit vulnerable users; instead their machine nature should be transparent"* (EPSRC, 2010; Bryson, 2017).

Trust in technology in general and in AI-based systems including robots, in particular, requires transparency. Users need to be aware of technology's limitations and it should be clear to them whether they are interacting with a human or a machine. Augmented systems combining AI algorithms with human intervention will become ubiquitous in all areas of life as we see a shift from automation to interaction of humans with autonomous machines, often discussed as the 4th industrial revolution (or Industry 4.0).

Health data gathered by sensors are routinely made available to clinicians. In future, this will be automated and will no longer require an appointment with the clinician. Data can be transferred through wireless networks on a regular basis, so that they can be (automatically or manually) inspected and analysed to make decisions on the course of treatment. In medical processes, this can save crucial time between data becoming available and the clinician being able to react. For example, A&E departments can be supplied with data on a patient from within an ambulance and before arriving at the hospital, thereby allowing medical procedures to be prepared for the arrival of the patient and increasing the chances of survival/recovery.

## Challenges for technology and society

Battery technology is currently one of the biggest obstacles in technology-assisted prevention and treatment. With the integration of sensors into wearables and clothing, kinetic energy sources will power sensors and miniature data recording devices without the continuous drain on batteries. Together with advances in battery and charging technology expected in the coming decade, universal mobile devices, such as mobile phones, smart watches, and smart jewellery, as well as specialist medical devices will be able to power themselves or retain sufficient charge to monitor health data for a week or longer.

Healthcare administration and home care will see some radical changes in the next decade. Manual paper-based records will be supplemented and eventually replaced by electronic records. There is a huge responsibility to secure these records by encryption and other safeguards, preventing them from being hacked into. Systems with built-in redundancy will also have to be devised to guarantee availability of these records at all times, at least for critical data.

For community care, there will be a shift to more on-demand services that could work on a similar model to the taxi competitor Uber by allowing the patients to request a carer currently in their neighbourhood. The service could advise an estimated response time and would include a rating mechanism that can be used for checking the suitability of specific carers for future

requests. Increasing the flexibility of care seems inevitable, but this will likely mean a big change to current job profiles and might not be looked upon favourably by employees. Also, this will likely lead to different sets of services being offered to different age groups of patients.

Some technology will undoubtedly require a certain proficiency that might rule out its use amongst those not having grown up with computers, but this will apply to today's current tech-savvy generations similarly in future with respect to new technologies not even imagined today. Automated decision making will be able to select subsets of services most appropriate to a specific age group in conjunction with the set of symptoms and conditions diagnosed in the past. The patient's medical history will influence decisions in an unprecedented way.

Availability of technology as experienced by the younger generations – if applied responsibly – will enhance the healthcare experience even with NHS budgets under pressure. Smart homes and the use of communication technology for monitoring diseases will allow people suffering from chronic conditions to remain in the community for longer. Collaborative and communal care are widely viewed as the most promising attempts to tackle the financial constraints of national healthcare providers. Preservation of a patient's independence is financially crucial from a societal point of view and also therapeutically beneficial.

Pressure related to the cost of full-time care for the NHS are considerable, with a predicted funding gap of £30 billion for the NHS by 2020/21 (NHS, 2016). Enabling a new level of self-care increases independence and thus has significant regional and UK-wide economic and social benefits.

## Conclusion

There are great opportunities for the future of technology in healthcare, but there are also some risks and pitfalls that need to be avoided. The latter are mainly based around privacy and accountability. Without a competent regulator acting within an international arena of healthcare organisations and companies, the speed of technological advances and the multitude of possibilities arising from these can easily get out of hand. The person(s) with legal responsibility for any technology solution involving AI or robotics in healthcare should be clearly attributed. Recent success stories with deep learning models are not based on a machine's 'understanding' of the data received as input in the usual human sense of 'understanding' that has its foundation in a sensorimotor experience of the environment. Sentient AI is not to be considered even a remote possibility in the next decades, in part due to this lack of understanding and consciousness and the impossibility of implementing anything but a simulation of these in technological systems. This calls for ethics to be engineered into AI-healthcare systems instead of imposed onto them as a mere afterthought. Following this guideline will enable the rapid advances of technology to be utilised for humanity.

