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A Report by the All-Party Parliamentary Group on Global Health

Probable Futures and Radical Possibilities

An exploration of the future roles of health workers globally

July 2022

This report

Probable Futures and Radical Possibilities – an exploration of the future roles of health workers globally

This report explores the future roles of health workers globally. It is based on interviews and discussions with patients' representatives, health workers, academics and political leaders from 17 different countries, many different professions and backgrounds, and a mix of ages. These were supplemented by both general and focused reviews of the literature.

Probable Futures and Radical Possibilities is a policy document which makes recommendations to governments, and everyone involved in health systems and health workers education, training and development.

It takes a very broad definition of a health worker as anyone, professional or otherwise, whose primary role is in providing health services, involved in organising and running health services and systems, a researcher, or working in public health. This does not include family or informal carers, advocacy organisations, or workers in other sectors who have a health role but whose primary motivation or role is different.

All-Party Parliamentary Groups

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Probable Futures and Radical Possibilities

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Reference

All-Party Parliamentary Group on Global Health: Probable Futures and Radical Possibilities - an exploration of the future roles of health workers globally; London, 19 July 2022; https://globalhealth.inparliament.uk/

ISBN 978-1-3999-2687-4

Published 19 July 2022

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Preface

This report is an exploration of the future roles of health workers globally looking forward over the next 15 to 20 years. We have been privileged to discuss the future with a wide range of people from around the world, gathering ideas and gaining perspectives. This has enabled us to describe probable futures in the report – areas where there is a great deal of consensus about the future – and identify radical possibilities which are far more uncertain but could have enormous impact.

The NHS and other health systems are vitally important but social, economic, political and environmental factors have an even greater impact on the health of populations. The central message of the report is therefore that health workers will need to take on a strengthened role as ***agents of change and curators of knowledge*** able to support, influence and guide patients, the public and people working in other sectors.

They will also need to become much more technologically skilled. As the report says ***science, technology and data will determine much of the framing and the language of health, shape how health workers think about health problems and possible solutions, and how they act***.

This report has a global focus, but it also describes the implications for the UK and the very powerful role it can play in educating and developing health workers and improving health globally.

This is an extraordinarily difficult time for everyone working in health, and for their patients. Health systems are seeking to recover from the Covid-19 pandemic and are now facing a growing financial crisis. There are no easy fixes but we hope that the report and its recommendations will help achieve a more manageable and stable position in the mid to long term.

The APPG was delighted to be able to work closely with Health Education England, sharing ideas, evidence and insights as it undertook its own workforce planning review *Framework 15: Shaping the Future Workforce* on a similar timescale.

We have also built on the powerful contribution of the World Health Organization which has been working to raise the profile and importance of human resources for health since the landmark publication of *The World Health Report: 2006: Working Together for Health*[1] and we have particularly benefited from the advice and support of Jim Campbell, WHO's Director of Workforce.

The APPG is grateful to everyone who has participated in the review, our sponsors and Professor Jolene Skordis and her colleagues and students at UCL who have undertaken literature reviews for us. We are particularly grateful to Dr Sam Nishanth Gnanapragasam the APPG Coordinator who has played a leading role in collecting the evidence and in writing the report with Nigel Crisp.

Dr Dan Poulter MP (Chair), Lord Nigel Crisp (Co-Chair), Baroness Sheila Hollins, Lord Bernie Ribeiro, Baroness Mary Watkins, Charlotte Beardmore, Jo Lenaghan, Professor Alistair Fitt, and Professor Jolene Skordis.

Probable Futures

Our vision

A common effort across society to improve health
Health workers as agents of change and custodians of knowledge
Most care delivered at home and in communities

Todays reality

Chronic Shortages
Exhaustion
Siloed ways of working

100+ million health workers
43 million more needed for
Universal Health Coverage

Global drivers of change

Health and well-being central to society
Changing disease patterns, health risks and demography
Crises in health systems and the health workforce
Transformational advances in science and technology
External events – pandemics, climate change, war

and Radical Possibilities

Probable futures

Blended in-person and virtual working
Provided in communities and homes
Co-creation with patients
New focus on public health
And mental health
Enhanced teamwork
Flexible employment
Agents of change

Radical possibilities

Self-organising teams
Changing recruitment
Re-design primary and community care
Reform professional education
Global partnerships to increase numbers

Recommendations

Global: Whole of society approach | Invest and recruit from whole population | Re-design education system | Global partnerships to increase numbers | Consortia of universities | WHO code on recruitment | Allow time for change

UK: Implement HEE report | More flexible regulation | Take a lead globally | Partner for mutual learning | Restore ODA cut | Broad based competencies | Compassionate leadership

Health workers: Take the initiative, don't wait for policy to catch up

1. Summary

An exploration of the future roles of health workers globally

There will be major changes in health workers' roles globally over the next 20 years and beyond – in what they do on a day-to-day basis, in their relationships with others, and in the way they are organised, employed and educated.

This report is an attempt to understand what will drive these changes, what the result might look like and how governments, institutions and the professions could shape and steer developments. It describes the probable changes – where there is a broad convergence of opinion – and some more radical possibilities.

The report's focus is global, but it also spells out the implications for the UK and discusses ways that the UK can contribute to strengthening the health workforce globally to the benefit of all.

The most radical idea at the heart of this report is that health workers will increasingly need to become ***agents of change and curators of knowledge*** in addition to their other roles as clinicians, researchers or specialists in public health, policy and management.

This is accompanied by a vision for health described in Box 1.1 which envisages a future where: there is a common effort across all sectors to improve care, prevent disease and create health; health professionals are agents of change and curators of knowledge; and most care, treatment and support are delivered in homes and communities through blended in-person and virtual services and transformational technology.

Box 1.1: A vision for health for the future

A vision for health for the future

- **There is a common effort across all sectors to improve care, prevent disease, and create health** – with the links between health and education, employment, the physical, social and political environment and the economy well understood and providing the basis for shared policy and action
- **Health professionals are agents of change and curators of knowledge** – who as well as undertaking their own specific roles are able to influence, inform, support, develop and facilitate action by members of the public and organisations in all aspects of health and care
- **Most care, treatment and support are delivered in homes and communities** – in person and virtually by multi-disciplinary teams working in partnership with patients, families and communities, using the latest data and technology, and with easy access to more centralised specialist services when these are needed.

Choices for countries, organisations and health workers

This is not the only possible vision.

The report describes the massive array of social, economic, demographic, political and epidemiological changes that are underway nationally and globally and which are already affecting health and, in some cases, helping create crises in health systems. The way in which these continue to play out in any country will depend in large part on local circumstances and on the choices made by their governments, citizens, institutions, and health leaders about priorities and their vision for the future.

Governments have fundamental decisions to make about the direction in which they want to steer their systems and about how they conceive of health – whether as being primarily about healthcare and health services or about something much wider. Do the governments or others running health systems see themselves as responsible for securing the health of an area or nation or more simply as ensuring health services are available? The answer to this question and their vision for health for the future will very largely determine the roles of health workers in their country or system and the education and training that they will require.

The reality is that the complexity of decision making as well as lack of time, funding, and other resources will complicate the picture enormously. Developments will not happen in the ordered and logical fashion advocated by reports such as this – and many health workers will find themselves unprepared for new approaches and new technologies. Nevertheless, it is important that countries have a vision for the future and know what they are aiming for so that that they can steer their policies in this direction and make gains where they can.

Health workers also have choices to make. The vision described in Box 1.1 gives them a strengthened role as professionals, leaders, enablers and facilitators. It is perfectly possible, however, based on some current trends to imagine a future at the other extreme from the one described.

This would be a future which is not driven by people, localness and society but by narrowly defined commercial, political and technological considerations. A future in which health workers very largely become technicians, working in pre-ordained ways, following rules, cogs in the machine. Their activity would be transactional not relational. Followers not leaders.

Some health workers feel that this future is already here and that this is contributing to the current crises in the health workforce. It is vital therefore that the professions and bodies representing health workers have a positive vision for their own future and, as the report argues in its recommendations, that they develop their roles and competencies as agents of change and curators of knowledge – leaders and movers and shakers in health.

Agents of change and curators of knowledge

Health systems and health workers cannot, and should not, take responsibility for every aspect of health. They are not responsible for poor housing, addictions and social inequality, for example, and cannot tackle them by themselves. They can, however, develop new roles in facilitating and supporting others to do so, across the whole spectrum of maintaining and creating health and preventing disease.

The concept of health professionals as agents of change came from a Lancet Commission on professional education which described how health professionals as leaders need to be constantly shaping and re-shaping services and approaches to health[2]. It is a similar idea to that promulgated by the Institute for Healthcare Improvement (IHI) when it says that every health worker has two jobs – their own job and making improvements[3].

Recent publications have taken these ideas further by recognising that families, communities, schools, employers, housing associations, planners, businesses, governments and every other part of society shape peoples' health and life chances – sometimes for good and sometimes for bad – and that they, not health workers, make the decisions in all these areas and are ultimately in control. Health workers as agents of change have a role in helping them to do so as effectively as possible by influencing, supporting and guiding them[4-6].

This is an idea which will become more important as we understand more fully how these groups affect the health of individuals and populations and how important it is to address the social, environmental, economic and political

determinants of health[7]. In the words of Professor Francis Omaswa, former head of the Ugandan health service, *"Health is made at home, hospitals are for repairs"*[8]. Health is made at home and in the family, the community, the school, the place of worship, the workplace ...

A significant part of this role will be for health workers to help others access knowledge about health at a time when knowledge and truth have, too often, become relative, negotiable, "alternative" and disputed. In an interview for this report Dr Julio Frenk, co-chair of the Lancet Commission and a former Mexican minister of health, suggested that health workers in the future could also be *curators of knowledge*, keeping abreast of the findings of science and evidence in their field, and making it available and accessible to the public.

These ideas are closely linked with three others which are central to this report. The first is the importance of community and context and of the need to deliver services far more locally in homes and communities. The second is the vital but often over-looked role for health creation (salutogenesis) – with its focus on the *causes of health* creating the conditions for people to be healthy – and not just on the *causes of disease*, prevention and the treatment of disease (pathogenesis). The third is the recognition that the health of individuals is intimately connected with the health of communities, the health of wider society and the health of the planet.

Much of the thinking and debate about health has been dominated by the old mindset where health=healthcare=health professionals=institutions. This needs to be replaced by a far more sophisticated understanding of health.

These ideas – and their implementation in practice – will be supported by advances in science and technology and by a new focus on health workers making the most effective use of data and evidence at every step. Taken together, they represent a very substantial change from current practice and will require equally radical changes in the education and training of health workers.

The global context

Probable Futures and Radical Possibilities takes a global perspective which looks at the health sector in the round, addresses the links between countries as well as their differences and commonalities and is based on discussions and evidence from all regions of the world.

There are significant differences between and within countries. Demographic pressures, to take just one example, are very different with African countries having fast growing young populations while East Asian and European countries have shrinking and ageing ones. Health needs are very different in these different countries. There are, however, many commonalities – science is science, biology is biology, technology can help us all and health workers everywhere will need similar foundational skills which they can adapt to their own particular environment.

There are also shared global threats – most notably pandemics, climate change and conflict. The Covid-19 pandemic not only exposed long standing problems in health systems and the workforce including the shortages of health workers, the inadequacies of current systems, and the inequalities in societies. It also revealed starkly the massive global inequalities in access to vaccines, treatments and care.

Wars and conflicts in many countries are causing dreadful casualties, blighting the lives of many more and leading to migration and the largest number of refugees since the second world war. The combined effects of conflicts and the pandemic mean that life expectancy has fallen globally, patients are missing out on treatment, mental health problems are growing, and there is widespread exhaustion and burnout among health workers.

Conflict and the pandemic have also undermined the very positive vision of global solidarity which was exemplified by the global agreement to the Sustainable Development Goals as recently as 2015[9]. It now needs to be re-built in different ways which recognise the changing and uncertain political environment[6]. Moreover, and very importantly, countries can all learn from each other and work together on shared problems.

The health workforce data are compelling

Globally and nationally the health workforce data are compelling. The numbers shown here are only a series of snapshots in time and have been arrived at by different researchers using different methodologies. They therefore need to be treated with caution. There can be no doubt, however, about the scale and the complexity of the problem. It is about numbers of health workers, growing demand, their uneven spread, their education and training, morale and age profile. There is a developing crisis, and the combination of health worker shortages and financial constraints make change inevitable.

Estimates of the number of health workers globally range from 104 to 135 million, depending on the methodology used and who is counted as a health worker[10, 11]. A recent report from the Global Burden of Disease study shows that to achieve Universal Health Coverage everywhere requires more than 43 million additional health workers based on 2019 figures. Two thirds of this shortfall is in nurses and midwives. Clearly, a lower number would be needed to achieve a lower standard. Equally clearly, there will be big differences between countries and there is a demand for higher numbers in many countries in order to achieve higher standards.

There is uneven distribution of health workers between countries – with low-income countries having the lower numbers despite having the greatest health needs. There is also uneven distribution within countries with rural and poorer areas typically having lower numbers.

There is a global market in trained health workers with doctors and nurses in particular being highly mobile. There is also considerable migration by untrained or semi-skilled care workers from low-income countries to higher ones.

There is evidence of low morale, high turnover rates, early retirement and people leaving the professions in many countries. This attrition is exacerbated by an ageing workforce in some areas. It is also influenced by a younger generation who, as described later, have higher expectations than older colleagues about support, development, careers and work life balance.

The standard of health workers' education and training is highly variable around the world. This, together with staff shortages, means that patient outcomes are very poor in some areas.

Box 1.2 overleaf reveals something of the urgency of the current situation and provides the backdrop against which governments and others need to take action.

There can be no doubt, however, about the scale and the complexity of the problem. It is about numbers of health workers, growing demand, their uneven spread, their education and training, morale and age profile.

Box 1.2: The health workforce in numbers

The health workforce in numbers

There was an estimated **43 million global shortage** of health workers in 2019 (6.4 million medical doctors, 30.6 million nurses and midwives, 3.3 million dentistry personnel, and 2.9 million pharmaceutical personnel) relative to minimum workforce density thresholds required to meet universal health coverage[10].

There is **demand for greater numbers** to achieve a higher level of health care. A 2021 estimate suggested that the UK will need 1.1 million more health workers by 2031[12].

The work force is **spread unevenly around the world** with low-income countries having on average 9 trained nurses and midwives for 10,000 population and high-income countries having on average 115 for 10,000 population[13]. About a billion people globally never see a trained health worker.

The workforce is also **spread unevenly within countries** with rural areas having on average 38% of nurses and 24% of physicians despite 50% of people living in those area[1]. Poorer and more disadvantaged areas typically also have lower numbers.

There is **migration between and within countries** with, for example, an estimated 15% of health and care workers globally are working outside their country of birth or first professional qualification[14]. There has been an estimated 60% rise in the number of migrant nurses and doctors working in OECD countries in the last decade.

The health workforce in many countries is **ageing** with, for example, 17% of all nurses globally being aged 55 or over[15], and one in six of the global nurse workforce are expected to retire in the next ten years[16].

Morale, particularly after COVID is poor in many places with a survey from Sub-Saharan Africa, for example, showing that 50% of nurses have an intention to leave their job[17].

The **quality of education and training** is very variable and compounded by staff shortages, poor equipment and facilities in some areas results in harm to patients. Treatment by appropriately trained professionals improves outcomes and reduces mortality[18].

Seventy per cent of the health and social **workforce are women**, compared to approximately 41% in all employment sections[19]. As such, investment in the health workforce also creates and widens opportunities for women and young people.

The shortages of trained health workers lead to **increased mortality and morbidity**[20].

The major drivers for change

Health workers, academics and politicians from around the world were asked, as part of the research for this report, to identify the main drivers for change. These are discussed in Chapter 2 and have been grouped into five main areas which will profoundly influence health systems and the health workforce in the future for better or for worse.

These are shown in Box 1.3 and discussed below.

Box 1.3: The drivers of change – the five major groupings

The drivers of change – the five major groups

- **Health and well-being are becoming ever more central concerns for our societies and linked to inequalities and life chances** – and, at the same time, social, environmental and economic issues are becoming central to health systems and the education and roles of health workers.
- **Changing disease patterns, health risks and demography** – which are affecting different countries and regions differently. There is a global growth in non-communicable diseases and co-morbidities as well as ageing populations in some countries.
- **Health systems and health workers alike are engulfed in slow-burning crises** – these are characterised by the continuing use of 20th century models of healthcare to deal with 21st century problems, with all the accompanying inefficiency, and by a significantly exhausted and demoralised workforce, experiencing staff shortages and working under great pressure.
- **Advances in science, technology and the use of data are opening up many new possibilities for tackling disease, repairing minds and bodies, and improving health** – and they will determine much of the framing and the language of health, shape how health workers think about health problems and possible solutions, and how they act.
- **External events will force change** – pandemics, climate change, political turmoil, conflict inside and between countries, migration and economic crises will affect the demands placed on health systems and health workers.

The first of these five groups of issues is the interconnectedness of social, economic, environmental, and political issues with health and wellbeing and their link to inequalities and life chances. There is a growing awareness of, to take just one example, how vital education is to being healthy and how important health is to educational attainment. This has been known for years, of course, but is only now becoming part of wider public discourse – in part thanks to the Covid-19 pandemic. Similarly, the links between health and food are vitally important and work both ways with each affecting the other.

Education, employment and life chances are all affected by health and a new report from a high profile thinktank has argued for a change in the narrative about health so that it is described as an investment not a cost – something which has been recommended before but never achieved traction[21].

Timing is vital and there appears to be an opportunity for change. Recent years have seen wellbeing budgets adopted in New Zealand, new definitions of the value added by services which include health, and a new interest in the links between healthy individuals, healthy communities, healthy societies and a healthy planet.

There is also a very widespread drive to address inequalities within countries and between countries. It is an idea that is now well rooted both in public discourse and in the changing balance of power around the world. As a result, we can expect it to drive policy change in the coming years with renewed focus on the needs of vulnerable, alienated, minority and excluded groups.

The second group embraces the multiple ways in which changing diseases, risks and demography affect health. Population growth, ageing and demographic changes have implications for health needs and the disease burden. There is a global shift in the disease burden from infectious, neonatal and nutritional diseases that typically affect children to non-communicable diseases that typically impact adult populations who will increasingly have co-morbidities as they age.

This is not just a problem for affluent and ageing western countries. Low- and middle-income countries face the triple or quadruple impact of "epidemics" of infectious, non-communicable diseases, maternal mortality and physical trauma. HIV/AIDS, TB and malaria are still widespread at the same time as increasing diabetes and heart diseases incidence globally.

The third group of drivers, stressed very strongly by almost all the people interviewed, is that there are developing crises in health systems and the health workforce which are already causing major disruptions and difficulties. These is partly due to the changing needs and aspirations noted above and because current service models are poorly designed to deal with co-morbidities, long term conditions and the needs of diverse groups in the population. This results in great inefficiency, poor quality care and unsustainable costs.

There is also what Maureen Bisognano, President Emerita of IHI, called *"an epidemic of exhaustion"* in the health workforce with demoralisation, burn-out and large-scale resignations or early retirements. Other respondents pointed to the fact that a large part of the health workforce were lower paid and mostly female and that their conditions, pay and status needed to be improved. Moreover, younger people were looking for more flexible working environments which better meet their work and life needs.

