



Global Health Determinants and Limits to the Sustainability of Sustainable Development Goal 3

Eduardo Missoni

1. Introduction

The Millennium Declaration, signed by all Heads of State in September 2000, attempted to reaffirm a human-rights-based approach to development, with the liberation of the whole human race from need as one of its main goals (UN 2000). The Declaration proclaimed equality, freedom, solidarity, tolerance, respect for nature and shared responsibility as “fundamental values”; it also recognized the unequal distribution of common goods and the costs of globalization (UN 2000).

In order to translate the Declaration into a more operational instrument, it was later decided to identify the Millennium Development Goals (MDGs) that would make it possible to verify the progress of the development agenda. The original purpose of the MDGs was to go beyond the narrow paradigm of growth and focus on human, sustainable and equitable well-being. However, the conventional economic concept of development prevailed, with economic growth set as the primary force for poverty reduction (Vandemoortele 2010). Emphasis was placed on the identification of a limited number of relatively narrow targets and indicators, rather than on the need for deeper social transformations, almost entirely neglecting issues such as inequality and discrimination (Teichman 2014). The MDGs and the related targets set for 2015 lacked a systemic vision, and did not take the social, economic and environmental determinants of people’s living and working conditions into account, or issues such as equity of distribution and access to resources (Fehling et al. 2013; Teichman 2014).

The MDGs focused exclusively on poor countries and reflected an idea of “development” pertaining only to development aid, involving high-income countries only as “donors”. Indeed, low-income countries were scarcely involved in the process (Fehling et al. 2013).

In view of the 2015 deadline, in June 2012, the United Nations Conference on Sustainable Development “Rio +20”, recorded a general consensus on the need for new global objectives for “concrete measures that accelerate implementation of sustainable development commitments” (UN 2012, p. 6), and initiated the inter-governmental

process for the identification of new, truly global Sustainable Development Goals (SDGs). The result of that process was the Agenda 2030 for Sustainable Development, adopted on 25 September 2015 by the Summit of Heads of State and Government, convening in New York, by the United Nations (UN 2015).

In the traditional definition, sustainable development “meets the needs of current generations without compromising the ability of future generations to meet their own needs” (WCED 1987). Thus, sustainable development involves, on the one hand, the use of renewable resources and strict environmental protection, and on the other hand, the ability to ensure that human progress (first and foremost, the improvement of the living conditions of the populations) lasts over time.

The introduction to the ambitious Agenda 2030 affirms the “historic” dimension of the agreement, which commits governments to the adoption of a set of 17 “indivisible” objectives and 169 universal targets: to end poverty “once and for all” by 2030; to combat inequalities; to ensure lasting protection of the planet and its resources; to create the conditions for “shared prosperity” and “sustainable, inclusive and sustained” growth (UN 2015).

The new Agenda is not without contradictions. The achievement of “Sustainable, inclusive and sustained” economic growth, one of the pillars of the Agenda 2030 (UN 2015), is a conceptual oxymoron (Kopnina 2016; Spaiser et al. 2017).

Inside the planetary boundaries that define a safe operating space for humanity, “sustained” growth, with unmodified production and consumption patterns, is not compatible with sustainability. Almost fifty years ago, the first Report to the Club of Rome indicated the existing “Limits to growth” and called for “the initiation of new forms of thinking that will lead to a fundamental revision of human behaviour and, by implication, of the entire fabric of present-day society” to avoid “the tragic consequences of an overshoot” (Meadows et al. 1972, pp. 185–196). The forecast of a rapidly approaching global crisis based on mathematical models was recently confirmed, based on more solid data (Turner 2014). The current COVID-19 pandemic, and its global health, social and economic consequences, seems to be a dramatic expression of that forecast.

Nevertheless, the adoption of the “Agenda 2030 for Sustainable Development” (UN 2015) could still open a new phase in development policies in the global context of increasing complexity and unprecedented challenges, particularly as it stresses the interrelations between the different goals and their indivisibility.

Indeed, it was also suggested that health should be adopted as the main, if not the sole, goal of the sustainable development agenda, highlighting that health cross-cuts all phases of human life and people’s individual and collective experience, such as

education, work, gender balance, the distribution of wealth and access to resources, social protection, quality of the natural environment, capacity for self-determination and the quality of democracy. “Health is a dramatic and early indicator of the performance of other indicators, and equity in health measures the quality and extent of citizenship attributed to individuals in a society” (OISG 2014). In the same way, inequality in health is a mirror of all other inequalities, as well as constituting a “common danger”, as stated in the WHO Constitution (WHO 2014).

Sustainable Development Goal 3 is to “ensure healthy lives and promote well-being for all at all ages”. SDG 3 targets have been identified to measure the success of implemented policies and strategies. Among the nine health targets, the first three concern maternal mortality, infant mortality and the control of certain infectious diseases (primarily HIV/Aids, tuberculosis and malaria) and reflect previous MDGs. The new agenda adds targets for non-communicable diseases, substance abuse, deaths and injuries from road traffic accidents, universal access to reproductive health-care services, universal health coverage (UHC), and deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. Finally, four specific actions have been identified, in particular (a) to strengthen the implementation of the “World Health Organization Framework Convention on Tobacco Control”; (b) to support the research and development of vaccines and medicines for developing countries, and ensure access to essential medicines and vaccines; (c) increase health financing, and the recruitment, development, training and retention of a health workforce in developing countries; (d) to strengthen the capacity of all countries for early warning, risk reduction and management of national and global health risks (UN 2015).

Although the challenge of sustainability is global, national health systems will be confronted with it based on the very different socio-economic conditions and expectations of their populations.

The achievement of UHC has been indicated as “the centrepiece of goal 3 . . . This is the one target that, if achieved—or let’s say when achieved—will contribute to all the others” (Ghebreyesus 2018). UHC has been defined as universal access to the health services people need, when and where they need them, without financial hardship, including the full range of essential health services, from health promotion to prevention, treatment, rehabilitation, and palliative care (WHO 2020c).

It is generally accepted that universal access to quality care plays an important role in the improvement in population health and the reduction in health inequalities. In this sense, universal coverage is considered to be a particularly well-suited objective to address the complexity of the challenges facing health systems (Franklin 2017).

Among others, health systems' effectiveness and sustainability, i.e., the ability to take care of the needs of today without compromising the ability to provide for those needs in the future, is affected by a wider range of societal determinants beyond national boundaries.

Global power and processes may seriously undermine success, interfering with health systems' main functions, increasing demand or debilitating offers.

The acceleration of globalization and the hegemony of the neo-liberal ideology led to the progressive deregulation and liberalization of trade regimes, extensive privatization and the scaling back of the State. These processes have intensified the commodification and commercialization of vital social determinants such as health and social services, water and electricity. Unhealthy products are aggressively marketed by global industries (tobacco, alcohol, pesticides and other chemicals, processed foods and beverages, etc.). Environmental deterioration is also a result of the dominant economic model, which also heavily impacts labour and working conditions (CSDH 2008).

Health no longer depends solely on the specific situation of the country where people live but is largely determined by global forces acting outside the control of individual states, becoming an issue of foreign policy, global security, international trade, the overall sustainability of development, democratic governance and human rights (McInnes and Lee 2012).

Adopting Universal Health Coverage as a main focus, this chapter analyzes SDG 3's feasibility and sustainability using health system components as a framework to understand how global determinants interact with each component, affecting the functioning and sustainability of the health system as a whole. It concludes by arguing that, without an urgent paradigmatic shift in the current development model, the attainment of SDGs, and, specifically, the sustainability of SDG 3 and its "centerpiece" UHC will be at stake.

2. Health Systems' Functions

The World Health Organization (WHO) defined health systems as "all the activities whose primary purpose is to promote, restore and maintain health" (WHO 2000, p. 5). This includes health care as well as efforts to positively influence determinants of health. This conceptualization of health systems goes beyond the boundaries of the healthcare system, including policies and interventions often outside the direct competences of the health authorities, such as food accessibility, quality and safety, road safety or environmental control.

Based on the approach proposed by the WHO (2000; 2007; 2010b), the core objectives of health systems may be summarized as: (a) protecting and improving the health of the population they serve and reducing health inequalities; (b) responding to people's non-medical expectations and enabling participation in decisions that have an impact on their health and health systems; (c) protecting individuals from the risk of financial hardship due to the costs of health services through risk-pooling mechanisms, ensuring fairness for individual contributions and equity in access to services, i.e., access to and coverage of effective health interventions according to needs; (d) ensuring the best use of available resources to reach the aforementioned three objectives.

While the latter three objectives are specific to the healthcare system, the attainment of the first objective—protecting and improving health—relies only partially on healthcare and requires extending action, and even our understanding of a health system, to a system *for* health, i.e., beyond “activities whose *primary* purpose is to promote, restore and maintain health” (WHO 2000, p. 5)., to include all the policies and activities that have an impact on human health, thus also challenging the healthcare system, and its capacity to provide UHC, as will be discussed below.

Regardless of how they are organized, to achieve their goals, all health systems have to rely on some basic components: (a) leadership and governance; (b) human resources; (c) medical products and technology; (d) mobilization and allocation of finances; (e) service delivery. The components originally identified in the World Health Report 2000 were later summarized in the WHO Health Systems Framework, capturing information as an additional cross-cutting “building block” of increasing importance in supporting the overall functioning of the system (WHO 2007). The relationships among the six building blocks and their connection with the objectives of the health system are represented in Figure 1.

It is well-known that “health systems are subject to powerful forces and influences that often overwhelm the rational formulation of policies” (WHO 2010b). Among others, “these forces include a disproportionate focus on specialist care, fragmentation into a multiplicity of competing programs, projects and institutions, and the pervasive commercialization of health care into inadequately regulated systems” (WHO 2010b, p. 1).

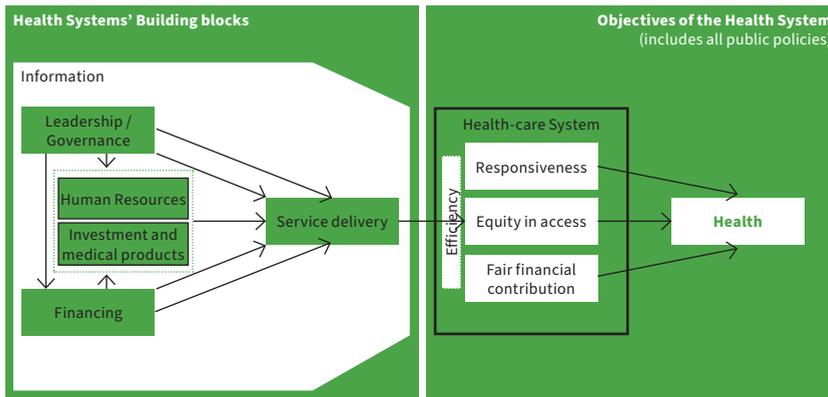


Figure 1. Health systems' building blocks and goals. Source: Modified from (WHO 2000; Missoni et al. 2019).

Indeed, the efficiency (appropriate use of resources) and effectiveness (achievement of objectives) and, ultimately, sustainability, of health care systems are put to the test by many forces and phenomena, which also require interventions and policies that are located outside the health system and often beyond the exclusive control of national authorities. In the following sections, we will focus on those interactions.

3. Determinants That Affect Steering and Governance

National health policies are influenced by international policies and transnational forces acting at different levels. Structurally or economically weaker states and economies are more susceptible to such influences and less prepared to deal with them. In the 1980s, international financial institutions (mainly the International Monetary Fund and the World Bank) imposed Structural Adjustment Plans (SAPs) on a large number of indebted countries, which entailed, among other things, a drastic reduction in public spending, the dismantling of universalist health systems, the privatization and commercialization of health services and the introduction of user fees—a real “tax on disease” (Geddes 2018, p. 35)—which had disastrous effects in terms of reduced access to services, exclusion of the weakest and the impoverishment of families. In more recent years, similar macroeconomic measures have been imposed by international and supranational bodies in more advanced economies as well, which were affected by the economic crisis, causing the impoverishment of large sections of the population (Kondilis et al. 2013). These measures contribute, among

other things, to the fragmentation of health systems, making their management more complex and increasing their costs (Lister 2008; Geddes 2018).

In Official Development Assistance (ODA)-recipient countries, health policies and priority setting are strongly influenced by earmarked resources and donor conditionality, which often do not take the needs of partner countries into account (Biesma et al. 2009).

4. Determinants That Affect Human Resources and Access to Medical Products and Technology

Several global determinants influence the availability of human resources and access to medical products and technology.

The inadequacy of health workers' training in relation to the needs of the population has been recognized since the 1970s. The training of health personnel should not start from pathology, but from the context that generates disease, "from reality and not from theory, from the living society and not from the study of a corpse" (Maccacaro 1971, p. 377). With a few exceptions, medical faculties continue to follow what the Brazilian pedagogue Paulo Freire defined a "banking" educational approach (Torre et al. 2017), providing "information, or rather notions, detached from the context of real medicine that inevitably takes place more and more in the territory, outside the hospital" (Stefanini 2014). The World Health Report of 2008 also highlighted "hospital-centrism" among the problems at the root of the failure in achieving the health-for-all goal (WHO 2008). Practice in medical studies is mainly based on the observation of a hospitalized individual in a "horizontal" position, a "patient" in bed (Missoni 2018), and in a context too often socially and/or culturally alien to the social reality in which people "are born, live, work, grow old and die" (CSDH 2008, p. 26).

From the beginning of their career, future medical professionals are introduced to the logic of a globalized social model, which is profit-oriented and serves the interests of the dominant class (Stefanini 2014). Moreover, the standardization of skills and learning objectives (disproportionate focus on specialist curative care, high complexity, technological sophistication, etc.) respond to healthcare models that are scarcely sustainable even in middle-high income countries and are accessible elsewhere only to high-income population groups. Such an approach is a bad investment for low-income countries that already lack essential human resources. On the one hand, it produces health workers who are incapable of "usefully becoming part of an urban or rural community, of taking care of it, of understanding the problems of its illness and of defending its right to health" (Maccacaro 1971, pp. 377–382), with a training

clearly detached from the local needs. On the other hand, the standardization of training across countries may have the unintended consequence of helping with professional migration across national boundaries (Frenk et al. 2010).

The main drivers of brain-drain include push (low level of income, poor working conditions, the absence of job openings and social recognition, oppressive political climate) and pull (better remuneration and working conditions, prospects for career development, job satisfaction, security) factors; however the latter leverages globally standardized training, which tends to produce “fit for export” health personnel. Indeed, health workers and, in particular, doctors, who are not prepared and unmotivated to serve in their own communities, will seek work elsewhere—first in large urban centers and then abroad—to obtain the kind of professional integration that requires their skills and meets the aspirations suggested in their medical studies, according to the globalized stereotype of the successful doctor (Missoni 2018).

Health workforce “brain drain”, is also fueled by “import” agencies from high-income countries lacking human resources, often bypassing the norms that some of those countries have adopted based on the WHO global code (WHO 2010a). Healthcare-related trade policies and agreements have also promoted the migration of health professionals from the public sector to the private sector, and abroad.

Medical products and technologies are key resources for the health systems, but global determinants may affect their availability and affordability, as the following examples illustrate.

While basic research is still largely generated in universities and public research institutes, thanks to private funding, the research and development of biomedical products and devices are essentially in the hands of the transnational corporate sector, which invests only if a return on investment can be predicted, without taking health needs and health burden into account. As a result, only 10% of global health research spending is allocated to health conditions that account for 90% of the disease burden. Between 2000 and 2011, only 1% of the new active ingredients on the market were for neglected diseases (Pedrique et al. 2013). Thanks to the contribution of international initiatives and product development partnerships, there has been some progress in recent decades, especially for malaria, but very limited or no progress for other neglected diseases, such as dengue fever, Buruli ulcer, trachoma, rheumatic fever, or typhoid fever (Cohen et al. 2010).

The price of medicine remains the largest obstacle to access to care. Drugs and other medical products represent the largest public expenditure on health after personnel costs in many low-income countries, and the expense is a major cause of household impoverishment and debt (WHO 2020b).

Numerous patent-protected lifesaving medicines of proven efficacy are marketed at a high price, unaffordable for most of the people and healthcare systems in low-income countries. The global system of protection of intellectual property rights (IPR) may contribute to price increases and reduced access to medicines and vaccines (Smith et al. 2009). In the interest of public health, flexibilities under the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement—such as compulsory licensing and parallel import—allow countries to gain access to medicines that, in other countries, may still be under patent. Unfortunately, there is still reluctance to implement these flexibilities due to concerns about the reactions of trade partners or a lack of the administrative, legal and/or productive capacity to adopt such an approach, which is also opposed by transnational pharmaceutical companies (Kerry and Lee 2007).

Prices may come down when the patent expires, and competition and/or generic products emerge. However, at that point, the transnational pharmaceutical industry often adopts sophisticated “lifecycle management” strategies. This patent “evergreening”, based on the introduction of minor changes to the formulation, allows companies to extend their monopoly privileges on the drug, keep prices high and remain in control of these drugs on the market. This seriously challenges the access to affordable drugs, as it delays the generic competition without any improvement in the efficacy of the already-patented drug (Abbas 2019; WHO 2020b).

5. Determinants Affecting the Financing of the System

There is a correlation between the increase in health spending and increased life expectancy. However, above a spending threshold of about 75 US dollars per capita, that relationship becomes unpredictable and improvements in health outcomes depend mainly on the efficiency of the system (how money is spent) and on political choices related to social solidarity and equity (Savedoff et al. 2012).

In the same way, beyond a certain threshold of GDP per capita, economic growth is no longer correlated with health outcomes; rather, the inequality in the distribution of income directly correlates with disease burden (Pickett and Wilkinson 2015).

The efficiency of health care systems largely depends on how funds are collected, allocated, pooled and finally used for the purchase of services.

The combination of these components determines how many resources will be made available and how efficiently they will be used to achieve the desired results.

The macroeconomic framework of a country (including the quality and effectiveness of its fiscal system) determines resources’ availability. Weaker economies

have greater difficulty in bearing the costs of their health care systems and suffer most from financial crises and the imposition of international provisions (Gurtner 2010).

Ideologically mandated “rigorous” one-fits-all austerity policies impose social expenditure “cuts”, including to salaries, maintenance costs and investments. As Geddes observes, “the undeclared objective” is to reduce the public services supported through the State’s tax revenues, with the purely political aim of promoting the privatization of services, to the benefit of private capital (Geddes 2018), in a veritable “assault on universalism” (McKee and Stuckler 2011).

Dependence on out-of-pocket payments (OOPs) of services, introduce regressive mechanisms in financing, constitute a barrier to access to needed care and generate problems of financial protection. There is a very strong correlation between the level of OOPs and the incidence of catastrophic and impoverishing health expenditures, which are solely determined by the extent to which out-of-pocket payments absorb a household’s financial resources (WHO 2020a).

Every year, more than 100 million people end up in poverty as a result of direct spending on health care (Haider and Nibb 2017). When in need, people without guarantees of access to care tend to turn to the much more expensive hospital emergency services. In addition, they tend to be excluded from health promotion and prevention activities that health services carry out.

In poor resource-settings, where health care providers tend to be inadequately paid, user fees may constitute a major source of revenue for health workers, creating perverse financial incentives (WHO 2020a).

Out-of-pocket health spending as a percentage of total health spending is highest in lower-middle-income countries and tends to make up a smaller share of the total health spending in upper-middle- and high-income countries (IHME 2019). However, even in the European Union “too many patients [. . .] are facing financial hardships as a result of healthcare costs” (Franklin 2017, p. 2) and, for some people, direct costs act as a deterrent to the use of health services or to the continuity of care they cannot afford. Others, in order to access needed care, have to cut spending on food, clothing and housing. Unfortunately, since 2009, spending on direct payments in Europe has grown faster than public spending, with a negative impact on the functioning of health systems and the functioning of society in general, in terms of social cohesion and economic development (Franklin 2017).

Fragmentation reduces health care systems’ efficiency, and systems based on the private coverage and insurance market are the most inefficient, with the sharpest increase in both public and private health expenditure (Unger and De Paepe 2019; Geddes 2018), which obviously makes this approach the less sustainable one.

Private insurance systems also promote over-diagnosis and induce health consumerism, without benefits to the public sector even in terms of waiting lists' reduction, use of services or cost reductions. Rather, cost-control is much more problematic in systems where different providers compete, even disregarding the negative impact on the equity of the system (Geddes 2018; Steendam et al. 2019).

In low-income countries, health services are largely dependent on development assistance. Unfortunately, external financing is often also volatile and unpredictable, making planning impossible. In addition, these funds are often tied to particular activities or diseases, sometimes do not respond to local needs and nationally established priorities and use autonomous management procedures and mechanisms with unnecessary duplication and increased transaction costs, generating an unsustainable administrative burden on already weak, resource-poor institutions (Missoni et al. 2019). The steady increase in the number of public and private aid actors and their profound diversity in terms of strategies and procedures, disregarding internationally agreed alignment and harmonization strategies (OECD 2005), further contribute to making aid inefficient and ineffective. Besides leading to an extreme and unsustainable fragmentation of national systems, the growing number of new private actors and public-private partnerships, pushed by the globalization of neoliberal ideology, also undermine the WHO's authority in directing and coordinating international health activities, and thus its leading role in support of national systems (Missoni et al. 2019; Ruger 2018).

6. Determinants That Affect Service Delivery

Both increases in demand and insufficient or inappropriate offers may affect the capacity of a healthcare system to provide universal access to care, and the sustainability of such a policy.

6.1. Demand

Besides demographic factors, the *fil rouge* that links multiple determinants of the unsustainable increase in illness and, as a consequence, demand is the consumerism inherent to the globalized capitalistic growth society, which is reflected in the multiple, diverse, but interconnected pathways described below.

The steady increase in the world's population and its progressive ageing are among the main causes of increased demand for health services. Between 2015 and 2050, the proportion of the world's population over 60 years of age will almost double, from 12% to 22% (WHO 2018b).

Ageing not only leads to a decline at the biological level, it is, in fact, associated with a profound transformation of a person's lifestyle, and often living conditions, which, in turn, may contribute to the worsening of physical and mental health. Although partly dependent on genetic factors, the health of elderly people is heavily influenced by social, economic and environmental determinants, including the quality of food, housing conditions and the consistency of family and community networks, as well as life experiences since early childhood. In this sense, the social determinants that affect young people today will influence the type and frequency of diseases in the coming decades. Geriatric syndromes that characterize health conditions of the elderly, i.e., complex multimorbidity, lead to a greater demand for health care and require totally new care approaches (WHO 2018b).

The considerable increase in the global burden from chronic diseases cannot be attributed exclusively to the ageing of the population. In fact, it affects all age groups and almost all countries, with a much greater impact in poorer countries, which are experiencing an epidemiological transition with a double burden of disease, i.e., both infectious diseases and chronic non-communicable diseases. Three quarters of deaths from chronic diseases are recorded in low- and middle-income countries (Haider and Nibb 2017).

While pandemics of old and new infectious diseases are seriously challenging humanity, an "epidemic" of chronic diseases, especially heart disease and cancer, observed since Second World War, clearly parallels the globalization of the western societal and lifestyle model (Kesteloot 2004).

A society aiming at and measuring its success through sustained growth requires a constant increase in consumption, no matter what is consumed and no matter the impact on the environment and health, based on the conventional wisdom that those are the unavoidable consequences of economic development (Landrigan et al. 2018). To that end, agricultural and industrial production cycles become faster, more resource-intensive and more contaminating, with the inexorable impoverishment of natural resources and increased levels of pollution, which is the largest environmental cause of disease and premature death in the world today (Landrigan et al. 2018).

With the promise of high yields and reduced losses in the production, pesticides and chemical fertilizers are massively promoted and used almost without control, causing contamination of the soil, water, and air, with a direct health hazard for rural workers and their families, and dangerous amounts of chemical residuals entering the food-chain, including drinking water (Kennedy et al. 2004; Landrigan et al. 2018;

Willett et al. 2019). The phases of food processing, packaging, transportation, and storage are also significant contributors to food contamination (Rather et al. 2017).

Similarly, industrial production is still widely based on the use of energy from fossil resources, contributing to high emissions of CO₂ and other greenhouse gases, and thus climatic change, as well as, in many cases, diffusion in the environment of many other dangerous contaminants, with a direct impact on the health of the population and an increase in health care expenditure in neighboring provinces (Zeng and He 2019). Climate change, indissolubly linked to the dominant production and consumption model, has an impact on health, with multiple interactions and predictable, potentially catastrophic, irreversible epidemiological transformations (Watts et al. 2017).

Extremely aggressive market strategies further push consumption. Worldwide, supermarkets' shelves are full of harmful food (processed foods with added sugar, salt, preservatives and colorants; high-calorie drinks; etc.), alcohol and tobacco, and other unhealthy or otherwise potentially harmful consumer products (such as home and personal care), which all contribute to the dramatic increase in chronic diseases such as obesity, metabolic diseases (first of all diabetes), respiratory diseases, cardiovascular, neoplastic, and neurodegenerative and mental illnesses (Kennedy et al. 2004; Landrigan et al. 2018; Willett et al. 2019).

In turn, consumption produces waste and a variety of pollutants, which, in most cases, are not optimally disposed of. Among others, the presence of microplastics in the food-chain, including treated tap- and bottled water, have raised considerable concerns regarding their impact on human health (WHO 2019).

Overall, environmental factors account for between 25% and 33% of the global burden of disease. A total of 83% of deaths are mediated by environmental factors. Carcinogenetic chemicals can now be found at every level of the food chain, in soils, groundwater and air emissions, and are widespread in a myriad of household and personal care products to which people are exposed every day (Haider and Nibb 2017).

The impact of pollutants on health is not limited to current generations. Besides the environmental consequences of the unsustainable exploitation of natural resources and the pollution of land, water and the atmosphere, many widely disseminated pollutants have been shown to produce epigenetic changes which are transmitted from one generation to the other, putting the health of future generations at risk (Skinner et al. 2010).

The ongoing commodification of water is the subject of growing concern in relation to water security, as well as quality- and water-related diseases, besides the maintenance of an unequitable status quo of inaccessibility. (Brisman et al. 2018).

Mental and relational pathologies (depression, suicide), and physical pathologies deriving from the use of new technologies (reduced physical exercise, pathologies of postural origin) are associated with globalized changes in lifestyle, including “behavioural addictions” associated with “excessive use of the internet, computers, smartphones and other electronic devices” which are also increasing (WHO 2015, p. 5).

The direct and indirect impact of the ever-increasing global exposure to electromagnetic fields on human health is widely underestimated and is a matter of increasing concern, calling for the adoption of severe precautionary principles (Bortkiewicz 2019).

Besides the pathological effects arising from the use of new technologies, the global expansion of the Internet has an additional impact on the increase in health demand. Social networks represent an easily accessible market of hundreds of millions of users through direct-to-consumer advertising of the improper or illegal use of often counterfeit medicines, with considerable health risks and an inevitable increase in health expenditure. Direct advertising is the fastest growing form of pharmaceutical marketing. Although only legal in the United States and New Zealand, online forms of interaction now allow legal restrictions to be violated everywhere (Liang and Mackey 2011).

Through disease-mongering strategies, i.e., creating patients, offering a distorted perception of the severity of a condition or presenting a physiological condition as pathological, the pharma industry induces the unnecessary consumption of drugs, contributing to the increase in health expenditure (Doran and Henry 2008).

The health care system itself also contributes to its own unsustainability, being one of the causes of the spread of antibiotic resistance, although 80% of antibiotic consumption happens in the livestock industry. The General Assembly of the United Nations, in 2016, warned against the potential re-emergence of diseases kept under control for decades, and the risk of new catastrophic epidemics (IACG 2019).

6.2. *The Offer*

Increased demand may also come from within the health care system. It is well known that, in the health sector, the increase in supply generates demand, particularly in the absence of control mechanisms and in health systems mainly based on private care. Particularly in developing countries, health care systems are

highly fragmented and governments, which are mostly only in control of the public sector, are not able to create appropriate mechanisms to regulate the private sector's activities and performance. Experience in the Americas shows that fragmentation leads to difficulties in access to services, the poorer technical quality of services, the irrational and inefficient use of resources, unnecessary increases in production costs, and low user satisfaction with the services received (Montenegro et al. 2011).

On the other hand, health management in developing countries is inspired by the theories and practices adopted in high-income countries, and tends to reflect elements which are intimately linked to the technological, institutional and cultural characteristics of those countries. Management and governance systems are often imposed from above and are not consistent with the local context, while the "western" model, dominated by neoliberal policies, has become the universally adopted standard. In addition, we have been witnessing, for some time, a generalized attempt to transfer the logic, culture and managerial tools of private enterprises to the public sector, based on the unproven principle that market forces tend to generate better results than bureaucratic and hierarchical mechanisms (Fattore and Tediosi 2011).

Health, and health systems, is increasingly at the mercy of market dynamics. The commercialization of health care further contributes to the fragmentation of health systems, with resources being taken away from the public system to the advantage of the private system, with obvious discrimination in terms of the access to and quality of services, and even the exclusion of important sections of the population from access to both curative and preventive care (UNRISD 2007).

The lack of, or limited access to, adequate health care services (sometimes with paradoxical situations where family income is insufficient to afford private insurance, and not low enough to receive public assistance), pushes population groups with sufficient economic resources to travel for the purpose of receiving medical care at lower costs, engaging in so-called "Medical Tourism". While medical tourism is seen as an opportunity for economic returns in the recipient countries, eventually, many authors would agree that, for those countries, health tourism is a source of increased inequalities, possible overall healthcare cost increases and an additional push-factor for the migration of the health workforce from the public to the private sector, even without considering the risks for patient-tourists (related to travel, medical-surgical intervention, the course and post-operative care) (Hopkins et al. 2010).

It is paradoxical, and ethically unacceptable, to consider medical tourism as an opportunity that should be encouraged to reduce the national health expenditure of the originating countries, arguing, for example, that "If only 10 percent of the top

50 low-risk treatments were performed abroad, the U.S. health care system would save about \$1.4 billion annually” (Herrick 2007, p. 28), without worrying about the negative effects on the destination health care systems.

While technological innovation can contribute, among others, to promoting healthy behaviour, supporting home care, and facilitating more accurate diagnoses and better therapeutic responses, it is not always real progress and can create sustainability problems. Industry introduces new technologies responding to expectations of return on an investment, independently from the real therapeutic advantage they may offer (Thimbleby 2013). The health sector is also often prey to “planned obsolescence” as a market strategy by which manufacturers induce the replacement of equipment with new models that bring nothing substantive in terms of diagnostic or therapeutic results, aiming instead to create dependence on accessories and consumables (Rosenthal 2014). Most innovations tend to increase care costs, rather than reduce them, without a parallel increase in performance (Geddes 2018). What is too-often lacking is good management of existing technology and an adequate maintenance culture, an often-forgotten aspect in infrastructural and technological aid projects in low-income countries.

Over-prescription is another cause of increases in health care costs. Geddes (2018), for example, warns against “periodic check-ups”, which are often promoted as part of well-designed market strategies in the biomedical industry, but have “no effect in reducing diseases and deaths from either cancer or cardiovascular disease”, rather leading to an increase in diagnoses and “incidentalomas”, with consequent risks related to further investigation.

The abuse of medicine, technologies and services, including ineffective or inappropriate use, is also linked to the culture and choices of prescribers (often under the marketing pressure of manufacturers and pharmaceutical representatives), patient requests (induced by misleading and increasingly pervasive advertising), conflicts of interest, fragmentation of levels of care leading to the repetition of clinical investigation, and remuneration criteria for facilities and professionals (Geddes 2018).

7. Making Health Systems Sustainable

The incompatibility between the planet’s finite space and resources and the consumerist imperative of our global growth-society, as well as the impact on the health of the latter and the need for “degrowth”, have been widely described (Missoni 2015).

Despite its contradictions (such as the oxymoron of “sustained sustainable growth”), which should be corrected, the implementation of Agenda 2030 and its

universal sustainability goals represents an opportunity to avoid disaster. Indeed, pursuing “health and well-being for all and for all ages” (SDG 3) could make a fundamental contribution to the achievement of several other SDGs, including that of economic growth (Kieny et al. 2017). However, health-for-all in general, and the achievement of “universal access to essential quality healthcare services” in particular, are subject to the achievement of many other SDGs, where progress seems to be halting (UN 2019).

Despite the extraordinary international commitment, the necessary change in direction cannot yet be perceived. In the previous sections, we have tried to highlight how global determinants interact with the different components of national health systems, interfering with their sustainability and the achievement of the UHC goal. Below, some corrective actions are identified to promote the resilience of the system.

7.1. Steering and Governance

Intervention in the global determinants that act on the governance of the health system requires a solid alliance between public stakeholders, through all levels of the system, from the local (civil society organizations and grassroots movements), to the national and supranational (e.g., the EU), to the global (international institutions, in particular the WHO), both for the promotion of good practice and the prioritization of health in all public policies (economic, industrial, agricultural, social, etc.), when needed through regulatory interventions to control market forces that push in the opposite direction (Missoni 2015).

To this end, the WHO should be re-empowered and use all its authority to push public health needs and priorities in the political agenda of other sectors and initiatives, e.g., in trade negotiations, at both global and regional levels (Missoni 2015). The systematic application of the Health Impact Assessment (HIA) (WHO 1999) to all public policies would allow for the timely correction of legislative projects, plans and programs that do not respect that priority and may have negative health outcomes. Today, HIAs are implemented mostly as a section of the environmental, social and health impact assessment (ESHIA) of industrial projects (e.g., in the extractive industry), and are mostly implemented to meet a regulatory or statutory requirement. Instead, policy proposals should be subject to HIA with a wider societal scope, adopting a social view of health approaches and being used as a mechanism to address the potential health inequities that they may generate (Harris-Roxas and Harris 2011).

7.2. Ensuring the Right Human Resources and Access to Medical Products and Technology

It is essential to radically rethink health workers' curricula. They should be exposed to community health from the very beginning of their studies, and made aware of the role of socioeconomic and related social factors in shaping health. Their knowledge and experience should be consistently linked and relevant to local realities, as well as inspired by values of social solidarity and service, with people at the centre. Health professionals should be trained in the use of socially, culturally and economically appropriate technologies, and be guided by the needs of the population and the early correction of determinants with a negative impact on health.

Applying the WHO Code for the International Recruitment of Health Personnel (WHO 2010a) to address the shortage of health workers and their distribution will not be enough in the absence of an in-depth review of policies and investments aimed at aligning health workers' competences (knowledge, experience, motivation, values) to the context and needs of the population they are intended to serve, rather than investing in, and even increasing resources for, the perpetuation of a flawed system.

Similarly, it will be necessary to find the right incentives for the research and development of technologies to serve the health of the population, rather than the economic interests of investors. The market follows the consumer, and "corporate social responsibility" also responds, to a large extent, to consumers' choices. In the provision of health care, the main customer is often the State. In this case, the choices that decision-makers at different levels of the health system will be able to make in order to orient and regulate medical consumption and innovation will be particularly relevant.

7.3. Financing

Although there is no single formula for universal coverage, ensuring fairness in individual contributions and equity in access to services are essential to protect individuals from the risk of financial hardship due to the costs of health services.

To ensure fairness, individual contributions should be based on progressivity, i.e., increasing in rate as the base increases with the economic capacity of the contributor. This is a common characteristic of many fiscal systems, thus of health care systems that are financed through general taxation, an approach that many countries with large sectors of informal economy and/or weak fiscal systems cannot adopt, meaning that they need to recur to alternative mechanisms and sources to finance their public health care systems.

Besides a stable increase in the resources allocated to the health system, universal access to care requires greater use of advance payment mechanisms and a parallel

reduction in the dependence on out-of-pocket payments for services, which are typically regressive and thus unfair (Haider and Nibb 2017). To increase efficiency, reduce inequalities and promote equity, it will be mandatory to reduce systems' fragmentation, merging collecting institutions, and, above all, pooling risk as widely as possible across the population.

The quality of financial and administrative management systems is also a further element in this direction (Evans and Antunes 2011). Stepping away from healthcare privatization policies is also essential to reduce inequality and costs, increase quality, efficiency and public control, and optimize the use of the health workforce (Steendam et al. 2019).

Certainly, to be sustainable, health systems need to be guided by long-term strategies that include investment in the development of adequate managerial approaches, simplification of processes, the appropriate use of ICT and a strengthened administrative capacity, in order to free up energy and human resources for care functions, reduce administrative complexity, and ensure proper monitoring of activities and costs and a reduction in waste (Geddes 2018). In this sense, integrated national health systems allow for considerable economies of scale and greater efficiency, in this as well as in terms of planning, procedural and technological standardization, and the centralization of procurement (Montenegro et al. 2011).

Given the globalization of health industries (pharmaceutical, insurance, etc.), global regulatory mechanisms and coordination are equally essential (Geddes 2018).

In countries where external aid plays a significant role, it is fundamental that funding, in addition to being increased, becomes more predictable (with long-term commitment), less fragmented and respectful of the well-known principles of aid effectiveness (ownership, alignment and harmonization) (OECD 2005). When feasible, General Budget Support initiatives and Sector-Wide Approach programs with the establishment of joint funds in support of sound national health plans are among the best options (Missoni et al. 2019).

7.4. Health Services

The response of the health care system to demographic changes (population growth and ageing) can only be through adaptation. The increased demand deriving from the ageing of the population, with its corollary of chronic and multi-morbidity diseases, calls for a rethinking of the model of care, and even of socialization, which can be implemented in the short- to medium-term. The active social integration of disabled and elderly people should be promoted as much as possible. In more advanced countries, experiences which are alternative to the conventional social

organization (e.g., unifamilial home), such as extended families, life-communities, the sharing of living spaces (co-housing) and resources, offer opportunities to reconsider intergenerational experiences of solidarity, which are valid alternatives to the hospitalization and institutionalization of people with reduced autonomy (Missoni 2015). Naturally, such an approach also requires an investment in the development of new skills.

People and communities, with their own specific needs and problems, should be the focus of any system whose goal is health and wellbeing. A people-centred approach implies framing access to health care as a right and requires changes in both culture and society.

Universal access can only be guaranteed through a Primary Health Care approach, which was already indicated in 1978 as the strategy to ensure “Health for all by the year 2000”, but which was immediately opposed and replaced by the selective approach that has contributed everywhere to weakened health systems (Missoni et al. 2019). Primary care must link the community and the rest of the health care system, i.e., it must be the basic element of a care system, which links social protection and support to health care and is organized according to well-connected levels of complexity and intensity of care that are able to provide appropriate responses at the most appropriate level. Pathways of integration among different policy fields, including health, social protection and urban regeneration, have been promoted and encouraged to address societal changes, particularly in more deprived urban areas (De Vidovich 2020). Linking the health care system to community social networks (volunteering, self-help groups, self-managed centers, etc.) and involving the patient as an active player in the care processes is also part of the Chronic Care Model (CCM), and its further development also responds to this need (Wagner et al. 2001).

In many countries, primary care is a natural hub for the integration of Traditional and Complementary Medicine (T&CM) with national health systems. This integration has been advocated since the 1970s to improve primary care access and health outcomes by increasing the availability of services as an additional point of contact and a clear contribution to pathways toward UHC (Lee Park and Canaway 2019). However, in many cases, a lack of support or frank opposition from central governments, institutions, medical organizations, and the biomedical industry represented an obstacle in that direction. The considerable worldwide use of T&CM, both in industrialized countries (Unites States, 42%; Australia, 48%; France, 49%; Canada, 70%) and less advanced economies (Chile, 71%; Colombia, 40%; up to 80% in African countries), should suggest the need to bring traditional medicine “into the mainstream of health care, appropriately, effectively, and above all, safely” (WHO 2018a, p. 1).

Today the connection between primary care and a higher level of complexity may take advantage of new information and communication technologies (e-health, m-health, big-data, social networks, etc.); however, these also require guidance, regulation and organization within the health system for their optimization. The digital revolution of the health system is, in fact, a “Tsunami” directed by “numerous, powerful and intelligent forces and actors” with an “immense thirst for technological and economic conquest” (Comtesse 2017). Health systems are not prepared to face this challenge. Due to its transnational dimension, the response needs a phenomenal commitment to global analysis and direction. In general, a systemic approach to new technologies is still missing almost everywhere, and the projects described in the literature refer almost exclusively to pilot experiences that seem to lack systematization. The WHO itself states that: “For eHealth to play its full role in helping health systems achieve UHC a sound legal framework is required”, which is obviously still missing (WHO, p. 6).

In general, the focus must be shifted from treatment to primary prevention, from the hospital to the community—now also the virtual one—where the disease originates. Therefore, first of all, policies and interventions are needed aimed at improving the daily living and working conditions of the population (housing, workplace, public spaces, transport, recreational and sports facilities, etc.), as well as policies aiming to “tackle the inequitable distribution of power money and resources” (CSDH 2008, pp. 108–109). Interventions at the community level involve local and national responsibilities and public policies, which should prioritize health and inevitably involve multiple sectors and authorities outside the health sector. Nevertheless, the role of the choices made at the international level to promote and support national and local initiatives should not be underestimated.

The control of internet-mediated activities on health and health consumption necessarily requires international synergies, as national laws are easily circumvented on the web, making global measures urgent (Liang and Mackey 2011).

The primary (i.e., immunization) and secondary prevention (i.e., screening and early detection) programs offered by health services are of great importance. However, policy decisions should always consider risks in terms of safety, effectiveness and possible risks.

In the long-term, the reduction in demand due to chronic diseases can only derive from interventions for systemic determinants, for example, through laws and regulations that impose (e.g., through restrictions, taxes and other disincentives) the internalization of the social costs of production cycles, practices, services and products that are harmful to health, which are otherwise transferred to the community,

while incentivizing the accessibility (wide availability, lower costs, etc.) of healthy products and services. Unfortunately, this type of intervention clashes with strong interests and requires considerable courage and political will. Health education campaigns aimed at promoting the change in individual behaviors (stopping smoking, reducing the consumption of alcohol or sugar, doing more exercise, consuming healthy food, etc.) are an easier alternative (politically and socially less problematic), but considerably less effective (Swinburn et al. 2011). At the local level, changes in consumption patterns and behavior can greatly benefit from the initiatives of single groups and communities. Instead, at a global level, only a strong connection, through national and transnational networks of civil society organizations, and their cooperation with international institutions, particularly the WHO by mandating “the directing and coordinating authority on international health work”, will generate the alliance which is necessary to combat the “globalization of unhealthy lifestyles” and oppose “the commercial interests of powerful economic operators” (Chan 2013).

8. Conclusions

Despite good intentions, the achievement of SDGs seems to move further away every year: “At the current pace, around 500 million people could remain in extreme poverty by 2030. Global hunger is on the rise. Violent conflicts, climate change, gender disparities, and persistent inequalities are undermining efforts to achieve the SDGs” (Steiner 2019, p. 1). The COVID-19 pandemic is an additional, unprecedented wake-up call.

More than ever, the achievement of the universal and indivisible SDGs set by Agenda 2030 represents a considerable challenge for health systems worldwide.

UHC is a central goal for the health sector in the wider context of SDG 3. However, the feasibility and sustainability of universal access is heavily dependent on the intertwined actions of multiple and diverse forces and determinants acting at various levels, with global determinants playing an enormous role. Thus, pursuing “health and wellbeing for all at all ages” will require strong intersectoral collaboration and pushing the health priority into all public policies. The success of Agenda 2030 undoubtedly rests on the respect of the principle of indivisibility of the SDGs.

From the examples proposed in this paper, it should be evident that the main “cause of causes” of the unsustainability of the UHC target, and of SDG 3 as a whole, is the dominant neoliberal, market-oriented societal model. As a consequence of its indivisibility, the same overarching determinant hampers the success of the whole Agenda 2030.

The scientists who wrote the report commissioned by the Club of Rome were “convinced that realization of the quantitative restraints of the world environment and of the tragic consequences of an overshoot is essential to the initiation of new forms of thinking that will lead to a fundamental revision of human behavior and, by implication, of the entire fabric of present-day society” and called for a “basic change of values and goals at individual, national, and world levels” (Meadows et al. 1972, pp. 189–190). Today, evidence of the correctness of that analysis and forecast makes that radical economic and social transformation imperative (Turner 2014).

The (un)sustainability of the UHC target and SDG 3 may be a good indicator of the limits of the Agenda 2030 in the absence of a paradigmatic shift toward a more inclusive, cooperative, equitable and ecological human society, where nobody is left behind.

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References

- Abbas, Muhammad Z. 2019. Evergreening of pharmaceutical patents: A blithe disregard for the rationale of the patent system. *Journal of Generic Medicines* 15: 53–60. [CrossRef]
- Biesma, Regien C., Ruairi Brugha, Andrew Harmer, Aisling Walsh, Neil Spicer, and Gill Walt. 2009. The effects of global health initiatives on country health systems: A review of the evidence from HIV/AIDS control. *Health Policy Plan* 24: 239–52. [CrossRef] [PubMed]
- Bortkiewicz, Alicja. 2019. Health effects of Radiofrequency Electromagnetic Fields (RF EMF). *Industrial Health* 57: 403–405. [CrossRef] [PubMed]
- Brisman, Avi, Bill McClanahan, Nigel South, and Reece Walters. 2018. *Water, Crime and Security in the Twenty-First Century Too Dirty, Too Little, Too Much*. Critical Criminological Perspectives. London: Palgrave MacMillan.
- Chan, Margaret. 2013. WHO Director-General Addresses Health Promotion Conference. Presented at the Opening Address at the 8th Global Conference on Health Promotion, Helsinki, Finland, June 10; Available online: http://www.who.int/dg/speeches/2013/health_promotion_20130610/en/ (accessed on 4 July 2020).
- Cohen, Joshua, Maria S. Dibner, and Andrew Wilson. 2010. Development of and Access to Products for Neglected Diseases. *PLoS ONE* 5: e10610. [CrossRef] [PubMed]
- Comtesse, Xavier. 2017. *Santé 4.0. Le Tsunami du numérique*. Chêne-Bourg: Georg Editeur.
- CSDH. 2008. *Closing the Gap in a Generation Health Equity through Action on the Social Determinants of Health*. Final Report of the Commission on Social Determinants of Health. Geneva: World Health Organization.

- De Vidovich, Lorenzo. 2020. Urban regeneration through the territorialisation of social policies: Findings from the Microareas Programme in Trieste, Italy. *Journal of Urban Regeneration & Renewal* 13: 406–21.
- Doran, Evan, and David Henry. 2008. Disease mongering: Expanding the boundaries of treatable disease. *Internal Medicine Journal* 38: 858–861. [CrossRef]
- Evans, David, and Adelio Antunes. 2011. Achieving universal health coverage: Supporting the development of national health financing systems. In *Attaining Universal Health Coverage. A Research Initiative to Support Evidence-Based Advocacy and Policy-Making*. Edited by Missoni Eduardo. Milano: Egea, pp. 15–29.
- Fattore, Giovanni, and Fabrizio Tediosi. 2011. Attaining universal health coverage: The role of governance and management. In *Attaining Universal Health Coverage. A Research Initiative to Support Evidence-based Advocacy and Policy-Making*. Edited by Missoni Eduardo. Milano: Egea, pp. 31–51.
- Fehling, Maya, Brett D. Nelson, and Sridhar Venkatapuram. 2013. Limitations of the Millennium Development Goals: A literature review. *Global Public Health* 8: 1109–22. [CrossRef]
- Franklin, Paula. 2017. Sustainable Development Goal on Health (SDG3): The opportunity to make EU health a priority. *EPC Discussion Paper*, May 18.
- Frenk, Julio, Lincoln Chen, Zulfiqar Bhutta, Jordan Cohen, Nigel Crisp, Timothy Evans, Harvey Fineberg, Patricia Garcia, Yang Ke, Patrick Kelley, and et al. 2010. Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. *The Lancet* 376: 1923–58. [CrossRef]
- Geddes, Marco. 2018. *La Salute Sostenibile. Perché Possiamo Permetterci un Servizio Sanitario equo ed Efficace*. Roma: Il Pensiero Scientifico Editore.
- Ghebreyesus, Tedros Adhanom. 2018. *Launch of Sustainable Development Goals Themed Issue of the Bulletin of the World Health Organization*. Geneva: World Health Organization, August 31, Available online: <https://www.who.int/dg/speeches/2018/sustainable-development-goals-who-bulletin-launch/en/> (accessed on 4 July 2020).
- Gurtner, Bruno. 2010. The Financial and Economic Crisis and Developing Countries. *International Development Policy | Revue Internationale de Politique de Développement* 1: 189–213. [CrossRef]
- Haider, Muhiuddin, and Katrina Nibb. 2017. Universal Health Coverage and Environmental Health: An Investigation in Decreasing Communicable and Chronic Disease by Including Environmental Health in UHC. In *Advancement in Health Management*. Edited by Ubaldo Comite. Rijeka: IntechOpen, pp. 129–46.
- Harris-Roxas, Ben, and Elizabeth Harris. 2011. Differing forms, differing purposes: A typology of health impact assessment. *Environmental Impact Assessment Review* 31: 396–403. [CrossRef]