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## Planning Ahead

# Developing a social care workforce for the future

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## When your biggest resource is people, how can you not put the majority of your time into strategic workforce thinking and action?

Adult social care in England is a growing sector that currently has around 20,300 organisations, an estimated 40,400 establishments, and a workforce of around 1.45 million (Skills for Care, 2017) workers with an average age of 43 (Skills for Care, 2016). The total economic contribution of the adult social care sector in England is estimated to support a total of 2.8 million FTE jobs and £43 billion of GVA in the English economy in 2011/12, including all direct, indirect and induced effects (ICF GHK, 2013).

Adult social care is a people business. The social care workforce provides care and support to promote and where appropriate, increase, people's independence and ability to live in their communities, to prevent ill health and unnecessary hospital admission and to care for people when they are most at risk.

Employers are located in the private, independent and voluntary sector (78%), local government (7%) and NHS (6%). Increasingly, people requiring care and support are employing their own workers (9%). Around 235,000 people received direct payments from councils' social services departments in 2015/2016. It is estimated that approximately 70,000 (29%) of these recipients were employing their own staff (Skills for Care, 2017).

Workers tend to work in one 'sector' - typically this will be older people, people with physical disabilities, people with a learning disability or people with a mental health condition.

### Challenges - now and in the future

Employers report recruitment and retention as their number one concern. An ageing population and an increasing number of young people with long-term disabilities continue to stretch workforce capacity. Looking at the projected increase of people aged 65 and over in the population suggests that the number of adult social care jobs will need to increase by 31% (500,000 jobs) to around 2 million jobs by 2030 (Skills for Care, 2017).

Increasing demand is not just about a need for more workers. There are also changing expectations about what good care and support looks like, the choice of support available and the demands and expectations of regulators and commissioners. Employers need to be able to recruit enough people with the right values, behaviours, knowledge and skills to provide high quality care and support. These workers need to be able to work in a range of different places and with people whose needs and expectations vary considerably.

Regulators and local commissioners of care and support need to be assured that employers have sound systems in place for data collection and information sharing, and that the workforce has the capability and confidence to use new technology and meet the competing demands of the integration and place based care agendas.

Employers support changes and improvements in quality of services; in a climate of limited resources, the capacity of managers, leaders and front-line workers is increasingly stretched. This leaves less time to support and supervise direct care, increasing the risk of burn out or care standards not being met. Housing providers, for example local housing associations and private retirement homes, are reporting that the increasing level of need from tenants and customers they accommodate is placing different demands on their existing workforce.

Leaving the EU creates challenges for employers in the context of potential changes to the migration system and the employer's ability to employ EU nationals. Whilst the majority of

social care staff (83%) are from the UK (Skills for Care, 2016), social care continues to value the strengths of having a diverse workforce and the positive impact this has on the quality of care and support in our communities. Recruitment and retention strategies must continue to include innovative ways to target and attract individuals from a wide range of backgrounds to provide high quality adult social care and support. It is thus still critical for the sector to be able to recruit people with the requisite skills from within and outside the EU.

## **Opportunities - looking to the future and new ways of working**

The public perception of the social care workforce is that it is low paid, unskilled work. Whilst pay levels are an issue, and small changes in pay can make a significant difference to recruitment and retention, the workforce is highly skilled in providing person-centred community focused care and support. New ways of working have always been a feature of adult social care. As care and support arrangements have changed, employers have become more adaptable and skilled at providing care and support that is focused on people's own perception of what 'good' looks like to them.

People who five years ago would have been deemed too ill to live outside a residential or nursing home are now being supported to live at home. More support is being provided in the community. The uptake of personal budgets and people funding their own care and support is leading to greater fluidity in what workers do and how much they are paid. This change in the complexity of need being supported in ever more independent environments is being driven by cost pressures, people's desire to remain independent and ever-changing expectations of what support can and should look like.