The fourth group are the advances in science, technology and the use of data which are all vital in making change happen, enabling the fourth industrial revolution. Some of this will be truly radical and create extraordinary new possibilities. Some services will disappear, and some new ones appear. We need only think of the way in which advances in imaging and interventional radiology have changed diagnosis and surgery in recent years or how new drugs and therapies have turned most cancers from short-term acute killers into long-term conditions. Or, most topically, how vaccine technology has developed rapidly in response to Covid-19.

Science, technology and data will determine much of the framing and the language of health, shape how health workers think about health problems and possible solutions and how they act. They will not, however, in themselves dictate what happens. Ultimately, health is about human beings, societies and physical, social, political and economic environments and about the choices people make. As Dr. Sangita Reddy, joint managing director of Apollo Hospitals told us *"We can all buy the technology, but it is the people who make the difference"*.

The fifth and final group, mentioned by almost everyone are the great global developments which range from war and pandemics to climate change and economic crises which were briefly described earlier. All of these will have profound impacts on health and wellbeing. The impact of climate change, for example, will affect health in many different ways and will over time add enormous pressures with further migration, changes in disease patterns, and growing starvation and food shortages. It will also add massive costs to the expense of recovering from the pandemic and dealing with the problems of conflict at a time when the world economy is already under pressure.

The exact way that these different drivers play out in any country will be unique to the country. However, all countries will be affected in some way.

Probable futures

Probable futures – the changing roles of health workers

This report's focus is on the way health workers' roles may change over the next 15 to 20 years. It asks what will health workers aged 25 today be doing when they are 40 or 45 and playing leading roles in health?

Interviews and research for the report revealed that there are many common ideas and considerable convergence of thinking about future roles which are shared by people around the world. These can be described as characterising probable futures. These characteristics are described in Chapters 3 and include:

- **Blended working which normalises and makes routine the best use of data, research, technology and systems thinking** in a future of blended services where some services and some parts of services are virtual, and some are in person and where the generation and use of data and evidence is routine, and research becomes a normal part of practice.
- **A local focus** where health workers need to understand the impact of the wider determinants of health, culture, communities and environment on their patients and their communities including such factors as housing, nutrition, education and access to employment.
- **The development of co-creation** where health workers work alongside their patients.
- **A renewed emphasis on public, population and global health** with new approaches to epidemiology, targeted interventions, health protection and disease prevention and a new focus on health creation and on understanding the causes of health.
- **New priority for mental health** and better integration with physical health.
- **A much greater emphasis on teamwork** – encompassing professionals, non-professionals and lay people – and the development of **new roles and task sharing** between professions and groups.
- **Increased flexibility** in employment and organisational structures.

Underpinning all these other changes will be the further development of health workers as **leaders, agents of change and curators of knowledge**. This can be done in a piece meal fashion with individuals taking on this role on their own initiative as part of a "probable future" – as some do now – or as a more "radical possibility" where this is implemented as a system wide change.

These characteristics represent a major shift in roles which will require a great deal of thought and practical planning as well as changes to education and training. It will also require a great deal of political will, time and resource to implement these changes. The reality is that these developments will mostly come about in an unplanned and uncoordinated fashion and proceed at different paces in different countries and different settings. Nevertheless, the overall direction is clear, and the more planning and resource devoted to their introduction the better the outcome will be for patients and populations.

Health workers and their skills, interests and development will themselves drive change and help shape the future. Nursing in particular has undergone a massive development in the past 30 years with degree level education and new opportunities and roles being developed. The benefits are already becoming apparent with new services, new ways of delivering care and new perspectives influencing developments.

The APPG drew attention to these developments in nursing in its 2016 report *The Triple Impact of Nursing*[22] and sought to accelerate them though the global *Nursing Now*[4] campaign which it started. The campaign which ran from 2018 to 2021 reached more than 120 countries and advocated raising the profile and status of nursing.

The Nursing Now campaign argued that nurses were too often undervalued and unable to work to their full capabilities – "the top of their licence" [23]. Moreover, the increase in long-term conditions coupled with improved education and training and the development of nurse practitioner and other new roles meant that nurses had a greater clinical and leadership role to play in the future. The campaign called for more nurse-led services in primary and community care and the management of long term conditions as well as a greater involvement in service planning and leadership. It argued that Universal Health Coverage would not be achieved without supporting and enabling nurses and midwives to achieve their potential.

There will be other changes, too, in the balance of roles between professions and between professionals, and between them and non-professional groups such as community health workers and lay people. Task sharing and task-shifting between groups will become increasingly common. There is need to ensure that this does not turn into task dumping, and that appropriate training, supervision and support is provided.

Exactly how these changes play out in any health system will depend on the local environment and, as noted earlier, the choices that governments and health leaders make about the sort of health and care systems they want. Finances will also play a major part in what is and can be achieved and, conversely, what is damaged or destroyed as a result of the massive financial pressures caused by the pandemic, wars and the current economic downturn.

Dr Natalia Kanem, Executive Director of UNFPA, the United Nations sexual and reproductive health agency, suggested to the APPG that midwives working autonomously and often single-handedly in villages across Africa offer a very good model for what the future might look like. She suggested that these midwives are a perfect example of health workers acting as agents of change and curators of knowledge. They make professional judgements and provide high-quality clinical services, but they also influence and advise mothers and communities and can help bring about changes in attitudes and behaviours.

These midwives are in many ways the exemplars of a way of working that addresses the physical and psychological needs of individuals, while helping shape their social and physical environment. A very ancient profession that is also a very modern one.

Probable futures – education, training and regulation

The report, in responding to these changing roles, embraces the idea of competency-based education as spelled out in the Lancet Commission report on *Education of Health Professionals for the 21st Century*[2]. This will support health workers to react to changing health needs, break down siloed ways of professional working and promote inter and multi professional ways of working and help health workers develop the skills and tools to be effective team members and leaders.

It also recognises the growing need for more health workers to have broader based education and training – with exposure to mental health, public health and different disciplines – so that they are better able to manage people with co-morbidities whose health problems do not fit easily into any specialist category. Specialisation is vital but there is also a need for this to be balanced by an understanding of wider issues and good access to other team members with other knowledge and skills[24].

The report also stresses the importance of widening recruitment into health, the development of leadership, offering team-based education and community-based training, strengthening postgraduate life-long learning, supporting students and staff wellbeing from the start of education, and building value-based education systems.

Migration of health workers from lower income to higher income countries is likely to become an even greater problem in the future and the report considers ways of handling this to secure fairer outcomes with receiving countries supporting sending ones with their own workforce development. As part of this the *WHO Global Code of Practice on the International Recruitment of Health Personnel* needs to be fully implemented and given far higher priority in international agreements.

These midwives are in many ways the exemplars of a way of working that addresses the physical and psychological needs of individuals, while helping shape their social and physical environment.

Radical possibilities

Radical possibilities

The report also identifies some radical possibilities for the future. Five of them are described in Chapter 5:

1. **Health workers working in self-organising and self-employed teams, outside the traditional health institutions.** Doctors in some countries already work like this but it could be extended to other professions – as Burtzog is doing with nurses in Holland – and to multi-disciplinary teams and become the norm globally.

2. **Recruiting and educating health workers from local communities and all sectors of the population.** Cuba's Latin American Medical School was established to educate people from low-income communities and countries to be doctors in their own communities and countries. Other smaller scale initiatives are establishing new career pathways for people from lower income communities.

3. **The complete re-design of primary, community and home-based care, embracing physical and mental health, integrating it with public health, education and other appropriate services and becoming the location for most care and treatment.** There are many developments and initiatives but not as yet anything that has this complete focus for health, broadly as envisaged in the Alma Ata Declaration of 1978.

4. **Reforming professional education around the three stages of informative, formative, and transformative education and the development of global consortia of universities and other organisations to deliver the new model.** This extends the thinking of the Lancet Commission on the education of health professionals and will help secure quality and consistency of standards across a vastly larger and very mobile global workforce.

5. **A massive increase in the numbers of health workers educated and trained globally through partnership working across the world.** Health Education England has pioneered the use of "earn, learn and return" arrangements for educating health workers abroad. Apollo Hospitals has now made a proposal to the Indian government to lead on global partnerships with a headline target of educating a million health workers a year.

Many participants in the review stressed the importance of mental health and of truly giving it parity of esteem with physical health, particularly in the aftermath of the pandemic. There are many interesting innovations being developed and trialled including several new types of role such as specialists by experience, mental health advocates, peer support workers and others. Charlene Sunkel of the Global Mental Health Peer Network, for example, reasoned that peer support workers need to become a formal occupational category in order to achieve greater access to quality care at community level, promote human rights more effectively and tackle inequalities.

There appears to be scope for much more innovation here and in the care of people with intellectual disabilities, autism or dementia. This might include radical proposals for the bringing together of psychological and physical health services – recognising that many people have health needs in both areas and that professionals in both have some level of shared knowledge, even if it is not often utilised.

One interesting development in the UK is the very recently launched **Beyond Pills: Hope for the future campaign**. This is led by young health professionals and students and is focused on transforming the undergraduate and postgraduate curricula for health-related subjects to ensure its suitability for 21st century demographic needs[25].

Their mission is that by 2030, young trainees and recent graduates in health-related subjects will deliver medicine beyond medicines using a truly biopsychosocial approach to health and care. This will ensure patient's social, psychological, emotional and practical needs are being met through principles of personalised care, social prescribing, prevention and health creation. The campaign argues that long term change can only be achieved by transforming education, changing the culture, and nurturing one generation at a time.

Meanwhile the Nursing Now campaign has become the Nursing Now Challenge linking more than 55,000 young nurses and midwives globally so they can share and develop ideas for the future.

Implications for the UK

This report's focus is global, but Chapter 6 also considers the implications of its findings for the UK in two broad areas – the UK's contribution to developing the health workforce globally and the development and management of the health workforce within the English NHS.

As earlier APPG reports have demonstrated, the UK is a global leader in health. These noted that the UK "has world class universities and research, is a global leader in health policy and international development, has strong life sciences and bio-medical and bio-tech industries, and a vibrant and diverse not-for-profit sector"[26,27]. The UK is second only to the US in terms of contribution to health and health sciences globally, which it surpasses in some areas.

The UK's strengths in research, education, networks and partnership are particularly relevant to this report where they provide a strong foundation to build on. Recent developments including continuing government priority for life sciences and the very successful vaccine programme have strengthened this position. However, other developments including the continuing fallout from Brexit have harmed some crucial relationships. The cut in Overseas Development Aid at a time when low-income countries have worsening problems and when other international donors have increased support has also damaged the UK's reputation. There is also considerable concern, as mentioned earlier that the UK and other countries are returning to recruiting health workers internationally in ways that will harm health systems in their home countries.

There are clear opportunities for the UK to play an even greater role in educating the health workers of the future – in developing and implementing these new approaches to education and training, creating global consortia and other organisations to deliver education and training to millions more health workers in the UK and abroad, and through working and learning together with other countries. Grasping these opportunities would continue the great UK tradition of promoting health globally and at the same time benefitting UK universities and enterprises and strengthening the UK's soft power and influence.

The APPG report also considers its findings to the particular context of the English NHS where, as noted earlier, Health Education England has undertaken a workforce planning review and there has been a review of leadership and management. There are five areas of importance this report highlights for England:

1. Meeting the changing health needs of an ageing and diverse population with increasing levels of co-morbidities through the development of broad-based skills, competencies, and training for health professionals.

2. Strengthening leadership is health systems through building on the ideas of compassionate, collective and inclusive leadership as well as the recent *Health and Social Care Leadership Review Leadership for a Collaborative and Inclusive Future*.

3. Undertaking regular workforce review and planning in an open and independent fashion.

4. Promoting regulatory flexibility and alignment to global norms which will enable the UK to participate fully in global workforce developments. This would involve for example, moving the point of full registration for doctors to the point of graduation at university rather than at the end of Foundation Year 1.

5. Providing support, mentorship and investment for foreign trained health professionals so they are able to learn, train, live and work effectively in the UK.

Conclusions and recommendations

Health, like every other sector, faces great challenges in these uncertain and troubled times. There are remarkable opportunities to address very long-standing problems, update systems, processes and organisations, improve working arrangements and reduce inequalities. There are also unprecedented threats. It is very easy to see how health and care systems could be overwhelmed, health workers put under even greater pressure, and population health suffer.

Health and political leaders have choices about what direction they steer their systems – about what their vision is for health and the sort of roles that they want health workers to play in the future.

Adopting a vision and appropriate policies are only a part of responding to current crises and shaping the future. Even the best vision and policies are worthless without robust implementation as the members of the APPG, co-chaired by a former health minister and a former chief executive of the English NHS, know only too well.

They are, however, the starting point. The next crucial part will be to begin an implementation process which follows the IHI mantra of will, ideas and execution[28]:

- Building the will for change – and gathering the necessary momentum.
- Clarifying the ideas that work – enabling people to see in very practical terms what the future can hold.
- Creating a robust delivery methodology.

The APPG recognises that it is always easy to make recommendations when you are not the people who have to build the will for change, find the resources, and manage the change. This report sets out a direction of travel. Even small steps in this direction will be beneficial and better than standing still, ignoring the problems or going in a direction which ultimately you do not want.

One advantage in this case is that there are many pioneers around the world who are already acting as agents of change and creating and co-creating the future. Part of any government's responsibility must be to get behind them and support them, accelerating change and helping make it coherent and consistent.

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Recommendations

Probable Futures and Radical Possibilities makes fifteen recommendations. Seven are global and addressed to all governments and all countries, seven are specific to the UK, and one is addressed to all health workers.

These recommendations build on current developments and propose a structured approach to change. They start from the understanding that health needs to be seen as an issue for the whole of society, integrated with other concerns and that improving health is essential both for economic prosperity and the quality of life.

These are very big changes and will take time and resources to develop fully. Health workers themselves, however, have a crucial role to play by taking the initiative locally and not waiting for policy to catch up with them. Many, of course, are already doing so – despite the pressures they face – working informally with others inside and outside health services to provide care, prevent disease and create health.

Global recommendations

The report recommends that the governments of all countries:

1. Promote shared actions across society to improve care, prevent disease and create health – and empower health workers to act as agents of change and curators of knowledge who can influence, inform, support, develop and facilitate action by members of the public and organisations in all aspects of health and care.

2. Invest in their own health and care workforce, create more flexible employment conditions, and build strong links with schools and communities to encourage people from all backgrounds to take up roles in health and care – emphasising the important role that people from the poorest and most disadvantaged communities can play.

3. Adopt a model for educating health workers based on the 2010 report *Health Professionals for the 21st Century* which recognises the informative, formative and transformative elements of education and promotes the creation of health professionals as leaders and agents of change and custodians of knowledge.

4. Support the development of global consortia of universities and other bodies to deliver education and training which will secure the quality and consistency of standards across a vastly larger and very mobile global workforce.

5. Work together with global partners to increase massively the supply of health workers being educated and trained and tackle the enormous problems caused by migration from lower income countries to higher income ones and from poorer communities within a country to more affluent ones.

6. Re-commit themselves to the WHO Global Code of Practice on International Recruitment, publish a report on their compliance with it, and work with the WHO to strengthen its application.

7. Plan and prepare for these changes and ensure that all heath workers have sufficient time in the workplace to learn and develop new skills and knowledge as neccessary.

UK recommendations

The seven global recommendations apply equally to the four countries of the UK. In addition, the report recommends seven others focussed on the UK and on the English NHS:

8. The UK Government should agree and implement the recommendations of the Health Education England Review *Framework 15: Shaping the Future Workforce for England* and in doing so set out their vision for the health workforce and health and care systems for the future. It should also commit itself to the publication of regular workforce reviews and plans.

9. The UK Government should work with Universities UK and other bodies to develop plans for promoting the UK's role in the education of health workers in the UK and abroad. These could include leading the development of global consortia of universities and other bodies to deliver education and training.

10. The Government should work with NHS management, universities, the regulators, and the professions to ensure that pre-service and in-service education and training enable the development of the broad-based skills and competencies necessary for meeting the changing health needs of an ageing and diverse population with increasing levels of co-morbidities.

11. NHS England should strengthen leadership in the NHS through building on the ideas of compassionate, collective and inclusive leadership which engages all members of the workforce as well as the report from the Health and Social Care *Leadership Review Leadership for a Collaborative and Inclusive Future*. As part of this, it should specifically foster and invest in clinical leadership.

12. The UK Government should work with regulators and the professions to promote regulatory flexibility and alignment to global norms which will enable the UK to participate fully in global workforce developments. This should involve for example, moving the point of full registration for doctors to the point of graduation at university medical school rather than at the end of Foundation Year 1.

13. NHS England should ensure that there is appropriate support and mentorship for foreign trained health professionals in England and the investment to enable this so that they are able to learn, train, live and work effectively in the UK.

14. The UK Government should adopt the growth and development of the health workforce as a priority for its contribution to international development and make specific commitments to support the growth and development of the health workforce in partner countries. It should maintain and strengthen the many global partnerships – at professional, institution and country levels – to ensure mutual learning and shared development. It should also reinstate the commitment to spend 0.7% of Gross National Income on Overseas Development Aid.

Recommendation for all health workers

It is vital, if this approach is to be successful, that health workers themselves should wherever possible:

15. Take a lead in acting as agents of change within the confines of their existing role to support, influence and enable others to improve, maintain and create health. There are many examples of this already happening including the Beyond Pills campaign mentioned earlier.

2. Drivers for Change

It is hard to exaggerate the level of change we can expect over the next 15 to 20 years. There are many different developments driving change, not all are pushing in the same direction, and they will affect different countries and regions differently. However, it is clear that the status quo and 'more of the same' in terms of workforce composition, skills, attitudes, education and approaches will not be sufficient to deal with today's needs or meet future challenges.

Health workers, academics and politicians from around the world were asked, as part of the research for this report, to identify what they thought were the main drivers for change. Different people had different views and gave different emphasis to different aspects. These have been grouped into five main areas which embrace most of the views expressed and all of which will profoundly influence health systems and the health workforce in the future. These were described in Box 1.3 on page X in Chapter 1 as:

- The way in which health and well-being are becoming more central to society and linked to inequalities and life chances – and societal issues are becoming central to health
- Changing patterns of disease, health risks and demography
- The developing crises in health systems and the health workforce
- Advances in science, technology and the use of data
- External events from pandemics and conflict to climate change and economic crisis

This chapter discusses each of these areas in turn and concludes with a brief section on the World Health Organization's global priorities. First, however, it is worth noting that the data about the workforce shows that the situation is critical. More health workers are needed, the current levels of attrition need to be halted, and roles need to change if health systems are going to be able to adapt successfully in the face of all these pressures for change – and to do so at time of financial stringency.

The health workforce data are compelling

As noted in Chapter 1, the global and national health workforce data are compelling. While the numbers need to be treated with caution. There can be no doubt, however, about the scale and the complexity of the problem.

Estimates of the number of health workers globally range from 105 to 120 million, depending on the methodology used and who is counted as a health worker. A recent report from the Global Burden of Disease study shows that to achieve Universal Health Coverage everywhere requires about 44 million more health workers based on 2019 figures[10]. Two thirds of this shortfall is in nurses and midwives. Clearly, a lower number would be needed to achieve a lower standard. Equally clearly, there will be big differences between countries and there is a demand for higher numbers in many countries in order to achieve higher standards. The global market in health workers aggravates these differences.

