Editors' Introduction

The global health complex

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In February 2009, Andrew Witty, the Chief Executive of GlaxoSmithKline (GSK) announced that GSK would slash the prices of its medicines in low-income countries, and, more surprisingly, raised the idea of a patent pool, where holders of intellectual property rights would share discoveries in order to stimulate neglected diseases research (Lancet, 2009; McNeil, 2010). The announcement generated cautious praise from non-governmental organizations (NGOs) such as the Médicins Sans Frontières (MSF) and the Drugs for Neglected Diseases Initiative, the latter suggesting that GSK has emerged as the 'most innovative' pharmaceutical company to tackle the persistent problem of how to encourage the private sector to pour R&D funding into diseases that have little market value, as most sufferers are unable to afford the cost of treatments.

Staff at MSF welcomed the announcement – but stressed a number of problems. First, GSK refused to endorse the possibility of pooling patents for HIV drugs, still priced beyond the means of most HIV sufferers in low-income and developing countries. Second, even GSK's voluntary price reduction – Witty promised that medicines in poor countries would be sold at no more than a quarter of their price in developed regions – is unlikely to lower prices as dramatically as allowing more generic competition, which is increasingly limited through stringent trade rules. Third, the idea of a patent pool hardly originated with Witty or GSK. Staff at Unitaid, an international initiative that uses an airline ticket tax to fund accelerated access to HIV, malaria and tuberculosis treatments, had been campaigning for a patent pool for years, suggesting GSK might have been claiming publicity and praise for an idea that was hardly novel (Lancet, 2009; see also Lexchin, 2010).

Behind the apparent selflessness of GSK's strategy lies much contestation and controversy over the economic motivations and unintended consequences of recent attempts to address disparities in access to medicines and health care. Using the complex matrix of global health initiatives as an anchor, contributors to this special issue explore the underlying contention behind actions such as GSK's, examining how industry moves such as price-slashing in developing regions and calls for patent sharing relate to wider concerns about the tensions between private and public investment in health care; the nature of what Marcel Mauss once referred to as the 'in fact obligatory and interested' character of philanthropy and gift-giving; and the national security objectives embedded in bilateral and multilateral global health initiatives (Lakoff and Collier, 2008; Mauss, 1990).

Global health is a field marked by an increasingly heterogeneous group of health actors, many of which have overlapping and occasionally incommensurate aims. Over the past 20 years, global health has experienced 'revolutionary' changes (Fidler, 2008), with a constellation of factors contributing to an explosion of political interest and economic funding for global health aims. Such factors include, firstly, the increased recognition that unstable patterns of global health pose unprecedented national security challenges, making better health an explicit aim of Western governments. Where governments once tended to underplay the extent to which national priorities were driving international investment decisions, global health is marked by new openness on the part of Western governments increasingly vocal that investment in global health is rooted in domestic security pressures. This newfound openness may be oriented to stressing to the US public (increasingly shying from support for interventionist foreign policy) that their safety depends on improving global health conditions.[1]

A second factor is the influence of a public movement surrounding patent policies, and specifically the reaction to the WTO's trade-related aspects of intellectual property rights (TRIPS) agreement, which continues to impede governments from importing or manufacturing cheap generics, a limitation that received its strongest public censure when a consortium of pharmaceutical companies sued the South African government for disseminating cheap antiretrovirals to its HIV/AIDS sufferers. As Melinda Cooper points out, the emergence of TRIPS, which began as a 'brainchild of an extremely small group of private lobbyists, united together as the Intellectual Property Committee (IPC), all of whom were CEOs in the North American pharmaceutical, software, and entertainment industries', needs to be situated within the shifting contours of international geopolitical relations (Cooper, 2008, p. 55; see also Correa, 2006).

TRIPS has been as much a political statement as it is an economic policy, helping to immortalize patent law as the example *par excellence* of what economists and sociologists from Schumpeter and Polanyi onward have described as the political nature of free markets; the reality that keeping goods 'freely' circulating is always a matter of careful political orchestration and intervention.[2] From the standpoint of geopolitics, as Cooper notes, the negotiation of TRIPS can be seen as a pre-emptive strike against the post-Cold War economic ascendancy of non-G8 nations such as India, helping to calm North American fears that cheap drug production in developing regions might pierce the bubble surrounding artificially inflated drug prices in the West (Cooper, 2008).