*Over the next five years*, an advancing age profile of the social care workforce and changes to migration policy are likely to increase employer's recruitment and retention challenges. As more people with long-term health conditions are cared for at home for longer, the workforce will need to continuously update and increase their knowledge and skills.

*Over the next ten years*, as young people with complex health and care needs become adults, the adult social care workforce will need to adapt to the enhanced expectations that these young people will have of what constitutes acceptable care and support, and technology will play a larger part in their expectations.

*In fifteen years and beyond*, we are likely to see a significant increase in the use of mainstream technology as part of how people care for themselves - changing the focus of social care and pushing forward the need for the workforce to be constantly versatile and open to acquiring new skills and knowledge.

Automation, technology and robots all have a role to play now and in the future of adult social care. For example, existing mainstream technology (apps and online systems) can support individuals and their families to be more active in arranging and leading their own care. Online communities are enabling people to learn more about their own conditions and support each other. For example, the museum-led House of Memories programme for people with dementia and those supporting them, whose resources include a downloadable app. Other innovations include talking mats for people with a learning disability to help with communication and applications that help with medication management.

In the not so distant future automation has the potential to deliver personal care. This could, for example, take the form of regular medication being given by Wi-Fi enabled remote reminder systems; a robot, rather than a procession of strangers, taking the lead on intimate and physical care; drones delivering meals; home audio systems monitoring household activity; self-driving

cars taking people to and from appointments concerning their condition; an increase in remote consultations using virtual reality and remote assessment making daily changes to peoples care and support programmes.

Mainstream technology has the potential to take self-care and personalised care to a level not considered possible even five years ago. This will not necessarily lead to a decrease in demand for, or on, the adult social care workforce. While technology may enable the workforce to spend less time on direct physical/domestic care tasks, this should give them more time to support people in other non-physical ways; for example, to focus on improving choice, increasing participation in community, retaining independence and skills to self-care and reducing isolation and mental health concerns.

## Summary

To ensure that we have a workforce with the right values, skills, knowledge and behaviours for the future in place we need to have a much more fluid idea about what we think social care is and how the workforce is organised.

In the context of integration we need to recognise that we not going to be able to integrate 20,300 business into the NHS (or vice versa) and that our notion of what integration means needs to focus on workforce integration rather than service integration. This means that there needs to be more emphasis on how people work together focused on the needs of the person they are all aiming to support, instead of diverting energy into who manages who and who is accountable for what and when.

Thinking about integration, the role of the social care workforce and what social care is, we need to recognise that social care is not the exclusive domain of those working in social care. Many people's social care needs can be met or partially met by initiatives such as the fire service providing smoke detectors and safety advice to vulnerable people, home tutored children visiting older people and reading with them, or organisations running buddy systems so that people can go to live music, get involved in theatre and participate in sport.

All of these activities offer opportunities to engage people in the business of social care and enable people to see social care as a career of choice.

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For more workforce information on adult social care visit: [www.skillsforcare.org.uk/NMDS-SC-intelligence/NMDS-SC/Workforce-data-and-publications/Workforce-data-and-publications.aspx](http://www.skillsforcare.org.uk/NMDS-SC-intelligence/NMDS-SC/Workforce-data-and-publications/Workforce-data-and-publications.aspx)



## Planning Ahead

### Caring now and in the future

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Care is something that most of us will experience at some point in our lives. We will either care for someone who is ill or disabled or who needs support in later life, or we will need care ourselves for someone close to us. Consumer research consistently shows that most of us don't expect to care, few of us have planned for it and know what to expect, but if we're asked to consider it, we are worried about what will happen to our health, finances, work and relationships (Carers UK, 2013a, 2017a; Centre for Modern Family, 2017). This is not without good cause. If we look at the pattern of caring in the UK today, we see growing and deepening trends that make action a societal and economic necessity.