- Herrick, Devon M. 2007. *Medical Tourism: Global Competition in Health Care*. NCPA Policy Report N. 304. Dallas: National Center for Policy Analysis.
- Hopkins, Laura, Ronald Labonté, Vivien Runnels, and Corinne Packer. 2010. Medical tourism today: What is the state of existing knowledge? *Journal of Public Health Policy* 31: 185–98. [CrossRef] [PubMed]
- IACG. 2019. *No Time to Wait: Securing the Future from Drug-Resistant Infections*. Report to the Secretary-General of the United Nations. UN Interagency Coordination Group. New York: United Nations, April.
- IHME. 2019. *Financing Global Health 2018: Countries and Programs in Transition*. Seattle: Institute for Health Metrics and Evaluation.
- Kennedy, Gina, Guy Nantel, and Parkash Shetty. 2004. Globalization of food systems in developing countries: A synthesis of country case studies. In *Globalization of Food Systems in developing Countries: Impact on Food Security and Nutrition*. FAO—Food and Nutrition Paper 83. Rome: Food and Agriculture Organization, pp. 1–25.
- Kerry, Vanessa B., and Kelley Lee. 2007. TRIPS, the Doha declaration and paragraph 6 decision: What are the remaining steps for protecting access to medicines? *Globalization and Health* 3: 1–12. [CrossRef]
- Kesteloot, Hugo. 2004. Epidemiology: Past, present and future. *Verh K Acad Geneesk Belg* 66: 384–405.
- Kieny, Marie P., Henk Bekedam, Delanyo Dovlo, James Fitzgerald, Jarno Habicht, Graham Harrison, Hans Kluge, Vivian Lin, Natela Menabde, Zafar Mirza, and et al. 2017. Strengthening health systems for universal health coverage and sustainable development. *Bulletin of the World Health Organization* 95: 537–9. [CrossRef]
- Kondilis, Elias, Stathis Giannakopoulos, Magda Gavana, Ioanna Ierodiakonou, Howard Waitzkin, and Alexis Benos. 2013. Economic crisis, restrictive policies, and the population’s health and health care: The Greek case. *American Journal Public Health* 103: 973–9. [CrossRef]
- Kopnina, Helen. 2016. The victims of unsustainability: A challenge to sustainable development goals. *International Journal of Sustainable Development & World Ecology* 23: 113–21.
- Landrigan, Philip J., Richard Fuller, Nereus J. R. Acosta, Olusoji Adeyi, Robert Arnold, Niladri Basu, Abdoulaye Bibi Baldé, Roberto Bertollini, Stephan Bose-O’Reilly, Jo Ivey Boufford, and et al. 2018. The Lancet Commission on pollution and health. *The Lancet* 391: 462–512. [CrossRef]
- Lee Park, Yu, and Rachel Canaway. 2019. Integrating Traditional and Complementary Medicine with National Healthcare Systems for Universal Health Coverage in Asia and the Western Pacific. *Health Systems & Reform* 5: 24–31.
- Liang, Bryan A., and Timothy K. Mackey. 2011. Prevalence and Global Health Implications of Social Media in Direct-to-Consumer Drug Advertising. *Journal of Medical Internet Research* 13: e64. [CrossRef]

- Lister, John. 2008. WHO Commission on Social Determinants of Health: Globalization and Health Systems Change. In *Globalization and Health Knowledge Network Research Papers*. Ottawa: Institute of Population Health.
- Maccacaro, Giulio A. 1971. Una facoltà di medicina capovolta. Intervista. *Tempo Medico* 97: 377–382.
- McInnes, Colin, and Kelley Lee. 2012. *Global Health and International Relations*. Cambridge: Polity.
- McKee, Martin, and David Stuckler. 2011. The assault on universalism: How to destroy the welfare state. *BMJ* 343: d7973. [CrossRef] [PubMed]
- Meadows, Donella H., Dennis L. Meadows, Jorgen Randers, and William W. Behrens III. 1972. *The Limits to Growth. A Report for the Club of Rome's Project on the Predicament of Mankind*. New York: Universe Books.
- Missoni, Eduardo. 2015. Degrowth and health: Local action should be linked to global policies and governance for health. *Sustainability Science*. [CrossRef]
- Missoni, Eduardo. 2018. Determinanti globali della salute e (in)sostenibilità dell'obiettivo di copertura sanitaria universale. *Welfare e Ergonomia* 1: 11–38. [CrossRef]
- Missoni, Eduardo, Guglielmo Pacileo, and Fabrizio Tediosi. 2019. *Global Health Governance and Policy: An Introduction*. Abingdon: Routledge.
- Montenegro, Hernán, Reynaldo Holder, Caroline Ramagem, Soledad Urrutia, Ricardo Fabrega, Renato Tasca, Gerardo Alfaro, Osvaldo Salgado, and Maria Angelica Gomes. 2011. Combating Health Care Fragmentation through Integrated Health Service Delivery Networks in the Americas: Lessons Learned. *Journal of Integrated Care* 19: 5–16. [CrossRef]
- OECD. 2005. *Paris Declaration on Aid Effectiveness*. Paris: High Level Forum, 28 February–2 March.
- OISG. 2014. La Salute al Centro dell'agenda Post 2015. Osservatorio Italiano sulla Salute Globale. Available online: <http://www.saluteglobale.it/index.php/2014/09/02/la-salute-al-centro-dellagenda-post-2015/> (accessed on 4 July 2020).
- Pedrique, Belen, Nathalie Strub-Wourgaft, Claudette Some, Piero Olliaro, Patrice Trouiller, Nathan Ford, Bernard Pécou, and Jean-Hervé Bradol. 2013. The drug and vaccine landscape for neglected diseases (2000–2011): A systemic assessment. *Lancet Glob Health* 1: e371–9. [CrossRef]
- Pickett, Kate, and Richard Wilkinson. 2015. Income inequality and health: A causal review. *Social Science & Medicine* 128: 316–26.
- Rather, Irfan A., Wee Yin Koh, Woon K. Paek, and Jeongheui Lim. 2017. The Sources of Chemical Contaminants in Food and Their Health Implications. *Frontiers Pharmacology* 17: 830. [CrossRef]
- Rosenthal, E. 2014. Even Small Medical Advances Can Mean Big Jumps in Bills. *The New York Times*. April 5. Available online: <https://www.nytimes.com/2014/04/06/health/even-small-medical-advances-can-mean-big-jumps-in-bills.html> (accessed on 4 July 2020).
- Ruger, Jennifer Prah. 2018. *Global Health Justice and Governance*. Oxford: Oxford University Press.