These shortages have direct impact on patients. Poor morale, low standards and workforce shortages all affect the care given to patients and morbidity and mortality rates in countries and regions.

Box 1.2 on page Y in Chapter 1 lists out some of the key figures. Appendix 1 provides more detail on current and projected future workforce numbers. It describes a critical and unstable situation globally that leaves many patients and populations very vulnerable.

These data are compelling. There are accompanied by a developing economic crisis with major problems caused by the pandemic and the war in Ukraine. This developing crisis can no longer be ignored, and countries need to take decisive action.

The interconnections between health and society

Society and institutions are changing the way in which they think about, value and prioritise health and wellbeing. This has been accelerated by the Covid-19 pandemic which revealed sharp inequalities within societies. In the United States of America, for example, life expectancy in 2020 is

estimated to have fallen by 1% in white populations, and up to 3% among Black and Hispanic populations[29]. Another study, described *"pervasive gender inequalities, with profound consequences, especially for women, girls, and people of diverse gender identities"*. It pointed to an increase in gender-based violence, increasing risk of child marriage and female gender mutilation, and a greater burden of unpaid care work being provided by women[30].

These inequalities affect mortality rates but also influence life chances in profound ways. Chronic malnutrition in low-income countries leads to stunting which affects mental as well as physical development – crushing opportunity as well as health. More generally, there is growing public awareness of both how vital education is to being healthy and how important health is to educational attainment.

These connections are beginning to shape expectations of government policy, health services, and the roles of health workers. Understanding these wider determinants of health is becoming increasingly essential in shaping health policy as well as the way that health workers practice. This understanding is set to become more important over the years and, as this report argues, health workers will need to increasingly become agents of change and curators of knowledge mobilising and supporting communities and other sectors to improve health and wellbeing.

New Zealand is the first industrialised country to adopt a wellbeing budget designed to tackle long-standing problems of poverty, economic productivity, mental health, and the inclusion of underserved populations. The foundation for the well-being led approach to governing in New Zealand is the understanding of the different aspects in life that lead to a good life, and how they must be considered holistically, whether it be healthcare, education, housing or a sense of community and connection[31].

This is not just about government and official activity. Covid-19 pandemic drew attention to these issues but it also led, in some places, to a flourishing of local and community groups engaged in positive local activity which both protected health and created the conditions for people to be healthy. Equally positively, the pandemic has also in some instances improved the way society values health workers. This may in turn lead to public pressure for increasing support, funding and staffing. This appears to have happened in the recent nursing referendum in Switzerland where the public voted to increase pay and improve working conditions, against the advice of the government[32].

These factors have also led to an increasing expectation that institutions and leadership, including in health, should be inclusive and reflect the population they serve. The need to have inclusive and diverse teams and leadership - in terms of gender, ethnicity, sexuality and socio-economic position - is increasingly becoming part of governmental and institutional policies. This is accompanied by recognition of the benefits this can bring in terms of outcomes and productivity.

Changing patterns of disease, health risks and demography

Population growth, ageing and demographic changes have implications for health needs and the disease burden. There is a global shift in the disease burden from infectious, neonatal and nutritional diseases (typically impacting children) to non-communicable diseases that typically impact adult populations which will increasingly have co-morbidities as they age. This is not just a problem for affluent western countries. Low- and middle-income countries face the double or triple burden of a continuing threat from infectious diseases and high maternal mortality rates as well as having the fastest growing number of deaths and increase in disability from non-communicable diseases[33].

The world population is growing and getting older. It is estimated that by 2030 and 2050, the population will be 8.5 and 9.8 billion respectively[34]. Notably, the number of older people is also increasing. It is expected that by 2050, one is six people will be over the age of 65 (16%), whereas in 2019, it was one in 11 (9%)[34]. Similarly, the number of people over the age of 80 is expected to triple from 2019 to 2050 (143 to 426 million respectively)[34].

There are significant differences between and within countries. For example, whilst the global population is expected to grow by 10% from 2019 to 2050 from 7.7 billion to 8.5 billion, the rate of growth is expected to be 99% in sub-Saharan Africa, 56% in Oceania excluding Australia/New Zealand, 46% in Northern Africa and Western Asia, 28% Australia/New Zealand, 25% in Central and Southern Asia, 18% in Latin America and the Caribbean, 3% in Eastern and South-Eastern Asia, and just 2% in Europe and Northern America[34].

The impact of demographic change is not all negative. In some regions such as sub-Saharan Africa, and in parts of Asia and Latin America and the Caribbean, growth of working age populations may have a "demographic dividend" whereby there is increased opportunity for economic growth. On the other hand, in regions such as North America and Western Europe, the fall in working age population will put pressures on social protection systems including pensions and publicly financed healthcare. Further, such regions may be increasingly reliant on migration of skills and labour, including those directly related to healthcare.

Crises in health systems and the health workforce

Health systems and health workers alike are engulfed in slow-burning crises.

In simple terms, as just noted, changing disease patterns, multiple morbidities and demography are placing new and different demands on health systems which are not adapting fast enough. Using 20th century methods and models of care to manage 21st century problems is both ineffective and inefficient as patients and health workers have to find workarounds and other ways of beating the system to try to get the care that is needed. It is no wonder that that there are major problems with quality and growing dissatisfaction with many health systems.

These problems in turn place extra stress and demands on the health workforce which in addition to the pressures coming from the shortage of numbers are generally exhausted as a result of the pandemic and many health workers themselves are demanding change. Finances are already under a great deal of pressure and the growing economic problems globally will make matters worse.

Health systems are responding to these changing circumstances by developing new service models, albeit not as fast as the problems are developing. The main areas of development include:

- **Home and community-based care** – there is an increasing push, aided by technology, to provide care closer to the patient, and an expectation that most of the care will be provided in the community if not at the patient's home itself. This proposed model also has additional advantages in terms of helping to access and support vulnerable populations.

- **Integrated care** – this involves moving from a focus purely on treating a single patient in a particular setting to bringing together preventative, primary, secondary, tertiary and social care along a patient's pathway. The English NHS, for example, is introducing Integrated Care Systems to further this ambition.

- **Precision or personalised medicine** – scientific and technological advances provide the increasing opportunity to focus on tailoring disease prevention, screening and management to the specific individual's genetic, environmental and lifestyle factors.

- **Prevention and early diagnosis** – preventive measures in healthcare are likely to become central to managing conditions, particularly given costs associated with untreated and under managed non-communicable disease. The need for preventative measures has been highlighted during the Covid-19 pandemic, and measures such as vaccines, screening and genetic testing are likely to be bolstered in the future.

- **Financing and public/private partnerships** – health systems operate and are financed differently around the world and many new models for financing and partnerships are developing. The growing demand for healthcare in the fast-growing economies of the world is leading to enormous growth mainly in the private sector. The nature of the dominant type of health system and related financing and incentivisation that emerges in any area will shape the role of the health worker in the future.

The attitudes and expectations of health workers are also changing in ways that are likely to continue, and possibly accelerate, in the next 15-20 years. Younger health workers in particular have changing expectations of work. Discussion with younger health workers and others suggest that these include a desire to be valued and influential in the workplace, to work in a supportive culture, be able to choose their own work/life balance and to have opportunities for development and portfolio careers. These are shown in Box 2.1.

Box 2.1: Changing attitudes and expectations in the workforce

Box 2.1: Changing attitudes and expectations in the workforce

- A desire to be able to influence their **working environment**
- A need **to be valued** by the system, organisation and the team
- A desire to work in a **supportive culture** that emphasises mental health and wellbeing
- Expectations of the opportunity **to learn and develop** throughout their career, with the time and space created for them to do so
- **Flexibility** in training and in work, including the ability to 'step off' training and work pathways to gain competencies or pursue other interests
- The ability to create a **work-life balance** whereby it is possible to be productive at work, but not at the detriment of social and personal priorities and circumstances
- The wish to undertake **stimulating careers**, characterised by the ability to undertake one, or a combination of, clinical and non-clinical roles as part of professional and career identity. This includes the concept of a 'portfolio career'.

These ambitions are too often at odds with the experience of health workers. Many have had to deal with critical staff shortages, busy rotas, inconsistent support from institutions and supervisors, administrative burden, high expectations, feeling undervalued by the systems they work in, limited ability to shape circumstances in the workplace, and inadequate professional development/flexibility in work.

These challenges have led to what Maureen Bisognano told the APPG as "an epidemic of exhaustion" with health workers feeling overworked, overwhelmed and increasingly demoralised. This has been associated with increased rates of mental distress, feeling burned-out and some notable examples of large-scale resignations or early retirements across Japan, Europe, and North America[35-37]. Although the exact circumstances of work and related stressors vary around the world, burnout and moral injury appears to be a global phenomenon.

Professor Alister Fitt, Vice Chancellor of Oxford Brookes University which is a major educator of health professionals, told the APPG how sad it was to see bright young enthusiastic people coming into the workforce and rapidly becoming disillusioned and demoralised.

The situation in many low-and middle-income countries is often worse with health workers facing greater staff shortages and frequently having to work outside their competences while dealing with far greater health problems than in more affluent countries. Dr Ilona Kickbusch of the Graduate Institute in Geneva drew the APPG's attention to the position of the millions of women globally who carry so much of the burden of healthcare in paid and unpaid capacities and are so frequently under-valued and, even, unnoticed. There is an acute need for change now – and in the future when younger generations may not accept the conditions that their elders have tolerated.

Advances in science, technology and the use of data

Developments in science, technology and data are already transforming the ways in which we live and work and how society functions as part of a 'fourth industrial revolution'[38]. They will have profound impacts on health systems and health workers. These are described in more detail in Chapter 3 on the future roles of health workers.

The major areas where technology and scientific development will impact on the health workforce include artificial intelligence (AI), robotics, genomics and digital medicine as described briefly below:

- **Genomics** – providing for far more accurate prognosis and diagnosis on diseases with a genetic basis enabling precision or personal medicine for the individual. Developments will also include epi-genetics and, as Dr Srinath Reddy, President of the Pubic Health Foundation of India stressed to the APPG, better understanding of the interactions between the genotype and social factors leading ultimately to new ways of improving population health.

- **Digital Medicine** – digital technologies are already widely used across healthcare with telemedicine approaches allowing for far greater access to healthcare. There is enormous potential for the future that will enable the full development of blended ways of working seamlessly across both physical and virtual interventions.

- **AI-based Technologies and Robotics** – these technologies allow for the processing of vast amounts of data and robotic support for treatment. They will be used increasingly in all areas of healthcare, with applications in diagnosis, decision support, treatment and even caring in the home.

- **Data** – increasingly amounts of data and better ways of processing it will provide opportunities to bring together health data for the benefit of patients through increasing personalised care (individual level biometric and diagnostic data) and the health sector more widely through use of large amounts of raw data to undertake analysis and gain insights (population level aggregated 'big data'). The Covid-19 pandemic showed how real-time data could be used by health workers, public health authorities and governments to decide upon, implement and communicate public health measures and treatments.

All these areas of development bring with them new considerations and risks which health workers will need to respond to. They include the need to sort and manage the vast amount of data available to them to ensure they are not swamped and they continue to update themselves on advances in practice and knowledge.

At the same time, there are thousands of new consumer technologies and Apps that are aimed at and used by patients via repositories such as the Apple Store and the android Google Play - estimates at the end of 2021 suggested there are roughly 54,000 heath Apps in each[39]. Many of these are not evidence based or validated, and likely to generate data in various forms and with varying degrees of usability for the health system. They also present challenges related to digital inclusion, within and between countries. For example, although almost half of all internet users in the European Union looked for health information online, there were significant variations between countries with 76% doing so in Finland and only 30% in Bulgaria[40].

These developments all also raise questions about the governance of data – confidentiality, transparency and who owns a patient's data - as well as about public confidence in health workers and health systems where key decisions about diagnosis and treatment are seemingly taken by distant authorities and algorithms. In the English NHS, there is a recently published policy paper that considers how 'data saves lives' and might reshape health and social care in the coming year[41].

External events - from pandemics and conflict to climate change and economic crisis

External events will force change: pandemics, climate change, political turmoil, conflict inside and between countries, migration and economic crises will affect the demands placed on health systems and health workers.

Several people told the APPG that climate change would be the most significant external threat over the next twenty years. This would not only have a direct impact as result of natural disasters, loss of viable farmland in some areas, and mass migration, but also enable changes to the nature of

some illnesses. Zika, for example, emerged in the United States around 2016 for the first time in modern history[42]. The WHO estimates that between 2030 and 2050, climate change will cause approximately 250,000 additional deaths each year from the impact on malaria, diarrhoea, heat stress and malnutrition alone[43]. It will also have a major impact on mental health, with evidence of climate associated anxieties already being reported[44].

Climate change will also affect the broader economic, political and social environment. In economic terms alone, it is estimated that the direct damage and monetary costs to health will be between two and four billion USD per year by 2030[43,45]. It will also be very likely to increase inequalities globally with the worst impact being felt by vulnerable populations in high-income countries and by health systems and health workers in low-and middle-income countries.

The impact of these external, ecological and geopolitical threats is profound and can be long-lasting. The Covid-19 pandemic for example, has caused short-term economic slowdowns and is likely to have significant financial and economic ramifications across the next 10-20 years globally[45]. The degree of economic scarring across this period depends on the country context, economic structure and the policy response undertaken with, once again, low- and middle-income countries likely to be worse affected than high-income ones.

Global Policies and Priorities

As the world begins to emerge from the Covid-19 pandemic, the focus of national and global institutions is increasingly moving towards health security. This has meant a de-prioritisation of work on health system-strengthening and non-communicable diseases. This is already having implications on the strength and types of health systems being developed around the world with some low-income countries which rely on external support being particularly affected.

The Sustainable Develop Goals (SDGs) currently bring together and shape global ambitions and activity on international development including health[46]. They run until 2030 and progress has stalled during the pandemic, with some countries going backwards and at least 150 million people falling back into poverty[47]. Both the immediate and the longer term are very uncertain.

In January 2022 the WHO Director-General, Dr Tedros Adhanom Ghebreyesus, outlined five health priorities for the WHO and the world[48]. These include a shift from treating disease to promotion and prevention, re-orientation to primary care, strengthening epidemic preparedness, enhancing technologies, and strengthening global institutions.

These WHO priorities reinforce the importance of the four groupings of drivers described here and will help shape the future. These priorities are shown in Box 2.2.

Box 2.2: WHO priorities in 2022

Box 2.2: WHO priorities in 2022

1. To shift from treating disease and illness, to promoting health and well-being and preventing disease through addressing root causes including social determinants

2. Reorientation of health systems toward primary health care, to ensure that individuals have access to essential health service, and primary health care serves as a foundation for advancement of universal health coverage

3. Strengthen epidemic and pandemic preparedness through local, regional and international systems and tools

4. Enhance science, research, innovation, data and digital technologies to enable better health prevention, early detection, diagnosis, treatment and promotion

5. Strengthen global institutions and the WHO to ensure it plays a leading and directing authority on global health

Taken together, these and other drivers for change will have a massive impact on the roles of health workers. They need to be better understood and planned for if health globally is to continue to improve in the next 15 to 20 years and beyond.

3. Probable futures – health worker roles

We can expect to see major changes in the roles of health workers over the next 15 to 20 years – in what they do on a day-to-day basis, in their relationships with others, and in the way they are organised, employed and educated. This chapter describes eight areas where there was considerable agreement among respondents about the way roles will develop – the probable futures. Some more radical possibilities are described in Chapter 5.

These eight areas describe a likely direction of travel. How they are developed will vary from place to place. The experience of individuals will also vary depending on their place of work and the stage of their career.

These areas are each linked to the drivers of change described earlier. Advancing science, technology and data use will lead to blended physical and virtual working. External events and the links between health and other sectors will contribute to a renewed focus on public and mental health. The crises in health systems and the workforce will lead to more local working, co-creation with patients, the development of new roles and task sharing, better teamwork and greater flexibility.

Underpinning all these others will be the further development of health workers as **leaders, agents of change and curators of knowledge**. This can be done in a piece meal fashion with individuals taking on this role – as some do now - or as a more radical possibility where this is implemented as a system wide change.

These future roles are shown in Box 3.1.

Box 3.1: Probable Futures – future roles

Box 3.1: Probable Futures – future roles

- **Blended working which makes the best use of data, technology and systems thinking** in a future of blended services where some services and some parts of services are virtual, and some are in person and where the use of data and evidence is routine
- **A local focus** where health workers need to understand the impact of the wider determinants of health, culture, communities and environment on their patients and their communities
- **The development of co-creation** where health workers work alongside their patients, families and carers
- **A renewed emphasis on public, population and global health** with new approaches to epidemiology, targeted interventions, health protection and disease prevention and a new focus on health creation and on understanding the causes of health
- **New priority for mental health, learning disabilities and autism** and better integration with physical health
- **A much greater emphasis on teamwork** – encompassing professionals, non-professionals and lay people –and the development of **new roles and task sharing** between professions and groups
- **Increased flexibility** in employment and organisational structures
- Underpinning all the other roles will be the further development of health workers **as leaders, agents of change and curators of knowledge** – this can happen piece meal as a "probable future" or be implemented across a whole system as a "radical possibility".

These eight areas describe the direction of travel. There will bumps on the road. Dr Lloyd McCann, a doctor who has worked in South Africa, Australia and the UK before moving to New Zealand where he now practices and works in health systems leadership, summed up some of the tensions facing health workers very succinctly. He told the APPG how there will be three continuing tensions as these new roles develop. These are tensions between:

1. Population and individual health
2. High tech and high touch approaches to delivering care
3. Generalist and specialist practice which can be defined by a 5-box healthcare delivery model

Blended working – physical and virtual working using technology and data

These future roles are discussed in turn below with greater detail given to this first area of blended working because technology will underpin and profoundly affect every other area.

Health workers in the future will work in health systems that are fundamentally reliant on technology, digital solutions, and data utilisation. This will determine much of the framing and the language of health, shaping how health workers think about health problems and possible solutions, and how they act.

Health workers will need to be technologically and digitally skilled If the opportunities offered by technological, digital and data innovations are to be realised and transform heath delivery and population health outcomes. Ideally, health workers will not merely be the willing recipients of technology but instead be fully technologically literate as shapers, leaders and drivers of change. Advances in science, technology and data by themselves can only enable change and improvement. A skilled, motivated and supported workforce will make things happen.

There is a real danger that, instead of this ideal vision, technology and data will become a burden and a challenge rather than a solution. In this less optimistic potential future, health workers will be relentlessly asked (even, told) to keep up with the technology imposed on their practice and expected to develop skills with little or no time to do so. They will not be given the agency to shape and lead the systems that emerge. Technology and data could add to existing logistical and bureaucratic burdens. Time will therefore need to be allocated to the development and continuing updating of skills.

Some health workers will probably undertake a large number of their clinical interactions digitally and remotely. In some contexts, virtual interactions may make up the majority of all clinical consultations. Such interactions, depending on speciality, may span an entire patient journey from triage, initial consultation, assessment and diagnosis, investigation, treatment and follow-up. This will break the historic link between the location of the health worker/patient and where the service is delivered thus enabling more services to be delivered locally outside hospitals in patients own communities and homes (often, secondary care).