## What is the picture of caring in the UK today?

There are around 6.5 million carers in the UK, but each year around 2.3 million people start caring – equivalent to 6,000 people every day, and a similar number cease caring (Office for National Statistics data, remaining statistics published by Carers UK, 2015). The majority care for 1 to 19 hours per week, but a large and increasing number are providing very substantial care (i.e. 50 hours plus of care per week). Between 2001 and 2015, the carer population is estimated to have grown by 16.5%, far outstripping the rate of population growth of 6.2% (Buckner and Yeandle, 2015). The largest cohort of people providing care are aged between 45 and 64, and 3 million out of 4.3 million adults aged up to 64 are in paid work. This means that 70% of carers of that group are in work – with 1.3 million not in paid work for a variety of reasons (*ibid*).

Around 1.2 million carers are aged over 65. They are the fastest growing group of carers. The numbers of carers aged over 85 grew by 128% in just 10 years (Carers UK and Age UK, 2015). Whilst those under 65 are more likely to be caring for parents, older carers are more likely to be caring for spouses and partners. At this point the gender balances tips – from predominantly women – to predominantly men – providing care.

## Impact of caring on health and well-being

With increasing caring responsibilities comes greater ill-health. This is evidenced through various representative surveys including the 2011 Census, where carers were twice as likely to be in bad health if they cared for over 50 hours per week (Carers UK, 2015), and the GP Patient Survey where carers showed higher levels of hypertension, mental ill-health and depression. Personal stories tell the tale of the causes of ill-health whilst caring – stress, worry, tiredness – caused by a lack of breaks, a lack of support, the challenges of trying to co-ordinate care that frequently does not knit up. Many have disturbed sleep and for a significant proportion, ill-health is exacerbated by worry about money (Carers UK, 2017b).

Often this will leave a health legacy with enduring and persisting health issues for carers. Some experience bad backs, muscle strain, etc., others receive anti-depressants to help manage depression which can last for years. The link between ill-health and hard pressed financial circumstances is well-understood. The main carer's benefit, Carer's Allowance, remains the lowest benefit of its kind and yet asks the carer to provide at least 35 hours of care per week.

## Impact of caring on work

With the majority of carers under state pension age, the matter of work and employment becomes an important personal finance issue as well as a question of macro-economics. Around 1 in every 9 employees is a carer at any given time (2011 census data reported in Carers UK, 2015). Research clearly shows that most people don't identify themselves as carers, and when they do they often don't disclose their caring role in the workplace.

## Tipping the balance of care

A study published several years ago predicted that the balance of care would tip in 2017 – when the number of people needing care would outstrip those 'available' to provide it (Pickard, 2015). This analysis was based on demographic change, but also was predicated on a baseline of care already being provided through the state. With the recent budget pressures on care, it could be argued that this balance 'tipped' a while ago. Without 'available' people to care, the state has to provide more care, greater private provision is required, or people largely have to give up work to care for relatives, putting pressure on businesses and their own personal finances.

## Caring in 5, 10 and 15 years' time

In the next 5, 10 and 15 years' time, these issues will become more marked with an ageing population. At current rates, the population of carers will rise to 9 million by around 2037. In 5 years' time, the population of carers will be over 7 million and continuing to rise. Over the next 10 to 15 years, one of the fastest growing groups will be older men caring, although the pattern of caring is still likely to fall more on women, with gendered outcomes in pensions, working patterns and health risks. Over the next 5, 10 and 15 years, fewer people within families will mean caring for others in a different way. Similarly, with people having children later in life, there is a growing likelihood of people becoming part of the 'sandwich generation' – currently 2.4 million people looking after children and caring for an adult with a disability or illness. With families living further apart, caring at a distance will continue to increase. Our health and care system will need to adapt to these societal changes and this requires a substantial response from the health and social care system, Government, employers, and families themselves, with technology and housing policy, also have important roles to play.

## Systematic identification and support for carers in the NHS

Throughout the health and care system there is an imbalance in the way that carers are regarded. In social care, there is strong underpinning of rights, although not the resources to implement them well. In the NHS, care systems recognise patients predominantly, and identification and support of carers - despite the fact that they provide the bulk of care - is still dependent on good practice. Carers UK wants to see a rebalancing of rights and recognition across health to match social care including a duty on NHS bodies to identify and support carers in order to improve their health and well-being. This would help to foster integration, co-operation between services as well as seeing the overall inputs to the system.

