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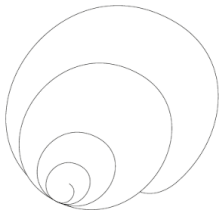

RESEARCH ARTICLE

Preparing for the degrowth transition in healthcare: Understanding the challenges and opportunities

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Abstract
Healthcare is not only an essential human right; it is one of the largest and most complex industries in the world. Maintaining access to effective healthcare while reducing harm to both human and planetary health is a central task for a successful voluntary degrowth transition. Safely transforming large, complex and often for-profit healthcare organisations and systems will pose significant challenges for degrowth planners and policymakers, yet this transition may also offer important opportunities to address hitherto intractable problems common to most high income healthcare systems. A range of organisational options for local, democratically controlled health services exist including small-scale local enterprises, cooperatives and social enterprises, yet most nations already run extensive public healthcare systems, suggesting that more straightforward nationalisation and public ownership may also be feasible. Meanwhile, preparations are required to improve healthcare system resilience against risks of collapse and unplanned, involuntary degrowth. This discussion of healthcare illustrates important tensions within the broader degrowth paradigm: a focus on organic, bottom-up re-localisation will frequently be in tension with the need for complexity and scale in several crucial aspects of modern healthcare delivery, risking economic dualism if not adequately resolved. There is no alternative to acknowledging the central role of the state in leading and driving a safe and effective degrowth transition in healthcare. Degrowth thinkers need to develop more pragmatic, practical policy visions if their theoretical models are to be capable of realisation.

1. Introduction - Healthcare in the Growth Era

Healthcare is one of the largest and most complex industries ever to exist in human history, accounting for 8.6% of global Gross Domestic Product in 2016. In high income countries its share was 10.8% of GDP, but even in countries the World Bank categorises as “Low Income”, healthcare expenditure accounted for 5.1% of GDP on average (Chang et al., 2019). Modern healthcare is also intimately linked with economic growth and the “Great Acceleration” that

has pushed humanity ever closer to Earth's planetary boundaries (Steffen et al., 2015). "Modern" healthcare began its emergence during the Nineteenth Century, with the discovery of the importance of hygiene and antisepsis, followed by the development of anaesthesia. Pivotal medical discoveries came in the mid-Twentieth Century, most crucially with the development of antibiotics which facilitated previously impossible advances in other areas of medicine. The middle of the Twentieth Century also marked a critical economic inflection point for healthcare. In the USA, expenditure on health and medical care appears to have been around 2 to 3% of GDP during the 1920s and 30s (Catillon et al., 2018; Gordon, 2016), but after the Second World War it began to increase seemingly inexorably, such that by 2016 healthcare constituted over 17% of US GDP. While the USA offers an extreme example, this trend is also clearly visible in other high income nations (Velenyi, 2016). Not only has healthcare grown continuously *alongside* the rest of the economy during the period of the "Great Acceleration", it has also consistently grown *faster* than the economy as a whole (Hensher, Tisdell, et al., 2020). Access to basic healthcare is broadly agreed to be an essential human right, yet billions of people still have only inadequate or strictly limited access to quality health services (Barber et al., 2017). Gross inequities in financing for healthcare show little chance of narrowing (Dieleman et al., 2018), the availability of healthcare workers differs by an order of magnitude between low and high income countries (Haakenstad et al., 2022), and universal healthcare remains far away from realisation in too many nations (Lozano et al., 2020). Meanwhile, the COVID-19 pandemic has gravely increased pressures on healthcare systems everywhere (WHO, 2022b) while also exacerbating existing inequities (Levin et al., 2022; Stiglitz, 2022). Globally, healthcare displays the same features of "social shortfall and ecological overshoot" that have been identified in many other sectors (Fanning et al., 2021). A degrowth transition could be expected to affect all areas of society and economy; what might it mean for healthcare systems, and how might healthcare policymakers contemplate preparing for such a transition?

2. Purpose and Scope

This paper seeks to examine the challenges and opportunities that a degrowth transition might present for healthcare systems. It aims to identify the key policy and organisational approaches and prerequisites for sustaining equitable access to high quality healthcare during

a degrowth transition, and for managing the risks to the health sector of such a transition. In the process, it uses healthcare as a case study to illustrate a range of wider policy questions for managing degrowth. In keeping with the guidelines and aims of this journal, this paper assumes that readers have some general familiarity with core concepts of degrowth and post-growth economics, and therefore does not describe the arguments for degrowth. The following analysis takes as its starting point the working definition of degrowth as "a planned reduction of aggregate resource and energy use in high income nations designed to bring the economy back into balance with the living world in a safe, just and equitable way" (Hickel & Hallegatte, 2021).

This paper's focus is primarily on healthcare systems in high income countries (where the impacts of degrowth policies will be most notable), but, where possible, implications for low and middle income healthcare systems are also considered. This paper distinguishes throughout between "health", the *intrinsic state* of wellness (or illness) experienced by individuals and populations; "public health", which refers to those programs and services (including sanitation, environmental health, vaccination and infectious disease control) which seek to prevent ill-health at the level of the *population*; and "healthcare", which refers broadly to the *industry* providing services and activities to *individual patients*. *Health* exists independently of healthcare, and is influenced by many other forces, including environmental factors, socio-economic status, and social inequalities (e.g. Hanlon et al., 2012; Marmot, 2015). Estimates of the relative contribution of healthcare to ultimate population health outcomes have typically found that clinical healthcare drives only some 20-25% of health status, with individual behaviours, social and environmental factors and genetics driving the rest (e.g. Buck & Maguire, 2015). Yet health status is not the only goal of healthcare: caring, dignity and the reduction of suffering are essential goals, and almost all of us will eventually become ill and require healthcare even if all other health-affecting factors are perfect (Mooney, 2009). It is therefore the organisation of *healthcare*, and not the social ordering of health in all its dimensions, which is the focus of this paper.

3. Organising Healthcare in the Era of Growth - Overview

Well into the 19th Century, diagnosis and the prescription of treatment were the preserve of self-employed physicians or surgeons, and the provision of medicines the preserve of self-employed apothecaries – all of whom learned their trade by apprenticeship as much as by formal study. Hospitals were places of care for the suffering and indigent who could not be supported at home, and were charitable institutions typically linked to religious mission. In many ways little changed from the first "hospitals" (or *nosokomeion*) developed in the fourth century by the Christian church (Risse, 1999).

With the economic transformations of the 19th Century came several powerful trends that have continued to shape modern healthcare – seemingly inexorable movements towards ever greater professionalisation, complexity and scale. The technological capacity of healthcare to save life and meaningfully reduce the impacts of illness has grown profoundly as new classes of technologies have become available over time. This expanding scope has driven deeper specialisation. From two categories in the 18th Century, physicians and surgeons (previously barber-surgeons), there are now more than 120 medical specialties and sub-specialties recognised by the Association of American Medical Colleges, each the endpoint of many years of academic study and professional training. Formalisation of academic qualifications and professional licensing came first in medicine but followed steadily in nursing and other allied health professions, all following a path from apprenticeship to formalised training, registration and, more recently, undergraduate and (increasingly) postgraduate-level university training. For example, in little more than a generation, ambulance services have shifted from being staffed by drivers trained in first aid to graduate paramedics who are increasingly expected to obtain postgraduate intensive care qualifications.

Unsurprisingly, the organisation of healthcare varies greatly between (and often within) health systems. The unit of delivery of healthcare can vary vastly in scale and scope – from an individual *feldsher* or village health worker in an isolated community up to a hospital the size of a small town. Chris Hani Baragwanath Hospital in Soweto, South Africa is the third largest hospital in the world – with 3200 beds in 429 buildings across a 70 Ha site, and employing

more than 6700 staff. Behind the frontline provision of healthcare lies a complex supply chain providing pharmaceuticals, medical supplies and devices, specialised technology and infrastructure. However, across this broad spectrum, it is possible to characterise different organisational models of healthcare with reference to three critical dimensions:

- Ownership
- Financing
- Degree of corporatisation / bureaucratisation

Most healthcare organizations can be quite easily categorised into one of three basic types of ownership: public, not-for-profit / charitable, or private for-profit. Similarly, healthcare financing divides essentially between public and private sources of financing. Public financing includes both direct tax-funded public expenditure (e.g. the UK NHS, Medicare / Medicaid in the USA etc.) and compulsory contributory national or social health insurance (as in many European countries). Private financing typically includes both out-of-pocket expenditures by individuals and households, non-compulsory forms of private health insurance, and charitable funding sources (Figure 1). These ownership and financing options give rise to a matrix of different permutations.