This change is already happening, accelerated by the pandemic, and is affecting the way health services are being planned. In China, for example, there are already 12 virtual hospitals where almost the whole patient pathway is undertaken remotely. In the UK, Dame Linda Pollard who is the Chair of Leeds Teaching Hospitals NHS Trust, told us that they are planning their new hospital very differently from the old one, with vastly reduced outpatients areas and built in use of digital communication. Moreover, telemedicine has developed apace in many low- and middle-income countries which have few local facilities and rely on remote consultation and support with pathology and radiology from distant centres. The military have also made use of these trends with robot enabled battlefield diagnosis and even surgery. All these trends are likely to develop much further over the next 15 to 20 years.

The APPG commissioned researchers at University College London (UCL) to undertake a rapid scoping literature review that looked at technology as a way of linking home-care with institutions. The literature reviewed was all pre-pandemic but nevertheless showed that remote medicine can be both effective and cost-effective, provided that appropriate training, sensitisation, and frameworks are in place. The review showed that there is a clear role for the provision of remote health care in improving access to care for populations in remote areas or otherwise underserved populations. Further details of the study are available in Appendix 2.

Box 3.2: Literature Review: Technology as a way of linking homecare with institutions

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Recommendations:

- Remote medicine can be effective and cost-effective, particularly for populations in rural areas or otherwise underserved populations.
- Remote medicine can benefit the health workforce by reducing their workload and allowing them to prioritise and optimise their time.
- Investment must be made in appropriate infrastructure, including adequate training and the integration of information technology systems to support health workers
- Governments should develop appropriate licensing structures to support remote medicine, to ensure that legislation keeps pace with technological advances.

The use of date will become even more vital and pervasive. Health workers of the future will have access to a vast amount of information and data from different sources:

- patient and carers through history and examination
- investigations such as blood results, ECGs and radiology
- hardware such as wearable technology, remote monitoring and implanted medical devices
- patient software such as smartphone applications to track sleep, nutrition and mental health
- genomics/sequencing data
- patient registries
- research findings
- search engine and personalised data

Much of this data and many of these sources are already available. While there will be upgrades and new developments, perhaps the most significant change will be in the integration of data from different sources, how it is curated and presented, and how skilled and effective health workers are in using it. They will need additional support from others in areas such as biostatistics, data interpretation around AI/clinical support tools, decision making with technology/data such as genomic data and so-called soft skills around communication/empathy when delivering care across digital platforms

All these developments present new questions and challenges about governance, regulation and legislation. There are already significant patient and public concerns about the security and safety of patient data and industry involvement. At present, unlike for medical hardware devices and drug technology, there is a significant gap in regulation around digital and technological health software. The context in which such regulation emerges (nationally and globally) and the potential for (or lack thereof) consensus will be a key determinant on the emerging role of health workers in helping patients navigate their concerns.

There are also questions to address around health workers working remotely in other jurisdictions. Will, for example, health workers need to have accreditation in the country in which they are delivering care remotely, and if so, what would this look like? Will they need insurance? And how will they be held accountable for their actions?

Moreover, there are a large number of health applications and software available. Most of these are not validated or tested for effectiveness[49]. This is likely to grow in number and sophistication. This includes physical health and mental health Apps.

All of this means that health workers will have a key role to play in supporting patients navigate the complexity and variety of options available to ensure they use validated and effective software – in much the same way that health workers support patients make decisions around investigations or medication use. Health workers will not only need to be curators of knowledge but also experts in knowledge systems if they are to support their patients and the public in this way. Box 3.3 illustrates the sort of support they will need to develop their role in this way.

Box 3.3: Support needed for health workers to develop their role

Box 3.3: Support needed for health workers to develop their role

There is a need for concerted action across to develop technologically skilled health workers:

- Pre-service education and training and continued post-graduate and in service professional development that not only keeps up-to-speed with technological and digital developments, but also provides skills to create, develop and implement technology.
- Health systems and processes that enable and empower health workers to develop, shape and implement technology and digital innovations.
- Protected on-the-job time and capacity to learn, develop and refine new digital and technological skills.
- Widening conceptualisation of the future multi-disciplinary healthcare team within health systems whereby digital and technological roles (such as data analysts) are embraced to support health workers.
- Electronic medical records systems that are patient and health-worker friendly, to ensure that both groups have all the relevant information available, integrated and accessible in one place for use in an easily and efficient manner.
- Guidelines and regulations that will help ensure safety, quality and patient/health worker centred digital design in technology and digital innovations.

A more local, community and home focus

The shift to services being provided much more locally in communities and at home has already been described in Chapter 2. It means that many health workers will have to work in different ways, interacting with the public and other sectors.

Health workers are increasingly likely to provide care where the patients and the public live, work, study and worship – in homes, schools, workplaces, community and religious settings. Some of this will be facilitated by technology, with health workers able to reach remote areas through use of virtual and digital technologies.

In addition, health workers are more likely to work across different sectors with professionals in education, engineering, business and others to support health. Box 3.4 shows the headline findings from a rapid scoping literature review commissioned from UCL by the APPG on providing cross-sectoral support for health in education through school-based initiatives to support preventative care. Here again this review is based on studies undertaken before the pandemic. More details are provided in in Appendix 3.

The findings suggest that these sorts of school-based interventions can be highly effective and cost-effective and suggests ways in which they might be better supported using, for example, peer educators or through providing extra training and support to health workers so they can enable these types of activities.

Box 3.4: Literature review: cross sectoral support for health through school-based initiatives to prevent and mange obesity

Box 3.4: Literature review: cross sectoral support for health through school-based initiatives to prevent and manage obesity

Recommendations:

- Health must be fostered within community settings such as schools, through preventive interventions and through education.
- Preventive care interventions in schools can be highly cost-effective.
- Cross-sectoral support for health can reduce the pressure on budgets and the health workforce.
- Taking a broader perspective on the health workforce in this way may need additional cross-sectoral funding or advocacy work.
- Innovative alternatives to teacher-led interventions, such as peer educators, should be considered.

Co-creation and partnership with patients, families and carers

Social change, technology and the drive towards more local care all mean that the relationship between health workers and patients is changing. It will increasingly be less paternalistic and top down because health workers no longer hold the monopoly over medical information and knowledge. Increasingly, patients are well informed, health literate, able to access sources of information online and proactive in their desire to seek solutions prior to consulting health workers. These trends are not so apparent in every country. The attempts by China to eliminate Covid-19 show how firmly the authorities exercise control in some parts of the world. In other parts, however, patients are becoming co-creators and co-producers of health and health care.

These changes can already be seen in, for example, the move towards patients owning their own records, the development of mechanisms for greater accountability of professionals and institutions, and the use of patients satisfaction and patient reported outcomes as key measures of satisfaction. It can also be seen in the way that private institutions treat patients as consumers, using marketing techniques familiar from other sectors.

The availability of many different sources of information raises serious questions about its accuracy and the ability of patients and the public to verify its accuracy and the reliability of the source. This is particularly important at a time when truth is increasingly contested and seen as relative and contingent. It is here that health workers have potential role as custodians of knowledge – provided of course that they are trusted.

Within this new model, the health worker and patient will work in partnership to utilise the wide range of data available, technological advances and clinical knowledge to make decisions around investigation, management and follow-up. In effect, a new and significant part of the role of the health worker will be in supporting an empowered patient to make decisions around their care. In doing so, health workers will actively seek to support patients to monitor their own health (such as through wearable technology) and support patients to interpret findings from this and other data sources.

The patient-health worker relationship needs to be based on empathy as well as shared trust. It will be important to bolster and not lose this at a time when technology advances and patients become more empowered. For example, for some with chronic conditions, tracking and monitoring progress as things worsen through the course of the illness can lead to significant mental health distress. Here, the health worker of the future may help to support the patient navigate the various data received, add value by helping to contextualise information to aid decision making and empower patients to make proactive and positive decisions for their circumstances.

The increasing use of digital and virtual health platforms to undertake remote clinical interactions may bring challenges in building rapport, establishing trust and conveying empathy. This will be particularly problematic where there are language barriers and cultural differences. As such, soft and non-clinical skills around empathy and communication are likely to be even more important, and there is need to ensure they are not eroded or lost to the transition to increased technological use.

Developments such as patients owning their own data may also help tackle longer standing challenges of lack of data integration across settings – for example, as patients move between providers or systems, this may mean that health workers are able to access information more easily across the patient's health journey and are not limited to their own system or areas of work.

It will be easier for some groups to co-create and partner with health workers. Those who are relatively well off will have access to technologies and health professionals with time to care. On the other hand, those who have less resources, less time and multiple competing life/work priorities may be less health literate and therefore have limited engagement with health data outside of direct interactions with health professionals. Similarly, if someone becomes unwell with a chronic and debilitating condition, will they have the capacity, motivation and support to engage with new digital technology and interpret data available? Such individuals may not realise the dividend of partnership ways of working and the relationship may remain largely paternalistic.

Health workers and health systems will need to actively consider who is being empowered, who is being left behind and how best to support and enhance digital health literacy for those left behind. Health education and literacy training will be increasingly important in this new health landscape for health workers to engage in, promote and support left behind populations[50].

Renewed emphasis on public, population and global health

Health workers having a good understanding epidemiology, local and global patterns of disease and the impact of these external factors will be even more important in the future. New technology will enable much better understanding of the characteristics of populations and will allow new approaches to epidemiology, targeted interventions, health protection and disease prevention – all of which can be used to help address inequalities between for example, ethnic groups, genders, age, occupation groups and location.

Scientific advances create new opportunities with, for example, vaccines and prophylactic treatments that reduce the severity of disease and may prevent it all together as well as methods for early detection and measuring spread and prevalence in a population.

There will also be new emphasis on health creation – and the causes of health - going beyond existing approaches to health promotion to addressing the wider aspects of creating the conditions for people to be healthy and helping them to be so. Much of this may be led by people outside the formal health system and supported by health workers as agents of change and curators of knowledge[8].

Global health has also become a subject of great interest to health workers – again partly influenced by the pandemic – and many health workers are beginning to have a global perspective on their work, understanding how culture and context both influence disease and the way in which it can be treated. Many health workers, particularly doctors, are very well networked globally, and this provides the opportunity for shared learning and mutual development as people work together on and share ideas about dealing with the new problems they are facing[6].

Mental health. learning disabilities and autism

Mental health has also been referred to many times in this report and, here too, the focus on the links between health and society raises its importance. The APPG's 2015 report *Mental Health for Sustainable Development* stressed the link between mental health and development globally[51]. As the report pointed out, *mental health problems account for almost 13 percent of the world's total disease burden, affect up to 10 percent of people across the life course at any one time, and make up over a quarter of the years people live with disability globally[52]. This costs the world some US$2.5 trillion per year[53], yet the amount invested in treating mental health problems is barely a fraction of this – less than two percent of the health spending in most low and lower-middle income countries[54, 55]. Depression, substance abuse, schizophrenia, learning disabilities and other common condition.*

Mental health has achieved a new prominence in recent years with high profile national and global campaigns and, in the UK, by policy decisions to give it parity of esteem with physical health. There is still a long way to go in securing adequate services nationally and globally and the pandemic has exacerbated the problem by the way it has impacted on the mental health of whole populations.

The pandemic has also drawn attention to deep divisions in most countries between physical and mental health with different specialists, groups of staff, facilities and protocols. This often gets in the way of adequate treatment for people with co-morbidities – who need physical and mental health support – and when people with mental health problems raise them, for example, with primary care workers and others.

Dr Srinath Reddy stressed the importance of all health workers being familiar with mental health issues. In the UK, Parliament has just passed a legal requirement for all health workers to have some training in the related fields of learning disabilities and autism which are often very neglected areas.

These changes are important but looking ahead, there may well be a need for more radical solutions involving, for example, much closer integration of services and health workers.

Improved teamwork, new roles and task sharing

There has been a general move towards a greater emphasis on teamwork in recent years with the recognition that quality and delivery are dependent on systems and good teamwork. Many people including Professor Michael West emphasised the importance of this to the APPG. This has been reinforced by a general move to greater equity, diversity and inclusion.

This is not only about a change in values and expectations within society but there is also evidence about the benefits of having diverse, inclusive and more equal teams in the workplace in terms of greater productivity, more innovative solutions and better functioning teams[56].

Equality in the workplace also relates to the dynamic and power relationship between different professional groups. Historically, certain groups have more assertive positions within health systems, such as doctors relative to nurses. Some of this has reflected roles, and in other times, it has also intersected with gender, age, ethnicity and other considerations. It is expected that this changes with time. This transition is not only likely to be facilitated by changing societal attitudes, but also by levelling up in terms of role, skills, knowledge and competencies (e.g. specialist nurses, midwives and allied health professionals). Further, it is likely to be accelerated by increased collective focus on prevention and health creation where the strengths of different team members are likely to be accentuated compared to purely biomedical models of care delivery.

The roles and composition of the team is also changing to provide a more integrated, preventative and technologically driven health service. In addition to ensuring existing staff having the skills to be effective in this new landscape, there is also a need to reconsider the numbers, composition and roles of health workers within the team. For example, there may be a need for more data analysts within a clinical the team. Their role might be to alert health workers within the team as to patients of concerns and those who need further support. Similarly, IT specialists and other digital experts such as data integration support officers may have key roles to play to ensure that data available from across varied systems and data points is processed and curated for use by the health worker in their clinical decision making.

There are also key non-technology-based roles to enable and maximise health. For example, having community-based agents, specialists by experience, buddying and care navigators. Charlene Sunkel of the Global Mental Health Peer Network emphasised the importance of these roles in the quality-of-service delivery and because they helped promote human rights more effectively and tackle inequalities. Box 3.5 summarises findings from a commissioned rapid scoping literature review on the role of community-based agents in the health care sectors. Further information on this can be found in Appendix 4.

Community based agents (CBAs) can play a key role for national health care programmes in disease prevention and management at community-level. This analysis documents extensive findings on the effectiveness of CBAs in a variety of areas of the health care service. Socioeconomically marginalised groups are more likely to benefit from CBA programmes as they face greater barriers to accessing formal health care. However, CBAs need continuous, structured qualification and training programmes, to increase worker motivation and quality of delivery. There is also a need for a fully integrated approach would allow workers to have a defined scope of practice, while also increasing trust in CBAs among communities, which will ultimately lead to better performance.

Box 3.5: Literature Review: The role of community-based agents in the health care sector

Box 3.5: Literature Review: The role of community-based agents in the health care sector

Policy recommendations:

- CBAs should be systematically integrated into health care systems to improve performance and trust.
- Continuous structured training, expert supervision, and positive work experience should be offered to CBAs.
- Wider trends in the transition to remote medicine will increase opportunities for remote supervision and training of CBAs, thus further reducing costs.
- Evaluations of CBAs programmes at larger scale and with well-trained workers should be conducted to better understand the cost-effectiveness and potential impact of this cadre

At the same time as adding new roles to teams, there may also be phasing out of roles that health workers currently rely on in teams. For example, some roles provided by team administrators and service assistants may be replaced by automated booking systems/triage chatbots. In more technical areas such as radiography, AI led image analysis is likely to continue to become more sophisticated and this may lead to more roles more assertively supported, or even replaced.

The traditional care coordinating role undertaken by a health worker is also changing – in many cases patients who choose to do so will become coordinators for their own health, with the team working in partnership through evidence and data driven approaches to make health recommendations and management plans.

The emphasis on teams is accompanied by moves towards greater task sharing or task shifting in which tasks which have traditionally been done by one profession in western medicine are undertaken by others. The first report that the APPG produced, *All the Talents – how new roles and better teamwork can improve services*, published in July 2014 reviewed task shifting and changes in skill mix within teams[57]. It stressed the importance of doing this well rather than, as happens all too often, tasks are passed on to less well paid health works with little preparation or training (so called task dumping). This results in poor quality and often complete failure of care.

The APPG report argued that when this was done well – as in the introduction of nurse prescribing in the UK, the development of cataract surgeons in many countries in Africa or the development of clinical officers in orthopaedic care in Malawi – this involved a process that started with a foundation of clarity of leadership and good planning and culminated in there being appropriate recognition and good teamwork as shown in the upward spiral in Box 7 taken from the 2014 report.

Box 3.6: Managing task sharing and skill mix changes

Recognition and teamwork	All health workers should receive adequate recognition for their work and be supported to work in teams with other professionals, lay workers and patients.
Supervision and referral	Supervision and clear referral pathways – involving all groups of health workers – are essential to ensure the best quality of care.
Formal training and progression	Formal training is needed to develop skills, and opportunities for progression can be important in enabling individuals to achieve their potential.
Job design and recruitment	Tasks must be defined and recruitment targeted accordingly.
Leadership and planning	Success is based on careful preparation and planning – with a leader, institution or government taking responsibility for all aspects of planning and implementation.

Increased flexibility in employment and organisational structures

The changing attitudes of people in the workforce were described in Chapter 2 which discussed both how they wanted to have responsibility and influence at work and a good work/life balance and as Dr. Navina Evans who is CEO of Health Education England told the APPG, *"Time to live, time to care and time to learn"*.

The balance of power in some countries is beginning to shift with employers having to adapt to the needs and requirements of health workers. This does not only apply to full-time workers. Some health workers will seek portfolio careers tailored around their interests and passions – for example, working two days a week clinically, one day a week in teaching/training and two days a week in research. There is need for systems and processes to not only accommodate such desires, but support and train health workers to ensure that the dividends of multi-dimensional growth are felt across the health system for the individual and the system(s) they work in. Doing so will allow cultivating a culture of care and fulfilment, harnessing the vocational drive and motivation that health workers enter the workforce with.

In other countries, however, the culture remains one of top-down authoritarian control. As noted earlier, a great deal of care is provided globally by poorly paid and low status women without adequate training or support. This needs to change for their sake and for the sake of their patients – and there is already movement in this direction. Both the UN's High-Level Commission on Health Employment and Economic Growth[58] and the APPG's *Triple Impact of Nursing* report[22] promote gender equality and support economic growth described how providing good quality work in health for women would have the triple impact of improving gender equity, improve health and strengthen local economies – three of the Sustainable Development Goals.

Countries should encourage raising the status of health workers and promoting good employment conditions if for no other reason than that there is considerable evidence that looking after the workforce improves productivity[59]. Health leaders should aim for systems where *people who feel cared for are looked after by people who feel valued*.

Agents of change

The most radical idea at the heart of this report is that health workers will increasingly need to become *agents of change and curators of knowledge* in addition to their other roles as clinicians, researchers or specialists in public health, policy and management.

This new element to the role is described in many places in this report. There are already many people who performing it in part at least and some who have been doing it do years. Everyone the APPG discussed this with supported the concept. There are, of course, difficulties in putting it into practice – such as time and resource constraints and, in some cases the fear of litigation. Nevertheless, the APPG believes that it is now time to promote the idea more widely and encourage health workers to take the initiative wherever they feel able to do so – and not wait for policy to catch up.

4. Probable futures - education, training and regulation

The successful adoption and development of the new roles described in the last chapter will depend in large part on changes on the education and training of health workers and on the regulation, legislation and health system design which provide the framework within which they work.