The GP Patient Experience Survey has been a valuable source of information on which local services can plan, develop, identify differences and tailor support around needs. How data is used wisely to help better support families is critical and could make a real difference to their lives.

A recurring and enduring issue that is raised by carers is how the health and care system works together to build care around the person for whom they care. Families have to interact with up to 30 different professionals and institutions, and many say it can be a full-time job keeping up with appointments/arrangements. Without co-ordination, precious time is used travelling to multiple appointments or informing different services of what other support services are doing.

## **The care workforce as part of our Industrial Strategy – what that means for families and for business**

Any strategy looking at supporting carers, has to take into account the role of the paid care workforce, which is often not recognised sufficiently in terms of the vital contribution that it makes to our society. Families say that good quality care allows them to take a much needed break (67%) and importantly 36% of carers said it made it easier to work, rising to 72% for all those in full time employment. With the care workforce in short supply, we face a shortfall of one of the most valuable resources for families. This is where investing in the care workforce needs to be seen as a foundation for our Industrial Strategy over the next 5, 10 and 15 years. Just as the childcare system recognises the value of parents' economic participation in the labour market, particularly that of women, the same is true of the care system – for disabled people to fulfil their own working potential – as well as carers who are able to continue working because their relative or friend is well cared for.

## **The importance of carers to our wider workforce**

Employers tell us that they find it hard to recruit the right people with the right skills despite the length of our working lives increasing because there are insufficient people coming from education to fill the employment gap. This is where the retention of workers who are carers becomes acutely economically important. Research has shown that the loss of a worker is roughly equivalent to an annual salary – costs in a global competitive environment that businesses are able to ill-afford. A whole new approach, in terms of a whole working and caring life that looks at our longer working lives, is needed. We need a review of the rights base on which we look at caring through the age spectrum, from children through to caring for adults. As a minimum, we need to a right to take paid care leave between 5-10 days, and a longer period of unpaid leave to bring us to similar rights bases of other countries around the world.

## **The role of care in ensuring that families are able to continue working and contributing to pensions**

The future of pensions tells a similar tale where income in retirement will be based on whether employment can be secured for many years and adequate contributions made at a sufficient level. The recent Government Pensions Review led by John Cridland highlighted a number of at risk groups - namely carers, who have reduced pension incomes, because they are likely to have lower working years and lower paid jobs – turning down promotion and needing work closer to home in order to juggle work and care. With the state pension age rising faster to the age 68, there will be an increased probability of caring during years of employment. This remains a very gendered experience with women having a 50:50 likelihood of providing substantial care by the time they are 59, but men having the same probability by the time that they are 74. This is of increasing and of growing importance where the UK already lags behind other OECD countries (Carers UK, 2013b).

## Housing policy, design and carers

Housing has an increasingly important economic value for families who care. Carers UK undertook the first analysis of the impact of inappropriate housing on carers – showing that it made caring more difficult to the extent that the housing was less suitable (Carers UK, 2016). 13% of carers said that there was insufficient space to live comfortably, one in seven said that there was no space for others to stay to help, and one in five carers were waiting for important adaptations. Carers gave examples of where equipment, layout or adaptations hindered positive living – stairs causing back injuries, door widths preventing wheelchairs from moving around easily, etc. This clearly impinges on a person's ability to be independent, but it also affects the life of the family overall. The overall conclusion is that housing policy, design, building and mix needs to change to reflect the needs of our ageing population as this has a direct and measurable impact on families who provide care.

## The role of technology in supporting carers

The role of technology has to come front and centre in the future. With an increasing number of people using technology in their daily lives, its use in care lags behind in the public's knowledge. Whilst over 70% of us use technology to bank, shop, and undertake different common activities, only 29% of us would turn to technology to help us with health and care (Carers UK, 2017c). Other research by Carers UK found that the majority of carers surveyed did not know they could get their patient record online and had not signed up for it. Equally, many don't think technology might help. People are unaware of basic telecare packages such as movement sensors, water sensors, etc. that can reduce worry and stress and increase independence. We found that good tech increased carer's ability to juggle work and care, and increased their confidence about leaving the house without stress. Smart meters, home monitoring services that can be controlled at a distance, wireless settings and instructions, can all add to the potential of managing care for the person with a condition, as well as a carer. With awareness of how these products can be used to support care being so low, we have a job to do to ensure that even these basics reach the hands of those who need them now.

