

Health

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We live and die today in a world of extraordinary economic, political and social inequalities. All sorts of empirical research documents such inequality, including diverse new work on the geography of dispossession, dissent and the politics of difference (Dorling, 2012; Gilmore, 2007; Harvey, 2012; Heynen et al. 2012; Mitchell, this volume; Werner et al. 2011; and Wright, 2006). But nothing embodies and illustrates inequality more materially than our health. Explanations of how and why particular forms of inequality become embodied as illnesses differ (de Vogli, 2011; Krieger, 2005; Nguyen and Peschard, 2003; Wilkinson and Pickett, 2010). The full range of factors studied by medical and health geographers are clearly involved (Brown et al. 2010; Brown et al. 2012; de Leeuw et al. 2012; Weeks et al. 2012), and for related reasons, the complex life-long processes of embodiment also vary geographically (Starfield, 2007; WHO, 2008). Nevertheless a growing and heterodox literature on the epidemiology of inequality indicates that health outcomes embody the impact of

inequalities on human life in a profoundly consequential way (Benatar, 2005; Farmer, 1999; Fort et al. 2004; Heggenhougen, 2005; Hunter, 2010; Kim et al. 2000; Kulkarni et al. 2011; Navarro, 2007; Pickett and Dorling, 2010; Sparke and Anguelov, 2012).

Along with the uneven health outcomes, inequalities are also institutionalized in the ways such outcomes are anticipated, managed and counted. Unequal and distinct forms of health governance thereby create a stark biopolitical division between different types of body-counting in different parts of the world. On the one side, there are all the impoverished spaces where population body-counts index 'excess' mortality and morbidity at a crude macro level. And then on the other side, there are all the wealthier spaces of microbiological risk management in which more privileged individuals are taught to take responsibility for their health with increasingly personalized and actuarial approaches to molecular body-counting. Signs of this biopolitical division can be observed everywhere, often in the same countries and cities,

and sometimes even in the same hospitals. Online there are also illustrative contrasts between, for example, fundraising to fight infectious disease at a global macro scale and advertising for customized health services at an individual micro scale. 'Malaria kills a child every 60 seconds: Make your next minute count this World Malaria Day,' reads a typical appeal for global health support using big body count numbers (www.malariano-more.org/). By contrast, the website of a large US health insurance company tellingly represents its customers in terms of microbiological body-counts – attractive actors with animated numbers bouncing around their bodies (www.healthinnumbers.com) – thereby visualizing the claim that the company offers 'health in numbers' in a graphic way, but also in an individualistic way that obscures its long corporate campaign against increases in coverage for vulnerable populations, not to mention its chief executive's big-number compensation as the highest paid CEO in the United States (Armstrong, 2011).

Such inequalities in biopolitics also raise a whole set of geographical questions about the uneven global landscape of body-counting. How can we best map and make sense of the divisions that define this landscape, the processes that account for them, and the ties that transcend but yet reproduce them? This chapter is an attempt to answer these questions. Inspired by attempts to transcend older boundaries between medical geography and health geography (Brown et al. 2010), and attuned to Jonathan Mayer's argument that a non-deterministic approach to the 'social influences on health' requires an openness to wider interdisciplinary interventions (Mayer, 2010: 44), the approach taken here seeks to put body-counting in as global a context as possible. To do so, it draws on insights from work on globalization and neoliberalization as conjoined but variegated processes of uneven development and market-based discipline (e.g. Coleman, 2007; Harvey, 2005; Mitchell, 2004; Peck et al. 2012; Springer, 2012; Wright 2008). Making geographical rather than historical distinctions between the

divided biopolitical regimes, and drawing on political-economic accounts of the processes producing the inequalities that the regimes institutionalize (e.g. Benatar, 2005; Fort et al. 2004; and Rowden, 2009), the aim is to complement older accounts of biopolitics in Europe (Foucault 1978, 2003 & 2007) with approaches advanced in recent studies of biomedicine (Carduff, 2012; Cooper, 2008; Parry, 2004; Rajan, 2007; Waldby and Mitchell, 2006), and thereby argue that the two forms of body-counting represent two regimes of biopower connected by biocapital.