This chapter addresses education and training. It also deals with the vital issue of the international recruitment of health workers. It does not, however, attempt to discuss the other essential issues of regulation, legislation and health system design which will influence future roles. These are very largely country specific, although there are proposals and, in some professions, promising developments for bringing greater alignment globally.

This chapter is about probable futures and describes some of the areas where there is a growing convergence of ideas. It is a clearly true, for example, that health workers will need to be far more skilled in many different technologies and the use of data in the future. The APPG also heard of several more radical possibilities about, for example, the delivery of education, global partnerships and the wholesale re-modelling of professional education. Some of these are described in the Chapter 5.

The relationship between education and changing roles is two way. Developments in the education of health workers are not only a response to changing roles but they can also shape those roles. Health workers who have been offered new insights through education may well use them in unexpected ways creating new aspects of their roles.

Background

This report's approach to education and training is influenced by three main sources of ideas. The first is the Lancet Commission report on *Education of Health Professionals for the 21st Century*[2] which has been mentioned several times. This provided a wide-ranging review of professional education embracing a systems-based approach, linking professional education and health systems, breaking down barriers between professionals and with non-professionals, and proposed both instructional and institutional changes. It spelled out the importance of competency-based education. This supports health workers to react to changing health needs, break down siloed ways of professional working and promote inter and multi professional ways of working and help health workers develop the skills and tools to be effective team members and leaders.

The UK General Medical Council's report *Shape of training: securing the future of excellent patient care*[24] explicitly recognised the growing need for more health workers to have broader based education and training – with exposure to mental health, public health and different disciplines – so that they are better able to manage people with co-morbidities whose health problems do not fit easily into any specialist category. Specialisation is vital but there is also a need for this to be balanced by an understanding of wider issues and good access to other team members with other knowledge and skills.

The third main influence which comes from observing the pioneers in every discipline – the people who have successfully achieved changes – is the idea of learning by doing. It is one of the main characteristics of change makers everywhere and an important part of the approach taken by health creators[8]. It is abundantly evident in thinking about the future that new ideas and approaches will be needed and that people need to experiment and learn from experience, testing out new ideas systematically through the science of improvement's PDSA (plan, do, study, adapt) approach and otherwise[60].

This report also stresses the importance of widening recruitment into health, the development of leadership, offering team-based education and community-based training, strengthening postgraduate life-long learning, supporting students and staff wellbeing from the start of education, and building value-based education systems.

Migration of health workers from lower income to higher income countries is likely to become an even greater problem with increasing migration and the report considers ways of handling this to secure fairer outcomes with receiving countries supporting sending ones with their own workforce development. In particular, ensuring principles outlined in the WHO *Global Code of Practice on the International Recruitment of Health Personnel* are implemented in full[61].

Education and training

Discussion of education and training need to consider the who, what, why, when and where health workers are trained and educated. While the answers will be different in different contexts, there are important commonalities and overlaps. These include the widening of recruitment, use of competency rather than knowledge-based approaches, training leaders, offering team-based education and community-based training, strengthening postgraduate life-long learning, supporting students and staff wellbeing from start of education, and building value-based education systems.

There will also be common interest in the way in which curricula develop over time embracing new topic areas, for example, in different technologies, different prevention, health creation and elsewhere and in ways education and training are delivered.

The focus will not be on numbers and educating and training more people – it is important that to train the appropriate mix of health workers and professions based on future population and health system need. For example, owing to an aging population in the UK, this will mean the need for more primary care and community-based professionals, older age sub-specialised mental health specialists, and rehabilitation experts. In addition, it will mean training new and emerging professional groups of the future such as health data analysts. Moreover, there is also a need to expand health related training for those in undergraduate and postgraduate education in business, law, social sciences, engineering and other areas. This will help facilitate cross-sectorial health-based approaches – professionals from different sectors working with health workers to maximise population health.

There is of course no 'right' person to be a health worker. However, health professionals are currently recruited from a relatively narrow sector of the population. It is disproportionately skewed towards people from high income households and dominant ethnic groups[62]. Similarly, gender stereotypes influence education in much of the world. This limits the talents and life experiences in the health workforce and often excludes large segments of the population.

Several people told the APPG that proactive admission strategies to education were needed to ensure a balanced composition for the future workforce, particularly in terms of socio-economic factors and the rural/urban divide. Different strategies have been trialled – in some contexts, affirmative action programmes with quotas related to ethnicity, religion, gender and nationality have been helpful[63]. Others highlighted the need to undertake early engagement in primary and secondary schools as part of widening access initiatives and programs.

In addition to securing wider access in admission to educational institutions, there is also a need to improve experience during education. There are higher levels of educational drop out in ethnic minority and socio-economically deprived groups. Targeted pastoral support and mentorship programmes were suggested by our witnesses as approach to mitigate this.

Education in biomedical processes, knowledge and skills is necessary but not sufficient. A much wider and more ambitious approach to education is needed to challenge and improve the wider health outcomes by enabling prospective health professionals to work effectively with patients to create health, improve social determinants of health and tackle health inequities. There is a need to ensure that focus extends to research, teaching, leadership and financial management domains. This requires re-contextualisation and training throughout education around the role that health workers can play as leaders, policymakers and effective team members.

Given the increasing move to provide care in the community, there is need for education in health to focus explicitly on community health education. This includes a theoretical and experiential understanding of how different community providers (health, and non-health) come together to care for, determine and create health. Evidence suggests that there are identifiable benefits to be had from placements in community organisations, particularly in deprived areas and setting and from having health training institutions based entirely in rural and more deprived areas[63]. This increases the number of people from these areas who train as health workers as well as increasing the likelihood of people working locally after their training[64-66].

Initial pre-service education and training will not be able to provide health workers with the knowledge they need throughout their careers. Competency based education will, however, give health workers the tools to undertake life-long learning. This needs to be accompanied by a strengthening of

post-graduate education systems so that there are avenues for learning at different stages in a health worker's career. The future health workers must be given time for such learning – this will ensure that they not only keep up with knowledge and skills, embrace new technology and developments but also have enough time to care, achieve a good work-life balance and continue to be motivated in their role.

Young people are generally highly motivated when they enter medical and health education. They enter the profession with a strong desire to improve health. This can be seen from oversubscription of places and applications for medical, nursing and allied health professions, as well as early educational surveys[67]. However, as mentioned by several people to the APPG, this vocational motivation can begin to erode from the time they start educational training. It was suggested that firstly, there is need for an assertive approach to harness motivation and transform education systems so that they do not erode this. Secondly, it was suggested that self-management and resilience training is needed so that good practice can be maintained through the course of a career.

Traditionally, health education systems have taught different professional groups in silos – doctors, nurses and allied health professionals educated separately. There will a far greater emphasis on teamwork in the future and education and training need to mirror this and ensure that there are ways in which different groups learn together. A key benefit of this approach is the practical application of knowledge within and between professional groups, akin to what occurs in the health system across patient pathways and treatment journeys (68). Different models have been proposed to enable this – shared teaching, simulations in multi-disciplinary teams and joint first year education across medical, nursing and allied health professions. The use of team-based approaches to recruitment, examination and assessments was also suggested as a way to achieve this.

Underlying all these other changes is the overwhelming need to ensure that health workers are skilled in the use of the different technologies that will constantly evolve over the next 15 to 20 years. The ability to do so will be an essential competency of all health workers – so that they will be able to use the new technologies in everything from patient care and working in teams to understanding populations and their epidemiology as well as the wider determinants of health. As noted earlier, science, technology and data will determine much of the framing and the language of health, shape how health workers think about health problems and possible solutions, and how they act.

There is increasing emphasis on the need to build value-based as opposed to cost- or activity-based health systems Such systems seek to focus on patient and health value outcomes (e.g. keeping individuals healthy and out of hospital) instead of volume/service delivery based metrics (e.g. number of procedures or investigations done). Students enter the health education system idealistic and wishing to make changes in society by improving health outcomes for patients and their communities – this is fertile ground to build such systems. Emphasis on value-based health must start at the point of education to equip future health workers with the knowledge and tools to enable, facilitate and lead the health system transition and transformation. In short, a value-based health education system is needed to enable a value-based care system.

Workforce planning

The emerging and evolving role of health workers will necessitate change in the way that they are organised and employed. In some areas, this will be an evolution, and in others, it will need more radical changes. This will necessitate system and regulatory considerations within and across national boundaries.

Change on the scale envisaged, even more than simply maintaining the status quo, requires good workforce planning which in turn needs a good understanding of data about the current workforce and the population and of wider labour markets. Health Education England is shortly to publish the results of a very extensive review of the health workforce needs in the country which identifies the choice that need to be made about health systems and priorities by politicians and health leaders. It is an excellent example of the type of study that needs to be done to maintain and develop the health workforce needed in any country[69].

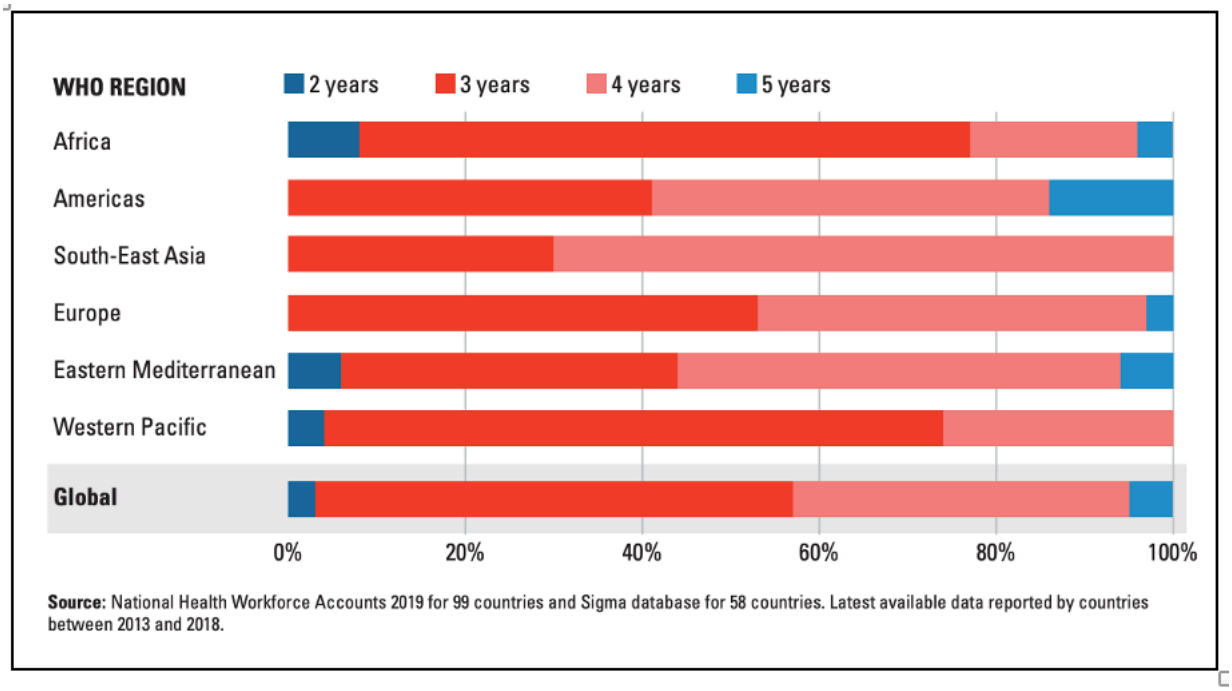
Globally, the WHO has led the development of National Health Workforce Accounts[70]. These are, as the name implies, locally produced analyses of a nation's health workforce. This global format provides a means for countries to improve the quality, access, availability and use of health workforce data to meet population health, sustainable development and universal health coverage targets – and in

doing so to compare their performance with others. These have improved over time as more and more countries give them the priority they require.

These accounts use shared definitions of health professions – making sure that they are comparing like with like – and have helped produce greater standardisation over for example, the definition of a doctor or a nurse. There is still, however, a very long way to go in standardising definitions and aligning regulation and education in ways that can help improve health service delivery and health in countries around the world.

In nursing, for example, there is little uniformity in terms of degrees and accreditation. In different parts of the world, it is possible to acquire the same degree with different educational experiences, curriculum content, years of study, quality and competencies. Box 4.1 below shows how the number of years of education to achieve a degree varies between the WHO regions

Box 4.1 Variations in length of time to achieve a degree in nursing.

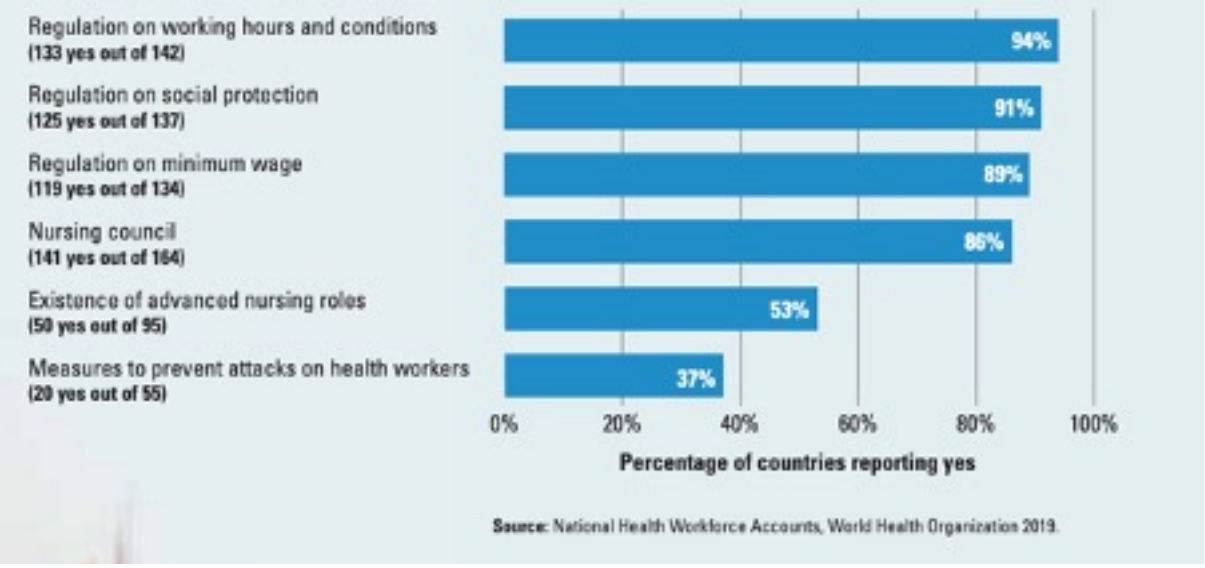


Source: National Health Workforce Accounts 2019 for 99 countries and Sigma database for 58 countries. Latest available data reported by countries between 2013 and 2018.

Many countries have worked together to achieve better alignment. The Caribbean Regional Nursing Body, for example, established a shared pool of qualified educators to alleviate bottlenecks in holding competency assessments for graduate nurses[71]. This links evolved to the countries agreeing to a singular and shared examination for nurses, with greater homogenisation of curriculum objectives, content, and approaches. The Regional Nursing Body also coordinates assessment and examination based on mutually agreed competences and governance regimes.

There is also a great deal of variation in national policies and regulations to ensure that there is an enabling environment for health workers to work in. This includes issues known to impact health worker retention such as minimum staffing levels, working hours and fair remuneration. Further there is need for specific policies and processes to address violence, discrimination and gender-based harassment in the workplace. At present, there is varied application and use of regulations to support working conditions as can be seen in Box 4.2 below

Box 4.2 Country regulations on working conditions (by percentage)[16, 70]



International recruitment of health workers

Greater alignment and standardisation will, of course, enable further migration of health workers from one country to another. This is already a major problem for many low and middle income which lose a considerable number of health workers to higher income ones. Forced migration as a result of conflicts and political turmoil also results in significant numbers of health workers leaving the country where they have been trained.

Currently, approximately one in eight nurses (around 3.7 million) work in a country other than in which they were trained or born in[16]. Similarly, over a third of dentists and pharmacists were found to be foreign trained or born as per WHO estimates[70]. Most move from lower income countries to higher ones both across continents and within a continent. South Africa, for example, is a great beneficiary of these flow sin Africa but also loses many health workers to higher income countries. This deepens the health workforce crisis in the country of origin, which also faces shortages, and further exacerbates uneven and inequitable distribution of the health workforce globally.

Innovative and radical possibilities exist – in Section 5 of this report, we consider the proposed ambition of training a million doctors a year in India to meet domestic and international workforce needs.

There are no easy solutions and action is needed both within countries and globally. The WHO Global Code of Practice on the International Recruitment of Health Personnel[61] sets out asserts both the right of health workers to migrate an the importance of "receiving" countries supporting "sending" countries. It has only had some limited impact, although over 60 countries have incorporated provisions and principles from the Global Code into their laws, policies and agreements with other countries this has not been universal, nor has it been implemented fully.

There is a clear need to strengthen the code and for countries like the UK – which employ a health workforce drawn from many parts of the world – to support education, training and employment in "sending countries". Migration, however, is encouraged by both "pull" factors – health workers wanting opportunities for themselves and their families – and the "push" factors of poor job opportunities, working conditions and pay and conditions. "Sending" countries also have their obligations to address these issues.

Both groups – the "receiving" and the "sending" - have made fine sounding declarations and too often failed to live up to them. There are many instances where the powerful countries of the world have failed to live up to their obligations;

sadly, African countries have also failed to deliver on the Abuja Declaration where heads of state of African countries committed to spending 15% of government budgets on health. Only two have done so.

We can expect migration to grow as countries seek more health workers as they build back from Covid-19. Radical solutions such as those for massively increasing the numbers of health workers described in the next chapter are needed for this and many other reasons.

The UK has benefitted enormously from international migration. It has also played a role in supporting the health workforce and education in other countries though its powerful education sector and through institutional partnerships as described in Chapter 6. However, as argued in Chapter 6, it can do a great deal more.

5. Radical possibilities

This chapter explores five of the more *radical possibilities* for the future. These are possibilities where there is far less convergence of thinking than in the probable futures described earlier. They all involve changing or breaking down boundaries, reconceptualising goals and reimaging methods and systems - and all of them challenge the existing status quo.

These five radical possibilities are:

- **Health workers working in self-organising and self-employed teams, outside the traditional health institutions.**
  Doctors in some countries already work like this but it could be extended to other professions and to multi-disciplinary teams and become the norm globally.

- **Recruiting and educating health workers from local communities and all sectors of the population.**
  Cuba's Latin American Medical School was established to educate people from low-income communities and countries to be doctors in their own communities and countries. Other smaller scale initiatives are establishing career pathways for people from lower income communities.

- **The complete re-design of primary, community and home-based care, embracing physical and mental health, integrating it with public health, education and other appropriate services and becoming the location for most care and treatment.**
  There are many developments and initiatives but not as yet anything that has this complete focus for health, broadly as envisaged in the Alma Ata Declaration of 1978.

- **Re-designing professional education around the three stages of informative, formative, and transformative education and the development of global consortia of universities and other organisations to deliver the new model.**
  This extends the thinking of the Lancet Commission on the education of health professionals and will help secure quality and consistency of standards across a vastly larger and very mobile global workforce.