- Savedoff, William D., David de Ferranti, Amy L. Smith, and Victoria Fan. 2012. Political and economic aspects of the transition to universal health coverage. *The Lancet* 380: 924–32. [CrossRef]
- Skinner, Michael K., Mohan Manikkam, and Carlos Guerrero-Bosagna. 2010. Epigenetic transgenerational actions of environmental factors in disease etiology. *Trends in Endocrinology & Metabolism* 21: 214–22.
- Smith, Richard D., Carlos Correa, and Cecilia Oh. 2009. Trade TRIPS and pharmaceuticals. *The Lancet* 373: 684–91. [CrossRef]
- Spaiser, Viktoria, Shyam Ranganathan, Ranjula Bali Swain, and David J. T. Sumpter. 2017. The sustainable development oxymoron: Quantifying and modelling the incompatibility of sustainable development goals. *International Journal of Sustainable Development & World Ecology* 24: 457–70.
- Steendam, Julie, Chiara Bodini, and André Crespín. 2019. *Why Public Health Care Is Better*. Vivasalud: Brussels.
- Stefanini, Aangelo. 2014. “Capovolgere” la facoltà di medicina? L’eredità di Giulio A. Maccacaro. *Salute Internazionale*. April 22. Available online: <http://www.saluteinternazionale.info/2014/04/capovolgere-la-facolta-di-medicina-leredita-di-giulio-a-maccacaro/#biblio> (accessed on 7 September 2019).
- Steiner, Achim. 2019. Statement at the 100th Meeting of the Development Committee. October 19. Available online: <http://documents1.worldbank.org/curated/en/145291572031527413/pdf/Statement-by-Achim-Steiner-at-the-100th-meeting-of-the-Development-Committee-held-on-October-19-2019.pdf> (accessed on 25 March 2021).
- Swinburn, Boyd A., Gary Sacks, Kevin D. Hall, Klim McPherson, Diane T. Finegood, Marjory L. Moodie, and Steven L. Gortmaker. 2011. The global obesity pandemic: Shaped by global drivers and local environments. *The Lancet* 378: 804–14. [CrossRef]
- Teichman, Judith. 2014. *The MDGs and the Issue of Inequality: The Enduring Power of Neoliberalism*. CCDS Working Paper #1. Toronto: Centre for Critical Development Studies (CCDS).
- Thimbleby, Harold. 2013. Technology and the future of healthcare. *Journal of Public Health Research* 2: e28. [CrossRef]
- Torre, Dario, Victoria Groce, Richard Gunderman, John Kanter, Steven Durning, and Steven Kanter. 2017. Freire’s view of a progressive and humanistic education: Implications for medical education. *MedEdPublish* 6: 5. [CrossRef]
- Turner, Graham. 2014. *Is Global Collapse Imminent?* MSSSI Research Paper No. 4. Melbourne: Melbourne Sustainable Society Institute, the University of Melbourne.
- UN. 2000. *United Nations Millennium Declaration*. United Nations General Assembly, Fifty-Fifth Session. Agenda Item 60 (b). New York: United Nations.
- UN. 2012. *Outcome of the Conference The Future We Want*. Rio de Janeiro, Brazil, 20–22 June, A/CONF.216/L.1. New York: United Nations.

- UN. 2015. *Transforming Our World: The 2030 Agenda for Sustainable Development*. New York: United Nations, September 25.
- UN. 2019. *The Sustainable Development Goals Report 2019*. New York: United Nations.
- Unger, Jean-Pierre, and Pierre De Paepe. 2019. Commercial Health Care Financing: The Cause of U.S., Dutch, and Swiss Health Systems Inefficiency? *International Journal of Health Services* 49: 431–56. [CrossRef] [PubMed]
- UNRISD. 2007. Commercialization and Globalization of Health Care: Lessons from UNRISD Research. UNRISD Research and Policy Brief 7. Available online: [https://www.unrisd.org/80256B3C005BCCF9/httpNetITFramePDF?ReadForm&parentunid=7C04740AD2852A4AC12573E6002E24DC&parentdoctype=brief&netitpath=80256B3C005BCCF9/\(httpAuxPages\)/7C04740AD2852A4AC12573E6002E24DC/\\$file/RPB7e.pdf](https://www.unrisd.org/80256B3C005BCCF9/httpNetITFramePDF?ReadForm&parentunid=7C04740AD2852A4AC12573E6002E24DC&parentdoctype=brief&netitpath=80256B3C005BCCF9/(httpAuxPages)/7C04740AD2852A4AC12573E6002E24DC/$file/RPB7e.pdf) (accessed on 25 March 2021).
- Vandemoortele, Jan. 2010. *Changing the Course of MDGs by Changing the Discourse*. Area International Relations and Development, ARI 132/2010. Madrid: Real Instituto Elcano, September 9.
- Wagner, Edward H., Brian Anthony Austin, Connie Davis, Mike Hindmarsh, Judith Schaefer, and Amy Bonomi. 2001. Improving chronic illness care: Translating evidence into action. *Health Affairs* 20: 64–78. [CrossRef] [PubMed]
- Watts, Nick, Markus Amann, Sonja Ayeb-Karlsson, Kristine Belesova, Timothy Bouley, Maxwell Boykoff, Peter Byass, Wenjia Cai, Diarmid Campbell-Lendrum, Jonathan Chambers, and et al. 2017. The Lancet countdown on health and climate change: Form 25 years of inaction to a global transformation for public health. *The Lancet* 391: 581–630. [CrossRef]
- WCED. 1987. *Our Common Future. World Commission on Environment and Development*. Oxford: Oxford University Press.
- WHO. 1999. *Health Impact Assessment: Main Concepts and Suggested Approach*. Gothenburg Consensus Paper. Brussels: European Centre for Health Policy, World Health Organization Regional Office for Europe.
- WHO. 2000. *World Health Report 2000*. Geneva: World Health Organization.
- WHO. 2007. *Everybody's Business—Strengthening Health Systems to Improve Health Outcomes—WHO's Framework for Action*. Geneva: World Health Organization.
- WHO. 2008. *World Health Report 2008. Primary Health Care, Now More Than Ever*. Geneva: World Health Organization.
- WHO. 2010a. *The WHO global code of practice on the international recruitment of health personnel*. Geneva: World Health Organization.
- WHO. 2010b. *Key Components of a Well Functioning Health System*. Geneva: World Health Organization.
- WHO. 2014. Constitution of the World Health Organization. In *Basic Documents—48th ed. Including Amendments Adopted up to 31 December 2014*. Geneva: World Health Organization.

- WHO. 2015. *Public Health Implications of Excessive Use of the Internet, Computers, Smartphones and Similar Electronic Devices: Meeting Report*. Tokyo: Main Meeting Hall, Foundation for Promotion of Cancer Research, National Cancer Research Centre, 27–29 August.
- WHO. *Global Diffusion of eHealth: Making Universal Health Coverage Achievable. Report of the Third Global Survey on eHealth*. Geneva: World Health Organization.
- WHO. 2018a. *Traditional and Complementary Medicine in Primary Health Care*. Technical Series on Primary Health Care, WHO/HIS/SDS/2018.37; Geneva: World Health Organization.
- WHO. 2018b. Ageing and Health. Available online: <http://www.who.int/en/news-room/fact-sheets/detail/ageing-and-health> (accessed on 4 July 2019).
- WHO. 2019. *Microplastics in Drinking-Water*. Geneva: World Health Organization.
- WHO. 2020a. Out-of-Pocket Payments, User Fees and Catastrophic Expenditure. Available online: https://www.who.int/health_financing/topics/financial-protection/out-of-pocket-payments/en/ (accessed on 4 July 2020).
- WHO. 2020b. Medicines. Available online: https://www.who.int/health-topics/medicines#tab=tab_1 (accessed on 4 July 2020).
- WHO. 2020c. *Universal Health Coverage*. Geneva: World Health Organization, Available online: https://www.who.int/health-topics/universal-health-coverage#tab=tab_1 (accessed on 4 July 2020).
- Willett, Walter, Johan Rockström, Brent Loken, Marco Springmann, Tim Lang, Sonja Vermeulen, Tara Garnett, David Tilman, Fabrice DeClerck, Amanda Wood, and et al. 2019. Food in the Anthropocene: The EAT–Lancet Commission on healthy diets from sustainable food systems. *The Lancet* 393: 447–92. [CrossRef]
- Zeng, Juying, and Qiuqin He. 2019. Does industrial air pollution drive health care expenditures? Spatial evidence from China. *Journal of Cleaner Production* 218: 400–8. [CrossRef]