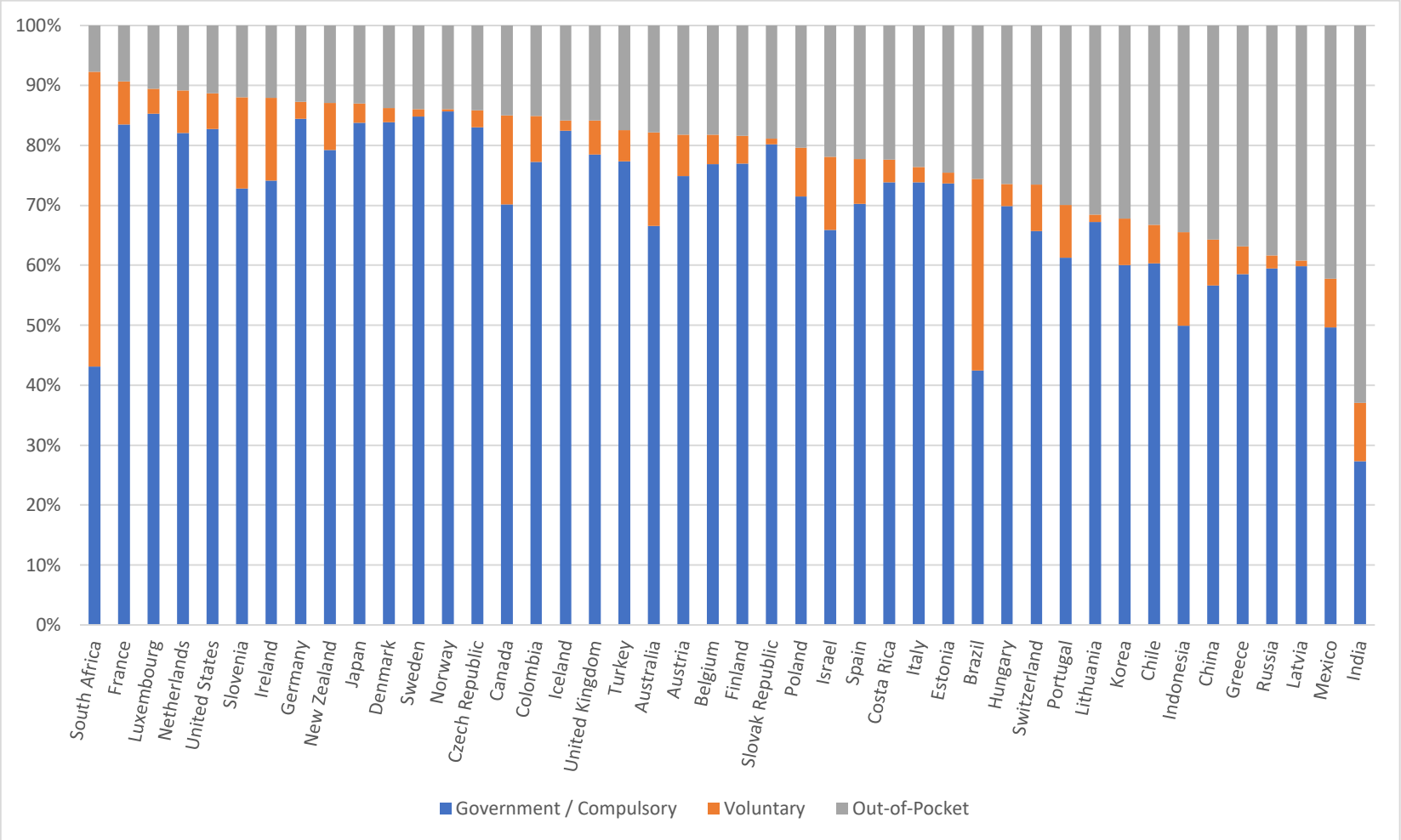

Figure 1: National health expenditure: percentage share by financing scheme, 2018 (Source: OECD Health Statistics 2021)

Almost every country in the world (the US included) has a significant proportion of public hospitals, whose assets are owned by local, state, or national governments, and whose staff are public employees. Many also have privately-owned hospitals (whether for-profit or not-for-profit) which provide care for privately-insured patients; yet which will also often derive a significant portion of their income from publicly-funded patients (Figure 2, 3). In many countries with universal public-funded healthcare, general practitioners and dentists are often self-employed or part of a privately-owned practice, who are contracted to provide publicly-funded services. Fuelled by New Public Management theories (e.g. Harding & Preker, 2003) a number of countries have experimented locally with contracting-out a spectrum of public health services to private service providers, albeit with a consistent lack of evidence of meaningful improvements (Odendaal et al., 2018).

The evolution of healthcare has tended steadily towards greater bureaucratisation and corporatisation. The emergence of health insurance (both private and public) and the development of publicly-owned health services inevitably led to the rise of public and private bureaucracies. As hospitals grew in size and complexity, so too did their internal bureaucracies. The informational complexity of healthcare and health financing has grown in tandem with computational capacity since the 1960s, adding new IT and analytical bureaucracies, while the beginnings of quality management in healthcare in the 1970s (Donabedian, 1980) soon gave rise to new regulatory and bureaucratic functions devoted to improving quality and safety. A somewhat ironic boost to bureaucratisation accompanied many New Public Management reforms, such as quasi-markets, purchaser-provider splits, agencification and outsourcing (Innes, 2018).

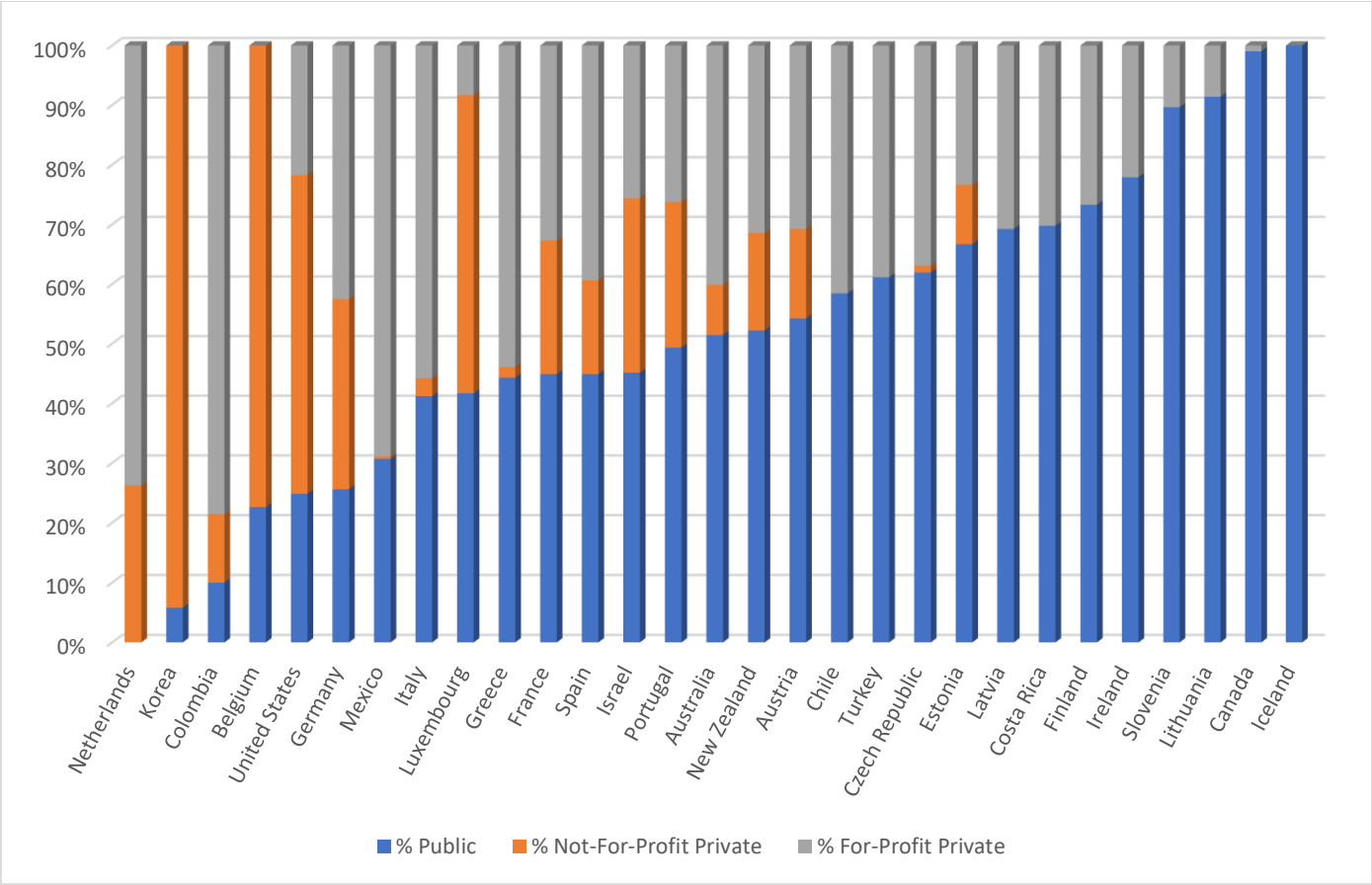

Figure 2: Hospital ownership share in OECD countries, 2016 (Source: OECD Health Statistics 2021)