To reuse but also restate and complicate another recent adaptation of Michel Foucault's formulations by Nikolas Rose, the biopolitical divide being analyzed here presents us simultaneously with *both* collective 'biopolitics' (society-wide body-counting for population health) and individualized 'ethopolitics' (personal body-counting for self-optimization) *at the same time* (Rose, 2007). Inequality ensures in this way that personal body-counting does not supersede all collective body-counting, or, to problematize the universalism implied by the title of Rose's book – *The politics of life itself* – inequality may therefore be said to divide the politics of life itself. While poor countries and communities continue to count the loss of whole generations to treatable illness, individuals elsewhere count their calories, their cholesterol, their blood sugar, their DNA sequence vulnerabilities, and all the risk ratios pouring out of electrocardiograms, computed tomography scans, positron emission tomography scans and magnetic resonance imaging scans in ways that turn health into a series of customized biological risk management calculations. Big body-counts on a traditional population scale (including all the health metrics and proxy indicators that poor countries must submit in order to qualify for contemporary global health program funds), are thereby juxtaposed to the big data of molecular body-counting on a microbiological scale – some of it individually enabling and some of it now being used in crass commercial attempts to monetize genetic knowledge

(Foster and Sharp, 2008). 'Unlock the secrets of your DNA for a healthier and more vibrant YOU!' boasts *geneME™* in a typical advertisement of this kind. 'By decoding your DNA you'll have the answers to unlock the secrets of 12 GENES relating to cardio health, bone health, oxidative stress, immune health, defense against environmental pollutants and more' (<http://www.geneme.me/>).

The differences in spatial scale between the big body counts and the increasingly marketized microbiological counting could not be greater. But in biopolitical regimes, it is also notable that the totalizing forms of modern health citizenship that Foucault famously associated with the disciplinary aspects of nationally territorialized administrative biopower in the nineteenth and twentieth centuries are being deterritorialized and reterritorialized anew. In other words, the government of health within the geographical boundaries of national sovereignty is being replaced by new geographies of health management that operate at and across other spatial scales. The ever-expanding abundance of data associated with molecular body-counts in wealthier contexts appears to be replacing national governmental sovereignty over health citizenship with newly personalized forms of biological citizenship that more privileged individuals can access easily across international borders (Rose and Novas, 2005). Immortalized stem cells ordered online and transported globally, bio-databases in the cloud and cross-border medical tourism, all help to make such biological citizenship transnational in scope (Wahlberg, 2012). Meanwhile, the gaps in population body-counts in poor countries that reflect an absence of adequate national health surveillance have led to macro body-counting being conducted non-nationally from afar by global health metrics institutions and non-governmental organizations (NGOs) based in wealthy countries (Nguyen, 2005; Sangaramoorthy and Benton, 2012). Moreover, in both of these emerging regimes of cross-border body counting, it is clear that market forces play an ever more important role vis-à-vis the state. Much

of the innovation in personalized medicine is being driven by market actors such as insurance companies and for-profit biomedical businesses. At the same time, it is the market actors of global finance that have largely forced the defunding of health systems in poor countries (and thus the lack of comprehensive health data collection) by imposing structural adjustment programs that end up, amongst many other illness-inducing effects, subordinating traditional public health surveillance to the financial surveillance of Wall Street, the World Bank and IMF (Sparke, 2013).

