

1

Global health and the new world order: introduction

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The phrase ‘global health’ appears ubiquitously in contemporary medical spheres, from academic research programmes to websites of pharmaceutical companies. In its most visible manifestation, global health refers to strategies addressing major epidemics and endemic conditions through philanthropy (e.g. the Bill and Melinda Gates Foundation) and multilateral, private-public partnerships (e.g. the Global Fund against AIDS, Tuberculosis and Malaria). Within this context, global health can be understood as a series of concerted responses to the perceived failure of decades-long struggles against major infectious diseases in non-industrialized countries, culminating in the post-Second World War era of international health and development. Global health efforts appeal for action in favour of ‘neglected’ populations by focusing on access to innovative and existing treatments, particularly drugs.

More recently, the scope of global health has expanded to include non-communicable diseases, including psychiatric and neurological conditions, injuries, cardiovascular disease

and cancer, as well as innovative screening and treatments, such as medical genetics. In all areas, global health carries a series of assumptions – from the primacy of metrics and evidence-based practices to the incorporation of human-rights and poverty-eradication principles – that seem to oppose the earlier era of international health and development.

This volume moves beyond acknowledgements of the discursive prominence of global health to examine deep transformations regarding the actors, the targets and the tools involved in the governance of health at the international level. We argue not only that the global health enterprise signals a significant departure from the post-war targets and modes of operation that were typical of international public health (1940s–80s) but also that new configurations of action have moved it beyond concerns with infectious diseases and state-based programmes.

Governing health worldwide: history, anthropology and the problem of transition

Global health is of course not meant to be the birth of a governance of health at the international level. Historians have discussed previous waves of health globalization with various ideas about their dynamics and periodization. If the circulation of people, germs and remedies is taken as the main feature, global stories of health often start with the Early Modern period and the colonization of the Americas. In contrast, when considering the existence of institutions, programmes and tools to intervene on the health of others, then the late nineteenth century and the climax of European colonization come to the fore. Rather than focusing on the legacies of these early phases, this volume investigates the relationship of global health to a third wave of health globalization, namely the era of international public

health and the regime of health governance that dominated the second half of the twentieth century.

The first use of the term ‘global health’, according to a Pubmed database search, appears in the 1940s, but the expression does not really become frequent until the 1980s. By 2015, over 20,000 articles concerned with global health could be identified through the Web of Science. One interpretation of this growth may be that the term itself serves as what sociologists of science call a boundary object, linking heterogeneous and novel forms of knowledge, practices and actors involved in health interventions at a worldwide level (Weisz et al., 2017). This view of global health as a marker of recent and large transformations in the governance of health at the international level is not really new. Both historians and anthropologists of medicine have addressed the changes of the late twentieth century, although in very contrasting ways.

To remind us of what we owe to the former, one may recall the classic 2006 paper by Brown, Cueto and Fee from their project on the history of the World Health Organization (WHO) (Brown et al., 2006). In their paper global health is – to a large extent – a political phenomenon placed in the context of geopolitics, development strategies and rivalry between international organizations. Focusing on the WHO and the United Nations (UN) system of intergovernmental democracy, they point to the intimate relationship that international public health maintained with the Cold War. Other authors like Birn (2009) and Chorev (2012), as well as Cueto, Brown and Fee in their recent monograph (2019), have operated within comparable framings. Similarly, Packard, in his monograph (2016), has argued for more long-term continuity but seems to confirm the centrality of the 1980s–2000s as a period of change. To the historian, global health appears as both response and adaptation to a new situation dominated by a neoliberal agenda, associated with the rise of the World Bank alongside (and sometimes displacing) the WHO in the area of health, the quantification of health as an

economic factor, the generalization of private-public partnerships and alliances independent from the UN system and the call for mobilizing ‘civil society’ rather than nation-states.

Anthropologists bring a different perspective to this transition, by stressing heterogeneity within global health and the specificities of local realities. One of the most widely read ethnographies of global health, Julie Livingston’s monograph on the only cancer ward in Botswana, illustrates this approach (Livingston, 2012). The improvised medicine which she describes challenges notions of universality by revealing global health to be a matter of practices under constraint. Oncology at the periphery, as opposed to, say, in New York, inevitably involves a cancer epidemic, which does not fit the global agenda of oncology research and treatment. The nature of this epidemic challenges the once-dominant idea of an epidemiological transition from infectious to chronic disease according to which low-income countries would eventually exhibit the same patterns found earlier in the industrialized North. Cancer cases in Botswana tend to develop from almost-forgotten viruses and are often polymorbid with AIDS and tuberculosis (TB). Furthermore, patients exhibit critical advanced stages of the disease rarely seen in wealthier settings.

Yet, this oncology at the periphery is simultaneously global. In Botswana as in many places in Africa, the 1980s–90s turn away from international health and development was less about new responses than the destruction of old ones. The debt crisis and structural adjustment policies, with their parade of reduced public funding for health, tightening cost management and experimental introduction of patients’ fees, have left deep traces on an already ruined landscape that resonates with historical studies. The global percolates into the local with new forms of circulation linked to drug access, the interventions of private-public partnerships and philanthropic actors, from the Bill and Melinda Gates Foundation to pharmaceutical companies like Novartis.

What is at stake here is not the incompatibility of such historical and anthropological approaches. On the contrary, their combination has generated important insights in recent historical work about global health, for instance in explorations of medical experiments in East Africa (Graboyes, 2015), of mass therapeutic campaigns in French colonial Africa (Lachenal, 2014; Tousignant, 2012) or of the vestiges of medical research in West and East Africa (Geissler et al., 2017). Several anthropologists have also recently combined ethnographies of globalized health with historical approaches when attending, for instance, to HIV/AIDS, leprosy and malaria in Africa (Geissler, 2015), to traditional healing and its role in Tanzania (Langwick, 2015) or to the meaning of past ‘African science’ in a Ghanaian laboratory (Droney, 2014). However, this scholarship is characterized both by its scarcity and by its predominantly African focus, where historians and anthropologists have long and parallel experience in using oral histories.

As a consequence, the prevailing disconnection between historical and anthropological approaches in studies of international/global health has created a vast body of literature and two formidable gaps. The first is a temporal gap between the historiography of international public health through the 1970s and the numerous anthropological studies of global health in the present. In between the two periods lies the far less commonly analysed transition beginning in the 1980s–2000s. The second gap originates in problems of scale. Macro-inquiries of institutions and politics abound, as do micro-investigations of local configurations. Taken together, they omit intermediate spaces through which these levels might be linked, such as local and regional non-governmental organizations (NGOs), as well as objects and actors that circulate: experts, pharmaceuticals, tools and policies. With this book we contribute to filling these gaps through a stronger engagement between history and anthropology, an attention to the history of the present and a harnessing of concepts (circulation, scale, transnationalism) that cross the two disciplines.