- **A massive increase in the numbers of health workers educated and trained globally through partnership working across the world.**
  Health Education England has pioneered the use of "earn, learn and return" arrangements for educating health workers abroad. Apollo Hospitals has now made a proposal to the Indian government to lead on these partnerships with a headline target of educating a million health workers a year.

These are discussed in turn below.

Self-organising and self-employed teams of health workers

The APPG review group heard many times that, as described earlier, health workers want a different working life where they have more flexibility and a greater degree of autonomy. Younger generations in particular are looking for a better work life balance, more freedoms and less constraints.

Maureen Bisognano, President Emerita of IHI, drew the group's attention to the fact that there are now five different generations in the workplace, each with their own norms and needs. She also suggested that it was likely that there would be a growth in health workers setting up their own organisations, self-organising and self-managing outside the traditional types of health institution.

Dr Lesley Thoms suggests that changes in attitude and behaviour may also be, in part, due to changes in professional training and scope of practice. The development of nursing practice over recent years being a clear example of this.

Many doctors globally already work like this with their own offices, and businesses, selling their services to patients and health organisations. Most medical general practitioners in the UK (GPs), for example, have traditionally worked in jointly owned practices and had a contract for service (not an employment contract) with the NHS. In a broadly similar fashion, the medical input to Kaiser Permanente, the California based health group, is provided by regional Permanente Medical Groups each of which operates as a separate for-profit partnership or professional corporation.

These arrangements reflect the powerful and privileged position of doctors within health systems, and it is relatively rare for other professionals to be able to operate in this way other than at a very small scale. One high profile exception is Buurtzorg started in the Netherlands in 2006, which now has

more than 15,000 nurses working in 950 self-managing teams to deliver services to local communities in 25 countries [72].

Buurtzorg, as described briefly in Box 5.1, is a remarkable and fast-growing phenomenon. It is firmly based on a model of care that respects the autonomy and wish for control of the individual patient and delivers care through self-managing teams which have professional freedom and responsibility.

Dr Natalia Kanem, Executive Director of UNFPA, the United Nations sexual and reproductive health agency, suggested to the APPG that midwives working autonomously and often single-handedly in villages across Africa offer a very good model for what the future might look like. She suggested that these midwives are a perfect example of health workers acting as agents of change and curators of knowledge. They make professional judgements and provide high-quality clinical services, but they also influence and advise mothers and communities and can help bring about changes in attitudes and behaviours.

These midwives are in many ways the exemplars of a way of working that addresses the physical and psychological needs of individuals, while helping shape their social and physical environment. A very ancient profession that is also a very modern one.

Health leaders and governments, whether they seek to develop these more radical possibilities or not, will need to address the changing views of health workers about their employment and working environment. Not everyone will want the same thing. Many young GPs in the UK, for example, do not want partnerships with all the responsibilities they carry, preferring to deal only with the patient in front of them and, perhaps, have regular working hours, concentrating their creativity and initiative on activities outside work. But, as Buurtzorg shows, there are many more who want the full professional fulfilment offered by a different arrangement.

Box 5.1: Buurtzorg, community nursing in the Netherlands

Box 5.1 Buurtzorg, community nursing in the Netherlands[72]

Some of the key features, as described by the organisation, include:

- Self-managing teams have professional freedom with responsibility. A team of 12 work in a neighbourhood, taking care of people needing support as well as managing the team's work.
- A new team will find its own office in the neighbourhood, spend time introducing themselves to the local community and getting to know GPs and therapists and other professionals. The team decide how they organise the work, share responsibilities and make decisions, through word of mouth and referrals the team build-up a caseload.
- Buurtzorg teams are entrepreneurial in spirit, continually improving the organisation and services. All of Buurtzorg innovations come from one person or a team having an idea and the freedom to try something new.

Client satisfaction rates are the highest of any healthcare organisation.

A KPMG Case Study in 2012 found:

"Essentially, the program empowers nurses (rather than nursing assistants or cleaners) to deliver all the care that patient's need. And while this has meant higher costs per hour, the results have been fewer hours in total. Indeed, by changing the model of care, Buurtzorg has accomplished a 50 percent reduction in hours of care, improved quality of care and raised work satisfaction for employees"[73].

Recruiting health professionals from local communities and all sectors of the population

Another radical approach was adopted by the pioneers of Cuba's Latin American Medical School set up in 1999. They explicitly set out to train physicians for the people who need them the most - the poor, the isolated and the excluded - by training people from those very backgrounds. These physicians would not only be more likely to return to their own communities but would also understand the culture and norms of these areas which have such an impact on health.

Box 5.2 describes briefly how the School has developed over the last two decades.

Most health workers, the poorly paid and unskilled, come from the communities they serve but health professionals more typically come from more privileged and educated backgrounds and may be out of touch with the culture, behaviour and circumstances of many of the people they serve. This can be particularly problematic at times as when in the COVID-19 pandemic some populations rejected the advice of the "experts" choosing instead to follow people "like us" with whom they could identify.

Educators have sought to counter this problem over the years by, for example, engaging medical students in their local communities so they could learn more about the social aspects of health. Professor Gottlieb Monokosso took this further by insisting that his students in the first medical school in Cote d'Ivoire lived in villages alongside the local people who most needed their care[74].

Elsewhere, Maureen Bisognano described to the APPG Rhode Island Institute Middle College High School in the USA which provides high school education for local children with the expectation that most will become nurses. In the UK there are now examples of towns such as Skelmersdale where the schools, further education college, local council and the NHS are combining to provide routes for local children to develop the skills necessary to becoming health and care workers and providing east routes to do so[8].

The acute shortage of health workers requires radical solutions. This approach recognises that there are large parts of country's populations which simply aren't enabled to train as health professionals and that their contribution could make a massive difference not just in quantity but also in quality.

Technology, robots and the like will destroy many job opportunities but are unlikely – in the next 20 years at least – to make material difference to the numbers of health workers needed. Jobs that require judgement, human skills and relationships – such as most of those in health and care – will surely continue to be the province of human beings for a long time to come.

Box 5.2: The Latin American Medical School (Escuela Latinoamericana de Medicina – ELAM)[75]

Box 5.2: The Latin American Medical School (Escuela Latinoamericana de Medicina – ELAM)[75]

Some of the key features include:

- The Latin American Medical School in Havana opened in 1999 with the aim of educating doctors from countries around the world. By 2015, it had graduated over 30,000 physicians from 121 countries. South Africa alone has more than 3000 current or past students. Currently 9570 students from all over the world are studying medicine in Cuba and close to 2200 are doing specialist training (6).

- The School trains physicians for the people who need them the most - the poor, the isolated and the excluded -by training people from those very backgrounds because its evidence shows that they are much more likely to go back to their own people rather than, as many doctors do, migrate to the cities and find better opportunities in richer parts of the country or abroad.

- It has established a system of Medical Scholarships to provide opportunities and support for people from the poorest and most remote backgrounds.

- The School is part of Cuba's commitment to International Medical Cooperation. Over the years – starting immediately after the 1959 revolution – Cuba has provided medical support to countries facing health and humanitarian crises: responding, for example, to the Chilean earthquake in 1960 and, more recently, Haiti's earthquake and subsequent cholera outbreak in 2010.

As Dr Margaret Chan, then Director General of the WHO, said on a visit to the school in 2009:

"For once, if you are poor, female, or from an indigenous population, you have a distinct advantage, an ethic that makes this medical school unique"[76].

The complete re-design of primary and community and home-based care, embracing physical and mental health, integrating it with public health, education and other appropriate services and becoming the location for most care and treatment.

This possibility may not seem to be particularly radical because many, perhaps most, countries and organisations have re-designed or re-organised primary, community and home-based services over recent years. Moreover, on the 40th anniversary of the Alma Ata Declaration in 2018, countries around the world re-committed themselves to the vision of primary health care as the key to health for all and to making "bold political choices for health across all sectors"[77].

The reality, however, is that most developments have been relatively limited in scope and few if any, countries have lied up

Box 5.3: Article VII of the Alma Ata Declaration, 1978

Box 5.3: Article VII of the Alma Ata Declaration, 1978[79]

Primary health care:

1. reflects and evolves from the economic conditions and sociocultural and political characteristics of the country and its communities and is based on the application of the relevant results of social, biomedical and health services research and public health experience;

2. addresses the main health problems in the community, providing promotive, preventive, curative and rehabilitative services accordingly;

3. includes at least: education concerning prevailing health problems and the methods of preventing and controlling them; promotion of food supply and proper nutrition; an adequate supply of safe water and basic sanitation; maternal and child health care, including family planning; immunization against the major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; and provision of essential drugs;

4. involves, in addition to the health sector, all related sectors and aspects of national and community development, in particular agriculture, animal husbandry, food, industry, education, housing, public works, communications and other sectors; and demands the coordinated efforts of all those sectors;

5. requires and promotes maximum community and individual self-reliance and participation in the planning, organization, operation and control of primary health care, making fullest use of local, national and other available resources; and to this end develops through appropriate education the ability of communities to participate;

6. should be sustained by integrated, functional and mutually supportive referral systems, leading to the progressive improvement of comprehensive health care for all, and giving priority to those most in need;

7. relies, at local and referral levels, on health workers, including physicians, nurses, midwives, auxiliaries and community workers as applicable, as well as traditional practitioners as needed, suitably trained socially and technically to work as a health team and to respond to the expressed health needs of the community.

to this far-sighted vision. As the extract in Box 5.3 shows, the Declaration can for the most part be read in a very up to date and current way. It shows that the social, economic, political and environmental aspects of health were understood by many even then and remains radical today.

There is a very evident crisis in primary care in the UK today. It was once seen as the "jewel in the crown" of the NHS and in advance of many other countries. Its decline has been accompanied by reductions in community nursing and other services, a crisis in social care, and the destruction of so much of the local social and community infrastructure in the name of austerity.

Current policies are still too much focussed on recreating the past by seeking to employ more GPs, building large scale primary care practices and encouraging virtual consultations. Battle lines are being drawn up around issues such as the need for relational not transactional services.

Meanwhile there are health professionals and others who are already implementing changes fit for the future. There is a burgeoning health creation movement led in large part by people from outside the health and care sector in businesses, schools and communities[8, 78]. Pioneering GPs are redesigning their roles. Nurses are taking on new and extended roles. Community Health Workers based on Brazilian models are being trialled in the UK and technology is enabling diagnosis and treatment to be undertaken in homes and the community that previously could only be done in hospital.

These and other entrepreneurial activities could be brought together effectively to begin to implement an updated version of the radical vision set out in Alma Ata 44 years ago.

Re-designing professional education around the three stages of informative, formative, and transformative education and the development of global consortia of universities and other organisations to deliver the new model

The independent Commission on the Education of Health Professionals for the 21st Century published its report in 2010. Key aspects as shown in Box 5.4 were about linking education and health, a focus on systems, transformative education to "produce enlightened change agents", competency driven approaches, interprofessional and transprofessional education, social accountability, and a determination to "take into account crucial dimensions, such as social origin, age distribution, and gender composition, of the health workforce."

The approach was adopted by a number of institutions and countries and the Commission plans to publish an updated account of progress in the near future.

Julio Frenk chaired the Commission with Lincoln Chen, at the time the Chair of the China Medical Board. Professor Frenk, had previously been Minister of Health in Mexico, Dean of the School of Public Health at Harvard and is now President of the University of Miami. He told the APPG that in this latter role he had had an astonishing opportunity as a public health specialist to manage an institution of some 18,000 students and thousands of staff through the pandemic.

This experience with its mix of virtual and in person learning had made him think differently about the organisation of professional education. He suggested to the APPG that informative learning – the specialist knowledge – could be acquired virtually away from the institution; formative knowledge – becoming a professional – needed a university type institution with the opportunity for debate and challenge alongside socialisation into the professions; and transformational education should be undertaken in the workplace.

These suggestions would radically change the whole process and the role of universities. He went on to suggest that Universities should work together globally in consortia to provide professional education across the world ensuring greater access and opportunity for all communities and securing quality and common standards for the vast and mobile health workforce.

These suggestions resonated strongly with comments and advice from others who spoke with the APPG.

Box 5.4: Health professionals for the 21st Century

Box 5.4: Health Professionals for the 21st Century

Key points of the report include:

- A vision of *transforming professional education to strengthen health systems in an interdependent world*
- Proposals for instructional and institutional reforms guided by two outcomes: transformative learning and interdependence in education.
- Transformative learning is the highest of three successive levels:
  - Informative learning is about acquiring knowledge and skills; its purpose is to produce experts.
  - Formative learning is about socialising students around values; its purpose is to produce professionals.
  - Transformative learning is about developing leadership attributes; its purpose is to produce enlightened change agents.
  - Effective education builds each level on the previous one. Transformative learning involves three fundamental shifts: from fact memorisation to searching, analysis, and synthesis of information for decision making; from seeking professional credentials to achieving core competencies for effective teamwork in health systems; and from non-critical adoption of educational models to creative adaptation of global resources to address local priorities.
- Interdependence in education also involves three fundamental shifts:
  - from isolated to harmonised education and health systems;
  - from standalone institutions to networks, alliances, and consortia;
  - and from inward-looking institutional preoccupations to harnessing global flows of educational content, teaching resources, and innovations.

The Commission's recommendations include:

- The adoption of competency-driven approaches to instructional design; adapting these competencies to rapidly changing local conditions drawing on global resources;
- The promotion of interprofessional and transprofessional education that breaks down professional silos while enhancing collaborative and non-hierarchical relationships in effective teams
- A new professionalism that uses competencies as objective criteria for classification of health professionals and that develops a common set of values around social accountability.
- Establishing joint education and health planning mechanisms that take into account crucial dimensions, such as social origin, age distribution, and gender composition, of the health workforce
- Expanding academic centres to academic systems encompassing networks of hospitals and primary care units

A massive increase in the numbers of health workers educated and trained globally through partnership working across the world

Here again, it may seem strange to call scaling up the numbers of health workers educated and trained radical – it is, after all, precisely what many people have been calling for to address the global shortage alongside other approaches such as increasing the retention of staff. The truly radical part is in thinking about the problem differently and finding a practical way to do it.

This possibility discussed here is based on partnerships between countries and recognising that they have different needs and resources. It takes advantage of both global and local factors. Globally, there is an enormous demand for more health workers in all parts of the world – in low-income countries where the health need is greatest and in affluent and ageing western countries where there is increasing demand and more resources available to pay for them. Most western countries are seeing their populations age and shrink – needing immigration to provide care and other essential – while many other countries have young and growing populations and fewer employment opportunities.

There is already a well-established global employment market for health professionals their skills and some countries, most notably, the Philippines have chosen to make use of it as a matter of policy. The Philippines have for a long time provided nurses and other health workers to other countries as part of a deliberate and planned process which brings foreign earnings into the country.

This approach is controversial. Critics have complained that the population of the exporting country can be neglected, with few health workers, while too many of those trained locally go abroad to more affluent and better served countries. Others have responded that this is being done under the control of the exporting country and that it is very different from the uncontrolled migration described which does some damage in some countries and which was discussed in Chapter 5.

Health Education England pioneered a range of "earn, learn and return" schemes which attempted to bridge this gap by offering health workers from abroad the opportunity for specialist training while working in a foreign country and taking that experience back to their home country at the end of the agreed period. More than 2200 health professionals, mainly nurses but also specialist doctors, paramedics, radiographers and podiatrists have been part of such schemes over a three year period; although the nursing scheme has now come to an end.

Sangita Reddy, Managing Director of Apollo Hospitals in India told the APPG that they had put forward an outline plan for a massive increase in training to the Indian government that could lead over time to a headline target of educating a million health workers a year.

The proposal is based on India's own circumstances and history where it has the young people, a strong education sector and a long tradition of training doctors for the world. The proposal which is outlined briefly in Box 5 will involve Apollo working in India and other countries to create new educational facilities and educate and train health professionals. It builds on work already underway in the UK.

Whatever happens with the Apollo proposal, it is pointing the way for how health professional education may develop. It has some similarities with Julio Frenk's vision for global consortia and some important differences. There is, of course, scope for both models – and for others. In any case, the idea of global consortia or partnerships is likely to be a part of the future.

It is also worth noting that India has precedent for such bold and ambitious large-scale developments. It was the development of technology institutes in the 1950s and 60s which led among other things to the leading role the country has had in ICT and outsourcing services in recent decades.

Box 5.5: Apollo Hospitals proposals for scaling up health worker education and training globally

Box 5.5: Apollo Hospitals proposals for scaling up health worker education and training globally

Apollo Hospitals proposals for scaling up health worker education and training globally

Key points about Apollo's Global Workforce Development (GWD) Program are that:

- It has been established to work with global and local partners to provide a uniquely structured skilling and accreditation system to ensure seamless global talent mobility.
- It is based on India's massive health infrastructure - India has the highest number of medical colleges (542) in the world. With annual addition of 80,000 MBBS Doctors and 60,000 Nurses.
- India has been the world's largest pool for immigrant physicians since 1947, the allure of working abroad is strong for physicians and nurses; researchers estimate anywhere from 20 percent to 50 percent of Indian health-care workers intend to seek employment overseas for a variety of reasons [80].

As the proposals say:

- *Our talent is proficient in skills - communication skills, soft skills and interpersonal skills - essential for a care economy. An essential feature of our talent is the agility to adapt and modify behaviour as per needs.* Aspirations: Go Global: India has been the world's largest pool for immigrant physicians since 1947, the allure of working abroad is strong for physicians and nurses; researchers estimate anywhere from 20 percent to 50 percent of Indian health-care workers intend to seek employment overseas for a variety of reasons[80].

Radical possibilities

There are other bold and radical possibilities being discussed or envisaged in the use of robots and technology or, to take another example, in addressing the current almost complete separation of treatment for mental and physical illnesses. Separate professions, institutions and systems manage services in most countries, although there is now some coming together around prevention and health creation.

Professor Gary Belkin, formerly head of mental health in New York City, for example, has moved on to work on the interface between ecological concerns and mental health in what he calls *"social climate change"* and the importance of working across the whole *"range from addressing community level trauma to socializing and mainstreaming eco-psychological mindsets and relationships"*.

One interesting development in the UK is the very recently launched **Beyond Pills: Hope for the future** campaign. This is led by young health professionals and students and is focused on transforming the undergraduate and postgraduate curricula for health-related subjects to ensure its suitability for 21st century demographic needs[25].

Their mission is that by 2030, young trainees and recent graduates in health-related subjects will deliver medicine beyond medicines using a truly biopsychosocial approach to health and care. This will ensure patient's social, psychological, emotional and practical needs are being met through principles of personalised care, social prescribing, prevention and health creation. Long term change can only be achieved by transforming education, changing the culture, and nurturing one generation at a time.

New roles will be emerging in unexpected places – with health workers performing their vital roles as agents of change and curators of knowledge.

6. Implications for the UK

This chapter considers the implications of this report for the UK in two broad areas – 1) the UK's contribution to developing the health workforce globally 2) the development and management of the health workforce within the NHS in England. It applies the thinking and ideas discussed earlier in the report to the national context where the UK Government has responsibility, namely international relations and the health system in England. This recognises that the governments of Scotland and Wales and the Assembly in Northern Ireland have responsibility for their own respective health systems.