The connections and contradictions between these increasingly post-national regimes of body counting can also be traced back to particular nodes of health governance, including so-called global cities such as Seattle (Sparke, 2011). P4 medicine, to take just one example promoted by microbiological entrepreneurs at the Seattle-based Institute for Systems Biology, is being advanced through a transnational public-private partnership between Integrated Diagnostics Inc. and venture capital from the United Kingdom, United States and Grand Duchy of Luxembourg (<http://www.systemsbio.org/about-partnerships>). The four Ps in P4 medicine are supposed to stand for *predictive*, *preventive*, *personalized* and *participatory* – along with multiple promises about genetic tests enabling prudential health management for individuals. Yet underpinned as the project is by the unacknowledged P of *profit-making*, it has also moved in a decidedly *post-sovereigntist* and *post-national* direction that transcends state-society borders and international borders at the very same time. A better formula for P4 medicine might therefore be P7, a letter and number which, when transposed back to the P of population body-counts being made nearby at the Seattle-based Institute for Health Metrics and Evaluation, can serve as a cautionary corollary about the vast numbers of people globally who are excluded from personalized risk management (www.healthmetricsandevaluation.org/), including for example, the 7 million children who die

every year before they reach the age of 5 (Lozano et al. 2011).

Today's inequalities between biopolitical regimes serve as another reminder that biology itself is ever more mediated by social, economic and technological ties. Indeed 'biology is destiny' – the old axiom and excuse of traditionalists – seems more false now than ever. Much of the biological inheritance poor people are born with is daily degraded or diminished in its beneficial health effects by the poverty, stress and economic insecurity that come with surviving in slums and other precarious environments. Meanwhile, huge investments in microbiological research, health diagnostics, pharmaceuticals and biomedical interventions in wealthy contexts continue to help more privileged individuals manage the risks due to both inherited and social determinants of ill-health – although even the very rich cannot fully insulate themselves from the negative health effects of unequal societies (Wilkinson and Pickett, 2010). Clearly, the health benefits of new biological knowledge are unevenly distributed and limited in their reach.

Even in rich countries where the knowledge and associated diagnostic technology is available, it can often be as disciplinary and disabling as it is enabling; leading, for example, to the personal responsabilization or blame of biologically defined sub-populations (such as pregnant women) for health challenges created by global processes (Mansfield, 2012). And meanwhile in poor parts of the world where there is new attention to the personal risk factors for non-communicable diseases, such as diabetes (and therefore more concern with molecular body-counts), we still see that war, poverty and the ill-effects of debt-based market discipline make populations vulnerable to infectious disease, injury, and all the other acute pathologies that generate annual death tolls on a massive scale (Benatar et al. 2011; Farmer, 2005; Rowden, 2009). Due to such 'double-burdens' on the poor, evidence of ongoing epidemiological division would seem to

contradict both historical hopes and biological boasts about inevitable epidemiological transition. Indeed, we can now see that such transitions can go backwards too. Thus, in southern European countries once famous for making the epidemiological transition and benefiting from healthy behaviors such as the Mediterranean diet, the recent debt crises and the suffering of all those unable to insulate themselves financially have led to a sudden surge in mental health disease and suicide (Stuckler et al. 2011). In September 2011, for instance, the Greek minister of health announced that the suicide rate in his country had spiked by 40 per cent (EuroHealthNet, 2011).

Reflecting on both the obdurate and evolving inequalities between the different spaces of body-counting, it is tempting to suggest that a better axiom for our times is that 'geography is destiny'. Influential physicians and economists as well as geographers have certainly been tempted by environmentally deterministic versions of this argument (O'Neil, 2006; Sachs, 2005; Diamond, 2005). But for geographic explanation to be anything more than another alibi of traditionalists blaming nature again for socio-economic subordination, it is an axiom that demands an open and dynamic understanding of geography as a series of ongoing space-making and space-connecting processes (Sheppard, 2011). This chapter seeks to chart just such a productive and connective geography of health. It does so by connecting the privileged spaces of personal risk management with all the other places where body-counts are still mainly done at the macro-scale of deaths due to treatable causes per year. By linking personal risk management and population risk in different parts of the world, the goal is to complicate the simple binary juxtaposition of the two spaces of body-counting. The argument, in short, is that we cannot fully come to terms with the two kinds of body-counting without understanding how they, and the different biopolitical regimes they represent, are connected by biocapital. Thus, after reviewing some of the important

geographical work that has already helped to bring inequalities in biopolitics and biological citizenship into view, the focus for the rest of the chapter is on the ties that nevertheless connect increasing population risk in some places with the personal mitigation of risk in others. Three particular border-crossing ties demand especial attention in this regard: (1) the ties of bio-data production; (2) the ties of organ and tissue transfer; and (3) the ties of health-worker migration.