Bringing historians and anthropologists into a closer conversation, at times based on integrated research, the book thus allows knowledge, practices and policies to be linked, while bridging the macro-history of post-war international health and the local anthropology of the present. We identify crucial and differentiated moments in the post-war trajectory of transnational health interventions. We define them in terms of diseases targeted, actors involved, expertise mobilized, tools employed and – given their importance in the turn to global – the relations between health, development and economy. The periodization, in which a sea-change occurs between the mid-1980s and the late 1990s, rests on our hypothesis that multiple practices of health globalization were already in existence by, or first appeared at, the end of the Second World War. The consequence is that one can, for analytical purposes, conceptualize two different regimes or ways of ‘doing health’ outside Europe and North America: the regime of international public health, which dominated the first four decades of the post-war era; and the regime of global health, which has gradually stabilized since the turn of the century.

Within the regime of international public health, control of selected infectious diseases, especially smallpox and malaria, dominated the agenda (Bhattacharya, 2006; Cueto, 2007; Howard-Jones, 1981; Lee, 2009). The WHO and other intergovernmental bodies initiated and prioritized eradication campaigns. Eradication, major actors thought, was a technological problem to be dealt with through standardization, expert evaluation of needs and benefits, and centralization of investments and action. UN agencies and major United States (US) foundations coordinated these programmes by defining the targets, delivering the means of intervention and providing some of the infrastructure (notably vaccines for smallpox and insecticides for malaria). During this first period, drugs and clinical care played a role that was secondary to prevention strategies, which mobilized vaccines as well as social control techniques in the fight against infectious diseases. These programmes appeared critical to the

reconstruction of post-war Europe as well as for the stabilization of African and Asian colonies (Staples, 2006).

This landscape started to shift in the 1960s, partly as a result of two major changes: on the one hand, the new socio-political climate, associated with the Cold War and the East–West divide, and on the other hand, the decolonization and emergence of numerous new nation-states whose economic, social and political life focused on the ‘need for development’ (Sidiqi, 1995; Amrith, 2006). This shift also stemmed from the emergence of biomedicine as the dominant form of medical knowledge. It became the basis upon which a rapid expansion of therapeutic tools could be envisioned as a driver of modernization. This period included the massive expansion of the pharmaceutical industry through both its research and development capacities and the consumption of chemotherapeutics, in the US and eastern and western Europe (Dumit, 2012; Gaudillière and Hess, 2013; Gaudillière and Thoms, 2015; Greene, 2007). Echoing mounting legal and administrative regulation in nation-states, the international health agenda began addressing the question of clinical evaluation, toxicology and detection of adverse effects. An additional dimension of this ‘drug and development’ regime was the rising interest in chronic diseases, fuelled by the idea of an epidemiological as well as a demographic transition or stage of development supposedly realized (in the North) and sought for (in the South).

The significant turning point of the 1970s corresponded to the opening up of official international spaces in which international public health and its programmes were reframed. The Alma-Ata conference organized by the WHO in 1978 is a well-known event linked to the context of decolonization and the mounting influence of a self-defined ‘Third World’. Criticism of eradication programmes (Lee, 1997; Litsios, 1997; Webb, 2008) and of the failure of earlier biomedical technologies to meet the needs of the poorest populations brought to the fore a call for the integration of health and social policies, simpler technologies and

primary health care as a response to the most basic of medical needs. Renewed interests in ‘social health’ were translated not only into central and local initiatives to provide access to ‘essential’ therapies but also into discourses and projects for ‘modernizing’, ‘rationalizing’ and ‘integrating’ traditional medicines.

Around 1990 the end of the Cold War and the emergent neoliberal phase of economic globalization had not only undermined the ‘Third World’ coalition and the centrality of the WHO but also provided an alternate model of development focused on liberalization policies, minimal state involvement, civil society empowerment and high-tech investment (Petryna, 2009; Petryna et al., 2006). This model remains the core of contemporary global health. It percolated into health policies through an increasing emphasis on local and capacity-building initiatives, individual choices and risk management. A multiplicity of actors ranging from the World Bank to charitable foundations like the Global Fund and a myriad of health- and community-related NGOs effected these changes (Muraskin, 2005; Page, 2007; Rao, 1999). Interests in risk epidemiology and biotechnology strengthened the importance of chronic disorders as global rather than simply Northern or post-development problems, as well as of obesity, mental disorders and genetic diseases. Yet, rather than vanishing, the attention to infectious diseases and epidemics then increased, with the AIDS epidemic, the ‘global return’ of TB and the resurgence of supposedly new infectious diseases, like viral haemorrhagic fevers. This in turn fuelled new anthropologies of chronic and ‘chronicized’ disorders (Brown and Kelly, 2014; Farmer and Sen, 2004; Livingston, 2012), controversies about ‘neglected’ diseases and multiple initiatives to avoid ‘market failures’: i.e. production of generics, private-public research partnerships and foundation-based distribution programmes (Cassier, 2003; Greene, 2014).

The advent of the Global Burden of Disease (GBD) represents a central marker of the changes wrought in the 1990s. It enables epidemiological-economic assessments applicable to

living populations worldwide by focusing on the *absence of health*, now defined not only by excess mortality but by disability as well (Murray and Lopez, 1996). For one, as we discuss below, it renders non-communicable diseases, such as disabling chronic mental illnesses, visible. Like global indices more generally, this new metrics extends globalization through standardization and evaluation beyond infectious disease to the management of risk. The drive for evidence-based practices, coupled with this new ‘universal’ metrics, opens up new tensions (Adams, 2016).

This scenario goes against the idea of a simple replacement or substitution of one regime by another. As an example, eradication and other vertical programmes typical of the first wave of health internationalization have not disappeared, as historians argue (Packard, 2016). Although the assemblage of actors, tools and targets which they involve profoundly differs from that of the international health era, vertical programmes remain legitimate and central – as the massive presence of HIV, malaria and TB programmes in global health demonstrates.

This volume thus proposes an encompassing view of a historical transition from international public health to global health. Beyond the articulation of history and anthropology two methodological choices allow us to grasp the transition in its profundity: a combined approach that examines actors, targets and tools through in-depth observation and analysis; and the selection of four fields in the globalization of health that we deem illustrative of the range of sectors touched by the globalization of health today: infectious disease (TB), non-communicable disease (mental health), traditional medicine (Asian medicines) and high-technology medical innovations (medical genetics). Within each field, the authors interrogate specific assemblages to approach *processes* rather than structures. While never losing sight of local specificities, the chapters emphasize transversal processes, such as movements of

‘localization’ and ‘generalization’ that challenge attempts at making ‘things [purely] global’ in the name of universality by overriding their situated ontologies.

The return of TB as a worldwide neglected disease

Tuberculosis TB provides a paradigmatic example of the changing management of a major infectious disease, from one health regime to another. An infectious disease that has been in the focus of public health for centuries and that used to play an important role in the old nexus between the social and the medical, TB was a major international public health concern until the 1960s. Its multiple causalities have led its treatment to sweep the entire range of therapeutic practices, from isolation to treatment surveillance to drugs. While TB provided the iconic social disease of industrial societies, thus giving priority to institutional treatment and assistance, the Second World War was a turning point (Condrau and Worboys, 2010; McMillen, 2015; Packard, 1989). Under the auspice of UN organizations, specific antibiotic therapies dominated care in developed countries, while BCG vaccination campaigns were framed as a medical strategy of modernization in developing countries. As supplements to control strategies based on vaccination, combination chemotherapies of increasingly shorter duration were designed. Until the 1960s some pharmacological innovation was undertaken, but by the 1970s TB was considered to be on the road to eradication. Lung and respiratory medicine specialists faced a professional crisis, while the WHO put its TB expert committee on hold and effectively suspended its TB programmes.

In contrast to this relatively well-known history, the path which led the WHO to reinstate its programme against tuberculosis in 1995, in response to a resurgence of the disease driven by the HIV epidemic and sustained poverty rates, has barely been explored. Nor has the specific relationship of context to this reinstatement, notably the changing institutional landscape, been explored: the increased interest of the World Bank in efficient

health investments as growth factors alongside mounting critiques of the absence and/or the poor performance of TB control programmes in the global South (World Bank, 1993). Several elements – beyond the co-infection of TB and HIV – seem to differentiate the global tuberculosis from the 1990s onwards from TB policy in previous decades. TB is now viewed as ‘neglected’ in terms both of access to chemotherapeutics and of research investments into drug development. As a threat of global dimensions, it now necessitates standardized tools and integrated and centralized programmes within a global strategy. TB today is also a different disease, multi-drug resistant; and the absence of novel drugs raises major concerns resulting in ongoing monitoring of risks, i.e. of the circulation of strains and the organization of chemotherapy (Kim et al., 2005).

International actors have accordingly implemented different approaches from those of previous programmes. Directly Observed Treatment, short course (DOTS), which became the preferred approach in the early 1990s based on an initiative and trials run by the International Union Against Tuberculosis and Lung Disease (IUATLD), was picked up by the World Bank and implemented through the WHO. It built on the insight that failed control of tuberculosis was less the consequence of misconceived strategies than a problem of poor administration of treatments (Gradmann, 2019). DOTS consists of a whole package of which the therapeutic regimen is only one aspect. The others include political commitment with increased and sustained financing; case detection through quality-assured bacteriology; standardized treatment, with supervision of patients; an effective drugs supply and management system; monitoring, evaluation and impact measurement. Solutions are therefore to be sought in standardization of tools and protocols, surveillance and control of patients to ensure compliance, good organization and performance assessment (Harper, 2010).

The chapters included in the book thus approach the construction of DOTS, as a standardized ‘package’ that epitomizes global health in the TB health sector, in two different

ways. Based on anthropological fieldwork in India, Nora Engel (chapter 2) explores how DOTS programmes have been standardized, operated and eventually amended in different social contexts. In their contribution in chapter 3, Jean-Paul Gaudillière, Christoph Gradmann and Andrew McDowell combine their historical and anthropological research in Tanzania and India to trace the research and policy initiatives taken by the IUATLD, the WHO and, later, the World Bank. From the late 1970s to the mid-1990s these actions paved the way for DOTS to become the technique considered the single best means of controlling tuberculosis, first in East Africa and later in India, where the DOTS strategy replaced a national programme based on radically different assumptions (Brimnes, 2016).

A global psychiatry? From colonial histories to global mental health

Global mental health presents a contrasting example to the case of TB within the regime of global health, since it is associated with neither large investments nor internationally implemented standards for diagnosis and therapy. Although local variations in disease presentation and management in general trouble assumptions of universality (Livingston, 2012; Lock and Nguyen, 2018), diagnostic classification in mental health is particularly prone to epistemic weakness. Mental disorders suggest clusters, associations and dimensions rather than a bounded ‘disease’; and diagnoses must rely on subjective patient report rather than biomarkers. Despite advances in neurosciences and genetics and revisions of the Diagnostic and Statistical Manual (DSM-5) and the behavioural health section of the International Classification of Diseases (ICD-11), the content, structure and appropriateness of categories as psychiatric continue to be debated within psychiatry (Hyman, 2010; Kleinman, 2012; Van Os et al., 2009), anthropology (Kleinman, 2012) and sociology (Horwitz and Wakefield,

2007). Epistemological weakness introduces refractoriness to the mere incorporation of mental health into a global health agenda applicable everywhere.

Mental health was incorporated from the start into the WHO constitution's definition of health. Until the early 1960s WHO's experts and NGO collaborators produced a highly normative, idealist notion of mental health as the capacity to live harmoniously with others (Lovell, 2014). Although the international public health focus on infectious disease marginalized psychiatry, the WHO developed an international psychiatric epidemiology to establish the universality of mental illnesses. Needs created by the dearth of psychiatrists in low-income countries competed with WHO research (Lovell, 2014), undergirded by the post-war 'charm of internationalism' (Wu, 2015).

In a parallel development, the WHO supported racialized research on 'the mind of African man' (Carothers, 1953), eventually debunked through post-colonial psychiatries. Recent historical scholarship enlightens our understanding of these processes, including the post-independence drive for the creation of dedicated institutions. It also moves beyond single-nation (or colony) case studies by focusing on transnational connections, from the circulation of knowledge between centre and periphery (Ernst, 2013) to the social, political and other influences on psychiatric phenomena, such as trauma, treatment and violation of the suffering, beyond the confines of colony or nation-state (e.g. Hunt, 2015; Keller, 2008).

None of these studies, however, allows us to link an earlier period of international (mental) health with the transition towards global mental health. This is precisely the contribution of historian Matthew Heaton in chapter 4. Examining Nigeria, a flagship of burgeoning post-war psychiatry in the newly emerging African nations, Heaton's narrative challenges the diffusion of knowledge from centre to periphery approach. He shows that the circulation of psychiatrists from the global South shaped, at different levels, what would

become the treatment and research practices of international psychiatry. The production of epidemiological knowledge in Nigeria during the post-war period reinforced the universality thesis alongside the evidence for patho-plasticity in cultural expressions of mental illnesses. At the same time, the corps of local psychiatrists and their internationally recognized research embodied an intended project of modernity for the new Nigerian state.

Given the epistemological weakness of psychiatry, the impact of the development of GBD metrics, mentioned earlier in this introduction, cannot be overstated. By elaborating a metrics based on disability rather than on mortality alone, GBD analyses could move depression to the top of the ‘disease hierarchy’ worldwide (Murray and Lopez, 1996). This provided dramatic new visibility for mental health and a new sense of urgency about mental health problems globally (Desjarlais, 1995).

Paradoxically, the reliance on metrics – the data-production and number-crunching dimension of what Vincanne Adams and her colleagues call the global sovereign (Adams, 2016) – strengthens the epistemological assumption of ‘thingness’, *as if* numbers represented objective substrates. Nevertheless, they raise the question of how psychiatric globalization is materially achieved. Three processes provide illustrations. First, depression is being transformed from a minor psychiatric category focused on clinical severity (i.e. melancholia) into a moderate disorder, widely diagnosed with brief symptom scales and managed by general practitioners and primary health care workers. New frameworks provide continuity with local meaning by incorporating older healing practices and interpretations of distress into new modalities (Behrouzan, 2016; Lang and Jansen, 2013). Second, trauma and the invention of trauma-related diagnoses like Post-Traumatic Stress Syndrome (PTSD) (Young, 1997) similarly cast a wide net. This is made possible by the collective re-reading of historical and present-day violence and trauma through the lens of pathology and by the widely diffused therapeutic techniques developed in response to PTSD (Fassin and Rechtman, 2009). Third,

psychiatry is ever more concerned with complex though aetiologically uncertain biological aetiologies and associations, despite epistemic blinders (Hyman, 2010). Increased biologization drives pharmaceutical interventions, incorporated into global mental health packages alongside psychosocial techniques.

Recent edited volumes in anthropology focus on cultural and local differences in global mental health (White et al., 2017), but they neither analyse the broader changes identified above nor problematize global mental health (Kohrt and Mendenhall, 2016). Anthropologist Ursula Read's chapter 5 in this book does all three. She presents a hybrid project of human rights within global mental health, defined as an assemblage of statistical tools, equipment, relational and organizational forms, community organizations and human rights guidelines. In Ghana, her fieldwork site, these components comprise non-negligible *devices for governance and governmentality* alongside older, more insidious forms. Ghana's flagship mental health reforms allow her to explore the implementation of human rights as a core element of global mental health, diffused and monitored by global actors like the WHO, the UN and Human Rights Watch. By combining historical research with anthropology, Read is able to show how this new ethics, appropriated and reformulated to local ends, incorporates traces of practices and frameworks from an older, pre-global health era.

Globalizing therapeutic techniques and industrial products from Asian medicine

From the late 1970s onward, the WHO, states like China and India, as well as local firms and practitioners of Asian medicine, have sought to put the question of the making, evaluation and uses of herbal preparations on the agenda of international health. This seems to have been a huge success: bio-prospection in collaboration with industry still exists in spite of a noticeable decline due to technical difficulties and juridical uncertainty; the protection of traditional

knowledge is an object of international negotiations; the markets for mass-produced herbal medicines link Europe, the United States, Asia and Latin America.

Asian medicines are subject to international regulations on production, registration and quality control; they are elements in heterogeneous treatment strategies targeting chronic disorders, juxtaposing biomedical with so-called complementary and alternative therapies. If this dual process of industrialization and broad circulation has remained at the margins of global health as an autonomous field with its specific programmes and sets of institutions, it is nonetheless a crucial development in the globalization of health as powerfully illustrated by the policies of China or India (Alter, 2005; Banerjee, 2009; Bode, 2008; Coderey and Pordié, 2019; Pordié, 2011; Zhan, 2009).

Two contextual layers are therefore important to understand the processes of globalization and industrialization, which seem to presently dominate the transformation of Asian medicines, and their rather peripheral presence in global health when considered at the level of organizations and programmes. The entry of traditional medicine, and especially Asian medicine, into the world health scenario goes back to the 1950s, when the WHO and UNICEF (the UN Children's Fund) decided together to provide biomedical training to healers in the Philippines. This project signalled the beginning of a new era for traditional medicines worldwide, and was influenced by two Asian examples: Chinese medicine and the barefoot doctors, and Indian medical pluralism. However, it was, not until 1975 that the need to integrate traditional therapeutic practices into health care policies was recognized and adopted by the Executive Committee of the WHO, and subsequently by the World Health Assembly in 1977. To simplify a long and tumultuous story, the idea was to bring traditional healers onto the international public health bandwagon, to ensure that their therapeutic techniques and medical treatments were accessible and safe, and, more importantly, to favour integrative medicine by injecting biomedical ideas and practices into traditional medicine. This approach

was consolidated by the WHO in the years following the famous Alma-Ata conference of 1978 and became part of the ambitious programme 'Health for All by the Year 2000'. This was an international public health programme.

By 2020, the discourses and programmes of the WHO have taken a decisive turn. The two global strategies (2002 and 2014) of the WHO for traditional medicine remain centred on the problem of efficacy and integrative medicine, but they no longer approach traditional medicines solely from the perspective of endogenous health development, but from an (economically) globalized perspective, in particular by emphasizing the growing demand for natural medicines in the West. This multilateral organization thus supports a phenomenon which is primarily led by the industry, firmly anchored in national and global market construction rather than inscribed in the programmes led by the new global health actors. And indeed, we observe two fundamental additions to the WHO policies: a strong concern with intellectual property rights, on the one hand, and with the practice and pharmaceutical monitoring of Chinese and Asian medicine in the West, on the other hand. Asian medicines are now explicitly part of globalized health practices, not only in economic terms or as sources of future cures but also as direct answers to infectious diseases and epidemics, as the cases of natural antimalarials, or the outbreaks of chikungunya, SARS or avian flu have shown (e.g. Craig and Adams, 2008).

The second layer overlaps these various concerns. The worldwide unification of markets and the generalization of neoliberal regulations and forms of governance have impacted on the pharmaceutical milieu. In pharmaceuticals a new phase in this complex process began with the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), adopted in 1994, which concerns intellectual property rights. This resulted in the international diffusion and recognition of drug patents, initially promoted by the US to put an end to 'pirating' by countries like India and to generate incentives to develop local research that

could then be appropriated. Economic reasoning thus plays an essential role in the realm of pharmacy, including ‘indigenous pharmacy’, but does not explain all the changes engendered by pharmaceutical globalization. Understood less restrictively as a twofold movement – to extend circulation (of commodities, persons or knowledge) and to set up procedures to govern it – globalization has reconfigured relations between the singular and the collective, deeply affecting ways of thinking and of acting in all corners of the world. In pharmaceutical globalization, interconnections reach beyond just market trading. Changes in the world of pharmacy are in fact not only related to trade and intellectual property, they also have to do with standardizing research or production practices (Pordié and Gaudillière, 2014), and also with the requirement to adapt therapeutic practices originating in Asian medicine to the regulatory frameworks of certain Asian, European or North American countries (Pordié, 2014) and to the expectations of practitioners and consumers in those parts of the world, as chapter 6 by Wen-Hua Kuo powerfully shows in the case of acupuncture.

Between research and clinical practice: globalizing genetic and genomic medicine

From Since the early twentieth century, from eugenic policies to bioethical debates about genetic screening or the medical promises of national genome projects and gene therapy, medical genetics and genomics have been widely studied by social sciences in the North. Their history is well documented (as detailed by Steve Sturdy in chapter 7), their clinical dimensions are scrutinized and their technological advances and implications are followed. However, medical genetics and genomics are not solely ‘Northern phenomena’: millions of individuals worldwide are affected by so-called rare disorders, and the related genetic and genomic knowledge and tools circulate in shifting ways to, from and within the global South. Such a scope leaves marks into the main tools and institutions of the global health field: the

GBD lists several inherited diseases and the WHO has implemented dedicated programmes (briefly discussed in the following sections). Still, the worldwide expansion of genetic medicine and genomic research in (public) health policy, clinical practice and research did not lead to their inscription in the central categories and targets of global health interventions.

Studying the globalization of genetic and genomic medicine is thus a twofold endeavour which requires simultaneously investigating multiple, non-scaled-up WHO initiatives on medical genetics and the manifold ways in which genes, genomics and related health matters were internationalized, independently of the main global health actors. Genetics and genomics have indeed long gone global, with patients travelling for treatment; DNA samples being placed on board airplanes; scientists, health care professionals and lay individuals sharing genomic data over the web; laboratories buying technologies abroad; genetic counselling being taught transnationally; genetic knowledge taking shape in universities, hospitals and conferences worldwide; new local and global markets for genetic tests blossoming.

The WHO's interest in genetics started in the 1950s and was originally rooted in studies of the impact of radiation on health. Later, it expanded to the investigation of heredity, with large neonatal studies in the 1960s and investigations of isolated (and supposedly primitive) populations (de Chadarevian, 2015; Lindee, 2014). Over the following decades, genetics became increasingly seen as a central part of the effort to acquire health for all, with the WHO's advocacy in the 1980s of community genetics programmes in the wealthiest of its member states (Gaudillière et al., forthcoming; Ruault et al., forthcoming). This call aimed at organizing testing and genetic counselling for common hereditary disorders, as one of the most outstanding examples of the belief in genetics as a public health essential. The community genetics effort chiefly started in Cyprus and expanding subsequently into the Eastern Mediterranean region of the WHO, with experts helping to create screening and

counselling programmes for beta-thalassemia (Modell and Kuliev, 1998; WHO, 1981). The Organization then discussed the introduction of genetic services into developing countries in the late 1980s. The increasing mobilization of actors and resources characteristic of global health's lift-off fundamentally affected health infrastructures and the circulation of medical care, technologies, knowledge, moralities and modes of engagement. This profound modification propelled an expansion of medical genetics beyond the global North. In 2005 the WHO issued a policy recommending the worldwide availability of medical genetics in primary health care.

Significant advances in genetic and genomic research – largely related to population genetics as discussed by Steve Sturdy in chapter 7 – occurred around this date, including the milestone of the decoding of the human genome in 2003. The whole field of human genetics, including medical genetics, has considerably benefited from this new knowledge and related techniques, as well as from the new affordability of diagnostic tools. Consequently, genetic testing has become increasingly available in the global South within the framework of reproductive medicine and prenatal diagnosis in relation to hereditary disorders, or in the field of oncogenetics. This expansion has occurred in various ways: mostly in the private sector, such as described, for instance, for cancer in Brazil by Gibbon (2013, 2018); through both in-house genomic laboratories hosted by public hospitals and partnering with foreign private genomic companies such as in Oman (Beaudevin, 2017); or mostly in the public sector (in-house analyses in state-run sperm banks) as in the Chinese case studied by Wahlberg (2018). In parallel, new research endeavours involving not only DNA but also scientists from the global South have appeared, such as the Human Heredity and Health in Africa (H3Africa) initiative, which gathers members from a dozen of African countries (Fullwiley and Gibbon, 2018).

Against this backdrop, in 2011 the WHO replaced its medical genetics strategy with strong advocacy for ‘genomics-based interventions for public health improvement in developing countries’ (WHO, 2011), and in 2016 relabelled its Human Genetics Programme as Human Genomics in Global Health (WHO, 2018). In so doing the Organization explicitly turned to research activities in the field and presented genomics (especially in its ‘stratified medicine’ aspect) as a pathway to global health (Gibbon, chapter 8 in this volume).

The majority of financial investments in, and growing research and clinical uses of, genetics are still located in the global North. However, chronic disorders and risk-management strategies make up a massive part of global health initiatives in the South, and medical genetics and genomics tools are increasingly present in low- and middle-income countries. Investigating what global health does to medical genetics (and vice versa) means analysing the manifold local ways of doing genomic research, clinical and community genetics, i.e. the processes that lead – or not – to their integration into local priorities. The two chapters in this volume that address the globalization of genetics and genomics thus focus on the internationalization and coordination of research in genetics and genomics (Sturdy, chapter 7) and on the generalization of genetic testing services and prevention policies in Brazil (Gibbon, chapter 8). Following their analysis, the contemporary landscape of medical genetics on a global scale appears to be composed of various assemblages of screening and testing priorities, nosological and diagnostic discrepancies, clinical interactions, molecular tools, funding capacities and emerging markets. A distinctive trait – maybe a weakness – of globalized genetics is the heavy reliance of these assemblages on translational research and ‘frontier’ and promissory knowledge. The design of most genetic studies of human populations has thus recently shifted from families to populations, from rare to common diseases (Sturdy, chapter 7). What does this shift imply? What is the ‘population’ that is tackled by such studies? Further, the current definition of a population is closely related to the

way(s) in which genetics, genomics and their clinical translations deal with diversity – and especially with one of its avatars, namely race. The scope and locations of population studies include more and more of the global South, thus changing the scientific status of DNA samples taken there. Such a situation, unsurprisingly, leads to the matter of race and its modes of existence in the clinic, where genetic testing for diagnosis purposes is performed, and articulated in a rather problematic manner with notions of community and choice (Gibbon, chapter 8).

The space occupied by genetics and genomics within contemporary global health is largely shaped by the concomitant dynamics of singularization and aggregation/quantification that penetrate the field of rare diseases, involving patients, scientists and physicians. These two rationales, which highlight alternatively the particularities of specific diseases or the shared ways in which various diseases affect myriads of people, compete when putting genetic and genomic medicine into the agenda of global health. As shown in the chapters by Gibbon and Sturdy, these rationales resonate in strikingly different ways according to the local context of their unfolding, most notably in relation to the local conceptions of race and to the ways in which health is considered (or not) as a fundamental right. In addition, the globalization of genetic and genomic medicine goes along with new understandings of communities and population, as well as a paradoxical ‘renewed interest in finding molecular techniques for differentiating one population from another’ (Sturdy, this volume). In the end, the design of investigations of the human genome in the search for disease genes require a definition of target groups that reinvigorate North–South divides (Sturdy, this volume). This colours genomic research with a shade of *déjà-vu* common to numerous global health endeavours.