The UK's contribution to developing the health workforce globally

The APPG published a report *The UK's Contribution to Health Globally* – benefiting the country and the world in 2015 which mapped out the UK's contribution in the four sectors of academia, commerce, the public sector and the not-for-profit sector[26]. It published an update The UK as a Global Centre for Health and Health Science – a go-to place for all aspects of health globally five years later in 2020[27]. Both reports highlighted the resultant benefits to the world as well as the country – promoting global public goods and partnering with institutions and researchers in low- and middle-income countries as well as promoting businesses and enterprise to the benefit of UK plc.

These reports showed that the UK played a leading role globally in health in all four sectors. It *"has world class universities and research, is a global leader in health policy and international development, has strong life sciences and bio-medical and bio-tech industries, and a vibrant and diverse not-for-profit sector."* The UK is second only to the US in terms of contribution globally, which it surpasses in some areas. Successive governments have strengthened the UK's role in research and the life sciences and its record on vaccine development and vaccination during the Covid-19 pandemic has bolstered its reputation as world leader in health.

All these areas are important for the health workforce with the UK's strengths in research, education, networks and partnership being particularly relevant to this report where they provide a strong foundation to build on. There are clear opportunities for the UK to play an even greater role in educating health workers in the future – in developing and implementing the new approaches to education and training described in Chapters 4 and 5, creating global consortia and other organisations to deliver education and training to millions more health workers in the UK and abroad, and through working and learning together with other countries.

Grasping these opportunities would continue the great UK tradition of promoting health globally and at the same time benefitting UK universities and enterprises and strengthening the UK's soft power and influence.

Some recent developments, however, have damaged the UK's standing at a time when other countries have also been investing heavily in health and promoting their roles globally. There has been considerable international criticism of the early management of the pandemic and relationships damaged during Brexit have not yet been repaired. The 30%+ cut in Overseas Development Aid at a time when low-income countries have worsening problems and when other donors have increased support has been particularly damaging in the way that it not only reduced funding but damaged existing partnerships and torn up agreements. There is also considerable concern, as discussed in Chapter 4, that the UK and other countries are returning to recruiting health workers internationally in ways that will damage health systems in their home countries.

This report's recommendations include action to promote the UK's role in health globally through taking a lead in the education of health workers. In particular, the government should work more closely with universities as well as leading UK hospitals and health providers to maximise the UK contribution to global healthcare education and educational partnerships. This recognises that UK graduate and post graduate healthcare education is amongst the best in the world. The report also proposes reversing the cut in ODA and strengthening the WHO's Code on International Recruitment.

Developing the workforce in the English NHS

This chapter only addresses the NHS in England although there are parallel developments in the other territories of the UK. There is a great deal of prominence on the health workforce in England with widespread recognition that it is in a critical state. Several other relevant reports and reviews are

underway on NHS leadership, workforce planning, patient safety, life sciences research and digital transformation.

The APPG was pleased to link closely with Health Education England (HEE) in their review of workforce planning. The HEE report *Framework 15: Shaping the Future Workforce* was not published at the time of writing this report, but the APPG understands that it outlines the choices that the Government needs to make about the workforce and spells out the implications of these for the development and future roles of the workforce.

The APPG recommends this process to other countries and urges the UK Government to set out their vision for the health workforce and health and care systems for the future. It also makes recommendations about the English NHS in five other areas which apply earlier discussion in Chapters 3 and 4 to the English context:

1. Meet the changing health needs of an ageing and diverse population with increasing levels of co-morbidities through the **development of broad-based skills, competencies, and training** for health professionals.

2. Strengthen leadership is health systems through building on the ideas of **compassionate, collective and inclusive leadership** as well as the recent Health and Social Care Leadership Review *Leadership for a Collaborative and Inclusive Future*. Further, there is need to foster and invest in clinical health and social care leadership.

3. Undertake **regular workforce review and planning** in an open and independent fashion.

4. Promote **regulatory flexibility and alignment to global norms** which will enable the UK to participate fully in global workforce developments. This might involve for example, moving the point of full registration for doctors to the point of graduation at university rather than at the end of Foundation Year 1.

5. Provide **support, mentorship and investment for foreign trained health professionals** so they are able to learn, train, live and work effectively in the UK. This includes removal of indirect barriers and costs such as related to visas.

6. **Maintain and strengthen global partnerships** – at professional, institution and national levels – to ensure mutual learning and shared development.

Broad-based skills, competencies, and training

Owing to demographic changes and an aging population, health workers in the UK will increasingly care for patients with multiple co-morbidities and chronic illnesses. They will need a more broad-based education and training as described in Chapters 3 and 4 if they are to be able to work effectively in this context. Some knowledge of acute care, chronic conditions, mental health and public health will be needed by almost every health worker. This does not, of course, remove the need for specialists and super-specialists to bring their own rigorous knowledge to the treatment and care of patients.

Four specific areas should be considered:

1. Professor Carney raised the need for health workers to undertake more training placements in community and mental health settings. This is particularly important given increasing move towards integrated care, such as in England with the development of Integrated Care Systems. There will be greater emphasis on health professionals working across different organisational and primary/secondary/social care boundaries.

2. Professor Bhugra noted that although many patients will have comorbid physical and mental health conditions, the current system operates with mind-body dualism. There is urgent need to treat physical and mental health together by ensuring there is greater shared understanding and responsibilities across specialities e.g. mental health being more adept in physical health, and vice-versa.

3. In addition to undertaking placements in cross-cutting specialities such as mental health, there is need for broad-based training in capabilities and skills (as outlined in Chapter 3). These include:
   a. Communication: interprofessional and with patients and carers
   b. Teamwork, management and leadership
   c. Research: evidence generation and clinical application

for evidence-based practice

d. Health promotion, creation and patient empowerment
e. Value based healthcare
f. Patient safety, and quality improvement

To facilitate professional skill development around multi-disciplinary team working, management and clinical leadership, longer placements in postgraduate training should be considered.

What this might mean in practice is shown in Box 6.1.

Box 6.1: Building broad-based training for doctors

Box 6.1: Building broad-based training for doctors

- **Foundation Training** – making sure that all doctors upon graduation have an acute hospital placement, community placement and mental health placement.
- **Specialty Training** – allow time as part of training to undertake non-specialty specific clinical roles, as well as teaching, management and research fellowships. For example, as a paediatric trainee (child health), having the time in training to undertake a child and adolescent mental health placement (at present, this would only be afforded to mental health trainees). Further, enable longer term placements to allow closer relationships with team members, including those providing supervision such as GPs and consultants. In doing so, provide a stable work environment to develop training opportunities, learn under an apprenticeship model and contribute as a multi-disciplinary team member. Recognising the benefits and drawbacks of short and long placements, creative solutions should be considered. For example, shorter placements (four to six months) during foundation and early years in specialty training, followed by yearlong placements towards the end of specialty training.
- **Substantive and Consultant posts** – most of an individual's working career will be spent in these roles. There is need for further support in skill development and maintenance, particularly through provision of special interest time, funded training and salary matched fellowships to broaden general skills without losing or jeopardising posts and finances.

The recommendations from the General Medical Council Report on the *Shape of Training*[24] are as relevant when it was first published in 2013 as it is today, particularly in its recommendation for broad based training for medical and other healthcare professionals. Further, it helpfully considers how different areas of practices can be grouped together in training owing to interconnected relationships between specialties – for example, women's health, child health and mental health. Our report endorses the key messages contained within the *Shape of Training* report and feels they are important for the upcoming period for all health workers.

Finally, there is need to make the emerging broad-based roles attractive. Health professionals will only embrace work in broad specialities when organisations and colleagues place value on the benefits of having a broader scope of practice. As such, there is need to guard against a two-tier system (specialists versus generalists) and support development

of such roles by ensuring they are attractive to health professionals in training and respected by peers.

Compassionate, collective and inclusive health leadership

In our evidence session, Professor Michael West outlined the importance of developing compassionate, collective and inclusive health leadership teams in order to a) ensure workforce pressures are managed (both in terms of recruitment, but also in retaining staff so that "as we pour water into the bucket, there is not a huge leak") and b) develop new models of health delivery that seek to provide care where people live and work (community powered initiatives).

A radical rethink of the structure, leadership and management of the health workforce is needed to move beyond traditional command and control structures. Professor Michael West, Dame Linda Pollard and others told the APPG that future health leadership must build on collective responsibility. Part of this is ensuring leadership skills and roles within and between teams are shared. To enable this, it was suggested that getting rid of hierarchical models was not enough. Instead, there is need to review and renew the way we communicate, enhance decision making within teams and enable team-based working. It was highlighted that teamwork is often poor at present with only around 40% of health teams having clear objectives that are regularly reviewed. It was suggested that every team within an organisation should have clear goals (for example, five) that all members are aware of, collectively agree and renew periodically.

An example of good practice is Berkshire Healthcare NHS Foundation Trust where half of the staff were trained in compassionate and inclusive leadership to enable collective leadership of services. The importance of fostering and investing in clinical health and social care leadership was highlighted (81). It was suggested that this is needed at multiple levels across health and care organisations, and that this will enable clinicians to be part of setting direction and implementing change.

Further, the APPG heard that organisations in which leaders model compassion (markers include listening, sharing, caring and so forth) had better quality outcomes and lower adverse events[82]. To accompany this model of leadership, there is need for tangible and concerted efforts to tackle bullying and harassment, and support staff manage their stress levels and challenges. This staff support must move beyond tokenistic attempts to provide support (such as provision of ad hoc courses) and must seek to meet core needs of staff by enabling autonomy, enhancing sense of belonging, and building competence. As Professor West raised, it is important to acknowledge and tackle workload as it has now become "the wallpaper we no longer see". Finally, it was suggested that inclusion is a key feature of leadership. Diverse teams were highlighted as being evidence based to be more innovative and effective than homogenous teams[83].

These findings mirror and support what has been recommended in the Health and Social Care *Leadership Review Leadership for a Collaborative and Inclusive Future* which was published in June 2022[84]. It outlines the need for career-long training in management and leadership, avenues for progression, mentorship and diversity in the workplace. Our review and steering group support the findings contained therein, particularly around inclusion, however also wish to highlight the need for greater emphasis on cross-boundary working and building a compassionate leadership culture. We are grateful for Dame Linda Pollard who co-chaired the leadership review for her time as one our expert witnesses for this report.

Regular health workforce reviews and planning

There is need for regular review, planning and strategy related to the health workforce given large shortages. NHS digital figures from March 2022 found that one in 10 nursing and one in 17 doctor jobs were unfilled, with absolute numbers of 39,652 and 8,158 respectively[85]. Further, there are concerning workforce trends with many leaving the workforce. For example, Royal College of Nursing estimate 52,000 nurses to retire in the coming years[86].

In this context, as the 2022 health and care bill passed through parliament, an amendment was proposed to ensure there was independent assessment of how many NHS and social care staff are needed to meet demand. This was not adopted. The APPG was told of the need for a regular (e.g. two yearly) independently verified workforce review process underpinned by legislative and statutory requirement, with transparency and open access. It was suggested that

non-statutory approaches have not worked. This approach is supported by over 100 health and care organisations including Royal Colleges in the UK. Our review believes this commitment is important especially given the upcoming merger of Health Education England into NHS England and Improvement.

Regulatory flexibility and alignment to global norms

There is need for UK training to equip, enable and empower UK trained health professionals to be part of the global health workforce by ensuring point of accreditation is in line with international norms. This will enable health professionals to be members of the global health workforce upon graduation, and also enable our educational system to support and train students from around the world who wish to study at UK institutions.

Doctors, for example, gain full registration to the General Medical Council upon completion of the Foundation Year 1. This is one year upon graduation from university. This means that support after graduation from university is fragmented, and the related support and management for this is varied depending on the related Foundation training programmes. During the Foundation Year 1 training, health professionals often have limited ongoing link and supervisory support from the medical university of training, and governance arrangements to raise fitness to practice concerns are challenging owing to related governance complexities. By moving full registration to the point of graduation from medical university, responsibility will be clearly demarcated at undergraduate education. Enabling this will not only require a rigorous review of undergraduate medical education competencies on completion, but also require legislation to be changed and approved by parliament. It will also necessitate related educational and regulatory measures to ensure that safety, quality and finesses to practice is assured for patients and employers.

Support, mentorship and investment for foreign trained health professionals

The NHS is reliant on international recruitment to fill domestic vacancies and gaps. For example, foreign trained nurses and midwives account for around 15% of the registered nursing population in the UK[87]. There is need to actively support, mentor and invest in foreign trained health workers to ensure that they are able to train, learn, work effectively. Five specific ways are outlined here:

1. **Practical support during induction** – this includes supporting communication skills and practical skills such as driving. Practical considerations may seem simplistic, however for lower paid staff, particularly if we wish for them to work in the more rural and coastal communities, this is a must. There may be opportunities to support individuals as they wait for their visa processing in the country of origin (for example, driving theory test preparation).

2. **Streamlined and clearer processes for registration** to medical, nursing and allied health professions. Processes are often long, and individuals in the system are often left feeling like they are not good enough in comparison to the UK standards. Whilst quality assurance is critical, there is need for streamlined processes to ensure that able and competent health professionals are not stigmatised even prior to starting the role.

3. **Support with visa and immigration processes** – approval of Certificate of Sponsorship and related visa approvals can take an inordinate amount of time. Streamlined processes would help both the new health worker and employing organisations (able to prepare by having timely systems and training in place). There is also need to remove the indirect barriers and costs (for example those relating to visas and medical insurance) for foreign trained health and social care professionals and their families to work in the UK.

4. Developing a **welcoming culture with investment in training** – foreign trained health workers should be made to feel welcome and not feel as though they are a burden. Providers and organisations must promote awareness of these expectations, as well as zero tolerance

to racism, and the consequences that may follow if not heeded. Colleagues and the system must understand that whilst there may be challenges during the transition, that the process is about creating longer term security for their organisations. As such, they must invest their time and exercise patience to train their new colleagues and support their understanding of organisational policies and practice in the UK.

5. **Support career progression** – there is need to tackle barriers faced by health professionals in non-training and non-substantive posts and support them to enter formal training programmes and access substantive and credentialed posts. This must be part of wider efforts to value all staff and promote the aspirations of foreign trained staff in terms of career progression. Although there may be equal opportunities policies in place, covert discrimination exists and must be mitigated.

The UK has a very strong health and science sector which can play an enormous part in heling to tackle the great global issues around the re-design of health worker roles, their education and the scaling up of numbers – to the benefit of the UK and the world. It also needs to address these same issues internally so that its own workforce and health service can deliver continuing improvements for its own population.

7. Conclusions and recommendations

This Chapter brings together some conclusions and recommendations in this fast developing and rapidly changing area.

They are based on review of evidence and discussion with a wide variety of people. They cover probable futures – where there is convergence of thinking – and embrace some more radical possibilities for the future.

Conclusions

Health, like every other sector, faces great challenges in these uncertain and troubled times. There are remarkable opportunities to address very long-standing problems, update systems, processes and organisations, improve working arrangements and reduce inequalities. There are also unprecedented threats. It is very easy to see how health and care systems could be overwhelmed, health workers put under even greater pressure, and population health suffer.

Probable Futures and Radical Possibilities is an exploration of the future roles of health workers globally against this changing background. Its conclusions are not a forecast or prediction but rather an attempt to understand what possible future roles might look like. There are a wide variety of possibilities ranging from futures where health workers exercise considerable personal judgement and have a degree of autonomy to those where they are purely undertaking technical tasks within strict protocols.

Health and political leaders have choices about what direction they steer their systems – about what their vision is for health and the sort of roles that they want health workers to play in the future.

The APPG sets out in this report its own vision for the future with health rooted firmly in society, health workers as agents of change and curators of knowledge, and very local delivery. This is repeated from Box 1.1 in the first chapter and shown in Box 7.1.

Box 7.1: A vision for health for the future

Box 7.1: A vision for health for the future

- **There is a common effort across all sectors to improve care, prevent disease, and create health** - with the links between health and education, employment, the environment and the economy well understood and forming the basis for shared policy and action
- **Health workers are agents of change and curators of knowledge** - who as well as undertaking their own specific roles are able to influence, inform, support, develop and facilitate action by members of the public and organisations in all aspects of health and care
- **Most care, treatment and support are delivered in homes and communities** - by multi-disciplinary teams working with patients, families and communities, using the latest data and technology, and with easy access to more centralised specialist services when these are needed.

This is a future which is people and society focused and supported by technology, science, and the use of data.

Adopting a vision and appropriate policies are only a part of responding to current crises and shaping the future. Even the best vision and policies are worthless without robust implementation as the members of the APPG, co-chaired by a former health minister and a former chief executive of the English NHS, know only too well.

They are, however, the starting point. The next crucial part will be to begin an implementation process which follows the IHI mantra of *will, ideas and execution*[28]:

- Building the will for change – and gathering the necessary momentum.
- Clarifying the ideas that work – enabling people to see in very practical terms what the future can hold.
- Creating a robust delivery methodology.

The APPG recognises that it is always easy to make recommendations when you are not the people who have to build the will for change, find the resources, and manage the change. This report sets out a direction of travel. Even small steps in this direction will be beneficial and better than standing still, ignoring the problems or going in a direction which ultimately you do not want.

One advantage in this case is that there are many pioneers around the world who are already acting as agents of change and creating and co-creating the future. Part of any Government's responsibility must be to get behind them and support them, accelerating change and help make it coherent and consistent.

Recommendations

Probable Futures and Radical Possibilities makes fifteen recommendations. Seven are global and addressed to all governments and all countries, seven are specific to the UK, and one is addressed to all health workers.

These recommendations build on current developments and propose a structured approach to change. They start from the understanding that health needs to be seen as an issue for the whole of society, integrated with other concerns and that improving health is essential both for economic prosperity and the quality of life.

These are very big changes and will take time and resources to develop fully. Health workers themselves, however, have a crucial role to play by taking the initiative locally and not waiting for policy to catch up with them. Many, of course, are already doing so – despite the pressures they face – working informally with others inside and outside health services to provide care, prevent disease and create health.

Global recommendations

The report recommends that the governments of all countries:

1. Promote shared actions across society to improve care, prevent disease and create health – and empower health workers to act as agents of change and curators of knowledge who can influence, inform, support, develop and facilitate action by members of the public and organisations in all aspects of health and care.

2. Invest in their own health and care workforce, create more flexible employment conditions, and build strong links with schools and communities to encourage people from all backgrounds to take up roles in health and care – emphasising the important role that people from the poorest and most disadvantaged communities can play.

3. Adopt a model for educating health workers based on the 2010 report *Health Professionals for the 21st Century* which recognises the informative, formative and transformative elements of education and promotes the creation of health professionals as leaders and agents of change and custodians of knowledge.

4. Support the development of global consortia of universities and other bodies to deliver education and training which will secure the quality and consistency of standards across a vastly larger and very mobile global workforce.

5. Work together with global partners to increase massively the supply of health workers being educated and trained and tackle the enormous problems caused by migration

from lower income countries to higher income ones and from poorer communities within a country to more affluent ones.

6. Re-commit themselves to the WHO Global Code of Practice on International Recruitment, publish a report on their compliance with it, and work with the WHO to strengthen its application.

7. Plan and prepare for these changes and ensure that all heath workers have sufficient time in the workplace to learn and develop new skills and knowledge as neccessary.