Finally, and further complicating the binary division between spaces of population risk and spaces of personalized risk management, the chapter concludes by addressing some of the novel ways in which contemporary global health interventions in poor countries are creating a series of hybrid treatment geographies. These are emergent geographies where personalized risk management for re-emergent diseases afflicting the poor becomes possible, and where a local and temporary form of microbiological citizenship is therefore also made available to particular sub-populations for particular periods of time. But they are also emergency geographies in which, and to which, access to risk management is restricted both geographically and temporally by the spatial selectivity, disease-selectivity, and time-limited constraints of grant-funded health programming (Redfield, 2005). They are geographies that make micro body-counting possible in an often enclaved space of emergency intervention, and yet do so by making exceptions within wider contexts where macro body-counts of death due to inequality continue unabated. A site that is excepted thereby constitutes what the anthropologist and physician Vinh-Kim Nguyen (2010) describes as a new territory of biopolitical sovereignty: a ‘republic of therapy’, in Nguyen’s terms, that reterritorializes and redefines health citizenship as an emergency form of therapeutic citizenship for selected subjects in specially selected spaces and times. As novel and as desperately desired as they often are, such hybrid global health treatment geographies therefore present us once again with a picture of

ongoing epidemiological division rather than inclusive and sustainable transition.

ON THE GEOGRAPHY OF BIOPOLITICS

Recent geographical scholarship on health and biomedicine has already highlighted the importance of analyzing the inequalities that tend to be overlooked in more technological and philosophical disquisitions on biopolitics (see also Fassin, 2009). Bruce Braun (2007) and Susan Craddock (2008), for example, have both offered important critical questions about the limits and exceptions to the sorts of biological citizenship theorized by Rose. And, while Gerry Kearns and Simon Reid-Henry (2009) are still tempted by a ‘geography is destiny’ discourse linking longevity with ‘geographical luck’, their overview of health inequalities vitally underlines some of the dominant political-economic structures that restrict who is enabled to participate in the new biopolitics of biomedical self-optimization. *Bioinequality*, to use Didier Fassin’s own critical revision of the Foucauldian category, is therefore something that geographical researchers seem especially well placed to map. It is important to emphasize, though, that these are all sympathetic critiques that by no means take away from the arguments of Rose and others about the significance of biopolitical change in the twenty-first century. Indeed, as Craddock (2008: 280) reminds readers, Rose and Novas themselves acknowledge that many of the new practices and technologies comprising biological citizenship have ‘no visible presence in whole geographic regions’ (Rose and Novas, 2005: 451). In the same way, this chapter is not written as a rejection of Foucault-inspired studies of biomedicine, nor yet as a denial of the importance of the ethopolitical dilemmas that exercise Rose and his colleagues. To begin with, therefore, it is worth noting elements in Foucault’s own account of biopolitics that suggest the need for tracing ties between unequal spaces of body-counting – even if, as Fassin underlines, “‘inequality’ is

a word that never appears' in these writings (Fassin, 2009: 49).