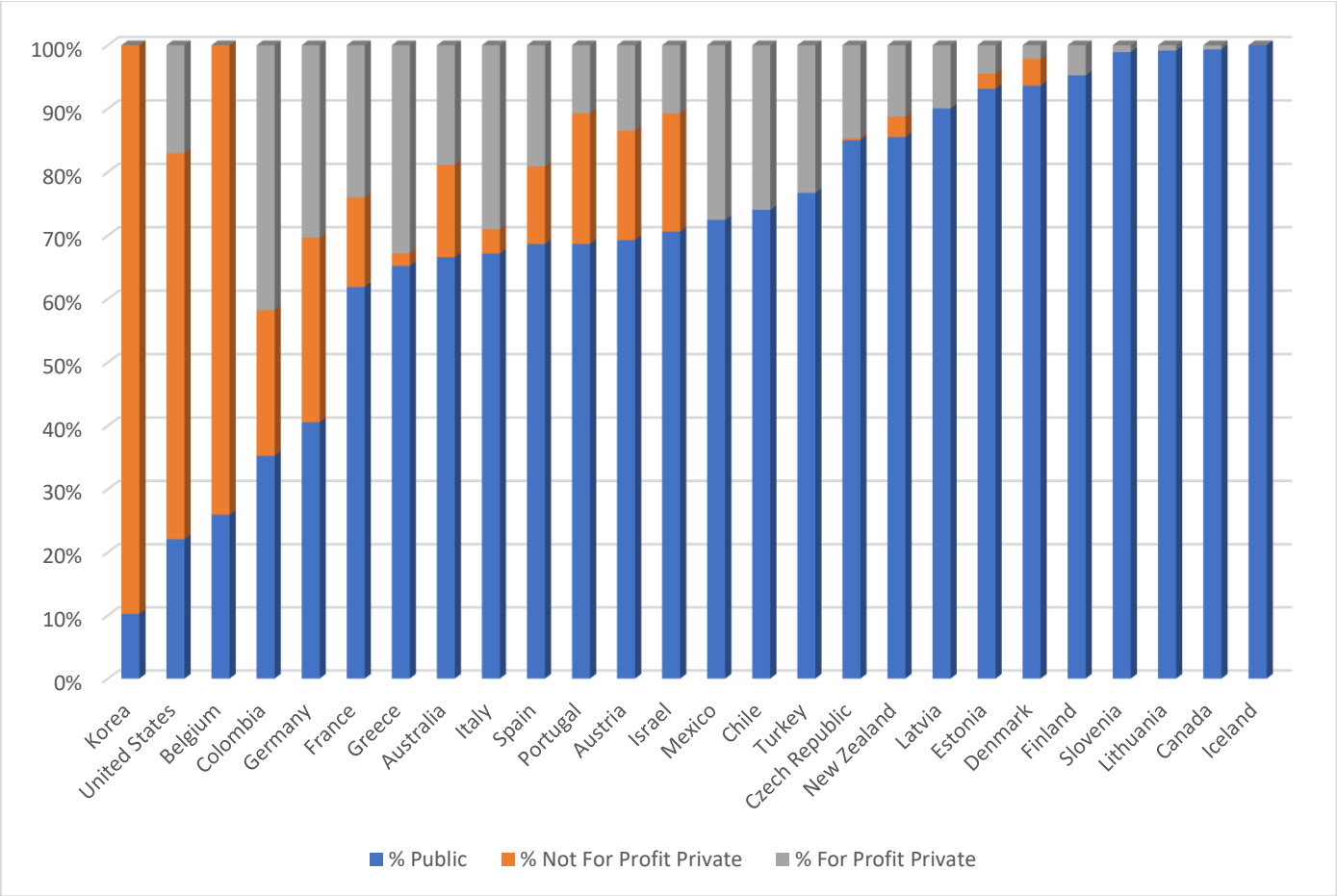

Figure 3: Hospital bed stock by ownership share in OECD countries, 2016 (Source: OECD HealthStats)

In addition to ubiquitous bureaucracy, there have been clear trends towards increasing corporatisation of private healthcare in many countries. General or family medical practitioners have shifted from a standard model of self-employed, single-handed practice (still widespread only fifty years ago), first to partnership-based group practices, then to GPs increasingly working as salaried employees of large group practices, and now to widespread ownership of practices by corporate chains. Independent pharmacies have increasingly given way to chains or franchises. Private hospitals in many nations – originally often a charity or faith-based mission – have long been consolidated through purchase into large national or multinational chains. This trend's latest evolution appears to involve the increasing appetite of private equity funds in the USA for purchasing medical practices, hospitals and entire local healthcare systems (Gustafsson et al., 2019).

4. Unfinished Business: Legacy Challenges for Healthcare Systems in the Degrowth Transition

Healthcare will not enter a degrowth transition with a blank slate. Table 1 summarises two sets of challenges: WHO's highly prescient "ten threats to global health" (WHO, 2019b) published shortly before the COVID-19 pandemic, and twelve ongoing health system challenges which have been experienced in most if not all high income health systems yet which remain largely unresolved (often despite repeated attempts at policy reform). These challenges will not vanish simply because economic or environmental circumstances have changed. Post-growth models for organising healthcare will still need to address these tasks even as they adjust to new economic and ecological realities.

The WHO list makes clear the interconnected nature of these threats to health, and their relationships with the ecological crises now unfolding. Pollution is a major source of illness and mortality, causing an estimated 9 million premature deaths worldwide in 2015, 16% of all deaths (Landrigan et al., 2018). Meanwhile, climate change is now viewed as the single biggest health threat facing humanity, both through direct health impacts including malnutrition and vector-borne diseases, and direct casualties from

Table 1: Unresolved challenges for health and healthcare at the end of the growth era

Ten Threats to Global Health (WHO, 2019b)	**Unresolved Challenges for High Income Health Systems**
• Air pollution and climate change • Noncommunicable disease • Global influenza pandemic • Ebola and other high-threat pathogens • Fragile and vulnerable settings • Antimicrobial resistance • Weak primary healthcare • Vaccine hesitancy • Dengue fever • HIV/AIDS	• Overdiagnosis, overtreatment and low value care (Brownlee et al., 2017; Hensher et al., 2017) • Fragmented, non-integrated, episodic care (WHO, 2016) • Promoting wellness, not just reacting to illness (Hanlon et al., 2012) • Moving from individual to population health… • …while still meeting individuals' differing needs for personalised care (Gray & Jani, 2016) • Shifting care from hospitals to home and community settings (Sibbald et al., 2007) • Reducing clinician burnout and allowing time for relationships of care (Gawande, 2014; Topol, 2019a) • Persistent inequities in access to care (Ottersen et al., 2014) • Realising the elusive benefits of digital health technologies (Topol, 2019a) • Recovery and rebuilding of health systems following COVID-19 (WHO, 2022b) • Responding to the eventual disease burden of post-acute COVID sequelae and disability (Angeles et al., 2022)

natural disasters (Costello et al., 2009; Watts et al., 2017). Indeed, the risks posed by most of the high-threat pathogens identified by WHO are greatly magnified by climate change, through zoonosis, changing land-use, and climate-driven species migration. Pollution and climate change therefore drive need and demand for health care, while the impacts of climate change itself will stress and undermine the functionality of healthcare systems.

Economic growth has been intimately linked with the rising global burden of non-communicable diseases (NCDs) (Pretty et al., 2016). NCDs are now the leading cause of death and disease burden in a large majority of countries, both rich and poor, causing around 71% of all deaths globally (WHO, 2018). A focus on the individual risk factors which contribute to NCDs (e.g. smoking, alcohol, obesity, poor diet, lack of physical activity) is now giving way to a greater understanding of how a number of highly profitable industries have benefited from selling health-damaging products (Freudenberg, 2014). A successful societal transition to a positive post-growth future potentially offers an extraordinary opportunity to minimise the avoidable burden of NCDs driven by mass overconsumption and the commercial determinants of health – and thus to greatly reduced “failure demand” for healthcare (Hensher, Canny, et al., 2020; Pretty et al., 2016, Kickbusch et al., 2016).

Gross disparities in access to healthcare still separate the world’s poorest people from the richest. In 2018, inhabitants of the Democratic Republic of the Congo had an average annual expenditure on healthcare of $32 per capita, while inhabitants of the USA had an average spend of $10,515 (WHO, 2022a). Health expenditure in three quarters of the world’s nations sat below $1,131 per capita in 2018 (Figure 4). The UN Sustainable Development Goals (UN, 2015) seek to achieve universal health coverage (UHC) for all by 2030, yet this requires significant increases in health spending in the poorest countries (McIntyre et al., 2017). Meanwhile, health systems in the world’s poorest nations and fragile states are likely to be most disrupted by the direct and indirect impacts of climate change.

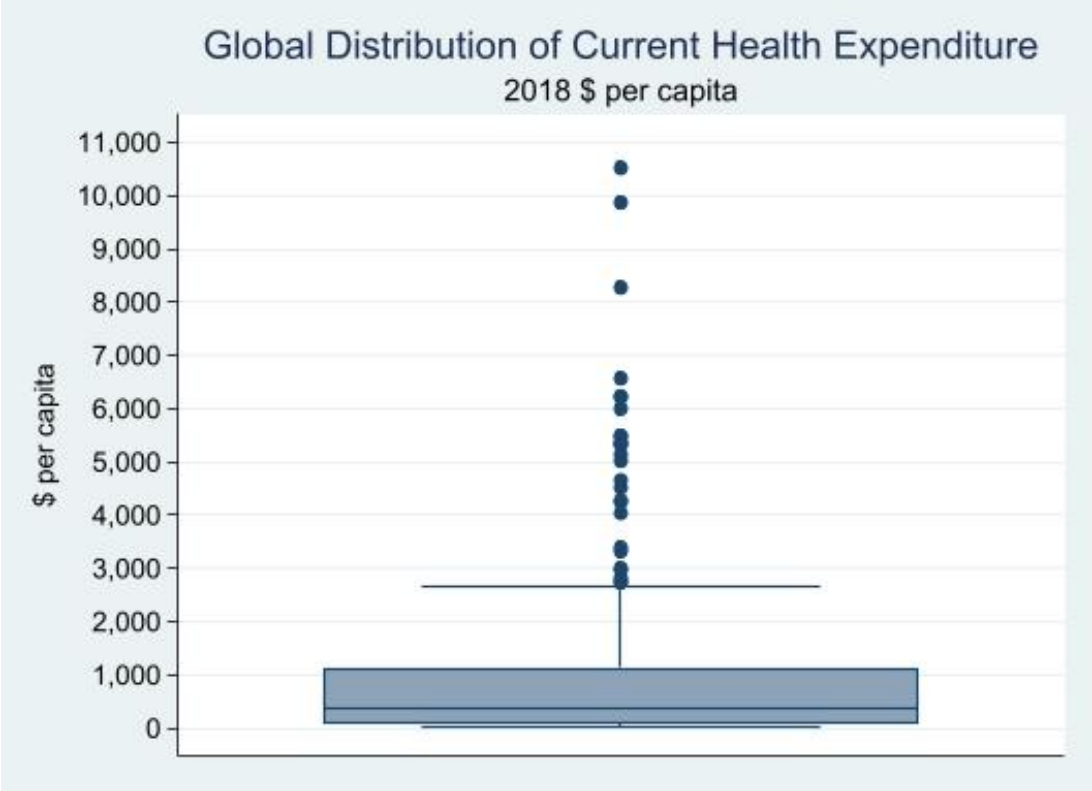

Figure 4: National health expenditures per capita, 2018 (Source: WHO Global Health Expenditure Database)

Yet even while billions lack basic access to healthcare, the continuous increase in healthcare costs in high income countries continues to exercise economists, treasuries and policymakers. Baumol (1993) suggested that this "cost disease" is the inevitable consequence of economies transitioning out of manufacturing (where productivity improves continuously) and into human services (where it cannot). Others have argued that as societies grow richer they wish to invest more in extending life, and value these gains ever more (Hall & Jones, 2007). Many have blamed ageing, although evidence increasingly suggests that at the individual level, age *per se* has a relatively small impact – most lifetime healthcare costs typically occur in the few years and months directly preceding death and have tended to move outwards with age as life expectancy has increased (Breyer et al., 2010). In reality most of the expansion in healthcare costs has been driven by the introduction of new medical technologies, allowing us to treat more people for more conditions (CIHI, 2011). Others have more recently blamed rising prices due to rent-seeking and oligopolistic behaviour, especially in the USA (Baker et al., 2017; Prasad & Mailankody, 2017; Spitz & Wickham, 2012).

There is also now a growing recognition that healthcare can cause harm – to patients, society and the environment. One global estimate suggested that iatrogenic injury and illness due to poor quality healthcare ranks fourteenth amongst the largest causes of disease burden worldwide (Slawomirski et al., 2017). Evidence has steadily grown that a substantial portion of healthcare interventions provided in both higher and lower income settings may represent overuse: care that does not confer benefit, and may in fact cause harm (Brownlee et al., 2017). Overuse has multiple drivers, including financial incentives, physicians' behavioural and psychological biases, cultural and social pressures (Hensher et al., 2017). As well as wasting resources, overuse exacerbates the problem of iatrogenic harm by exposing patients unnecessarily to the inherent risks of treatment, and causes environmental damage with no countervailing improvement in health status for patients. A critical consequence of the overuse of healthcare is the growing phenomenon of antimicrobial resistance (AMR). AMR already caused some 700,000 deaths in 2014 (RoAR, 2014). If left unchecked, AMR could lead to many of the great advances in medical technology that we now take for granted becoming untenable, and it is viewed by many as the greatest threat to the continuing efficacy of modern medicine (Horton, 2019).

Given its sheer scale, healthcare production and consumption also contribute meaningfully to overall environmental damage. Recent studies suggest that healthcare contributes between 4 and 5% of global emissions, and as much as 10% of total national greenhouse gas emissions in the USA (e.g. Pichler et al., 2019). Healthcare generates a range of other pollutants beyond GHG emissions; these include non-recyclable plastics and disposable items, air pollution due to incineration, low-level radioactive waste, and significant evidence of large-scale release of pharmaceutical agents into the natural environment (bioIS, 2013; Pencheon & Dalton, 2017).

In many countries with well-resourced, highly functional healthcare systems, there have long been calls for a "transformation of the healthcare paradigm" (Tulchinsky & Varavikova, 2014), aspects of which are summarised in the right-hand column of Table 1. Variations on this list of desires go by many names: for example, "integrated care"

(WHO, 2016), “value based healthcare” (EXPH, 2019), “right care, right place, right time” (Saunders & Carter, 2017), yet they remain aspirations despite widespread agreement on their desirability. And as the COVID-19 pandemic stretches on with no end in sight, cumulative pressures are degrading health systems and healthcare workforces around the world. Healthcare systems would enter any putative degrowth transition with all of these challenges still very much in play.

5. Degrowth and Post-Growth Healthcare – the Current Literature

A small but expanding literature now exists on the relationship between health and degrowth / post-growth transitions. Aillon et al. (2012) present the “manifesto of Doctors for Degrowth”, and Borowy (2013) examines the experience of Cuba’s “Special Period” following the break-up of the Soviet bloc in the 1990s as a case study of forced degrowth. Missoni (2015) highlights the need for deep changes to global economic and health governance if the (significant) potential health benefits of degrowth are actually to be realised. Borowy and Aillon (2017) call for changed measures of well-being and progress, for reduced overuse and a shift of focus from material to non-material methods of healthcare, for better use of non-conventional and non-commercial forms of work and knowledge, for major reforms of intellectual property laws to transform the nature of research and innovation, and for relocalisation and redistribution. Aillon and D’Alisa (2020) propose outline principles for transforming health and healthcare under degrowth (see below). Hensher (2020) considers economic aspects of degrowth for healthcare systems, especially technical and allocative efficiency. There is significant potential to re-tool existing approaches for sectoral cost-effectiveness analysis for healthcare (long used in low and lower middle income countries) to support targeted degrowth of lower value healthcare while retaining and strengthening essential and high value services. Hensher and Zywert (2020) and Zywert and Quilley (2018) consider the challenges of maintaining essential functional levels of complexity in healthcare systems while wider societal complexity may be reducing, recognising that difficult choices and prioritisation will be inevitable.

Unsurprisingly, most of this literature is supportive of the goals of voluntary degrowth, and largely applies what might be described as the standard narratives of the degrowth movement to health and healthcare – such as the benefits of reduced overconsumption and working hours, localism, decentralisation and subsidiarity, and the development of stronger communities of mutual care. Ouimet et al (2020) discuss the important opportunities and challenges for achieving synergies between public health and degrowth approaches. Missoni (2015) points out that calls for localism and community-based degrowth are necessary, but not sufficient to allow degrowth to become a reality, and describes the accompanying need for a paradigm shift in the culture of healthcare and health professionals (Missoni & Galindo, 2020). Successful degrowth – like any other societal and economic transformation – requires changes at the level of institutions, regions, nations and globally, in policies, practices and cultures (de Vogli & Owusu, 2015).

Several of these writers cite Ivan Illich and his book *Medical Nemesis* (Illich, 1976) as the original thinker on degrowth and health (albeit before the term "degrowth" existed), highlighting his central thesis that the excessive medicalisation of the normal events of life was undermining true human health and suggest that we must re-evaluate and reconceptualise the ideas of health, illness and care. According to Aillon and D'Alisa (2020), this leads to four principles to guide the restructuring of health services under the degrowth paradigm:

i. redistributing the resources of the health system;
ii. re-localising healthcare;
iii. reducing overconsumption; and
iv. reusing or recycling alternative medical knowledge.

All of these authors also recognise the possibility of "involuntary" degrowth - a scenario born of policy and system failure, in which adequate action to remain within planetary boundaries is not forthcoming. It is not a desirable goal, but rather a possible end-state that may need to be prepared for. Such preparation must essentially involve considering how best to ensure that healthcare systems can maintain the greatest

possible integrity and functionality, despite significant unplanned and undesired reductions in economic output and complexity, greatly reduced financing capability, social distress and adversity, and the curtailment or loss of technology-dependent supply chains.

Beyond the relatively small group of scholars specifically addressing the intersection of degrowth and health, it is important to note that a much larger and rapidly growing movement (comprising clinicians, policymakers and researchers) is now addressing the question of "sustainable healthcare" (e.g. Charlesworth & Jamieson, 2019; Miller & Xie, 2020; Sherman et al., 2020). The sustainable healthcare movement and literature seeks more broadly to consider how health services and systems can i) adapt to the economic and social consequences of the wider societal process of reducing material throughput and ecological damage, and ii) make their own specific contribution towards meeting these changed societal goals. Its goals are increasingly reflected in national and international commitments to sustainable healthcare. While the mainstream sustainable healthcare movement is currently more frequently conceptualised through a "green growth" lens than degrowth (Hensher, Tisdell, et al., 2020), its central themes are necessary (albeit not sufficient) for a degrowth program:

i. Reconciling the need – and opportunity – for decoupling of resource use within and beyond the health sector with attaining the best possible population-level health outcomes that can be attained (Friel, 2020).
ii. Minimising the environmental footprint of the healthcare infrastructure and supply chain, e.g. energy use and sources, emissions reduction, reuse and recycling, local procurement etc. (Schroeder et al., 2012; Unger et al., 2016).
iii. Eliminating overuse of healthcare and minimising the frequency and severity of iatrogenic harm to patients (Barratt et al., 2022; Hensher, Canny, et al., 2020).

This "sustainable healthcare" agenda is therefore treated as a given in the analysis that follows; these are goals that must be achieved.

A degrowth transition will not, however, reduce the need for health systems to be based upon strong foundations (WHO, 2007), like those summarised in Box 1. These building blocks will remain essential requirements for functional health systems in any of the foreseeable post-growth futures outlined above. Indeed, under collapse conditions, states and public authorities will need to fight even harder to maintain some basis for each of these building blocks, so that there is some foundation for rebuilding, "catagenesis" and creative renewal (Homer-Dixon, 2006; Zywert & Quilley, 2018).

The World Health Organisation's Six Building Blocks of a Health System

- Leadership and governance
- Service delivery
- Health system financing
- Health workforce
- Medical products, vaccines and technologies
- Health information systems

Box 1. (WHO, 2007, 2015)

The rest of this paper considers what factors will need to be considered in re-designing the organisation of healthcare systems to meet the goals of achieving sustainable healthcare under a voluntary degrowth transition, how to build the resilience necessary to deal with disruption and the risk of involuntary degrowth, and some of the opportunities degrowth may offer through successful transformation of healthcare systems.

6. Degrowth and the Health System Building Blocks

6.1. Organisational Form: Leadership, Governance and Service Delivery

While degrowth theorists have different shades of opinion on the roles of the state and the private sector under degrowth, there is broad consensus that capitalism – and especially today's finance / rentier capitalism – requires growth at all costs and hence is not consistent with successful degrowth (Hickel, 2020). Yet healthcare is a sector which contains many quite large organisations, many of which are for-profit corporations (see Figures 1 to 3 and surrounding discussion) including hospitals, hospital and medical service chains, private health insurance companies and very large multinational corporations in the pharmaceutical and medical device industries. Especially in the USA, many healthcare organisations which have formal "not for profit" status in fact operate very much like large for-profit corporations (Rosenthal, 2017, pp. 48-52). Ownership, governance and scale in the healthcare sector are therefore likely to become significant policy questions under a degrowth transition. How might we consider these questions in advance? In particular, what options might exist other than outright nationalisation and transfer to public ownership of private health services? The degrowth paradigm's strong emphasis on relocalising healthcare and on local, democratic models of ownership and/or management points towards a number of existing models of organisation.

In the field of primary healthcare and local healthcare provision, a straightforward return to traditional models of small medical or allied health professional practices – either single-handed practitioners or small groups – would represent the restoration of a tried and tested form. However, purely traditional models of practice might not adequately meet the desire for more participatory decision-making (traditional general practice partnerships typically vested authority wholly in the medical partners, and not in other staff). They have also struggled to meet expanding requirements for 24-hour cover and home visits which corporate models have been able to resource more economically.

Other organizational models that have long held great appeal for those seeking to improve workplace and wider economic democracy include worker cooperatives and social enterprises (e.g. Cheney et al., 2014; Rothschild, 2009). Worker cooperatives might be expected to offer an appealing organisational form under the degrowth paradigm. The current literature on worker cooperatives in healthcare appears to be rather limited. However, a US study (Berry, 2011) found evidence that worker cooperatives in the home health aide industry, while comprising only a small proportion of providers, displayed positive outcomes in a range of domains. Indeed one such home care provider was previously cited as the largest worker-owned cooperative in the USA, with 780 employees (Lawless & Reynods, 2004). More directed efforts to identify other healthcare cooperatives and conduct research on their models and performance might assist in this area, not least because home healthcare represents a relatively non-complex product, delivered by a relatively homogeneous workforce. The traditional pre-eminent authority of medical doctors over diagnosis and the prescription of a treatment plan might present some challenges to extending the role of worker cooperatives into more complex healthcare organizations. The differing roles and competencies of the various health professions (not to mention non-clinical staff) might require a more nuanced separation of "democratic" decision-making between questions of organizational management and strategy, and those concerning clinical care. Perhaps more challenging might be the suitability of worker cooperative models in running very large and complex healthcare organizations such as large hospitals or pharmaceutical manufacturers. There are some examples of larger worker cooperatives in more complex industries, most famously the Mondragon group, but it has been noted that cooperatives are far fewer in number in capital-intensive sectors of the economy (Cheney et al., 2014). There is also some sense that cooperative ownership in large organizations such as Mondragon may lead to rather shallow forms of workplace participation (e.g. Heras-Saizarbitoria, 2014).

There is a somewhat larger literature on the experience of social enterprises in health and social care. "Social enterprise" discourse has come to describe a broad range of "voluntary" organizational types and forms, but Millar and Hall (2013) argue that their

defining characteristics are the primacy of social aims, the centrality of trading, and the degree of democratic control and ownership. Arguably, the charity and faith-based origins of many modern healthcare organisations were earlier forms of "social enterprise"; however, the contemporary literature on social enterprise in healthcare focuses on developments in a number of countries which have actively sought to promote the role and scale of social enterprise within publicly-funded health systems. The National Health Service in England established an NHS Social Enterprise Investment Fund to support NHS staff in their "Right to Request" to establish a "public sector mutual" (Millar, 2012). Borzaga and Fazzi (2014) describe the growth of and increasing reliance upon social enterprises within the Italian *Servizio Sanitario Nazionale* (SSN) and social welfare sectors during the post-2008 austerity period. Once again, the healthcare social enterprises described in the literature from high income countries typically operate in niche services, often related to home and community-based care, at smaller scale; although Agarwal et al. (2018) describe how some relatively newly-formed social enterprises in India have grown rapidly to deliver complex services (e.g. hospital and ambulance services) at multiple sites. A recent systematic review (Calò et al., 2018) found insufficient evidence to demonstrate superior outcomes from healthcare social enterprises versus standard public services, although there was a suggestion that social enterprises can sometimes lead to superior well-being and mental health outcomes. However, a common theme was the caution that the recent evolution of social enterprises in healthcare has often been a *product* of neoliberal / New Public Management and austerity policies (e.g. Borzaga & Fazzi, 2014; Millar, 2012), rather than an *alternative* to neoliberalism. Frith (2014) highlights the challenges for social enterprises in sticking to their "ethical capital" and moral values to avoid simply becoming yet another competitive business in the healthcare marketplace, a risk echoed in studies of social enterprises in other sectors (e.g. Bousalham & Vidaillet, 2017).

In fact, as summarised in Figures 2 and 3, most OECD nations already provide a significant portion of their hospital sectors through publicly-owned hospitals and health services. Substantial experience therefore exists in almost all nations of owning and operating public health services. The process of nationalisation and transfer of

assets and operational management of private health services to the state would be a major undertaking, and would require development of detailed policy and legal frameworks tailored for each country; but experience of *running* public health services is quite widespread. In the case of public healthcare services, the challenge for degrowth policy is not so much one of ownership, as it is of how to operationalise the degrowth paradigm's preference for greater local and community control of healthcare decision-making. Illich (1976 p. 244) called for "public controls over the professional mafia", and for a 'deprofessionalisation" of medicine (by which he meant a reduction in professional power, rather than in professional competence!) to allow greater public debate shore of the "mystification" of medicine. Yet Illich was, ultimately, rather lacking in practical suggestions in this regard. In the degrowth and health literature, Missoni (2015) acknowledges the need for local action to transform the governance of health and healthcare, but concentrates essentially on describing the transformations required at the global level of health governance. While not linked to the degrowth movement, the work of the late Gavin Mooney (e.g. Mooney, 2009) is relevant here, in its discussion of a new paradigm for healthcare based more upon values, communitarianism, community and citizenship, and his extensive development of citizens' juries to support healthcare strategy.

6.2. Health System Financing

Health systems are idiosyncratic and their evolution path dependent, reflecting nations' historical development and particular policy choices at particular times. Despite repeated efforts to compare the performance of national health systems over many years (e.g. Evans et al., 2001), valid comparisons remain hard to make or interpret into generalisations. Almost all healthcare systems involve a complex mix of funding and provider types, both public and private. However, it is clear that systems which rely on a high level of voluntary private health insurance tend to have higher costs and poorer outcomes, with publicly funded systems better able to maintain cost control and efficiency (Greener, 2020). A systematic review of the comparative performance of private and public healthcare systems in low and middle income countries (Basu et al., 2012) found no evidence to support claims that the private sector is more efficient, accountable or higher quality than public services, and found

evidence of greater overuse in private systems. It might therefore be reasonable to suggest that (adequately) publicly-funded and publicly-provided systems might be somewhat better placed to navigate scenarios of low or no-growth than their more privately-oriented counterparts. However, the emerging research literature on financing welfare states in a post-growth environment cautions that both public and private sector health financing capacity (including private health insurance and household capacity to pay out-of-pocket) will be stretched and challenged under degrowth conditions (Corlet Walker et al., 2021; Hensher, 2020).

However, the long-running quest for better integration and value in care discussed earlier is just as much an issue for publicly funded or owned systems as for private. There are strong incentives in private for-profit financing and provision systems which drive higher rates of overuse, overdiagnosis and overtreatment – yet these phenomena are also clearly present in public financing and provision models (Hensher et al., 2017). The extensive literature on designing and aligning financial and payment incentives, and on aligning and sharing risks and rewards between funders and providers, is clearly relevant to organisational design under a steady state economy (e.g. Deber et al., 2008). While they fell out of fashion in recent decades, global budget or capitation payment models have long been shown to minimise overall treatment levels relative to case-based payment systems (Sloan & Hsieh, 2016), but can also result in undesirable under-treatment as well as a desired reduction in overtreatment. While safeguards to avoid under-treatment would still be needed, the use of these slightly blunter instruments might, in fact, be a justified and effective way of minimising overuse under conditions of degrowth. More broadly, though, a great deal of the drivers of overuse, overdiagnosis and overtreatment are increasingly understood to reflect cultural expectations (of professionals and patients), mutual trust levels, and behavioural and cognitive biases of doctors (Fritz & Holton, 2018; Hensher et al., 2017). Healthcare organisations – and educational institutions – have a crucial role to play in inculcating a culture of sufficiency in healthcare amongst professionals and the public alike, in changing cultural norms that “more is better”, and in developing heuristics and tools to assist professionals and patients to overcome unhelpful biases and behaviours. It is conceivable that the clearer imposition of

external resource constraints entailed by agrowth or degrowth might, in fact, greatly assist in accelerating the complex transformation that is required in this area.

6.3. Health Workforce

This need to change cultural expectations within healthcare under degrowth is perhaps the most pressing challenge that will impact health workforce considerations (Missoni & Galindo, 2020), yet achieving effective and lasting culture change in healthcare has consistently proved extremely hard to achieve, especially at scale (Willis et al., 2016; Wilson et al., 2020). Those involved in preparing for the degrowth transition should be brutally realistic in their expectations in this regard.

The healthcare workforce is also significant for degrowth policy and planning for two macro reasons – its size, and the heavy reliance of many high income health systems on foreign-trained health professionals. Figure 5 shows the scale of the combined health and social care workforce as a share of overall employment in OECD countries. This includes care workers in the aged / elder care and disability care sectors, but the large majority will be healthcare workers. Figure 5 shows quite how significant the formal health and social caring sectors are to the structure of employment in high income nations. Meanwhile, Figure 6 shows how dependent a number of high income health systems are on importing healthcare workers (especially doctors) from overseas. While some of this migration occurs between high income nations, much of it also reflects an outflow of trained workers from many middle and lower middle income nations. There may be complex tensions between the understandable and legitimate desire of health professionals to migrate freely, and the negative consequences of this “brain drain” for countries of origin in a globally just transition, not least as availability of healthcare workers is typically one of the most critical real resource constraints on improving healthcare access in lower income settings (Haakenstad et al., 2022). The need for action to make the healthcare workforce sustainable worldwide is becoming increasingly urgent: the ongoing toll of the COVID-19 pandemic on health workers’ personal health, morale and burnout is driving retention and recruitment crises in most nations, which may take years to unwind (WHO, 2022b).

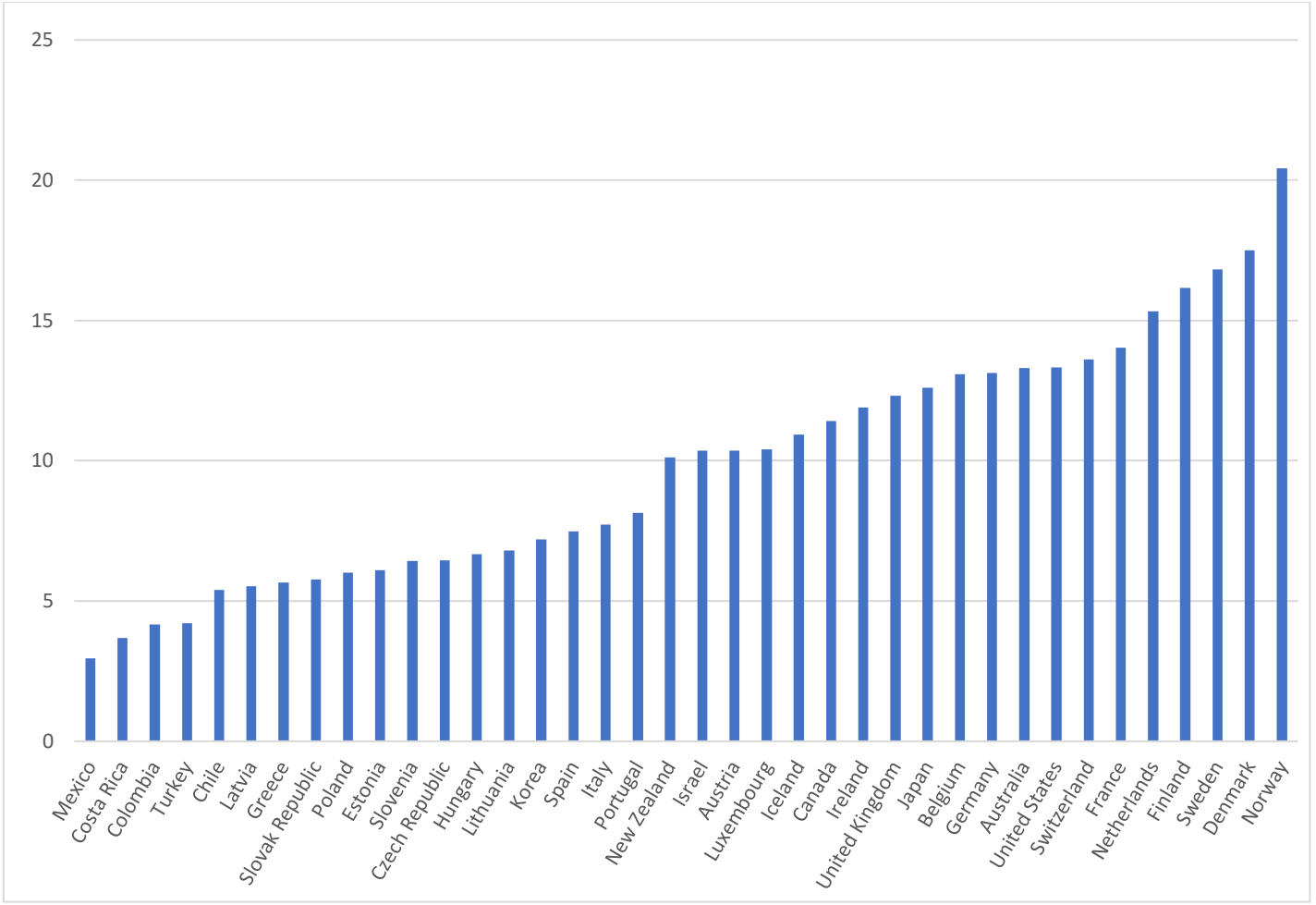

Figure 5: Health and social care employment as a percentage of total civilian employment in OECD countries, 2017 (Source: OECD Health Statistics 2021)

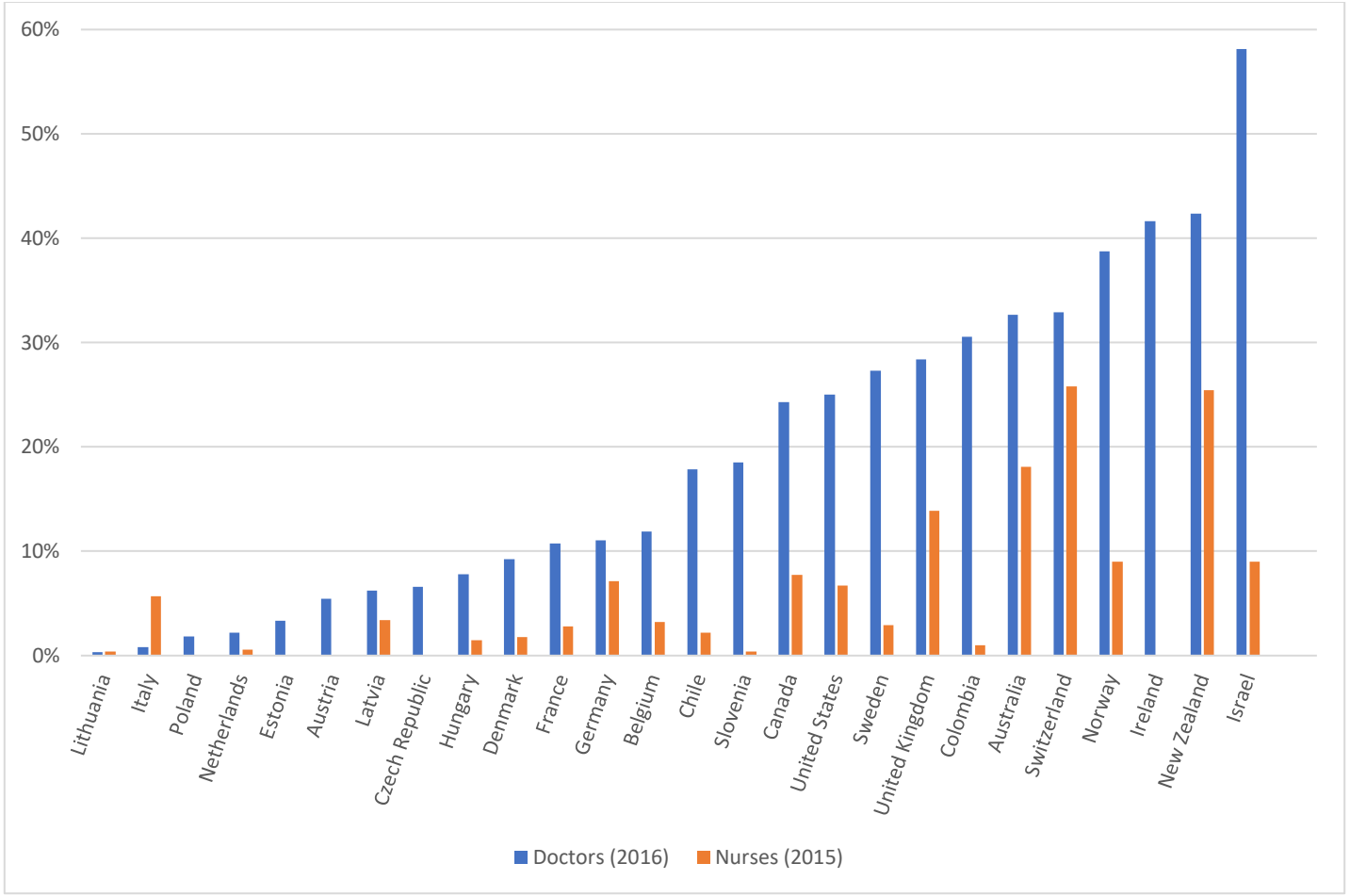

Figure 6: Foreign-trained healthcare workers as percentage of total healthcare workforce in OECD countries, 2016 (doctors) / 2015 (nurses) (Source: OECD Health Statistics 2021)

6.4. Medical Products, Vaccines and Technologies

Another area of the health system which would unquestionably require reform under a transition to degrowth is the pharmaceutical industry. The pharmaceutical industry has long been deeply enmeshed in the set of forces driving overtreatment and overuse (Gabe et al., 2015). The US opioid epidemic has illustrated this vividly as pharmaceutical companies have been shown to have driven deeply harmful overprescribing on a grand scale (Hadland et al., 2019), yet at the same time, "Big Pharma" has effectively exited the field in developing new antibiotics capable of keeping modern healthcare ahead of rising antimicrobial resistance, as this market is simply unprofitable for them (WHO, 2019a). Pharmaceutical companies display ever greater financialisation and decreasing focus on real and innovative products (Baranes, 2017), while continuing to capture the gains of publicly-funded basic research (Mazzucato, 2013). Their "endemic financial entanglement" in the funding of the outcomes of research which ultimately determines whether their products will be accepted by regulators has been accused of causing not just a crisis of value in healthcare, but a crisis of scientific integrity (Moynihan et al., 2019). As a result, proposals have recently started to emerge for very major reform of the pharmaceutical industry. These include: major changes to the funding of pharmaceutical research and development and health technology assessment (Moynihan et al., 2019), changes to global intellectual property and patent regimes (Baker et al., 2017), proposals to split the link between product development and manufacturing – with growing calls for the establishment of publicly-owned pharmaceutical companies to reduce oligopoly power and safeguard the development and manufacture of less profitable drug classes (Brown, 2019) – and active "market-shaping" of this sector by governments (Mazzucato & Li, 2021). These calls have gathered pace rapidly as the COVID-19 pandemic further demonstrated the monopolistic power of big pharma (Hensher & Wanni Arachchige Dona, 2022). Similar discussions regarding ownership, governance, localisation and democratic control will apply to the pharmaceutical and medical device / equipment supply chain industries as those discussed above for service delivery organisations; but these must take place in the context of corporations and supply chains which are highly globalised (for example, the vast majority of the world's active ingredients for pharmaceuticals are manufactured in only two countries, China and India) and in which current ownership is multinational, not national in nature.

6.5. Health Information Systems

It is fair to say that, within the nascent health and degrowth literature, little or no consideration has yet been given to the question of health information systems, or the wider and rapidly expanding field of "digital health". Accurate and timely health information is essential for effective patient care, service delivery, planning, innovation and research. The vast quantities of electronic patient data already stored in Electronic Health Record (EHR) systems, along with increasing amounts of genomic data, mediated by exploding computing power and artificial intelligence, have long been seen as a potential motherlode resource that could transform management of chronic diseases, improve quality and safety (Aickelin et al., 2019) and usher in a new era of individualised "precision medicine" (Adams & Petersen, 2016). Other than under very extreme, primitivist visions of degrowth, it is hard not to imagine that healthcare would remain a relatively high priority use case for digital technologies. Yet a number of emerging features of health information systems are relevant for degrowth planning. The accelerating ecological footprint of digital technologies in general, and thus of health informatics, is increasingly coming under scrutiny (Belkhir & Elmeligi, 2018; Gray, 2022). Others query the hyperbolic claims of precision medicine, and argue that public health action on the social and commercial determinants of health is where the truly revolutionary potential to improve health still really resides (Rey-Lopez et al., 2018). Equally, radical changes in health policy and ownership models under a degrowth transition might conceivably offer an unprecedented opportunity to standardise electronic health records and data collection; inability to achieve effective interoperability between EHR systems and competing providers has dogged the sector for decades and prevents realisation of the potential benefits of EHR (Begoyan, 2007; Morrison et al., 2011). At a deeper level, the negative consequences of EHRs – by intruding on the clinical encounter between patient and doctor, diverting the doctor's attention during this encounter, and diverting health worker time into data entry and dealing with reminders – have been strongly implicated in physician burnout in the USA, and in decreasing human contact in healthcare consultations (e.g. Tai-Seale et al., 2019). A reorientation of EHRs and digital health tools in general could, if wielded effectively, return the "gift of time" to health professionals and their patients (Topol, 2019b). The disruption of a degrowth transition could be used carefully to break the bad habits of today's digital health platforms, and to rebuild them in the service of more human-scale care delivery.

7. Involuntary Degrowth: Building Healthcare Resilience

The possibility of involuntary degrowth arriving unannounced and unplanned always remains a plausible scenario. Different voices flag the ever-present risks of ecological and climate overshoot and tipping points (Steffen et al., 2018), of delayed action (Garrett, 2012) and system failure (Bonaiuti, 2017), all of which could plausibly lead to breakdowns in social and economic systems and a "massive reduction of institutional complexity" (Zywert & Quilley, 2018). Implications for health are relatively obvious, given the preceding discussions – ranging from the potential failure of long-established public health measures to control infectious diseases, through to significant unravelling of medical capabilities, both technologically and institutionally (Zywert & Quilley, 2018).

Only the most limited consideration of how healthcare and health systems might approach preparation for involuntary degrowth has been undertaken to date. Zywert and Quilley (2018) suggest that an increasingly deinstitutionalised and greatly less resource-intensive medicine may need to become more pluralistic, embracing traditional and indigenous medical knowledge, and to embrace a "re-enchantment" of healing, life and death – but they also note that modern medicine and its complexity is today actively undermining this very diversity of knowledge and perspective, even as it may become most valuable. Hensher (2020) examines the possibility of establishing public or non-market institutions in advance of collapse, that might be tasked with safeguarding medical knowledge, or with safeguarding and propagating basic capabilities to manufacture crucial health technologies (e.g. essential medicines), and of how a changed culture of sufficiency and resilience might be inculcated amongst health professionals.

Nonetheless, there is a particular challenge inherent in building resilience and preparing for possible collapse in healthcare: it must be done alongside organisations' and health professionals' already all-consuming "business as usual". It is probably not very contentious to suggest that for-profit corporations and large businesses are unlikely to be well-placed to pursue the kind of dual mission required to prepare for involuntary degrowth. Not only do the imperatives of profit and shareholder value maximisation militate against diverting resources to such activities, arguably corporations are less likely to survive the onset of

involuntary degrowth or collapse than a number of other organisational forms. Many aspects of preparing for collapse are explicitly public goods in nature; if nothing else, the neoliberal era has surely taught us that outsourcing key public goods to the private sector often ends poorly (Mitchell & Fazi, 2017). State, non-profit and religious organisations might be better equipped to prepare for the worst alongside conducting their "normal" operations given their deep experience in combining multiple missions, indeed the historical example of the emergence of monasteries and convents is worth contemplating: not only did the modern institution of the hospital emerge from the monastic tradition, but religious orders were instrumental in preserving (and subsequently recovering) ancient knowledge in the centuries after the fall of Rome (Risse, 1999). That said, it is likely that some very deliberate "de-corporatisation" and decoupling from current business and financial models would be needed to give public institutions (be they state agencies, universities or faith-based healthcare providers) the space to establish and nurture this parallel mission of safeguarding societal resilience. Letting go of pervasive neoliberal forms and habits of governance might be one essential manifestation of Bendell's (2018) concept of "relinquishment", to allow our institutions more space for building resilience and for restorative work.

8. Discussion

This paper has combined organisational, economic, health systems and public health perspectives on the implications for healthcare of transitioning to a post-growth era. Its key limitation is therefore that it runs the risk of not containing enough discipline-specific detail, and thus risks satisfying none of these potential audiences. However, the essentially transdisciplinary nature of both degrowth and healthcare organisation suggests this is a risk which cannot be avoided. Its analysis of both legacy challenges, and of the likely post-growth challenges facing health systems, has highlighted a range of tensions and dualities that cannot be escaped in thinking through the future of healthcare organisation. Table 2 summarises the most important of these.

Table 2: Common tensions within healthcare systems in a *post-growth* framing

Contrasting visions and tensions in healthcare	
Doctor / patient	Principal / agent
Professional trust	Information asymmetry
Self care	Professional care
Human care and caring	Treatment as technology
Healing as craft or art	Medicine as science
Community-based	Institution-based
Personal, individual relationships	Complex systems of care with multiple inputs and providers
Generalist	Specialist
Professional autonomy	Systematic standards for quality and performance
Decentralised	Centralised
Primary healthcare	Secondary and Tertiary care
Institutional forces	Market forces
Integration	Competition
Tried and tested	Innovation
Tradition	Disruption
Sufficiency	Excellence
First do no harm	Do everything possible
Patient	Consumer
Independent practice	Corporatized practice
Universal access	Access by ability to pay
Not for profit	For profit
Public financing	Private financing
Public provision	Private provision

Some of these pairings represent the increased complexity that has accompanied the evolution of modern healthcare, some represent differing cultural emphases and some differing institutional balances. Yet none represent “all or nothing” choices; all are dualities which will be present to some degree in any health system, now or in the future. The table seeks to draw out some of the more important trade-offs, or “wicked dilemmas” (Zywert & Quilley, 2018), which may increasingly come to the fore as discussion of “post-growth” economics moves from a theoretical debate to a practical reality, while it also hints at complementarities and routes towards better overall balance within systems.