## Looking ahead

If we are to have an honest conversation about the future of health and social care, then economic modelling needs to change significantly in order to incorporate the contribution of families and friends who provide care. The value of their support is estimated at around £132 billion a year – equivalent to a second NHS. We also need to count the opportunity costs of not investing in care, or not supporting families, which has a far-reaching impact.

If health and care services can be provided in more flexible way and can be sustainably funded so that there is not increasing reliance on family members to provide unpaid care, we potentially reduce the health costs of caring, increase the connectedness of families, and increase the ability to work and care. The facts currently point to the need for action now for families. Within 5, 10 and 15 years, this will become ever more pressing.

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## End Note: Reflections and Future Care Guarantees

Whilst some have called for an independent OBR-style check on health and care spend, we believe it pertinent to first ask:

- *Where are we trying to get to?*
- *To what extent can we plan ahead? and*
- *How might any national plan for health and care in future underpin a political consensus – one capable of cementing public support for any increase in and targeting of spend in the years to come?*

We need political consensus upon our direction of travel – a long-term plan to guide the policies of successive governments to improve health and care outcomes and to enable individuals to plan ahead. We will, otherwise, remain forever in ‘fire fighting’ or ‘crisis’ mode rather than on the front-foot. We invited leaders from the public, private and third sectors to help us explore this terrain in more depth. Their contributions to our report outline what developments we might expect in 5, 10 and 15 years’ time and, in doing so, point how we might plan to impact different determinants of well-being in the short, medium and longer-term.

### Intergenerational fairness and the economics of ageing

The challenge of delivering adult social care provision flows from our rapidly ageing population. If we do nothing now, Lord Filkin argues, care services will become increasingly rationed and service quality will be impacted. If people of all ages need to contribute more to support adult social care services in the face of growing demand – politicians from all parties will need to be honest about this with the general public. We need a national debate to determine how the burden of any increased costs are to be distributed. We also need a plan that recognises the inherent value in our living longer – a plan that is capable of tackling the ‘care deficit’ now and in the future.

### Health and care futures

Arup’s Dave Pitman highlights the capital funding and time needed to transform the NHS estate from a district general hospital model to one that is better suited to communities in which technology will increasingly facilitate self-care and independent living. We should consider strengthening planning policies and building regulations to ensure that new communities are ‘designed for age and mobility’. We should also introduce ‘pre-care’ measures – by which, we mean, take steps to both anticipate and reduce future care needs. In particular, we should put in place ambitious programmes to adapt and retrofit existing dwellings to better facilitate independent living before significant care needs arise.

The pioneering work underway to discover new drugs and treatments in respect of pressing health challenges like dementia and Alzheimer’s, is expected to reap benefits within a decade according to Professor Hill. His contribution includes a case study from Alzheimer’s Research UK. We need to accelerate such advances whilst planning ahead for the additional costs that will flow from the fruits of successful endeavour. When it comes to the development of new and effective medications to tackle mental ill-health, the signals from the pharmaceutical industry are less encouraging, such that a more considered societal response is needed – in particular, to tackle the associated growth in loneliness and social isolation.

Dr Müller is optimistic about the introduction of new technologies including artificial intelligence, robot surgeons, nano implants and automated vehicles. Whilst some might help us to compress the length of time we live with one or more health conditions, others are expected to facilitate independent living. He does, however, express concern that deployment of the Internet of Things, new wearable technologies and more extensive use of health and care data to track and monitor individuals might result in a dystopian form of 'health surveillance'. In practical terms, this could rapidly take us from a social contract that is premised upon tax and entitlements to one that is machine- rather than means-tested and verified. We urgently need to involve the general public in a debate about the ethical implications of such technologies for health and care service provision in future.

## Planning ahead

There are persistent and growing recruitment and retention challenges facing adult social care providers according to Jim Thomas and Liz Burtney of Skills for Care, we need to recognise that care is, increasingly, everyone's job and formulate a wider societal response to the situation. Looking ahead, to a time when we anticipate a growth in self- and community-based care facilitated by new technologies, involving younger generations in planning tomorrow's care services to ensure that they are fit for purpose as both needs and expectations change will be key.

The future 'careforce' will also need to be more digitally skilled than is perhaps the case at present, particularly when robots begin to play more of a role in homes and formal care settings. Investment in the wider 'careforce' needs to be seen as a foundation for the Government's Industrial Strategy. Emily Holzhausen of Carers UK also makes plain that people forced to take a career break to support a family member is expected to increase, and we will need to plan for the growing number of people who are not economically active by virtue of caring responsibilities, as well as fashion innovative solutions to bring about a 'work-life-care balance'.

## Future Care Guarantees

Whilst most people, irrespective of age, are prepared to pay more to fund our NHS, there is less agreement about how any increase in funds should be deployed. Meanwhile, there is a general lack of understanding and consensus amongst the general public when it comes to state funded adult social care – who should benefit from such services and when – and, with that, who should pay for them. We urgently need a national debate and plan of action that moves us beyond treating longevity as an increasingly unaffordable burden, to a situation in which living longer is approached as an opportunity for every generation to flourish.

We believe cross-party consensus in respect of Future Care Guarantees could underpin a new Care Covenant and National Plan for health and care as well as cement the support of the general public. Based upon the developments we might expect in 5, 10 and 15 years' time, we recommend such Guarantees include:

### 1. A new funding formula

Government will introduce a new funding formula and national entitlements to health and adult social care services that are funded by the state – the aim: to reduce the postcode lottery in respect of services in both formal and community settings, and create certainty for individuals in planning for their future health and care needs.

## **2. Healthier, longer lives**

Government will introduce 'health positive' regulations, personalise public health and invest to compress morbidity - the aim: to reduce the amount of time that people are unable to live in good health and the overall cost of care, both to the individual and the state, with a particular focus upon tackling health inequalities within and between geographical areas.

## **3. Championing independent living**

Government will work with industry to introduce and uphold an Independent Living Guarantee enabled by a transformational programme of investment in 'pre-care' measures – the aim: to ensure our homes and communities are 'designed for age and mobility' so that more people are able to take care of themselves and their families at home for longer.

## **4. Tackling loneliness and social isolation**

Government will introduce measures and invest to create the environment for local government and civil society to tackle loneliness and social isolation – the aim: to reduce the impact of what is widely regarded as a key characteristic of growing mental ill-health in our communities.

## **5. An Ethical Technology Commission**

Government will establish a dedicated Commission to examine the ethical implications of new and emergent technologies for health and care service provision – the aim: to involve experts and the general public at the earliest possible opportunity in a considered debate and, in particular, explore the extent to which access to services should be predicated upon machine-testing and verification in the future.

## **6. Co-designing future care services**

Government will involve younger generations in the co-design of future care services on an iterative basis – the aim: to help Government design responsive care services, and raise awareness of the need for individuals to plan ahead and make provision for their future health and care needs.

## **7. Careforce planning**

Government will provide leadership and work with training and skills providers to build the capacity of the 'careforce' - the aim: to ensure we have sufficient health and care professionals as well as unpaid carers, with the appropriate skills, to meet future demand and deliver high standards of care.

## **8. Enabling a work-life-care balance**

Government will recognise the economic contribution of carers to the overall economy and work with employers to introduce measures to improve carers' 'work-life-care balance' – the aim: to support the growing number of carers at home and in community settings.

We need to plan and design the provision of health and care for every generation if we are to tackle the 'care deficit' and secure the future. Agreement upon the direction of travel and Future Care Guarantees to support improved planning by commissioners and providers as well as the general public would represent a significant first step.





### **Further Information**

For further details about us, our mission and values, the Board of Trustees and the Executive Team please visit our website or follow us on twitter.

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