The global health transition and the neoliberal turn

Neoliberalism is the ghost haunting the critical literature on global health (including our own). It is often understood as the domination of a market-centred political economy and ideology aiming at a minimal state and a drastic reduction of public services and social programmes. However, this definition proves to be too narrow and especially problematic in the area of health issues. Rather than the mere absence or the marginalization of the state, neoliberalism involves a *different* state from the Keynesian, developmentalist post-war one. The main function of the neoliberal state is to develop the institutions, the standards and the rules indispensable to creating and maintaining markets; hence, the centrality of intellectual property laws and the advocacy for public investment in the reproduction of human capital. Consider, for example, the sanitary turn of the World Bank in the 1990s, when the Bank started emphasizing health improvements as a path towards economic growth. Contrary to what observers have sometimes written, it cannot be reduced to privatization. The continuity with structural adjustment programmes is elsewhere. The Bank started to appeal for massive but ‘cost-efficient’ public investment in health programmes and infrastructure, omitting the biomedical model of high-tech hospitals benefiting the urban middle-class in favour of economically validated primary health care interventions (Gaudillière and Gasnier, 2020).

Approaching this turn therefore implies focusing on both the institutional reorganization and the tools involved in such optimization and prioritization of public investment in health. Examining the trajectory of the WHO, in chapter 9 Nitsan Chorev argues that the rise of the World Bank as a dominant actor in global health challenged the WHO by establishing an ‘external’ logic of action that, in keeping with neoliberalism, prioritized cost-effectiveness in the choice and ranking of needs and paths of public interventions. This triggered an ‘internal’ strategic adaptation within the WHO. The main outcome of this alignment was to incorporate not only the discourse of health as a central determinant of economic growth but also the tools associated with performance (from the

DALYs [disability-adjusted life years] calculus to the private-public partnerships). It also adapted them to the pursuit of WHO goals, thus providing continuity with the ways in which the selective primary health care policies of the 1970s and 1980s sought to tackle the problem of scarcity. In addition to this institutional shift and adaptation, one may argue that the broader managerial turn in governance was also central to global health; more central than the processes of privatization and/or austerity policies. The rise of the World Bank's language and tools accompanying the emergence of global health came with the new centrality and pervasive role of budget balancing and triage and performance, ideally based on cost/benefit assessment. (Gaudillière and Gasnier, 2020).

In his epilogue to this volume Didier Fassin singles out two important candidates that previous chapters allude to but do not discuss up front. The first is pharmaceuticalization, with the centrality given to interventions focusing on drugs, their invention, commercialization, access and use. The second is the emphasis on risk management as the referent framework for handling unexpected epidemiological transitions, such as the prevalence of chronic pathologies affecting people in higher- and middle-income countries; and the simultaneous (re)-emergence and 'chronicization' of diseases like malaria, tuberculosis and AIDS, creating the unprecedented types and numbers of patients affected with multiple pathologies. Reflecting on these as well as other possible traits accounting for the specificity of global health, Fassin suggests that the field of global health operates along multiple lines of tensions between the spatial and the ideological, the moral and the economic, the trends toward compassion and predation, all of which illustrate the violence and the critical potential of global health.

The past and the future of global health

Global health as it is practised and debated often appears short sighted, more concerned with challenges and how they are to be met rather than with how they were made and what their future may look like. In a popular critical piece Anne-Emanuelle Birn (2005) has dissected the Gates Foundation's 'grandest challenge' of 2003. As she convincingly argues, it actively neglects a large part of what are challenges for global health, instead insisting on a technological solution for current problems and ignoring that these problems have a history that suggests that social policy approaches are equally promising. Critical analyses of global health are in need of expanded horizons. The present volume has taken up that challenge. Rather than depending on classical historiography, we historicize the turning point around 1990. History resides on both sides of this divide. As the emblematic case of TB control and DOTS shows, the turn took place between the mid-1980s and the late 1990s. However, the arrival of global health with efficiency-focused metrics and donor-driven interventions was at the same time a revival of vertical, technology-driven approaches pushed back during the period of the WHO's primary health care policy. The internal dynamics of global health became even more visible and encompassing when global TB control turned to drug resistance and its control after 2005.

This book presents global health not simply as an agenda but, rather, as a regime, with a beginning, that will arguably be replaced at some point in time by another regime. The anthropological contributions in the volume provide impressive illustrations of the dynamics at work here. Asian medicines, for instance, can be approached through their role in the making of global health, yet the chapters in this book show them to have a potential far beyond that. They are better understood within a larger geopolitics of the twenty-first century, characterized by South–South relations dominated by a strong presence of South-East Asian actors. Within this perspective, analyses of global health from 1990 to 2010 become a search-light pointing towards a twenty-first-century global political order.

The four domains explored in this book not only reveal decisive differences regarding the paths through which localization and generalization have been worked out. Their comparison also highlights contrasted modes of insertion within global health as a field. TB control is, in this respect, the most integrated, with large investments by big (international) players and nation-states, the design of a standardized intervention package and a clearly vertical organization of programmes. In contrast, the globalization of Asian medicines is marginally achieved through global health institutions. It operates through processes of circulation (of goods, practitioners and patients), with their limitations and specific regulations, rather than through programmes and public investments. Medical genetics and mental health reveal intermediary configurations that juxtapose significant discursive visibility and the absence of large investments of resources in the field. Consequently, programmes, when they exist, are often experimental, locally or nationally designed, and build on local epidemiology and epistemic choices. Articulating anthropological and historical approaches thus appears essential to understanding why such differences emerged and how they impact on the globalization of health.

More generally, the exchanges between the observations and methods of anthropology and history that this volume advocates are crucial for keeping a critical eye on these processes. Studying a dynamic phenomenon like global health requires close attention both to its actual state of being and to the paths of its development over time. This book shows how the history of twentieth century genetics seems likely to be rewritten from the perspective of the rise of the contemporary genetic services industry, and the discourse of human rights in mental health assumes the revolutionizing of the means of treating people with mental illnesses situated in time and place. This does not make anthropologists out of historians, or vice versa. Rather, the book illustrates how the skilful combination of insights from both of

these disciplines provides for a richer and more critical approach to global health and to the regimes of practice it that fosters, with their impact, contradictions and limitations.

References

- Adams, V. (2016) 'Metrics of the global sovereign: numbers and stories in global health', in V. Adams (ed.), *Metrics: What Count in Global Health*. Durham: Duke University Press, 19–54.
- Alter, J. S. (ed.) (2005) *Asian Medicine and Globalization*. Philadelphia: University of Pennsylvania Press.
- Amrith, S. (2006) *Decolonizing International Health: India and Southeast Asia, 1930–65*. Basingstoke: Palgrave Macmillan.
- Banerjee, M. (2009) *Power, Knowledge, Medicine: Ayurvedic Pharmaceuticals at Home and in the World*. New Delhi: Orient Black Swan Pvt Ltd.
- Beaudevin, C. (2017) 'Arabian medical genetics: of rare disorders and decreasing oil rent', in *Medizinethnologie. Körper, Gesundheit und Heilung in einer globalisierten Welt*, <http://www.medizinethnologie.net/arabian-medical-genetics>.
- Behrouzan, O. (2016) *Prozak Diaries: Psychiatry and Generational Memory in Iran*. Stanford: Stanford University Press.
- Bhattacharya, S. (2006) *Expunging Variola: The Control and Eradication of Smallpox in India, 1947–1977*. New Delhi and London: Orient Longman India and Sangam Books.
- Birn, A.-E. (2005) 'Gates's grandest challenge: transcending technology as public health ideology', *The Lancet* 366 (9484), 514–519.
- Birn, A.-E. (2009) 'The stages of international (global) health: histories of success or successes of history?', *Global Public Health* 4 (1), 50–68.

- Bode, M. (2008) *Taking Traditional Knowledge to the Market. The Modern Image of the Ayurvedic and Unani Industry 1980–2000*. Hyderabad: Orient Longman.
- Brimnes, N. (2016) *Languished Hopes. Tuberculosis, the State and International Assistance in Twentieth Century India*. Hyderabad: Orient Black Swan.
- Brown, H., Kelly, A. H. (2014) ‘Material proximities and hotspots: toward an anthropology of viral hemorrhagic fevers’, *Medical Anthropology Quarterly* 28 (2), 280–303.
- Brown, T., Cueto, M., Fee, E. (2006) ‘The World Health Organization and the transition from “international” to “global” public health’, *American Journal of Public Health* 96 (1), 62–72.
- Carothers, J. C. (1953) *The African Mind in Health and Disease. A Study in Ethnopsychiatry*. Geneva: WHO.
- Cassier, M., Correa, M. (2003) ‘Patents, innovation and public health: Brazilian public-sector laboratories’ experience in copying AIDS drugs’, in J-P. Moatti et al. (eds), *Economics of AIDS and Access to HIV/AIDS Care in Developing Countries. Issues and Challenge*. Paris: Editions ANRS, 89–107.
- Chorev, N. (2012) *The World Health Organization between North and South*. Ithaca: Cornell University Press.
- Coderey, C., Pordié, L. (2019) *Circulation and Governance of Asian Medicine*. London/New York: Routledge.
- Condrau, F., Worboys, M. (2010) *Tuberculosis Then and Now/ Perspectives on the History of an Infectious Disease*. Montreal: McGill-Queen’s University Press.
- Craig, S., Adams, V. (2008) ‘Global pharma in the land of snows. Tibetan medicines, SARS, and identity politics across nations’, *Asian Medicine* 4 (1), 1–28.
- Cueto, M. (2007) *Cold War, Deadly Fevers: Malaria Eradication in Mexico, 1955–1975*. Baltimore: Johns Hopkins University Press.

- Cueto, M., Brown, T., Fee, E. (2019) *The World Health Organization: A History*. Cambridge: Cambridge University Press.
- de Chadarevian, S. (2015) 'Human population studies and the World Health Organisation', *Dynamis* 35 (2), 359–388.
- Desjarlais, R. (1995) *World Mental Health: Problems and Priorities in Low-income Countries*. New-York: Oxford University Press.
- Droney, D. (2014) 'Ironies of laboratory work during Ghana's second age of optimism', *Cultural Anthropology* 29 (2), 363–84.
- Dumit, J. (2012) *Drugs for Life: How Pharmaceutical Companies Define Our Health*. Durham, NC: Duke University Press.
- Ernst, W. (2013) *Colonialism and Transnational Psychiatry: The Development of an Indian Hospital in British India, 1925–1940*. New York: Anthem Press.
- Farmer, P., Sen, A. (2004) *Pathologies of Power: Health, Human Right and the New War on the Poor*. Berkeley: University of California Press.
- Fassin, D., Rechtman, R. (2009) *The Empire of Trauma. An Inquiry in the Condition of Victimhood*. Princeton, NJ: Princeton University Press.
- Fullwiley, D., Gibbon, S. (2018) 'Genomics in emerging and developing economies', in S. Gibbon, B. Prainsack, S. Hilgartner, and J. Lamoreaux (eds), *Handbook of Genomics, Health and Society*. London, New York: Routledge, pp. 228-237.
- Gaudillière, J-P., Hess, V. (eds) (2013) *Ways of Regulating Drugs in the 19th and 20th Centuries*. Basingstoke and New York: Palgrave Macmillan.
- Gaudillière, J-P., Thoms, U. (eds) (2015) *The Development of Scientific Marketing in the Twentieth Century*. New York: Pickering & Chatto.

- Gaudillière, J-P., Gasnier, C. (2020) 'From Washington DC to Washington state: the global burden of diseases data basis and the political economy of global health', in S. Leonelli and N. Tempini (eds), *Data Journeys in the Sciences*. New York: Springer, pp. 351-369.
- Gaudillière, J-P., McDowell, A., Lang, C., Beaudevin, C., (forthcoming). *The Health of Others: Global Health, Knowledge, Politics*. New Brunswick, New Jersey: Rutgers University Press.
- Geissler, P. W. (ed.) (2015) *Para-States and Medical Science: Making African Global Health*. Critical Global Health. Durham, NC: Duke University Press.
- Geissler, P. W., Lachenal, G., Manton, J., Tousignant N. (eds) (2016) *Traces of the Future. An Archaeology of Medical Science in Africa*. Chicago: Chicago University Press.
- Gibbon, S. (2013) 'Ancestry, Temporality, and Potentiality. Engaging Cancer Genetics in Southern Brazil', *Current Anthropology* 54 (7), 107–117.
- Gibbon, S., Waleska, A. (2018) 'Inclusion and exclusion in the globalisation of genomics; the case of rare genetic disease in Brazil', *Anthropology & Medicine* 25 (1), 11–29.
- Graboyes, M. (2015) *The Experiment Must Continue: Medical Research and Ethics in East Africa, 1940–2014*. Athens: Ohio University Press.
- Gradmann, C. (2019) 'Treatment on trial: Tanzania's National Tuberculosis Programme, the International Union against Tuberculosis and Lung Disease, and the Road to Dots, 1977–1991', *Journal of the History of Medicine and Allied Sciences* 74, 316–343.
- Greene, J. A. (2007) *Prescribing by Numbers: Drugs and the Definition of Disease*. Baltimore: Johns Hopkins University Press.
- Greene, J. A. (2014) *Generic. The Unbranding of Modern Medicine*. Baltimore: Johns Hopkins University Press.
- Harper, I. (2010) 'Extreme conditions, extreme measures: compliance, drug resistance and the control of tuberculosis', *Anthropology & Medicine* 17, 201–214.

- Horwitz, A., Wakefield, J. C. (2007) *The Loss of Sadness: How Psychiatry Transformed Normal Sorrow into Depressive Disorder*. New York: Oxford University Press.
- Howard-Jones, N. (1981) *The Pan-American Health Organization: Origins and Evolution*. Geneva: World Health Organization.
- Hunt, N. R. (2015) *A Nervous State: Violence, Remedies, and Reverie in Colonial Congo*. Durham, NC: Duke University Press.
- Hyman, S. E. (2010) 'The diagnosis of mental disorders: the problem of reification', *Annual Review of Clinical Anthropology* 6, 155–179.
- Keller, R. C. (2008) *Colonial Madness: Psychiatry in French North Africa*. Chicago: University of Chicago Press.
- Kim, J. Y., Shakow, A., Mate, K., Vanderwaker, C., Gupta, R., Farmer, P. (2005) 'Limited good and limited vision: multidrug resistant tuberculosis and global health policy', *Social Science & Medicine* 61, 847–859.
- Kleinman, A. (2012) 'Culture, bereavement and psychiatry', *The Lancet* 379 (9816), 608–609.
- Kohrt, B. A., Mendenhall, E. (2016) *Global Mental Health: Anthropological Perspectives*. London: Routledge.
- Lachenal, G. (2014) *Le médicament qui devait sauver l'Afrique. Un scandale pharmaceutique aux colonies*. Paris: La Découverte.
- Lang, C., Jansen, E. (2013) 'Appropriating depression: biomedicalizing ayurvedic psychiatry in Kerala, India', *Medical Anthropology* 32 (1), 25–45.
- Langwick, S. A. (2015) 'Partial publics: the political promise of traditional medicine in Africa', *Current Anthropology* 56 (4), 493–514.
- Lee, K. (2009) *The World Health Organization*. London: Routledge.

- Lee, S. (1997) 'WHO and the developing world: the contest for ideology', in A. Cunningham and B. Andrews (eds), *Western Medicine as Contested Knowledge*. Manchester: Manchester University Press, pp. 24-45.
- Lindee, S. (2014) 'Scaling up: human genetics as a Cold War network', *Studies in History and Philosophy of Biological and Biomedical Sciences* 47, 185–190.
- Litsios, S. (1997) 'Malaria control, rural development and the postwar reordering of international organizations', *Medical Anthropology* 14, 255–278.
- Livingston, J. (2012) *Improvising Medicine: An African Oncology Ward in an Emerging Cancer Epidemics*. Durham, NC: Duke University Press.
- Lock, M., Nguyen, V. K. (2018) *An Anthropology of Biomedicine*. New York: Wiley & Sons.
- Lovell, A. (2014) 'The World Health Organization and the contested beginnings of psychiatric epidemiology as an international discipline: one rope, many strands', *International Journal of Epidemiology* 43 (suppl 1), i6–i18.
- McMillen, C. (2015) *Discovering Tuberculosis. A Global History, 1900 to the Present*. New Haven: Yale University Press.
- Modell, B., Kuliev, A. (1998) 'The history of community genetics: the contribution of the haemoglobin disorders', *Community Genetics* 1, 3–11.
- Muraskin, W. (2005) *Crusade to Immunize the World's Children: The Origin of the Bill and Melinda Gates Children's Vaccine Programme and the Birth of the Global Alliance for Vaccines and Immunization*. Los Angeles: Global BioBusiness Book.
- Murray, C., Lopez, A. D. (1996) *Global Burden of Disease*. Cambridge, MA: Harvard University Press.
- Packard, R. (1989) *White Plague, Black Labor. Tuberculosis and the Political Economy of Health and Disease in South Africa*. Berkeley: University of California Press.

- Packard, R. (2016) *A History of Global Health. Interventions into the Lives of Other Peoples*. Baltimore: Johns Hopkins University Press.
- Page, B., Valone, D. (eds) (2007) *Philanthropic Foundations and the Globalization of Scientific Medicine and Public Health*. Lanham, MD: University Press of America.
- Petryna, A. (2009) *When Experiments Travel: Clinical Trials and the Global Search for Human Subject*. Princeton, NJ: Princeton University Press.
- Petryna, A. et al. (2006) *Global Pharmaceuticals: Ethics, Markets, Practices*. Durham, NC: Duke University Press.
- Pordié, L. (ed.) (2011) 'Savoirs thérapeutiques asiatiques et mondialisation', *Revue d'Anthropologie des Connaissances* 5 (1), 3–12.
- Pordié, L. (2014) 'Pervious drugs. Making the pharmaceutical object in techno-ayurveda', *Asian Medicine* 9 (1–2), 49–76.
- Pordié, L., Gaudillière, J-P. (2014) 'The reformulation regime in drug discovery. Revisiting polyherbals and property rights in the Ayurvedic industry', *EASTS* 8, 57–79.
- Rao, M. (ed.) (1999) *Disinvesting in Health: The World Bank's Prescriptions for Health*, Thousand Oaks, CA: Sage Publications.
- Ruault, L., Beaudevin, C., Gaudillière, J-P., Geise, M. (forthcoming) 'What globalizing means – community genetics, 1971–2018'.
- Siddiqi, J. (1995) *World Health and World Politics: The World Health Organization and the UN System*. London: Hurst.
- Staples, A. (2006) *The Birth of Development: How the World Bank, Food and Agriculture Organization, and World Health Organization Have Changed the World 1945–1965*. Kent: Kent State University Press.
- Tousignant, N. (2012) 'Trypanosomes, toxicity and resistance: the politics of mass therapy in French colonial Africa', *Social History of Medicine* 25(3), 625–643.

- Van Os, J. et al. (2009) 'A systematic review and meta-analysis of the psychosis continuum: evidence for a psychosis proneness-persistence-impairment model of psychotic disorder', *Psychological Medicine* 39 (2), 179–195.
- Webb, J. (2008) *Humanity's Burden: A Global History of Malaria*. Cambridge: Cambridge University Press.
- Weisz, G., Cambrosio, A., Cointet, J-P. (2017) 'Mapping global health: a network analysis of a heterogeneous publication domain', *Biosocieties* 12 (4), 520–542.
- Wahlberg, A. (2018) *Good Quality. The Routinization of Sperm Banking in China*. Berkeley: University of California Press.
- White, R. G. et al. (2017) *The Palgrave Handbook of Sociocultural Perspectives on Global Mental Health*. New York: Springer.
- WHO (1981) *Health for All by the Year 2000: The Contribution of Human Genetics. Report of the Task Group on Genetics Programme*. Geneva: WHO.
- WHO (2011) *Grand Challenges in Genomics for Public Health in Developing Countries. Top 10 Policy and Research Priorities to Harness Genomics for the Greatest Public Health Problems*. Geneva: WHO.
- WHO (2018) *Human Genomics in Global Health*, www.who.int/genomics/en/ (accessed 12 January 2018).
- World Bank (1993) *World Development Report 1993: Investing in Health*. New York: World Bank. <https://openknowledge.worldbank.org/handle/10986/5976>.
- Wu, H. (2015) 'World citizenship and the emergence of the social psychiatry project of the WHO, 1948–1965', *History of Psychiatry* 26 (2), 166–181.
- Young, A. (1997) *The Harmony of Illusions: Inventing Post-Traumatic Stress Disorder*. Princeton, NJ: Princeton University Press.

Zhan, M. (2009) *Other-Worldly: Making Chinese Medicine through Transnational Frames*.

Durham, NC: Duke University Press.