A third and related factor increasing the prominence of global health has been growing public attention to the devastating effects of the AIDS epidemic in sub-Saharan Africa, as well as high-profile attention to campaigns to eradicate malaria and roll back tuberculosis, the latter attracting much public bewilderment among Western citizenries shocked that

1 See, for example, a speech by Hilary Clinton inaugurating the US-led Global Health Initiative at a lecture at the School of Advanced International Studies in August 2010, where she stressed that the 'destabilizing impact of AIDS led the Clinton Administration to categorize it not just as a health threat but a national security threat, a position later echoed by then Secretary of State Colin Powell', http://www.state.gov/secretary/rm/2010/08/146002.htm.

2 See Chapter 8 of Schumpeter's *Capitalism, Sociology and Democracy*, which provides a useful overview of how, as Brenner puts it, 'corporations routinely ensure the returns on their investments...by securing, by all sorts of political-institutional means, the (temporary) protections of their markets from competition' (Schumpeter, 1976; Brenner 1998, p. 31).

curable diseases still kill millions annually. Political will for combating the 'big three' diseases targeted by Northern donors had led some health activists and experts to lament that disproportionate funding towards HIV/AIDs and to a lesser extent malaria and tuberculosis may be detracting from funding of research on chronic diseases (such as obesity, a growing cause of death globally) and less publicized high-mortality afflictions such as diarrhoea (see Sridhar and Batniji, 2008). Tensions over which diseases are prioritized by donors, and whether the aims of donors are aligned with the needs of recipients, have been exacerbated by the fourth major factor contributing to the radical overhaul over global health from the early 1990s onward: the emergence of new philanthropic donors focused on global health, and specifically the Bill and Melinda Gates Foundation.

Although global health experts and activists are becoming more and more divided about the advantages and disadvantages of the Gates Foundation's growing role in directing international health policies, as Kelly and Beisel (this volume) explore, there is little debate about one fundamental aspect of its emergence: the sheer magnitude of spending has been the greatest change in global health in past decades, dwarfing the contributions of most national governments, and radicalizing the budgetary compositions of UN agencies such as the WHO, which obtains a significant portion of its budget from the Gates Foundation (McCoy *et al*, 2009).[3] The scale of funding for recent initiatives and the stabilization and institutionalization over the last decade or so of this field of 'global health' raises a number of questions. How, if at all, is *global* health different from other configurations of health? What are global health interventions perceived as a response to? What are some of the effects and unintended consequences of such interventions?

To begin with, we might say that the global health move has opened up a worldwide epidemiological and demographic problem space within which disease burdens, distributions, movements and causes are mapped out and rendered problematic. Andrew Lakoff has traced the contours of what he calls two 'regimes of global health', namely global health security and humanitarian biomedicine which both aim to 'transcend certain limitations posed by the national governance of public health' (Lakoff, 2010). If global health security is centred around efforts to foresee, prevent, track and tackle outbreaks (for example, SARS or 'swine flu') primarily in more well-off nations, then humanitarian biomedicine is centred on efforts to treat and prevent diseases that afflict individuals in poorer nations of the world (for example, malaria, tuberculosis as well as a range of so-called 'neglected diseases') where resources are meagre. It is primarily with this latter regime and the many inequities it encompasses that articles in this special issue engage.

Neglect as a Matter of Prioritization

Although recent dramatic changes in global health funding and governance have attracted growing scholarship, much of it has come from those working in international relations,

3 The growth in funding for global health in recent years has been dramatic. The World Bank estimates governmental development assistance for health grew from US$2.5 billion in 1990 to US$14 billion in 2005, while private donations – something difficult to chart as global tracking and monitoring mechanisms are notoriously limited – are estimated to have spent US$1.6 billion on global health in 2005, with the bulk of funding from the Gates Foundation (see McCoy *et al*, 2009, Sridhar, 2009).

international political economy and public policy (cf. Lee *et al*, 2002; Buse and Harmer, 2004; Kickbusch, 2006; Sridhar, 2009), and there has been comparatively less attention within fields such as anthropology and sociology to how new philanthropic players and global health partnerships are affecting the prioritization of different global health policies over others. Articles in this volume contribute to a small but growing body of scholarship working at the intersections of science and technology studies, philosophy of science, critical sociology and anthropology and development studies that have begun to explore the cultural and epistemological implications of recent shifts in power, accountability and governance ushered in by the explosion of new private and public actors and resources in global health institutions (cf. Peterson, 2001; Mosse and Lewis, 2005; Biehl, 2007; Ecks, 2008; Mahajan, 2008; Redfield, 2008; Reiss and Kitcher, 2009).

Attention to global health must grapple with a persistent problem, which is the fact that, as Solomon Benatar points out, the recent explosion in funding for health has not thus far diminished global health inequalities. Indeed, the opposite is true: 'Disparities in wealth and health within and between nations continue to widen inexorably (the world is more inequitable than 50 years ago)', writes Benator in a recent article enumerating familiar statistics about widening health gaps across the globe. 'Life expectancy at birth ranges from well over 70 years (and rising) in highly industrialized countries to below 50 years (and falling) in many countries. In sub-Saharan Africa gains in life expectancy achieved during the first half of the 20th-century are rapidly being reversed by the HIV/AIDS pandemic' (Benatar, 2009, p. 2).

It is against this backdrop of health inequalities and health funding that questions of prioritization become charged and contested. As Jeremy Greene (this volume) shows in his historical account of the making of the WHO's Essential Medicines List, although the notion of an 'essential medicine' emerged out of wartime scarcities and logistical difficulties in the mid-twentieth century, despite several high level committees, reports and analyses, it has proved difficult to agree on what particular criteria should be used to define what is essential when it comes to medicine. The 'essential medicine' concept is contested by often conflicting commercial, humanitarian, epidemiological and logistical concerns.

Another list which brings the question of prioritization to the fore is that of so-called 'neglected diseases'. These are often described as tropical diseases which afflict people predominantly in poorer parts of the world (where the majority of the world's population live) yet receive scant attention (from researchers, pharmaceutical companies, NGOs, and so on) when compared, for example, to 'diseases of the rich'. Yet, as Alex Broadbent shows (this volume), we must carefully examine the epistemological grounds of classification which make possible the drawing up of such lists. If, as he puts it, neglected diseases are 'a group of diseases which, according to whoever is drawing up the list, do no not receive adequate attention, in some sense', then it is important to understand what a 'disease' is, which ways it is not receiving attention, and how to determine what is sufficient attention.

Broadbent argues against embracing multifactorial definitions of disease to prevent dilutions of the pool of 'neglected diseases'. In the context of humanitarian biomedicine, an important point to be made is that every prioritization will come at the neglect of another, and that there are many dimensions of 'neglect' including: prioritization of certain diseases over others in laboratory-based disease research; prioritization of certain avenues of research over others when it comes to a particular disease or group of diseases (for example,

pharmaceutical, genomic, field trials, public health approaches); prioritization of certain disease definitions over others (for example, biological pathology, socio-economically determined, multifactorial); and prioritization of disease research over public health and development initiatives. Neglect implies that other options have been chosen instead. Should disease be tackled as a pharmaceutical, genomic, socio-economic or public health problem? Is it possible to get the balance right?

Failures of Pharmaceutical Solutions

What becomes clear in many of the contributions to this volume is how predominant and problematic pharmaceutical solutions to global health problems have become over the last decades. Debates around essential medicines and neglected diseases are for the most part pharmaceutical in orientation: how to improve access to pharmaceuticals in poorer parts of the world? How to encourage pharmaceutical companies to develop drugs for neglected diseases?

Donald Light's (this volume) and Anne Pollock's (this volume) articles provide important background information for assessing whether and to what extent solutions for neglected diseases can (or should) come from the pharmaceutical industry. Light analyses the risks and costs of neglected disease research and argues that both are significantly lower than often claimed or feared. With lower research risks and costs, pharmaceutical companies have fewer excuses not to engage in humanitarian biomedicine without having to be motivated to do so by so-called advance market commitments, which, Light argues, are both expensive and impractical for incentivizing research into neglected diseases.

Pollock sees 'Big Pharma's' current business model challenged by the external pressures of failures of would-be blockbusters, patent expiration, competition from both small biotech companies and philanthropy, and pricing guidelines from health assessment bodies such as the UK's National Institute for Health and Clinical Excellence. Rendered vulnerable by its own previous strategies and production tactics, she suggests Big Pharma is reinventing itself in ways that requires STS scholars and anthropologists of science and medicine to nuance their own analyses of this industry. We need more sensitivity, she suggests, to the creative ways that companies might appear to undercut their own competitiveness (that is, through creating in-house generic divisions and price-slashing in poor regions) in order to meet longer-term goals, such as the exploitation of untapped markets and the cultivation of public regard through high-profile gestures of good will. In Pollock's words, we need to examine how a matrix of global philanthropists (for example, Bill Gates, Bill Clinton) and global pharma have commanded the posture of the humanitarian, 'even as they grasp ever more territory for their models of capitalism'.

Broader Biosocial Approaches

The pharmaceuticalization of humanitarian biomedicine (see also Biehl, 2007) has in many ways overshadowed other attempts at addressing health inequalities in poorer parts of the world. Paul Kadetz (this volume) critically examines recent attempts to integrate

traditional medicine into national health delivery systems in the Philippines as a way to improve access to health care. Rather than improving access to medicines, such globally sponsored programmes focus on improving the provision of health care in resource-poor settings by enlisting traditional practitioners in a project of national health delivery. Kadetz argues that although the drive to integrate is underwritten by assumptions of beneficence – that is, especially poor persons will benefit from integration – the effects of integration programmes are not necessarily always positive. Through a series of interviews with informants in four municipalities and 16 communities, he concludes that integration programmes do not appear to increase physical and financial access to health care, and in fact might even hamper access in the case of traditional birth attendants who are discouraged from attending births if they haven't received certain forms of training. As such, what should be kept firmly in mind is that each avenue or priority chosen when it comes to treating health needs – whether pharmaceutical or non-pharmaceutical in orientation – has distinct logistics, challenges and effects.

The link between development and health is also highlighted in Ann Kelly and Uli Beisel's (this volume) account of how the local realities of malaria prevention efforts are neglected by global health programmes championed by philanthropic bodies such as the Gates Foundation. Many of the diseases and conditions that are considered 'neglected' in the context of global health today are found 'where the pavement ends'. In their article, we are shown how the Gates Foundation's 'audacious goal' to eradicate malaria once and for all rests on a version of malaria that is seen as 'produced by the lack of knowledge, money and will'. By detailing mundane field efforts to investigate the efficacy of microbial insecticide by researchers with the Urban Malaria Control Program in Tanzania, Kelly and Beisel argue that the 'technological emphasis of current malaria research – on vaccines, combinational therapies or genetic control – simply does not suit its object. Malaria is not static; it is an evolving vector between human habits and mosquito habitat'. There is a larger point to be drawn from their article, namely that the predominance of technological approaches to improving access to medicine and health care in humanitarian biomedicine today have come at the neglect of other possible approaches (see also Birn, 2005).

Outlook

As this volume shows, some advances have been made but enormous challenges lie ahead. Much recent literature has targeted the pharmaceutical industry and its search for patentable solutions for neglected diseases (see, for instance, Pogge, 2005; Hollis and Pogge, 2008). But there are doubts that multinationals are the right target for encouraging sustainable pricing policies, and whether patentable solutions always work best. Even the fact that, as Light points out, costs and risks or drug development are much lower than the pharmaceutical industry would have us believe, many big players in the industry are still not interested in research into diseases of the poor, and this is unlikely to change, however great the incentive. One recent report into neglected disease research concluded, '[Multinational pharmaceutical companies] believed that additional new incentives were unlikely to shift the behaviour of firms who had disengaged from neglected disease research, and saw

the main role for any new incentives as being "to support companies who had already decided to do neglected disease R&D for other reasons" ' (Pharmaceutical R&D Policy Project, 2005, p. 13).

A second limitation of encouraging the pharmaceutical industry's benevolence is the dilemma of bolstering industry efforts to divert attention from unethical marketing and drug development practices by publicizing the philanthropic activities of the same companies consistently engaged in tactics contrary to health aims. GSK, which recently achieved, as Greene's article (this volume) points out, the position of #1 on the global Access to Medicines Index for efforts to improve neglected disease financing, was just as recently censured by UK drug regulators for failing to disclose clinical trials where more children were harming themselves on Seroxat, its bestselling antidepressant drug, than on comparator treatments (see McGoey and Jackson, 2009). Currently, the company is testing the same drug, banned for use in under-18s by European and UK authorities, in children as young at seven in Japan (Clinicaltrials.gov, 2010; see Edwards, 2010).

Novartis, as Stefan Ecks (2008) explored, secured a financial coup even as it appeared to lose a high-profile battle over the patenting of Glivec, its bestselling cancer drug. In 2007, Novartis launched a legal suit against a number of Indian governmental bodies after being denied a patent for a second version of Glivec, copies of which had been manufactured for a fraction of Glivec's brand price by generic firms. Throughout the suit, Novartis highlighted the fact that it distributes Glivec to many Indian sufferers at no cost through its International Patient Assistance Program (GIPAP), a programme fundamental to Novartis's widely publicized efforts to increase access to medicines in developing regions. Ecks highlights a number of reasons why Novartis might donate Glivec freely. First, the effort to undercut competing Indian versions. Second, the effort to develop a lobby of Indian civil society actors vocal about Novartis' positive influence in the region, something akin to corporate funding of patient advocacy groups in the West. Novartis didn't merely undercut competition, however; they undercut their own profitability in India – something that only makes economic sense once it becomes clear the Indian market was never the key market at stake.

Selling Glivec at the cost of generic prices risks something Ecks, drawing on work by the economist Sudip Chaudhuri, describes as two 'leakages': economic and informational: 'On the one hand, they fear a "physical leakage" of drugs from low-price to high-price markets. On the other, "they may actually be more worried about the information spillovers – the knowledge about lower prices in developing countries generating demand for lower prices in developed ones" ' (Chaudhuri, quoted in Ecks, 2008). In other words, corporate philanthropy in the South does not merely generate symbolic capital in North, increasing public perceptions of pharma companies as good global citizens, it serves the economic objective of deflecting attention from pricing bubbles in rich regions, bubbles which are growing more fragile as wealthy nations such as Germany and China move to implement stricter price controls on pharmaceutical products (Taylor, 2010).

Developments explored in this issue – the push for patentable solutions; the wide publicity for philanthropic gestures that often offer merely cosmetic solutions – suggest that the fervour for pharmaceutical solutions may be undermining efforts to strengthen health systems. It is clear that pharmaceuticals will always have a place when addressing global health problems, what is less clear is what an optimal role for pharmaceuticals and their multinational producers might be. Processes of pharmaceuticalization and commercialization

are problematic not because of (the development of) pharmaceuticals *per se*, but rather they become problematic within political arenas of prioritization, production, distribution and (mis)use.

It is somewhat heartening, then, that global health concerns are increasingly on the radar of social scientists attuned to studying both explicit and tacit institutional pressures – both political and economic – that risk privileging short-term or cosmetic responses at the expense of structural change. The authors of the articles in this volume have affiliations in departments of anthropology, development, geography, history of science, philosophy, public health and science studies. This diversity gives reason for mild optimism that the pharmaceuticalization of global health is not without sustained scrutiny, and in some cases, vibrant resistance.

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References

Benatar, S. (2009) Global health: Where to now? *Global Health Governance* 2: Online publication http://ghgj.org/benatar2.wherenow.htm.

Biehl, J. (2007) Pharmaceuticalization: AIDS treatment and global health politics. *Anthropological Quarterly* 4: 1083–1126.

Birn, A.-E. (2005) Gates's grandest challenge: Transcending technology as public health ideology. *Lancet*, 366: 1357–1358.

Brenner, R. (1998) The economics of global turbulence: A special report on the world economy, 1950–98. *New Left Review* 229(May/June): 1–261.

Buse, K. and Harmer, A. (2004) Power to the partners? The Politics of Public-Private Health Partnerships *Development* 47(2): 49–56.

ClinicalTrials.gov. (2010) Paxil Japanese post marketing paediatric study in depression (double-blind, placebo controlled study), http://clinicaltrials.gov/ct2/show/study/NCT00812812, accessed 17 November 2010.

Correa, C. (2006) Implications of bilateral free trade agreements on access to medicines. *Bulletin of the World Health Organization* 84(5): 399–404.