Foucault's early insistence that 'disease has a land, a mappable territory' (Foucault, 1973: 149) might be read as an indication of interest in the geography of biopolitics, but his main concern back in *The birth of the clinic* was with the ways that late eighteenth century clinical visualizations of the body opened new conceptual rather than geographical terrain. Subsequently, as his investigations of the linkages between subjectivity formation and social control continued, Foucault became much more interested in how micro-practices of spatial categorization mediated macro political organization and the 'governmentalization of the state'. (Foucault, 1991: 103). To be sure, he is still best known for his capillary focus on sub-national institutions such as military hospitals where 'an administrative and political space was articulated upon a therapeutic space' (Foucault, 1979: 144; see also Philo, 2004). It was this concern with the biomedical administration of institutional space that formed the intellectual underpinning for his more singular (and more cited) turn to examining Bentham's Panopticon (Elden, 2003). But it was also Foucault's enduring interest in disease and the control of biopolitical flow that later led him to shift geographical scales again and describe the biomedical formation of the modern nation-state in terms of country-wide spatial articulations between older ideas of pastoral power, modern therapeutic treatment and population securitization – articulations that simultaneously sought to territorialize the horizon of biopolitics and externalize the shadow of epidemic threat (Thacker, 2009). He thus depicted 'state medicine' (exemplified by Prussia), coming together with 'urban medicine' (exemplified by France) and 'labor force medicine' (exemplified by England) to explain the medicalization of the whole space of the modern western nation-state (Foucault, 2000: 134 – 156).

It may still have only been the internal geography of national administration in

Europe that Foucault reflected on in his most famous writings on the governmentality, but if we follow the post-colonial reading of his work by Gayatri Chakravorty Spivak (1999: 279), the Eurocentric institutional analysis can still be read as informed, however unconsciously, by imperial reterritorializations. Sometimes, moreover, Foucault was also quite conscious and explicit about what he called the 'boomerang' effects, whereby innovations in biopolitical administration within Europe reflected experiments in imperial administration around the world (Legg, 2007; see also Graham, 2010). Extending this same sensitivity to colony-metropole connections into his account of governmentality, it is possible therefore to re-read Foucault's history of 'economic government' (Foucault, 1991: 92) as a provocation to study the ties of biocapital between unequal biopolitical regimes (Venn, 2009). To adapt Foucault's own words, such a reading brings into focus the 'multiple [global] relations between population, territory, [health] and wealth' that connect population body-counts in colonized communities with biological citizenship and its antecedents elsewhere (Foucault, 1991: 101, adaptation added).

Today, as we shall see, the traces of the biopolitically dispossessed continue to contribute to the formation of more enfranchised biopolitical subjects in both coded and embodied ways. Supplying a complex and varied mix of data, tissue and care-work, they help make the body-counting of biological citizenship a material possibility, just as imperial forms of expropriation made biopolitical administration possible in early modern Europe – the case of sugar from slave plantations enabling the European management of factory-worker nutrition being an especially brutal example (Mintz, 1985). For related geopolitical reasons, though, the inequalities involved are often hardened out into a picture of division rather than connection. In the deliberately dualistic formulation of Achille Mbembé (2003), they have repeatedly returned as a double act of biopolitics *and* necropolitics. And today, this

double act appears to endure amidst globalization as a neoliberal-cum-neocolonial reenactment of 'making live and letting die' (Li, 2010). Foucault's original description of modern biopolitics replacing the 'letting live and making die' of the Middle Ages can thereby be reused to describe the contemporary coincidence but spatial division of biopolitics and necropolitics: molecular biomedicine making 'making live' appear an increasingly individual affair in some places even as 'letting die' is collectively coordinated elsewhere by an unaccountable mix of laissez-faire market forces, outsourced military violence and the sovereign exceptions from health and health rights that such forces and violence so often entail on the ground.

One powerful geographical factor involved in enforcing the division between the different regimes of body-counting (and in obscuring the ties that reproduce the inequality that is institutionalized in such division) is the geopolitical construction of biosecurity risks (cf. Abraham, 2012). 'Geographies of blame', to use the critical terms of Paul Farmer (2006), repeatedly work in this way to fashion geopolitical origin stories for disease and ill-health in the dispossessed places of the Global South (Craddock, 2008; