13. Towards resilient and sustainable universal healthcare coverage

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Over the past three decades, health systems have made significant strides towards achieving universal health coverage. However, household out-of-pocket payments for medical care still remain high, and disparities in financial risk protection and healthcare quality continue to give rise to pervasive health inequalities, and some Western countries exhibit a slowdown in life expectancy. The COVID-19 pandemic has shown that global health systems need to be both (i) resilient to shocks and (ii) sustainable in their ability to provide for basic healthcare needs. However, the challenge that health systems in ageing societies face today include how to overcome staffing shortages, waste of resources, and poor regulation, as well as the incomplete integration of long-term care programmes into the main insurance package. Interventions include the expansion of the fiscal space, more efficient allocation of public funding, designing policies to provide high-quality care, and institutions to regulate the diffusion of new, generally costly, healthcare technologies and drugs, and limiting expenditures on waste and corruption.

I. Introduction

During the past three decades, health systems have experienced significant transformations with many systems undergoing major reforms to progress towards the 2030 United Nations Sustainable Development Goals (UN SDGs) of achieving universal health coverage (UHC) and hence improving individuals' financial healthcare risk protection.[1] While care insurance packages vary greatly across countries, both in terms of services covered and quality delivered, Figure 13.1 shows evidence of significant achievements at a global scale. However,

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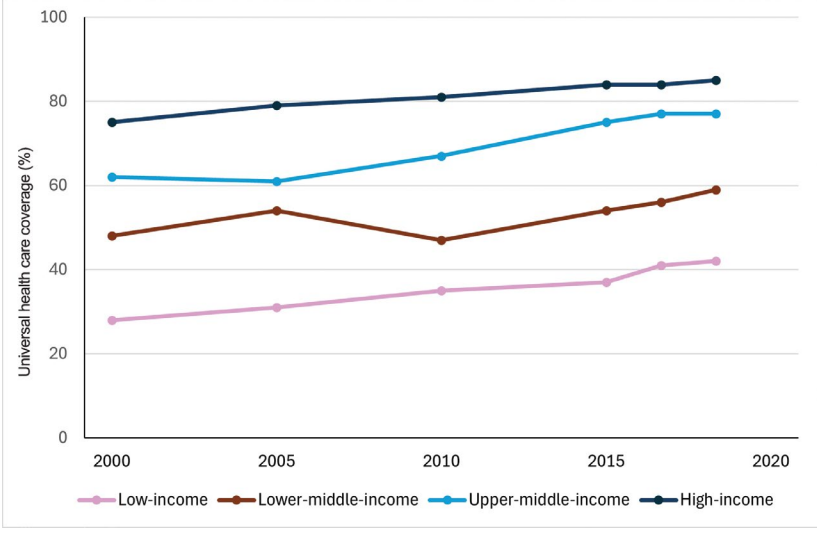
progress has mostly taken place in high- and upper middle-income countries (UMICs), and there remains much room for improvement in low- and low middle-income countries (LMICs).

Evidence from past reforms illustrates that achieving financial risk protection requires significant public financing of healthcare. This is true even in primarily private healthcare systems, such as the United States, where public financing funds about half of health spending. As discussed in Barr's chapter (14) in this volume on the welfare state, private insurance fails for various reasons and only social insurance schemes, or tax-based financing can provide the base for sustainable healthcare funding for the entire population. Consequently, most of the countries that have achieved high levels of financial risk protection are financed primarily through social insurance, tax-based schemes, or a mix, with private insurance playing a complementary or supplementary role. Even with notable progress towards UHC, out-of-pocket expenditure on healthcare remains high in a significant part of the globe, as Figure 13.2 illustrates. Finally, catastrophic spending is not confined to low-income countries alone; it is significant in many middle-income and high-income countries, particularly the US, where around 4.6% of the population spend more than 10% of their household budget on healthcare.

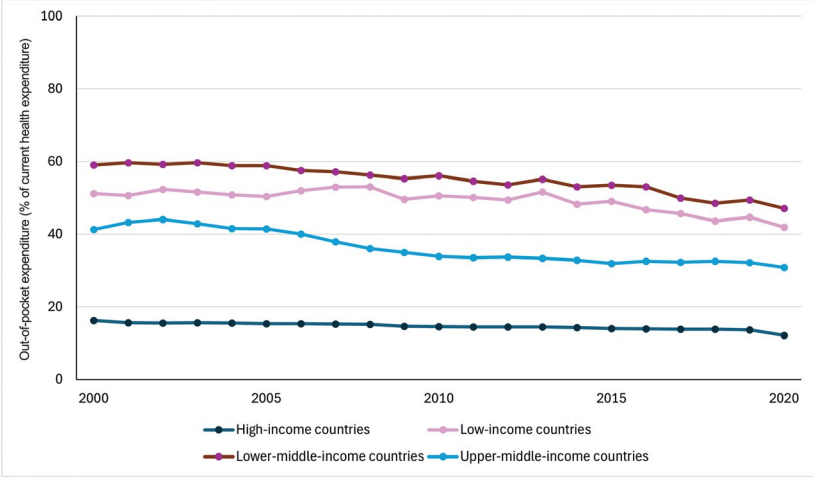
The gradual improvement in UHC and associated benefits of financial security have taken place alongside significant improvements in life

Figure 13.1: Progress towards universal health coverage: service coverage index for low- to high-income countries, 2000–2017



Source: created by the authors based on data by the Global Health Observatory, World Health.

Figure 13.2: Out-of-pocket expenditure (% of current health expenditure), for low- to high-income countries, 2000–2020



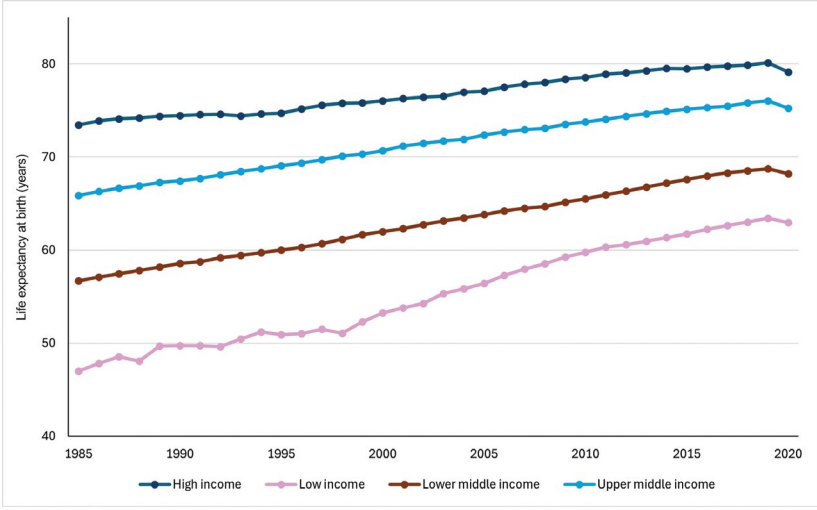
Source: created by the authors based on data from 'Our World in Data'.

expectancy, especially in low-income countries, but has recently fallen as a result of the COVID-19 pandemic, as Figure 13.3 shows.

However, such improvements are far from universal. In fact, Figure 13.4 reveals that life expectancy at birth has recently declined generally in high-income countries, even after accounting for global downturns related to the COVID-19 pandemic. Life expectancy has either levelled off or decreased after decades of improvement, mostly due to behavioural factors related to wider social determinants of health that are not fully under the control of the health system. Comorbidities have increased markedly in the elderly, particularly in high-income countries, where healthcare systems in these countries are now struggling to maintain universal, high-quality delivery in an equitable manner.[2]

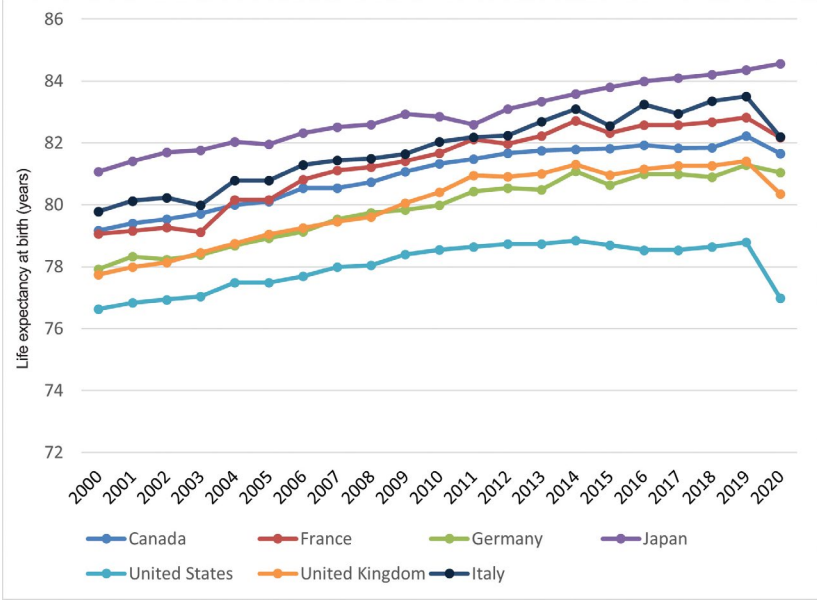
This chapter assesses the role of healthcare funding, delivery and investment in promoting global health, wellbeing and growth. In section II, we consider the impact of social determinants and progress in equity of health. Section III considers the various approaches taken to address common global issues of (i) financing healthcare, (ii) delivery of healthcare, (iii) access to effective healthcare, (iv) healthcare workforce and (v) provision of long-term care. We argue that UHC requires building resilient and sustainable healthcare systems and the best approaches to UHC are context-specific and depend on the political context and economic trajectory of each country. Policy lessons from countries that have made the transition to UHC can serve as a roadmap for others. In the final section, we summarise these as policy recommendations.

Figure 13.3: Life expectancy at birth (years) across countries



Source: created by the authors based on data from the World Development Indicators, World Bank.

Figure 13.4: Life expectancy at birth (years) in G7 countries



Source: created by the authors based on data from the World Development Indicators, World Bank.

II. Progress towards health equity and social determinants of health

The COVID-19 pandemic became an example of the Hobbesian remark that life can be 'nasty, brutish, and short'. The pandemic showed that health disparities endure even when contagious diseases level the playing field. The COVID-19 experience was extremely different in wealthy and less developed nations. Although over 5.55 billion people (72% of the world's population) have received at least one dose of the COVID-19 vaccine, access to vaccinations has been markedly unequal both between and within countries. In many African countries vaccination rates remain around 30%, while in high-income countries poor and ethnic minorities had higher levels of disease exposure, due to the nature of their work and lower vaccine uptake rates.

The persistence of health inequalities reflects inequalities in the access to healthcare, but also the impact of social determinants of health. The World Health Organization (WHO) Commission on Social Determinants of Health highlighted the importance of poverty, education, employment, gender inequality, and social exclusion as contributors to health inequalities and as issues that must be addressed across the world.[3] For instance, the poorest 1% in the US die 10–15 years earlier than the richest 1%; in England there is a growing life expectancy gap of more than eight years between those living in the most and least deprived areas; in India, there is an eight-year gap in male life expectancy between those in the wealthiest and poorest quintile. These disparities hold both within and across countries. Current global life expectancy is 73 years (71 for males and 76 for females), ranging from 57.7 in Western Africa to 87.2 in Western Europe,[4] even with African life expectancy increasing by over 10 years between 2000 and 2016. Adjusting for healthy life expectancy gives rise to even greater inequalities (for example, life expectancy in the US was 78.5 years in 2019, but healthy life expectancy was 66.1 years). United Nations projections on world population ageing suggest that in the next three decades, the number of older people (age 65 and above) will double globally, increasing from 0.7 billion in 2019 to 1.5 billion in 2050.[5] Healthy ageing requires immediate investment in health and social care over the life course.

While the importance of social determinants is widely accepted, it is difficult to establish causal evidence of its effects. For instance, health inequalities are both a cause and consequence of income inequality. Income and health are highly correlated with a strong negative gradient. Ill health impacts income, for instance, by constraining investments in educational and non-cognitive skills, which has a detrimental impact on later life outcomes.[6;7;8;9;10;11] Existing evidence confirms that adult health is determined early in life and is further shaped through social determinants.[12;13] While it is true that poorer children are less healthy in high-income countries, it is difficult to establish why based on existing evidence.[14;15;16;17] Evidence from middle- and low-income countries that considers the impact of unconditional cash transfers supports that poor

people have improved birth outcomes as their income increases,[18] but this is not always the case, as several findings record no health impact from such schemes.[19] Consequently, policy implications from this work are weak.

One explanation for the mixed evidence on the relationship between income and health is that once patterns of health inequality have been documented, individuals with higher incomes generally enagage in healthier behaviours with lower likelihood to smoke, drink heavily, become obese, or use illicit drugs.[20;21] The role of education is particularly important, as education rather than income per se could mediate healthy behaviour (as first set out in the seminal work by Grossman).[22] Generally, wider social determinants of health can partly explain the emergence of a widespread obesity epidemic that implies higher later-life comorbidities and doubles the costs of an individual's healthcare.[23] The literature supports a robust, strong positive correlation between education and health, even across generations, as maternal education correlates with their children's health.[24;25]

Up to 2010, life expectancy at birth was increasing in all high-income countries. But since then, increases in life expectancy have stalled or even fallen in some countries. This tendency is not explained by the COVID-19 pandemic, but appears to have other underlying causes which have resulted in increased mortality rates in specific population groups with low-incomes. Recent work by Case and Deaton on rising deaths by despair (mortality linked to illicit drugs, drink and suicides) in poor middle-aged, uneducated white non-Hispanics in the US clearly supports the impact of wider social determinants on health outcomes.[26;27] Although the evidence is not universal, similar trends appear in Australia, Ireland, the United Kingdom, and Spain. The impact of concentrated increased mortality rates in sections of high-income country populations, attributable to specific lifestyle behaviours, cardiovascular diseases, and cancers, and compounded by COVID-19 mortality, have led to significant decreases in life expectancy in some high-income countries. This decrease can also be linked directly to commercial influences on health, such as corporate sector priorities shifting health systems away from health improvement goals. A recent study found that climate change, the COVID-19 pandemic and four industrial sectors (tobacco, ultra-processed food, fossil fuel, and alcohol) are responsible for approximately one-third of global deaths.[28]

Paying attention to social determinants tends to promote the role of public health, particularly the role of prevention over treatment seems to be increasingly more relevant. For example, McGinnis et al. highlight the limited role of healthcare in reducing mortality, with less than 15% of gains in US mortality rates in the early 2000s directly attributable to healthcare, and over half of US deaths involving a behavioural cause.[29] A clearer understanding of causal relationships is needed in order to change health behaviour.[30] Regardless, shifting attention towards prevention, with its upfront costs and delayed benefits, and increasing reliance on individual responsibility for health improvements is unlikely to be sufficient to replace stuttering health

gains even in high-income countries, particularly in a context of limited government resources given high levels of public debt. Consequently, it is important to consider healthcare financing, production, and delivery.

III. What can the health system do?

1. *Healthcare financing*

Health financing arrangements are core to the functioning of any health system. They determine the volume of revenues raised, the extent of financial risk pooling that is feasible, the coverage and quality of health services, and the level of financial protection for the population. Most countries with high levels of UHC have some form of collective financing mechanism through mandatory public funding, such as taxation (direct and indirect) or social insurance. Since the late 1980s, most European health systems have shifted towards mixed modes of mandatory public financing. Many Western European health systems that were predominantly financed by social insurance are now complemented with large governmental transfers from taxation to cover non-working population groups or health sector deficits. In 2018, government transfers accounted for between 25–35% of social insurance revenues in Belgium, France, and Greece; and around 40% in Luxembourg.[31] Starting in 1990, several Central and Eastern European countries (re)introduced social insurance schemes to complement universal schemes financed through government budgets. The latter were efforts to increase public investment in health through earmarked contributions and a return to schemes that had been dismantled under the Soviet Union.[32] Studies analysing equity in financing of healthcare in high-income countries suggest that social insurance contributions are proportionate or moderately regressive, while predominantly tax-financed health systems vary from mainly progressive to moderately regressive.[33;34]

Other voluntary private contributions such as private health insurance (PHI), medical savings accounts (MSAs), or out-of-pocket payments (OOPs) form the basis of health financing in several countries. PHI is the primary source of finance among working people in the US or Switzerland. Although PHI has been shown to be highly regressive, it may be a complementary and supplementary source of coverage to public contribution in order to cater to heterogeneous preferences and needs.[35;36] In Ecuador, Peru, and Uruguay, PHI plays a supplementary role, covering healthcare services that are not covered by public contribution mechanisms. In other countries, such as Brazil and Chile, PHI is complementary, covering cost-sharing for health goods and services covered by public contribution mechanisms.[37]

MSAs involve voluntary contributions by individuals to their own savings accounts earmarked for healthcare costs. Employers often contribute to these individual accounts although there is a cap on annual contributions. In Singapore, MSAs (called MediSave) were launched in 1984 and are the

primary source of health finance. They are complemented by MediShield, a voluntary, high-deductible, catastrophic insurance plan, with direct subsidies to hospitals and the Medical Endowment Fund (MediFund), a safety net for poorer people. By 2011, most healthcare was paid for out-of-pocket, while MediSave withdrawals and MediShield claims only accounted for about 5.5 and 2.1% of national health expenditure, respectively.[38] MSAs were introduced in the US in 2003 under the term Health Savings Accounts. While MSAs enable individuals to level risks over time, they do not involve risk pooling across the wider population, tend to be inequitable and, consequently, have not provided universal financial protection.[39]

OOPs are typically direct payments to providers for services either in the absence of a statutory benefits package or as cost sharing for services covered by the benefits package. OOPs form a large part of healthcare financing in many LMICs. On average more than 40% of health spending in LMICs (and nearly 60% if only low-income countries are considered) are OOPs.[40] Many LMICs have implemented direct charges to health services users since the 1980s, as part of the structural adjustment policies of the World Bank and the International Monetary Fund. Various studies have looked at the effects of user charges and conclude: (i) user fees impede access to health disproportionately for the poor; (ii) waivers and exemption policies are administratively difficult to implement effectively; and (iii) user fees can result in catastrophic health expenditures driving households into poverty.[41;42] OOPs are more regressive than any other method of healthcare financing, capturing a higher proportion of income among poor households than wealthier ones.[43] In contrast, tax-financed schemes are largely progressive and reduce inequities in health financing. In practice, there are barriers that may limit the adoption of these financing approaches.

A major barrier in LMICs is inadequate generation of revenues from public financing sources.[44;45] This is often due to several factors: (i) low public spending on health as a share of gross domestic product, even in countries that have witnessed rapid economic growth; (ii) taxation systems where capacity to enforce tax and contribution collection is weak; and (iii) large informal sectors in LMICs that limit contributions to social insurance schemes and tax revenues.

The age-mix of the world population is also changing. While many LMICs have relatively young, growing populations (e.g., Indonesia and much of sub-Saharan Africa), many high-income countries have a large proportion of older individuals. Changes in the age-mix affects countries' ability to generate revenues from all the aforementioned approaches. Mandatory contributions are typically low in young adults, and they increase and correlate closely with working ages, declining as people reach retirement. For countries with young populations, ageing can present an opportunity to expand the fiscal space by generating more revenues for health and other public services. However, these countries are often characterised by large informal sectors and less-developed

tax systems, and to improve fiscal sustainability they must reduce the informal sector and invest in improving the tax system.

Countries with an ageing population or a large share already in older age groups rely primarily on the labour market (through social insurance) to raise revenues for health, which can result in a declining revenue base over time. Some sources of indirect taxation, such as consumption, property, and wealth taxes, may be more resilient to changes in the population age-mix and can contribute to diversification of revenue sources. But in the long term such diversification is unlikely to generate adequate revenues and may be politically unpopular (e.g., in the cases of property or wealth taxes). Therefore, regulators should prioritise reorienting the share of public revenue allocated to healthcare.

Recent studies of national health insurance schemes in LMICs show that raising funds from social insurance is unlikely to raise sufficient revenues to provide coverage for financial risk protection.[46;47] To expand the fiscal space, countries could diversify the public revenue base to include indirect taxes, e.g., by earmarking revenue generated by increasing taxes on unhealthy products, such as tobacco and alcohol or reducing subsidies for fossil fuels. Studies show that when earmarked revenues are channelled directly into an autonomous fund dedicated to public health, they successfully add funding for health, and in LMICs it adds revenues from the informal economy. Yet they tend to be regressive.[48] Some countries have diversified the public revenue base to stimulate employment while maintaining or increasing public health spending. For example, in 2009 Germany moved to a unified national contribution rate of 15.5% of wages, but then used general tax revenue to reduce this contribution to 14.9% as part of an economic stimulus package. Further budget subsidies were channelled through these rate subsidies.

Reducing fragmentation in health financing

Pooling revenues enables the sharing of health risk across individuals and over time. Equity of access to healthcare is further improved when healthy individuals subsidise the costs of those in need of healthcare. Most health systems that rely on mandatory public contributions employ some degree of pooling even when funds are at times heterogenous. However, over the last two decades, several European countries have implemented reforms to reduce fragmentation. In 2006, the Netherlands created a national health insurance fund, by removing the dividing line between statutory cover for 63% of the population and substitutive private cover for the remaining 37%. A major administrative reform in Denmark in 2007 led to a merging of health schemes by lowering the number of municipalities from 275 to 98. This reform also removed the responsibility for raising tax revenue for healthcare from regional and local governments to the central government.[49]

Latin American countries have adopted different approaches to financing UHC, resulting in varying levels of coverage and financial protection. Brazil

and Costa Rica adopted a unified health system approach, where funds from different sources are pooled to limit user fees and cover the entire population. Countries like Argentina, Chile, Mexico, and Peru developed parallel health insurance, service delivery systems, and correspondingly different benefits for different population groups within a country. Over time, the latter group of countries have moved to a 'semi-integrated' approach, where contributory schemes coexist with parallel pooling arrangements funded by tax revenues that subsidise enrolment for the poor.[50] Overall, expanding UHC has resulted in reduced catastrophic health expenditures among the poor. However, OOP expenditures remain high in Latin America, varying from 16% of health expenditure in Uruguay to 43% in Ecuador. The main reasons for high OOPs are high levels of private healthcare coverage and reliance on demand-side cost-sharing to control volumes.[51]