Cooper, M. (2008) *Life as Surplus: Biotechnology and Capitalism in the Neoliberal Era*. Seattle, London: University of Washington Press.

Ecks, S. (2008) Global pharmaceutical markets and corporate citizenship: The case of Novartis' anti-cancer drug Glivec. *BioSocieties* 3: 165–181.

Edwards, J. (2010) Glaxo is testing Paxil on 7-year-olds despite well known suicide risks. *BNET*, 21 May http://www.bnet.com/blog/drug-business/glaxo-is-testing-paxil-on-7-year-olds-despite-well-known-suicide-risks/4836.

Fidler, D. (2008) After the revolution: Global health politics in a time of economic crisis and threatening future trends. *Global Health Governance* 2(Fall 2008/Spring 2009), www.ghj.org.

Hollis, A. and Pogge, T. (2008) *The Health Impact Fund: Making New Medicines Accessible for All*. Incentives for Global Health, http://www.incentivesforglobalhealth.org

Kickbusch, I. (2006) Mapping the future of public health: Action on global health. *Canadian Journal of Public Health* 97: 6–8.

Lakoff, A. (2010) Two regimes of global health. *Humanity: An International Journal of Human Rights, Humanitarianism, and Development* 1(1): 59–79.

Lakoff, A. and Collier, S. (eds.) (2008) *Biosecurity Interventions: Global Health and Security in Question*. New York: Columbia University Press.

Lancet. (2009) Editorial: Pharmaceuticals, patents, publicity ... and philanthropy? *Lancet* 373: 693.

Lee, K., Buse, K. and Fustukian, S. eds. (2002) *Health Policy in a Globalising World*. Cambridge, UK: Cambridge University Press.

Lexchin, J. (2010) One step forward, one step sideways? Expanding research capacity of neglected diseases. *BMC International Health and Human Rights*, 10, http://www.biomedcentral.com/1472-698X/10/20.

Mahajan, M. (2008) Designing epidemics: Models, policy-making, and global foreknowledge in India's AIDS epidemic. *Science and Public Policy* 35: 585–596.

Mauss, M. (1990) *The Gift: The Form and Reason for Exchange in Archaic Societies*. New York/London: W.W. Norton.

McCoy, D., Kembhavi, G., Patel, J. and Luintel, A. (2009) Global health funding: How much, where it comes from, and where it goes. *Health Policy and Planning* 24(6): 407–417.

McGoey, L. and Jackson, E. (2009) Seroxat and the suppression of trial data: Regulatory failure and the uses of legal ambiguity. *Journal of Medical Ethics* 36(2): 107–112.

McNeil, D. (2010) Ally for the poor in an unlikely corner. *New York Times*, 9 February.

Mosse, D. and Lewis, D. (2005) *The Aid Effect: Giving and Governing in International Development*. London: Pluto Press.

Peterson, K. (2001) Benefit sharing for all? Bioprospecting NGOs, intellectual property rights, new governmentalities. *Polar* 24: 78–91.

Pharmaceutical R&D Policy Project. (2005) *The New Landscape of Neglected Disease Drug Development*. London: London School of Economics/Wellcome Trust.

Pogge, T. (2005) Human rights and global health: A research program. *Metaphilosophy* 36(1/2): 182–209.

Redfield, P. (2008) Doctors without borders and the moral economy of pharmaceuticals. In: A. Bullard (ed.) *Human Rights in Crisis*. Aldershot, UK: Ashgate.

Reiss, J. and Kitcher, P. (2009) Biomedical research, neglected diseases, and well-ordered science. *Theoria* 24(3): 263–282.

Schumpeter, J. (1976 1942) *Capitalism, Socialism and Democracy*. New York: HarperPerenniel.

Sridhar, D. and Batniji, R. (2008) Misfinancing global health: The case for transparency in disbursements and decision-making. *Lancet* 372: 1185–1191.

Sridhar, D. (2009) Global health: WHO can lead. *World Today* (*Chatham House magazine*), February.

Taylor, L. (2010) German pharma price cut plans move closer Pharma Times. *Pharma Times* http://www.pharmatimes.com/Article/10-11-15/German_pharma_price_cut_plans_move_closer.aspx. 15 November.