Table 2 brings home some of the harder trade-offs and changes that might be encountered in designing post-growth health systems. We should not underestimate the scale of the cultural change (in both professional and popular culture) required in moving from a healthcare system devoted to “doing everything possible” for the patient irrespective of resource (and which views its ideal of “excellence” very directly in those terms), to one in which sufficiency and avoiding harm are the paramount professional virtues. Indeed, a system which depends upon greater decentralisation and professional autonomy may well bring benefits to professional morale and doctor-patient relationships; but it may well also become harder to measure and enforce standards for quality and performance. Reduced complexity in healthcare systems may well give doctors and patients more time together, with more scope to develop highly valued relationships of care; but might also make effective interventions less accessible, leading to poorer technical quality of care and outcomes. Figure 7 considers the issue of health worker burnout, and how it may be impacted by the positive opportunities and negative challenges of both voluntary and involuntary degrowth as an example of some of these many trade-offs. The very art of successfully redesigning health systems for a post-growth era will in large part consist of the ability simultaneously to retain the maximum possible benefits of modern healthcare, whilst also driving out waste, harm and pointless complexity, and to deliver greater resilience and value within fixed resource limits.

Figure 7: Health worker burnout and degrowth – challenges and opportunities

Throughout this analysis it is possible to see the outlines of two critical problems which degrowth scholars and proponents should attend to: governance, financing and institutional structure at higher levels (regional, national, global), and how to reconcile the potential dualism of a highly localised care economy with the non-local, centralised supply chains on which it must depend if it is continue providing any aspects of modern healthcare. While degrowth scholars (e.g. Aillon & D'Alisa, 2020) are clear that they do not reject the benefits of technological medicine, degrowth proponents will need to consider how to build more realistic roles for larger-scale organisations and systems into their thinking. This is especially important if we are to avoid being trapped by default into an implicit economic dualism (Hensher, 2019), whereby all our thinking has been focused upon expounding the local and small-scale, while assuming that more complex technologies and products will remain available via an unexplained "modern" sector that sits outside their models. Small may be beautiful, but large may sometimes be necessary to maintain some of the essential complexity needed for a functional healthcare system.

More broadly, it is close to inconceivable that any of the approaches to post-growth economic and social organisation and policy (including meaningful preparation for collapse) can take place without a central and substantial role for the state. After many years of neoliberal ascendancy, the importance of rebuilding stronger and more capable states is increasingly appreciated (e.g. Mitchell & Fazi, 2017), while consensus grows that government financing of healthcare is not only the most equitable, but also the most efficient and robust means of guaranteeing universal access to healthcare (Chang et al., 2019; McIntyre et al., 2017). Post-growth economic models require very strong steering and regulation by a competent state to have any chance of achieving their ecological aims, and the state must play an essential role in ensuring that the best possible access to public health and healthcare is maintained. The degrowth literature has had a more ambiguous view of the state, cleaving to visions of ruptural or interstitial transition, and bottom-up organising, following Wright (2010). However, Cosme et al. (2017) note that, in an analysis of published papers on "degrowth" policies, a majority of policy proposals in fact involved strongly "top-down" policy action, often pitched at national or international rather than more local levels. D'Alisa and Kallis (2020) have recently noted the lack of a clear theorisation of the state in the degrowth literature. Indeed, the literature on degrowth and health either says little or tends to scorn the state in favour of localism and cooperative action, so much so that it might be fair to suggest that degrowthers may also be guilty of the charge of misguided "antibureacratic romanticism" (Lopdrup-Hjorth & du Gay, 2019). Yet the state would be one of the last organisations to "go under" in times of collapse. Prior to the COVID-19 pandemic, it would have been reasonable to anticipate that, alongside defence and law and order, public health and disease control would be one of the functions that even a collapsing state will try to maintain to the bitter end – although the remarkable politicisation of COVID-19 might now lead one to question this assumption (Contandriopoulos, 2021). There appears to have been little discussion yet of how competent and democratic regulatory states can be rebuilt following the long-term hollowing out of state capacity by parties of both the right, the social democratic left, and now by the forces of populism (Innes, 2017). Mitchell and Fazi (2017) present the beginnings of an essentially political program to "reclaim the state"; developing a new and positive model (both theoretical and practical) with which to reinvigorate states so they can fulfil their indispensable role in a post-growth future may be one of the most important priorities for urgent attention.

This failure to attend to the role of the state has significant implications for healthcare. Put bluntly, for-profit and private financing and provision models are likely either to seek to reignite growth, or to be at significant risk of financial failure if conditions of no growth or degrowth prevail, while public and not-for-profit systems offer more likelihood of policy control and institutional survival. Individual private healthcare providers or insurers might be able to break even under a steady state or degrowth economy; however, systems containing large private or for-profit components will collectively tend either to subvert the economic policies seeking a post-growth path, or to be at increasing risk of failure (or both). There is no shying away from the fact that post-growth economics is fundamentally about ensuring control of natural resource use, depletion and pollution in order to avoid the greater societal costs of environmental crisis and collapse. The necessary control mechanisms will extend to all sectors of the economy, with healthcare no exception. It would seem self-defeating to choose models of organisation and financing which are likely to fail to deliver or even to undermine the higher-level goals of policy. Only the state can deliver this higher-level control of natural resource use and guide the overall allocation of resources between sectors with democratic legitimacy.

9. Conclusion

This survey of the literature and issues shows that healthcare provides a useful case study of what is perhaps the central challenge of the degrowth transition: transforming the scale and ecological footprint of key sectors of the economy, localising and expanding democratic control while still retaining and safeguarding the essential, minimum levels of complexity required to deliver the benefits of modern technologies which are most important to health, well-being and human flourishing. The cost of failure is clear: collapsing access to effective healthcare, with all the suffering, loss of life and human potential which would accompany that collapse. It would be highly premature to propose a specific template or model for how best to organise healthcare systems under a degrowth transition. A range of existing organisational models could be used or converted for post-growth conditions; many of the elements of an organisational paradigm more suitable for a post-growth era are, in fact, in circulation already in the debate over how best to transform current systems to better deliver integrated, value-based healthcare. Yet some areas of priority focus are clearly visible.

Under voluntary degrowth, a stronger role for the state – both as resource regulator and through public healthcare financing and services – is likely to be unavoidable, even in systems that currently skew towards private financing and provision. In the transition from growth to post-growth healthcare systems and policies will need to become reconciled with this trend. Private provision and financing can likely flourish only in organisations which can focus on doing more with less while eschewing growth, and which can survive on modest and constant (rather than growing) profits. Public services can meet these criteria easily; private organisations will need to examine alternative models of ownership, charters and social objectives if they are to prepare for this transition. Cooperative ownership and social enterprise models clearly have potential but their track record in application to large and complex healthcare organisations is currently very limited. However, more work is required to consider how best to strengthen democratic control of healthcare systems under all ownership models.

Another key priority involves rethinking the entire system of research, development and innovation for pharmaceuticals and medical technologies, which is increasingly displaying major market failures, most prominently in its almost complete inability to address antimicrobial resistance (Brown, 2018). This is not just a question of the major changes to the pharmaceutical industry discussed earlier (such as public utility models etc.) Societies will need a substantially different social, cultural and economic model for science, innovation and discovery if they are to meet the complex, multiple challenges thrown up by the post-growth era while avoiding the risks of technological stagnation and regress.

Within the healthcare sector, there is clearly a need for much technical work on reducing the harms inadvertently caused by healthcare to the environment and to society, and on how to plan optimal future healthcare systems and infrastructures that minimise environmental harms while delivering the best possible care. Yet the most important areas requiring more exploration involve changing the dominant culture of modern healthcare. The acute problem of overuse can only be fully resolved by significant changes in healthcare culture – away from a culture of “do everything” to one of sufficiency and “do only what is necessary”. There is some reason for optimism that the development of a culture of clinical sufficiency could be assisted by harnessing the significant enthusiasm of many health professionals for reducing

the environmental harms of their practice, in a movement for “green healthcare” which is growing in many countries.

Those working within the degrowth movement need to develop their thinking and proposals on how degrowth might operate at higher scales than the purely local. This includes developing a more convincing account of the role of the state under degrowth, and concrete proposals on how to harness the state, public finances and public provisioning systems, rather than through broad appeals to the “commons”. The degrowth paradigm also needs to examine more closely the mechanisms by which access to complex technologies will actually be organised and maintained. Transitioning complex organisations (not to mention – in many countries – millions of employees) to new operating and/or ownership models is a massive task, almost certainly requiring legislation and regulatory reform; aspects of this transition will have international ramifications, including the need to neutralise the constraints that aspects of current global trade and intellectual property regimes would impose.

This analysis has also hinted at the risks and limitations of applying a pre-existing ideological position to the solution of practical problems. If taken too literally, aspects of the degrowth paradigm have been seen to throw up some quite limiting constraints in the field of healthcare organisation (e.g. through a strong presumption of very local forms of organising), and its initial response to its weaknesses in dealing with the state has been at the level of searching for a theory rather than through developing practical proposals (D’Alisa & Kallis, 2020). Prioritising ideological preferences over exploration of all feasible options risks losing precious optionality and foreclosing courses of action that might, in fact, have worked (Hensher, 2019). Moving safely into a post-growth era will require intense pragmatism; the level of transformation required within healthcare systems under degrowth will likely be as great as that required under any other health reforms undertaken to date anywhere in the world. Not undertaking a commensurate level of preparation will surely guarantee failure.

Conflict of interest

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