The ability to pool revenues in LMICs remains constrained by external funding for the health system. In the provision of many public health interventions, diagnosis and treatment of communicable diseases is typically vertically arranged with limited integration with other healthcare services. Vertical arrangements are typically the result of reliance on external financing. Particularly in low-income countries, the contribution of external assistance to health expenditures is large (~33% on average in 2015), with competing objectives among donors. Funding from bilateral, multilateral, and philanthropic organisations typically target specific disease areas or priority populations.[52] Vertical financing arrangements offer health systems little flexibility in pooling resources across population groups or in planning at an aggregate level. Greater cooperation between donors and countries can facilitate integration of funding into more comprehensive health benefits plans, ensuring key populations and specific diseases are not excluded from coverage, particularly as countries transition away from donor aid.[53;54]

2. *Delivery*

All health systems employ some form of purchasing of health services from health providers. We consider below such purchasing decisions in terms of the role of technology, improvements in procurement strategies, priority setting as it relates to UHC, the degree of integration between primary and specialist providers, and issues relating to diagnosis and personalised medicine.

Strategic purchasing

Health systems employ some form of purchasing of health services from healthcare providers. Traditional ways of paying healthcare providers, such as salary, fee-for-service, bundled payments, and capitation, do not explicitly reward providers for delivering better and more efficient quality care. Strategic purchasing intends to improve allocative efficiency (maximise health gains from available resources), improve quality by introducing incentives for

providers, and improve technical efficiency through pay-for-performance and competition between providers and purchasers. Consequently, several countries have implemented provider payment models that seek to align payment incentives with the quality and efficiency of services provided by linking rewards to the achievement of performance measures.

Models that directly link worker renumeration to performance targets have generally been termed 'pay-for-performance' in high-income countries and performance-based financing in LMICs. The pay-for-performance schemes have been implemented to augment existing payment schemes and typically involve incentives for achieving specific objectives, such as higher quality, processes of care that follow evidence-based guidelines, increased coverage of preventive services, better management of chronic diseases, and better patient outcomes. In LMICs performance-based financing typically includes performance-based incentives for health workers and performance-linked financing for health facilities. They have primarily been applied to purchasing provisions of maternal and child health services.

Evidence from high-income countries suggests pay-for-performance can lead to improvements in the quantity and quality of care, while effects on health outcomes are mixed and inconclusive.[55;56;57] It is unclear what design elements of pay-for-performance work best under which conditions. Recently, US pay-for-performance schemes have evolved to value-based purchasing, where cost-based reimbursement is combined with incentives (e.g., see Medicare's Hospital value-based purchasing programme). There is limited evidence on the success of value-based purchasing programmes in improving quality and outcomes.[58;59]

The use of performance pay within performance-based financing has successfully increased institutional deliveries and quality in LMICs, particularly in primary care settings.[60] But beyond institutional deliveries, performance-based financing shows mixed results.[61] In contrast to performance-based financing interventions that provide an unconditional core budget and additional financial incentives conditional on performance, direct facility financing interventions only provide additional unconditional financing. In both approaches, additional funding is usually accompanied by autonomy over the budget and supportive supervision. In direct facility financing, the purchasing of services is based on bundled output-based payments like primary healthcare service per capita and case-based hospital payment schemes, including diagnostic-related groups (defined shortly).[62] Evidence suggests performance-based financing may be no more effective than direct facility financing (or not even better than no intervention) across a range of reproductive, maternal, and child health indicators.[63] In addition, direct facility financing has lower administration costs and is generally more cost-effective than performance-based financing, as it does not involve verification of quantity and quality for payment.[64] Direct facility financing could improve frontline service delivery, but it requires investment in strengthening facility financial management.

To improve the quality of services delivered, in some tax-financed, centrally regulated high-income countries (UK, Nordic countries, Spain, Portugal, and Italy), UHC has happened alongside the introduction of competition between suppliers. For example, the UK has offered patients a greater choice in healthcare providers since the 2000s. Evidence suggests that even with regulated fixed prices, introducing choice increased competition among hospitals, and patients increasingly chose hospitals deemed as having better clinical care before competition was introduced. Patients were also more likely to choose a hospital that was not their local hospital (the default provider under the no-choice setup) post-introduction of choice.[65;66]

Price regulation within the hospital sector has increasingly become associated with diagnostic-related group (DRG) pricing, first introduced by Medicare (the US social insurer for people above 65 years of age). With DRG payments, heterogeneous hospital activities classify patients into groups that exhibit similar medical conditions and resource-use pairings, allowing comparable outcomes to be defined across the hospital sector. Reimbursement is based on prices regulated at the average treatment cost level for each condition–resource pairing. If reimbursement prices are fixed, hospitals can only increase revenue by attracting a higher volume of patients. To do this, it is assumed, they will increase their quality of treatment. However, the impact of such reforms on quality is mixed.[67] Some studies find evidence of lower mortality and improved quality of heart surgery in hospitals that faced greater choice, while patients became more selective based on quality for their choice of hospital for hip replacement surgery.[68;69] Yet, another study found no effect on mortality, and the effects seem heterogenous.[70] Evidence from the US shows that improving quality is an important lever for hospitals to attract patients when prices are regulated, but these effects are less clear where prices are determined by markets.[71;72]

Role of technology

Technological improvements are partly responsible for the rises in life expectancy, particularly in the area of cardiovascular medicine.[73] Technology explains a large share of health spending and is regarded as the main driver of health expenditure growth. Expanding the scope of treatments and diagnostics technology uptake and diffusion accounts for between 30–50% of health expenditure growth in high-income countries.[74;75] Technological improvements may be associated with cost reduction but still lead to expenditure growth, as patient treatment volume expands. Cutler and Huckman[76] document that angioplasty in the treatment of heart disease displaced open heart surgery, as it was as effective and a third of the cost. However, overall expenditures rose for this treatment as higher-risk patients could now be operated upon with the less invasive technique. This is no doubt true for laparoscopic, or minimally invasive, surgery generally.

Technological uptake and diffusion and its influence on healthcare expenditure depends on the institutional and regulatory environment. Health systems with lower price regulation and less centralised control tend to have faster diffusion rates.[77;78;79] However, the effect of new technology on outcome quality is far less clear. Some technologies come with similar costs and higher quality,[80] while others merely entail costs and have little impact on outcomes. These technologies can be classified based on their cost effectiveness in three categories: (i) inexpensive 'low-tech' technologies'; (ii) technologies that are effective in some indications alone; and (iii) technologies that are clearly cost-effective across the board.[81] Health technology assessment agencies, discussed shortly, play a crucial role in incorporating the cost of new technologies into hospital reimbursements and the coupling of health technology assessments with DRG-based hospital reimbursement is seen across the globe. Health technology assessments are also used to evaluate general technology efficiencies, not always with complete success.

Improving procurement strategies

The COVID-19 pandemic highlighted the importance of delivering a safe, effective, and timely supply of vaccines and medicines. Weaknesses in the procurement processes in many LMICs have become evident. Even prior to COVID-19, the 50 poorest countries in the world spent approximately US$63 billion on health products (comprising spending by governments, donors, and the private sector).[82;83] Health product markets in LMICs are characterised by high proportionate spending on expensive branded generics compared to unbranded generics. Unbranded generics account for only 5% by volume and 3% by value in LMICs compared to 80% of the pharmaceutical market by volume (and 30% by value) in the US and the UK.[84]

Reducing fragmentation through centralised and/or pooled procurement can lower costs and limit supply shortages. Centralised procurement of drugs substantially lowers prices in LMICs.[85] Globally, the benefits of pooled procurement have been demonstrated by initiatives, such as GAVI, the Vaccine Alliance, and the Global Fund to Fight AIDS, Tuberculosis, and Malaria. Such initiatives use global tenders and bulk purchasing to shape markets for specific health products and enhance availability of high-quality generics in LMICs.

Priority-setting for UHC

In all health systems, achieving UHC implies trade-offs between the population covered, the quality of services provided, and the number of services included in the health benefit package. Decision makers in LMICs often face severe resource limitations compared to decision makers in high-income countries. Their challenge is to choose safe, effective, good quality, and affordable health technologies, medicines, and vaccines. Policymakers

can mitigate some of the political challenges associated with priority-setting by making the process of defining health benefit packages transparent, based on scientific evidence on the safety and cost-effectiveness of different interventions and products, and by considering criteria such as equity and financial protection.

Many countries, particularly in Europe, have established health technology assessment agencies to examine short- and long-term health and resource-use consequences of healthcare treatments. Health technology assessment agencies play a vital advisory or regulatory role in making reimbursement or pricing recommendations, informing the development of clinical guidelines and supporting healthcare purchasing and disinvestment decisions.[86;87] The agencies typically focus on maximising value for money with the aim of improving financial sustainability. Since new healthcare technology is largely introduced through the hospital sector in high-income countries, health technology assessment agencies also work to ensure that the fixed DRG hospital pricing does not impede the uptake and diffusion of technologies.

Health technology assessment, including cost-effectiveness analysis, can help LMICs with their priority-setting. This requires countries (with international donor support) to establish health technology assessment agencies with clear responsibility for reimbursement and pricing decisions, invest in capacity building to generate evidence on local cost-effectiveness and equity implications of key technologies and interventions, and focus on disinvestment of cost-ineffective technologies as much as on the assessment of new technologies. In some cases, international donors could support interventions that are marginally cost-ineffective, i.e., subsidising key cost-ineffective interventions to make them cost-effective for a given country's threshold.[88] For example, treatments for high burden diseases that are not cost-effective for a country to implement given its budget constraint.

Improving integration between primary and specialised care

A major difference across health systems lies in the extent of their reliance on or integration of general practitioners (GPs) as gatekeepers responsible for access to specialist care for non-emergency cases. So far, we know that GP-based systems are more expensive[89] but tend to prioritise the health of communities and enhance equitable access as they can target people with lower socio-economic status by prioritising care continuity.[90;91] Challenges remain with regards to the coordination of primary care with public health, specialist- and hospital-based care, as integration does not necessarily lead to improved cooperation.

Diagnosis and personalised medicine are being revisited

The expansion of diagnostic techniques adds to the traditional models of sick patients demanding access to care to include 'patients-in-waiting', where

individual information on genetic variants or other biomarkers and self-tracked lifestyles are subject to ongoing monitoring. Probabilistic diagnosis relies heavily on access to individual data collection and collation, which raises issues about data privacy and how to incorporate genetic information into existing insurance schemes. Meanwhile, we can expect a greater push towards non-probabilistic-based social insurance to counter insurance exclusion. Physicians in such a setting may also see an expansion of primary care move beyond gatekeeping roles towards increasing screening and health surveillance.[92]

3. *Workforce*

The healthcare sector is heavily service-oriented and staff costs generally account for over 60% of provider spending. Any global shortage of healthcare workers directly impacts the attainment of UHC. The UNSDG identified a lower limit of 4.45 doctors, nurses, and midwives per 1,000 population as the basic minimum required to achieve its health goals by 2030. Even prior to the COVID-19 pandemic, which increased shortages due to staff burnout, there was an estimated needs-based shortfall of around 17.5 million healthcare workers globally, including 2.6 million doctors and 9 million nurses.[93] Of the nurse shortage, 90% is concentrated in LMICs.[94] The WHO predicts a continuing shortfall of 14.5 million healthcare workers globally by 2030, with the largest shortfalls in LMICs.

An adequate, sustainable health and care workforce is one that will be able to meet the needs of the population both immediately and in the foreseeable future. However, this does not merely mean increasing supply, but also ensuring adequate quality of supply and a distribution that is accessible to the defined population. To deliver a sustainable and appropriately skilled health and care workforce, countries need a long-term workforce strategy, which should be informed by workforce planning models that consider the necessary mix of skills to meet the changing health and care needs, and aspires to develop a self-sufficient supply of staff, rather than an ongoing reliance on foreign-trained staff. The strategy needs to consider technological developments that have the potential to improve quality of care and productivity.

To ensure the delivery of adequate planning, workforce estimates require significant coordination across educational and funding bodies. Most fiscal cycles are aligned with political cycles and last, at most, for five years. It generally takes at least four years to incorporate a trained nurse into the workforce and five to eight years to train doctors, depending on their specialty. Both figures are towards or beyond the upper end of many countries' fiscal cycles. Thus, unless there is adequate discussion between fiscal and healthcare bodies to plan workforce supply, lack of coordination will be inevitable. Already difficult in high-income countries, low-income countries suffer additional workforce shortages arising from significant migration.

The highest levels of physician migration are experienced by LMICs, particularly in the Caribbean and Africa (Liberia, Ghana, Congo, Zimbabwe, and Ethiopia). The Caribbean saw migration rates of approximately 19% in 1990 rising to 28% by 2014, partly explained by proximity to the US, but also due to increased acceptance of foreign students within medical schools. In Sub-Saharan Africa, there was a slight decline in emigration rates, attributable to increasing training centres, over the period 2004–14, but 18% of trained doctors still emigrate. Not surprisingly, the biggest winners in terms of physician migration were the US, the UK, and EU-15. Germany, France, Sweden, and Switzerland have become emerging, important gainers of migrants. Overall, low-income countries had an average emigration rate of over 10% during 1990 to 2014, while UMICs had emigration rates of around 3% over this period. Accompanying analysis in Andovor et al. shows a strongly positive pull of high gross domestic product (GDP) levels in attracting migrant physicians. [95] This is reinforced when destination countries operate a points-based, skilled migrant system and permanent residency controls are lax.

Migration within countries is also an issue, with inequitable distribution across rural and urban areas being a common problem that impedes universal access to healthcare and response rates to specific health concerns (e.g., Ebola). While this imbalance affects almost all countries, it is most noticeable in low-income countries. Approximately half of the world's population lives in rural areas and tends to be poorer and less healthy, while most health workers are concentrated in urban settings. Several studies suggest that if medical students attend a rural campus or spend time training in rural areas, they are more likely to remain in practice in these settings.[96]

4. *Integration of long-term care*

With population ageing, the need for long-term care has increased. Programmes have been introduced at national and local levels to increase the subsidisation and integration of services that are typically designed for older age individuals in need of support, e.g., nursing care, personal care services, assistance services, and social services.[97] In the US, approximately half of adults reaching the age of 65 can expect to use long-term services and support before they die, and in the absence of insurance either the family or Medicaid end up self-financing care.[98] Such issues are not confined to high-income countries alone and affect many LMICs and emerging economies, partly due to declining fertility rates.[99] According to projections from the European Union's Economic Policy Committee,[100] associated public-sector-financed long-term care spending is estimated to increase from 1.6% to 2.2% of GDP between 2016 and 2040.