UK recommendations

The seven global recommendations apply equally to the four countries of the UK. In addition, the report recommends seven others focussed on the UK and on the English NHS:

8. The UK Government should agree and implement the recommendations of the Health Education England Review *Framework 15: Shaping the Future Workforce for England* and in doing so set out their vision for the health workforce and health and care systems for the future. It should also commit itself to the publication of regular workforce reviews and plans.

9. The UK Government should work with Universities UK and other bodies to develop plans for promoting the UK's role in the education of health workers in the UK and abroad. These could include leading the development of global consortia of universities and other bodies to deliver education and training.

10. The Government should work with NHS management, universities, the regulators, and the professions to ensure that pre-service and in-service education and training enable the development of the broad-based skills and competencies necessary for meeting the changing health needs of an ageing and diverse population with increasing levels of co-morbidities.

11. NHS England should strengthen leadership in the NHS through building on the ideas of compassionate, collective and inclusive leadership which engages all members of the workforce as well as the report from the Health and Social Care *Leadership Review Leadership for a Collaborative and Inclusive Future*. As part of this, it should specifically foster and invest in clinical leadership.

12. The UK Government should work with regulators and the professions to promote regulatory flexibility and alignment to global norms which will enable the UK to participate fully in global workforce developments. This should involve for example, moving the point of full registration for doctors to the point of graduation at university medical school rather than at the end of Foundation Year 1.

13. NHS England should ensure that there is appropriate support and mentorship for foreign trained health professionals in England and the investment to enable this so that they are able to learn, train, live and work effectively in the UK.

14. The UK Government should adopt the growth and development of the health workforce as a priority for its contribution to international development and make specific commitments to support the growth and development of the health workforce in partner countries. It should maintain and strengthen the many global partnerships – at professional, institution and country levels – to ensure mutual learning and shared development. It should also reinstate the commitment to spend 0.7% of Gross National Income on Overseas Development Aid.

Recommendation for all health workers

It is vital, if this approach is to be successful, that health workers themselves should wherever possible:

15. Take a lead in acting as agents of change within the confines of their existing role to support, influence and enable others to improve, maintain and create health. There are many examples of this already happening including the Beyond Pills campaign mentioned earlier.

Acknowledgments

The APPG is very grateful to the following for their advice and input to the report.

Stakeholder contributions to the Parliamentary evidence sessions, six sessions held between November 2021 and March 2022 (alphabetical order):

- Professor Dinesh Bhugra CBE, Emeritus Professor of Mental Health and Cultural Diversity at the Institute of Psychiatry, Psychology & Neuroscience, King's College London
- Ms. Maureen Bisognano, President Emerita and Senior Fellow, Institute for Healthcare Improvement
- Professor Ged Byrne, Director of Global Engagement of Health Education England
- Dr. Jim Campbell, Director of Health Workforce Department, World Health Organisation
- Professor Stuart Carney, Deputy Executive Dean and Medical Dean in the Faculty of Medicine at the University of Queensland.
- Mr. Howard Catton, Chief Executive Officer of the International Council of Nurses
- Dr. Navina Evans, Chief Executive of Health Education England
- Professor Julio Frenk, President of the University of Miami and former Minister of Health of Mexico
- Professor Patricia Garcia, Professor and Former Dean of the School of Public Health, Cayetano Heredia University, and former Minister of Health in Peru
- Dr. Terrance Gibson, Consultant Rheumatologist and General Physician at GSTT
- Dr. Oliver Johnson OBE, PhD student on health leadership at King's College London
- Dr. Ilona Kickbusch, Director of the Global Health Programme at the Graduate Institute of International and Development Studies
- Dr. Lloyd McCann, Chief Executive Officer for Mercy Radiology and Clinics, and Head of Digital Health for Healthcare Holdings Limited
- Professor Francis Omaswa, Executive Director at the African Centre for Global Health and Social Transformation and former Director General of Health Services at Uganda Ministry of Health
- Dr. Sangita Reddy, Joint Managing Director of Apollo Hospitals Enterprises and the president of Federation of Indian Chambers of Commerce and Industry
- Professor K Srinath Reddy, President of the Public Health Foundation of India
- Ms. Charlene Sunkel, Founder and Chief Executive Officer of the Global Mental Health Peer Network
- Dr. William van't Hoff, Chief Executive Officer at NIHR Clinical Research Network
- Professor Michael West CBE, Senior Fellow at King's Fund, and Professor of Work and Organisational Psychology at Lancaster University

Stakeholder contributions through interviews and written evidence (alphabetical order):

- Dr. Mamadu Baldeh, Senior Medical Officer, Sierra Leone
- Ms. Sarah Bar-Zeev, Midwifery Technical Specialist, United Nations Population Fund
- Mr. Samuel Choritz, Chief of the Executive Board Branch, United Nations Population Fund
- Dr Tinashe Goronga, National Specialist Inclusive Governance Initiative at United Nationals Development Programme in Zimbabwe
- Dr Jibril Handuleh, Psychiatrist, Somaliland
- Dr. Boie Jalloh, Senior Medical Officer, Sierra Leone
- Mr. Matt Jackson, UK Director of the United Nations Population Fund
- Dr. Natalia Kanem, Executive Director of the United Nations Population Fund

- Dr. Niti Pall, Medical Director at KPMG's Global Health Practice
- Dame Linda Pollard, Chair of Leeds Teaching Hospitals NHS Trust
- Professor Sunanda Ray, Public Health Professor at University of Botswana
- Dr Leslie Thoms, Psychiatrist, United Kingdom
- Ms. Suzanne Thomas, Pharmacist, Sierra Leone

The APPG also interviewed and held focus group discussions with health workers in their 20s and 30s, as well as students, in recognition that they will be the generation that meet the probable futures and potentially drive radical possibilities. This includes members and alumni of Students for Global Health and the International Federation of Medical Students Association, as well as some of the 2020/21 and 2021/22 NHS England National Medical Director's Clinical Fellows, Chief Pharmaceutical Officer's Clinical Fellows, Chief Scientific Officer's Clinical Fellows and Chief Sustainability Officer's Clinical Fellows. In addition, the APPG also spoke to students and junior health professionals working with the College of Medicine and NHS Social Prescribing Champion Scheme who are involved in the Beyond Pills campaign.

Literature review

The three literature reviews (found in Appendix 1 – 3) were conducted by the Centre for Global Health Economics, University College London, with input from the following contributors (alphabetical order): Dr. Neha Batura, Ms. Maitri Nori, Mr. Rashidat Olukosi, Mr. Tom Palmer, Dr. Stavros Poupakis, Ms. Nathalie Rich, Dr. Francesco Salustri, Professor Jolene Skordis and Ms. Ansula Vagisha.

Parliamentary members of the steering group (alphabetical order):

- Lord Nigel Crisp, House of Lords
- Baroness Shelia Hollins, House of Lords
- Dr Daniel Poulter MP, House of Commons
- Lord Bernard Ribeiro, House of Lords
- Baroness Mary Watkins, House of Lords

External members of the steering group (alphabetical order):

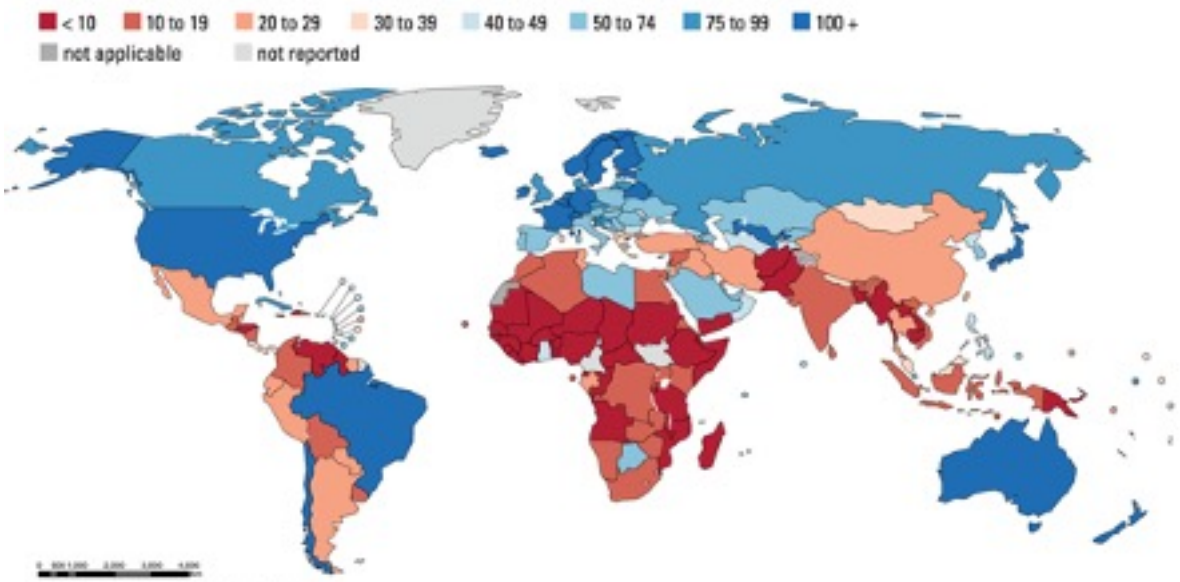
- Ms. Charlotte Beardmore, Executive Director Professional Policy at the Society of Radiographers and Past President of the Society of Radiographers and European Federation of Radiographers
- Professor Alistair Fitt, Vice-Chancellor of Oxford Brookes University and Chair of the UK Health Education and Research Policy Network
- Ms. Jo Lenaghan, Director of Strategy of Health Education England
- Professor Jolene Skordis, Vice Dean (International) and Professor of Health and Development Economics at University College London

Appendix 1: Workforce Data

Countries with minimum staffing levels by professional group[70]:

- 55% of countries have less than 3 pharmacists per 10,000 population.
- 57.3% of countries have less than 3 dentists per 10,000 population.
- 53.5% of countries have less than 3 midwifery personnel per 10,000 population.
- 50% of countries have less than 15 medical doctors per 10,000 population.
- 46.4% of countries have less than 30 nursing personnel per 10,000 population.

Density of nursing personnel per 10 000 population in 2018[16]:



*Includes nursing professionals and associates.
Source: National Health Workforce Accounts, World Health Organization 2019. Latest available data over the period 2013–2018.

Health Staffing levels by regions, data from 2014 – 2019[13]:

	Health Expenditure % of GDP	Health Expenditure per capita $ USD	Doctors per 10,000 population	Nurses and midwives per 10,000 population
World	9.8	1,121.8	18	40
East Asia & Pacific	6.7	750.6	17	37
Europe & Central Asia	9.4	2,334.2	43	78
Latin America & Caribbean	8.0	662.0	30	45
Middle East & North Africa	5.5	512.8	14	25
North America	16.3	10,317.7	26	153
South Asia	3.1	60.6	9	20
Sub-Saharan Africa	4.9	79.4	2	10

Health Staffing levels by Country Income Status, data from 2014 – 2019[13]:

	Health Expenditure % of GDP	Health Expenditure per capita $ USD	Doctors per 10,000 population	Nurses and midwives per 10,000 population
World	9.8	1,121.8	18	40
Low Income	4.9	33.8	3	9
Lower Middle Income	2.7	95.2	8	23
Upper Middle Income	5.9	554.7	23	33
High Income	12.5	5,736.1	37	115

Estimated 2030 health worker* demand by regions[88]:

	Millions
Africa	2.4
Americas	15.3
Eastern Mediterranean	6.2
Europe	18.2
South-East Asia	12.2
Western Pacific	25.9
World	80.2

* physicians, nurses/midwives, and other health workers

Estimated 2030 health worker* surpluses and shortages by regions and income group[89]: *physicians, nurses/midwives, and other health workers

	Shortage countries				Surplus countries					
	Demand	Supply	Need	Shortage	# Countries	Demand	Supply	Need	Surplus	# Countries
WHO Region										
Africa	643,548	453,757	2,423,284	189,791	13	1,761,259	2,612,909	6,487,188	851,649	30
Americas	5,294,324	2,177,226	2,270,537	3,117,097	17	9,994,286	10,565,630	3,975,926	571,344	11
Eastern Mediterranean	5,735,711	3,976,303	4,248,811	1,759,408	12	465,804	635,105	806,814	169,301	3
Europe	8,813,848	6,485,872	2,740,579	2,327,976	32	9,344,924	10,317,392	3,045,689	972,468	18
South-East Asia	11,420,891	9,039,083	12,091,674	2,381,808	3	785,895	1,129,508	2,621,313	343,613	5
Western Pacific	23,359,616	13,836,069	11,088,037	9,523,547	10	2,535,233	3,425,273	1,182,439	890,040	11
WB Region										
East Asia and Pacific	23,359,616	13,836,069	11,088,037	9,523,547	10	3,186,411	4,414,633	3,646,462	1,228,222	13
Europe and Central Asia	8,499,926	6,323,225	2,676,878	2,176,701	30	9,344,924	10,317,392	3,045,689	972,468	18
Latin America	5,294,324	2,177,226	2,270,537	3,117,097	17	3,080,663	3,607,541	1,555,339	526,878	9
Middle East & North Africa	4,574,811	3,342,787	2,615,168	1,232,024	13	338,608	504,161	417,742	165,553	2
North America	0	0	0	0	0	6,913,623	6,958,089	2,420,587	44,466	2
South Asia	13,325,263	10,153,540	14,091,101	3,171,723	5	134,717	140,148	157,290	5431	3
Sub-Saharan Africa	213,998	135,463	2,121,201	78,535	12	1,888,455	2,743,852	6,876,260	855,397	31
WB Income group										
Low	1,142,167	787,953	4,149,362	354,214	14	257,907	596,623	2,899,686	338,716	15
Lower middle	19,143,815	14,797,698	16,063,131	4,346,117	23	2,538,766	3,161,245	5,877,124	622,479	21
Upper middle	28,403,598	15,305,990	12,465,315	13,097,608	23	4,888,132	6,056,042	3,469,462	1,167,910	23
High	6,578,358	5,076,669	2,185,113	1,501,689	27	17,202,596	18,871,907	5,873,098	1,669,311	19
World	55,267,937	35,968,311	34,862,922	−19,299,627	87	24,887,401	28,685,817	18,119,370	3,798,416	78

Appendix 2: Literature review on technology as a way of linking home-care with institutions

Summary:

During the recent COVID-19 pandemic, the use of remote medicine has saved lives by providing timely and appropriate care to patients. Existing trends towards the increased use of remote medicine have been accelerated, thereby providing timely and appropriate care to patients, preventing unnecessary contact between providers and patients, and reducing transmission of the virus, and indeed other illnesses. For better or worse, it is inevitable that the use of remote medicine will continue to increase. This will have far-reaching implications for the health workforce, which remain uncertain. Our review shows that remote medicine can be effective and cost-effective, provided that appropriate training, sensitisation, and frameworks are in place. There is a clear role for the provision of remote health care in improving access to care for populations in remote areas or otherwise underserved populations.

Methods:

The review looked at 14 relevant research articles. Eight of these were systematic reviews (2 of which were systematic reviews of systematic reviews), one was a narrative review, one was a scoping review, one was a policy statement, and the remaining three were original research studies. Eight studies had a global focus, while the remainder were set in the UK (n=2), the USA (n=2), sub-Saharan Africa (n=1). One study was focussed on European and North American setting. The included studies can be broadly categorised into studies that address the effectiveness and cost-effectiveness of telemedicine (n=5), issues with implementation (n=4), patient and provider satisfaction (n=4), and implications on the workforce, health systems and wider society (n=2).

Policy recommendations:

- Remote medicine can be effective and cost-effective, particularly for populations in rural areas or otherwise underserved populations.
- Remote medicine can benefit the health workforce by reducing workload and allowing them to prioritise and optimise their time.
- To support the health workforce when using telemedicine, additional investment must be made in appropriate infrastructure, including adequate training and the integration of information technology systems.
- Governments should develop appropriate licensing structures to support remote medicine, to ensure that legislation keeps pace with technological advances.

Appendix 3: Literature review on cross sectoral support for health through school-based initiatives to prevent and manage obesity

Summary:

Obesity is a global epidemic for high-income nations, while undernutrition is the other side of malnutrition still faced by many low- and middle-income countries (LMICs). Stunting can have serious implications for these countries' child populations. LMICs can learn from the UK and from other countries' past experiences on how to tackle undernutrition, while current lessons on tackling obesity can guide future policy in LMICs as they transition to high-income levels. School-based initiatives to support nutrition should be seen as investments, as they can have high returns. This is in line with the evidence that nutrition is an important input in human capital accumulation that results in healthy and productive populations. This has direct implications, not only for the reduction in healthcare costs, but for increased economic output through the increase in productivity.

Methods:

The review considered a range of available evidence across the themes of interventions in schools, nutrition interventions, costs and benefits, and implementation. These were from a range of high-income and low-income settings.

Policy recommendations:

- Health must be fostered within community settings such as schools, through preventive interventions and through education.
- Preventive care interventions in schools can be highly cost-effective.
- Cross-sectoral support for health can reduce the pressure on budgets and the health workforce.
- Taking a broader perspective on the health workforce in this way may need additional cross-sectoral funding or advocacy work.
- Innovative alternatives to teacher-led interventions, such as peer educators, should be considered.

Appendix 4: Literature review on the role of community-based agents in the health care sector

Summary:

Community based agents (CBAs) can play a key role for national health care programmes in disease prevention and management at community-level. Our analysis documents extensive findings of the effectiveness of CBAs in a variety of areas of the health care service. Socioeconomically marginalised groups are more likely to benefit from CBA programmes as they face greater barriers to accessing formal health care. However, CBAs need continuous, structured qualification and training programmes, to increase worker motivation and quality of delivery. Future analysis could focus on quantifying the cost-effectiveness of the formal inclusion of CBAs in the health workforce, considering a structured system of monetary and non-monetary incentives. An integrated approach would allow workers to have a defined scope of practice, while also increasing trust in CBAs among communities, which will ultimately lead to better performance.

Methods:

The review looked at 55 studies were research studies. A large proportion of the studies focussed on CBAs in LMIC settings only (n = 32), while the remaining studies also focussed on CBAs in high-income countries (n=12) or global settings (n = 11). Overall, various health conditions were targeted across all the studies, and this included maternal and child health, communicable diseases such as HIV and non-communicable diseases such as diabetes. The studies which focused on LMICs typically addressed maternal and child health alongside communicable diseases, while the studies in high-income countries focussed more on non-communicable diseases among minority or vulnerable groups.

Policy recommendations:

- CBAs should be systematically integrated into health care systems to improve performance and trust.
- Continuous structured training, expert supervision, and positive work experience should be offered to CBAs.
- Wider trends in the transition to remote medicine will increase opportunities for remote supervision and training of CBAs, thus further reducing costs.
- Evaluations of CBAs programmes at larger scale and with well-trained workers should be conducted to better understand the cost-effectiveness and potential impact of this cadre.

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The APPG is very grateful to the following organisations which have sponsored it during the last three years: Health Education England, Kings Health Partners, The Bill and Melinda Gates Foundation, The Burdett Trust for Nursing, The Institute of Global Health Innovation at Imperial College London, The Lancet, The London School of Hygiene and Tropical Medicine, The National Institute for Health and Clinical Excellence, The University of Edinburgh, The University of Oxford, The Wellcome Trust, University College London.

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