A greater increase may come from private funding, as long-term care is associated with high out-of-pocket spending. Across 26 OECD countries, reported total costs of long-term care range between one-half and five times the median disposable income of individuals of retirement age or older.[101]

Costa-Font and Raut show that the proportion of individuals who use savings to pay for health and care expenditure has increased significantly between 2004 and 2010 in most countries.[102] Recognising private insurance failures in this area, several high-income countries have developed public long-term care systems, starting with the Netherlands in 1968 and in more recent years Israel, Austria, Germany, Luxembourg, Japan, Scotland, Spain, and China have implemented such systems too.

In Japan, long-term care is paid through a mandatory insurance premium for the over 40s (the age at which individuals tend to face some old age care need in their household), which is matched with similar tax revenue funding and a 10% user co-payment. Entitlement to services is needs-tested by a medical doctor. Several countries have developed forms of social insurance for long-term care, e.g., South Korea supports the expenditures of elderly individuals in nursing home and home care, and Uruguay and Costa Rica support expenditures for home care and home-based care. Long-term care services have been particularly prone to spending cuts, which has led to a rise in cost shifting, with increasing private contributions and inadequate supply.

Long-term care delivery models range from highly integrated systems reliant on public provision with limited private alternatives to systems with considerable family involvement that complement a fragmented and residual public system.[103] The separation of funding, delivery, and organisation of long-term care and healthcare creates problems in coordination across health and social care, even when systems are integrated.[104] The organisational separation of health services and care is one of the main causes of coordination failures (a phenomenon whereby services are organised and financed by different organisations that are subject to different rules) in the provision of health and social services. This raises concerns over the development of adequate integration of services. A consequent issue arising from ageing populations and lack of fully funded long-term care in health systems is the over-utilisation of healthcare services due to bed blocking and subsequent unnecessary use of healthcare given the lack of alternative support for individuals of older age.

IV. Conclusions

Healthcare systems are one of the determinants of health, but not the only one. Health inequality remains a fundamental and persistent policy challenge despite progress in universalising healthcare. Financial insecurity related to healthcare needs remains substantial, and out-of-pocket payments and private healthcare continue to play an important, regressive role in health (and social service) care financing. Many countries rely solely on externally set health benefits packages, such as the WHO's essential medicines list, rather than a locally defined, publicly funded health benefits package that reflects local population needs to allocate available resources. This overcomes problems that result from aggregating multiple donor objectives in low-income countries, for example,

but does not aid structural, system-level reform. Regulating and monitoring quality of healthcare remains a core challenge for many countries. The incentives associated with payment structures are critical. While the use of fixed-price, hospital-based reimbursement and the use of health technology assessment agencies to set priorities have become increasingly prevalent, ensuring quality provision remains a problem. Achieving such sustainability requires adequate funding for the health system and investments in the workforce. It also requires integration of different levels of care to improve prevention and management of chronic conditions, and the expansion of long-term care to avoid inefficient use of hospital and other healthcare services.

V. Policy lessons

Progress towards UHC requires building a sustainable health system that is resilient to shocks, offers financial risk protection, and is well prepared to meet changing population needs. Building such a system requires sustained political and financial commitment from countries. Rather than one-size-fits all, the best approaches to UHC are context-specific and depend on the institutional, political, and economic context of each country. Thus, each country will have a different starting point and trajectory towards UHC. However, policymakers can draw on several lessons from countries that have made the transition.

Improving health system sustainability and financial risk protection requires expanding public funding for healthcare through a mix of progressive financing approaches to minimise regressive out-of-pocket payments. Regardless of the size of the available healthcare budget, sustainability requires maximising allocative efficiency and optimising the mix of services through explicit priority-setting. This implies setting up and relying on health technology assessment agencies or similar institutions to define a health benefits package that reflects population health needs and available resources. It also means expanding the use of health technology assessments to standardise and regulate quality of care and to regulate the diffusion of new, generally costly healthcare technologies and drugs. Thus, the health benefits package must be designed with the budget in mind, but it will generally be accompanied by rising overall health expenditure. Reaching and maintaining financial sustainability also requires effective governance of the health system, limiting expenditures due to waste and corruption.

However, progress will first require countries to overcome several political economy barriers. Defining a publicly financed health benefits package makes priority-setting a political issue. Some individuals may consider any reductions in their access to services unacceptable; pharmaceutical companies and medical technology manufacturers may perceive priority-setting as a barrier to market access; and healthcare providers may perceive governance as restrictive of their autonomy. The ethical principles of priority-setting may also be difficult to convey to the public. This may lead to the emergence

of complementary private insurance catering to heterogenous population preferences. Consistent regulation must be developed to ensure that any two-tier system remains efficient, while limiting inequalities.

Health systems must prioritise workforce planning to avoid shortages and ensure realignment of the fiscal and workforce planning cycles, as well as identifying the best ways to integrate different levels of care and giving patients a stronger role in choices, which may increase with the proliferation of new diagnostic tools. Care integration calls for expanding the public funding of long-term care, reducing reliance on informal caregivers, and improving integration between health and social care sectors to minimise inefficiencies, and take advantage of the development of telemedicine. The most effective health system structure that can achieve these objectives will differ from country to country given different social preferences and institutions. Each country must devise the best level of centralisation or decentralisation depending on the scale and spillovers of each responsibility, which might even encompass supranational decision-making in some parts of the world (e.g., Europe). Similarly, countries ought to optimally utilise the network of existing private providers in the delivery of public healthcare where possible, finding the best balance between public and private providers to achieve its own objectives of universal healthcare coverage.

Notes

[1] Sustainable Development Goal 3.8 is a target to provide all people with access to essential high-quality health services, including safe, effective, and affordable medicines and vaccines, while ensuring financial risk protection by providing care regardless of a person's ability to pay for it.

[2] Chowdhury et al. (2023).

[3] Marmot et al. (2008).

[4] United Nations (2022).

[5] United Nations (2020).

[6] Almond et al. (2018).

[7] Conti et al. (2010).

[8] Cunha and Heckman (2007).

[9] Heckman (2007).

[10] Heckman et al. (2006).

[11] Currie (2009).

[12] Marmot et al. (2008).

[13] Marmot and Wilkinson (2006).

[14] Propper et al. (2007).

[15] Burgess et al. (2004).

[16] Currie and Lin (2007).

[17] Apouey and Geoffard (2013).

[18] Amarante et al. (2016).

[19] Paxson and Schady (2010).

[20] Cutler et al. (2011).

[21] Cutler and Lleras-Muney (2010).

[22] Grossman (1972).

[23] Cawley et al. (2021).

[24] Currie (2009).

[25] Currie and Moretti (2003).

[26] Case and Deaton (2020).

[27] Case and Deaton (2015).

[28] Gilmore et al. (2023).

[29] McGinnis et al. (2002).

[30] Patel et al. (2018).

[31] World Health Organization (2021).

[32] World Health Organization (2021).

[33] Wagstaff et al. (1999).

[34] Wagstaff and van Doorslaer (1992).

[35] Wagstaff et al. (1999).

[36] Wagstaff and van Doorslaer (1992).

[37] Lorenzoni et al. (2019).

[38] Wouters et al. (2016).

[39] Wouters et al. (2016).

[40] World Health Organization (2020a).

[41] James et al. (2006).

[42] Xu et al. (2003).

[43] Wagstaff et al. (1993).

[44] Marten et al. (2014).

[45] Atim et al. (2021).

[46] Barasa et al. (2021).

[47] Gheorghe et al. (2019).

[48] World Health Organization (2017).

[49] Thomson et al. (2009).

[50] World Bank (2015).

[51] Kanavos et al. (2019).

[52] Atun et al. (2008).

[53] Global Fund (2020).

[54] Herberholz (2020).

[55] Doran and Roland (2010).

[56] Mendelson et al. (2017).

[57] Damberg et al. (2014).

[58] Damberg et al. (2014).

[59] Figueroa et al. (2016).

[60] de Walque et al. (2022).

[61] Diaconu et al. (2021).

[62] World Health Organization (2022).

[63] de Walque et al. (2022).

[64] Zeng et al. (2021).

[65] Gutacker et al. (2016).

[66] Gaynor et al. (2013).

[67] Moscelli et al. (2021).

[68] Gaynor et al. (2016).

[69] Gutacker et al. (2016).

[70] Moscelli et al. (2016).

[71] Gaynor et al. (2015).

[72] Gaynor and Town (2012).

[73] Marino and Lorenzoni (2019).

[74] Smith et al. (2009).

[75] Chernew and Newhouse (2011).

[76] Cutler and Huckman (2003).

[77] Bech et al. (2009).

[78] Cockburn et al. (2016).

[79] Costa-Font et al. (2014).

[80] Cutler and McClellan (2001).

[81] Chandra and Skinner (2012).

[82] Silverman et al. (2019).

[83] Rosen et al. (2017).

[84] Kaplan et al. (2013).

[85] Kaplan et al. (2013).

[86] Sorenson and Chalkidou (2012).

[87] Sorenson et al. (2008).

[88] Morton et al. (2018).

[89] Kringos et al. (2015).

[90] Gravelle et al. (2010).

[91] van Gool et al. (2021).

[92] Eyal et al. (2019).

[93] World Health Organization (2016).

[94] World Health Organization (2020b).

[95] Adovor et al. (2021).

[96] Farmer et al. (2015).

[97] Costa-Font et al. (2015).

[98] Favreault et al. (2015).

[99] Bloom and Eggleston (2014).

[100] European Commission (2021).

[101] OECD (2020).

[102] Costa-Font and Raut (2022).

[103] Lundsgaard (2005).

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Response to Alistair McGuire, Joan Costa-i-Font and Ranjeeta Thomas by Carol Propper

McGuire et al. analyse how to progress towards the goal of resilient and sustainable healthcare coverage. The need for resilience is clear, as highlighted by events like the COVID-19 pandemic and the Russian invasion of Ukraine, as well as the need for sustainability in the face of population ageing, increased migration, and economic cycles. As McGuire et al. note, progress has been made towards both resilience and sustainability in healthcare in richer countries, but far less so in poorer countries, and even in high-income countries, substantial health inequalities remain (and in some cases, have even been growing as GDP increases).

Against this backdrop, McGuire et al. identify the main challenges as being the expansion of public financing for meaningful universal coverage, the design of policies to deliver quality care to populations, and the design of institutions to increase the take-up of innovation and to reduce waste. With this focus, the chapter provides an excellent discussion of the key building blocks of healthcare systems – finance, delivery, access, workforce – and they add to this list the need to consider the provision of long-term care, which is often not treated as an integral part of a healthcare system. They provide evidence on what has worked (in some contexts) and what has not (in other contexts), and they make a series of mostly technical recommendations.

The chapter provides an impressive review of the healthcare issues and literature by covering a lot of countries, and it is excellent reading for someone seeking to understand what the basic building blocks of a healthcare system comprise and existing evidence on these.

My comments focus on the following observations:

- Healthcare is not the only (nor the most important) determinant of health and, relatedly, inequalities in health are strongly associated with other inequalities that are not orthogonal to each other. Other important determinants of health include income, education, where they work and live, and their genetic inheritance.
- Healthcare policy has objectives that relate to fairness, implicitly or explicitly embodied, and healthcare reform is very political. For example, countries may have explicit statements about fairness in access to healthcare. Others may have fairness in access as one of the principles that guides policy on who should pay for healthcare.

- The healthcare sector is characterised by both innovation, as well as many examples of practices which are harmful to patients and not cost-effective.

In terms of my first bullet point, the authors rightly begin their analysis by pointing out that the persistence of health inequalities partly reflects inequalities in the access to healthcare, but also reflects the impact of social determinants of health. This is an important message for policymakers to hear: the impact of healthcare on inequalities in health may be limited, and governments targeting the latter may well want to make choices to allocate funds towards other domains (the design of cities, employment, education, the reduction of income inequality) rather than healthcare. Too often in the healthcare reform space, too much attention is given to healthcare expenditure and not enough attention to how we can improve health and reduce health inequalities through non-healthcare public expenditure, non-healthcare social programmes and changes in individual and collective behaviour. This is particularly pertinent in periods of high levels of public debt and shocks to economic growth when there are significant limits to public expenditure. While the authors note this, after their initial discussion about inequalities in health, they implicitly assume that the goal of a healthcare system should be universal healthcare coverage. While this may be something that rich countries can afford, it is not something that low- or lower middle-income countries are likely to be able to achieve. Thus, it is necessary to make trade-offs between reforms to the healthcare system and other reforms. While this may be somewhat beyond the scope of this present chapter, it is worth noting these trade-offs are real and will be made, usually implicitly.

My second observation is related. Precisely because one of the goals of healthcare reform is often to improve fairness or equity in the payment for and access to healthcare, it is also often very political. With limited public budgets, it often involves denying public coverage or access to some groups in order to allow greater coverage/access for others. I would have liked for the authors to unfold this a bit more; technical recommendations of best practices may flounder because of political opposition and vested interests (the limited success of some of the key planks of the Obama administration Affordable Care Act in the United States seems like a good example of this), and it would have been useful to provide some examples of where this issue has been addressed successfully within the domain of healthcare reform (Taiwan is an example that springs to mind).

Third, I would have liked to see more discussion of incentives for innovation. As countries grow richer and their demand for healthcare increases, there is a need to increase the amount of innovation that takes place in the sector too. The authors rightly stress the need for health technology assessments to make sure that innovations are cost-effective and decisions are transparent. However, there is also a need to embrace the promises of the digital age and in

some cases to use reforms to leapfrog over older methods of production and thereby encourage innovation that makes better use of the scarce labour that the authors highlight as a limiting factor. It would have been good to draw out general lessons around innovation to a greater extent in this chapter.

Fourth, the authors could have devoted more discussion to ways of curbing expenditure on practices that are not cost-effective, or even may be harmful to individuals.

The authors' discussion of the separate building blocks is very comprehensive and useful. However, it would have been helpful to have more discussion of successful reform packages: system reforms that address issues of financing, delivery, access, and workforce all together. For many countries, this may be the only way the system would be able to make substantial progress towards sustainable financing and provision of healthcare.

Finally, it would have been good to see more discussion of the limits to appetite for extensions of public financing and the trade-offs that this involves, both within healthcare policy and between other investments and healthcare investments. Although health policy analysts recognise increased public financing as a good way of achieving a sustainable and resilient healthcare system, taxpayers – and the politicians that they vote for – may not think the same. Greater discussion of the importance of the political economy and healthcare reform would have been refreshing and useful.

Response to Alistair McGuire, Joan Costa-i-Font and Ranjeeta Thomas by Michael Marmot

Social determinants and health equity – arguing against premature dismissal

McGuire, Costa-Font, and Thomas's chapter is about the important and much-discussed issue of healthcare financing. They seek to clear social determinants of health and prevention out of the way, so that they can get to their topic. They are aware that some authorities think healthcare is not the most important determinant of population health, but they dismiss the evidence as weak and conclude that:

> … shifting attention towards prevention, with its upfront costs and delayed benefits, and increasing reliance on individual responsibility for health improvements is unlikely to be sufficient for stuttering health gains even in high-income countries, particularly in a context of limited government resources given high levels of public debt.

Ergo, let's focus on healthcare. I need no convincing of the importance of universal health coverage. When people get sick they need access to healthcare. Such access should be universal and independent of people's ability to pay. This chapter from McGuire et al. adds to the important literature on how to organise and finance universal healthcare. My concern is their unnecessary dismissal of prevention and the social determinants of health. Apart from questions of cost, I argue that if given the choice, people would rather not suffer from cancer or heart disease, dysentery, or tuberculosis in the first place – i.e., people prefer prevention over waiting to get ill and then hopefully being treated. In other words, the authors dismiss a valuable natural human preference. It is worth having a critical look at why and how they discarded a whole body of evidence.

I have been here before with other economists. In 2010, my colleagues and I, at what became the University College London Institute of Health Equity, published *Fair Society Healthy Lives, the Marmot Review.*[1] I had led the WHO's Commission on Social Determinants of Health and was invited by the British government to conduct a review to answer how the findings and recommendations of the global commission could be adapted to England.[2] Although we had already reviewed the global evidence on social

determinants of health in the WHO Commission, we convened nine task groups with approximately 80 experts to review the evidence relevant to the United Kingdom. We – a group of experienced commissioners – synthesised the evidence into six recommendations:

1. Give every child the best start in life.
2. Enable all children, young people and adults to maximise their capabilities and have control over their lives – a focus on education.
3. Create fair employment and good work for all.
4. Ensure a healthy standard of living for all.
5. Create and develop healthy and sustainable places and communities.
6. Strengthen the role and impact of ill health prevention.

Following publication of the Marmot Review, *Social Science and Medicine*, a journal, commissioned eight comments on our review. Six of them were what you would expect from fellow academics: this looks fine, but a bit more emphasis on this, a little less emphasis on that, be more political. All very helpful and constructive. The other two commentaries said Marmot and colleagues got the model wrong: that there is no evidence for social determinants of health. The social gradient in health is related to lack of access to healthcare, and ill-health leads to low income, not low income leads to ill-health.

It should not come as a surprise that the dissenting two commentaries were written by economists. Our response was robust.[3] We said that these two commentaries were tapping into a long-standing debate. In the past, I had a screening test for economists: if you show someone the social gradient in health – for example, the link between deprivation and ill-health – when the person says that ill-health causes deprivation, that person is an economist. It is a matter of ideology parading as empirical rigour. For reasons that are slightly obscure, economists are taught that health leads to income; public health professionals are taught that income leads to health. But this is changing. I argue that when economists start to grapple with the overwhelming evidence of social causation, as good scientists they should change their view. Case and Deaton's *Deaths of Despair and the Future of Capitalism* is a good example.[4] These two distinguished economists examined the evidence on the rise in mortality of middle-aged Americans without a four-year college degree, and blamed deaths from opioid poisonings, suicide, and alcohol not primarily on failures of the healthcare system – although it played a role – but on the conditions of these people's lives related to social circumstances. The subtitle of their book was *The Future of Capitalism*.

I had been reading Dickens's 19th-century novel *Hard Times* at the time of the exchange in *Social Science and Medicine* and addressed the selection argument, which is the notion that it is health that leads to social conditions, not social conditions that lead to health. Were these economists seriously

suggesting that the link between Dickensian living and working conditions and ill-health arose because sick people choose to live in noxious places and work in dark satanic mills? That bad conditions at home and at work did not damage health? And that all the improvements in health from the 19th to the 20th century had come about with the development of the healthcare system and had nothing to do with improved sanitation or nutrition? If, on the other hand, there was acceptance that sub-standard living conditions could lead to ill-health in Victorian times, why a priori rule it out now?

Given this, it is perhaps understandable that when I read in McGuire et al.'s chapter that the argument for social determinants of health is based on a weak evidence base, it has familiar echoes. There is a second part of their dismissal of social determinants of health and prevention: it relies on changes in the behaviours of individuals.

To keep it simple, I will base my argument on evidence from the UK. In stating that the evidence for social determinants of health is weak, did the authors look at the six domains of recommendations in 'Fair Society Healthy Lives', examine the evidence, and find it wanting? Did they go back to read the 589 references to the literature in the Marmot Review and remain unconvinced that there is any evidence for social determinants of health? If their critique is that they did not need to read the papers because most of this evidence is likely to be based on correlations without using economists' more sophisticated econometric techniques, then the critique might have some merit. I emphasise *some* merit.

In a complex system, with multiple potential causes, it is true that we base much of our evidence on causal reasoning rather than on complex econometric modelling. Look at our first recommendation: give every child the best start in life. A measure of good child development, readiness for school at age five, predicts school performance that, in turn, predicts the level of qualifications an individual gains. Educational level, in turn, predicts occupation, income, level of deprivation – all associated with living and working conditions, which are in turn associated with health. Therefore, early childhood is likely to be important for health inequalities in adulthood.

There are two types of influence on early child development: positive and negative. Parenting, including playing, talking, and hugging children, is associated with positive child development. Adverse childhood experiences have negative effects on children's development. Both of these – lack of the positive influences and presence of the negative – are increasingly more common the greater the deprivation. A body of evidence shows why child poverty should have adverse effects on health and health inequalities through the life course (here, I am ignoring those behavioural geneticists who claim that everything worth bothering about is genetically determined). We should then add that growing up in a cold home damages children's lungs and their mental health; air pollution has further detrimental effects. Low income is associated with food insecurity that, in turn, is linked to childhood obesity; energy-dense food is cheaper per calorie than more nutritious alternatives.

All of this paints a picture of the social determinants of health. If the criterion of causation was one huge econometric model with all the relevant variables thrown into it, then it is true that no causation has been established. But to argue that therefore we can ignore child poverty and focus on funding of healthcare is a step too far.

A second plank of the argument is that prevention depends on behaviour change, which is both difficult to achieve and expensive. Look again at our six domains of recommendations; by and large improvements in the first five of these recommendations do not depend on individual behaviours. Reduction of child poverty, subsidising childcare, and spending on pre-school education will all improve early child development. Improvement of schools by spending on teachers, facilities, and capital will improve education, and similarly for the other recommendations. Even for the sixth recommendation, which involves lifestyle changes, attention to social determinants is crucial. For example, to follow the healthy eating advice, people in the poorest quintile of household income would have to spend 50% of their income on food. A prime reason for not following the healthy eating advice is poverty rather than reluctance to change behaviour.

The blithe dismissal of prevention and social determinants of health is unwarranted. The authors really did not need to do it in order to focus on the healthcare system. If the aim is to improve population health and reduce avoidable health inequalities, we need universal health coverage *and* a clear and sustained focus on the social determinants of health.

Notes

[1] Marmot (2010).

[2] Commission on the Social Determinants of Health (2008).

[3] Marmot et al. (2010).

[4] Case and Deaton (2020).

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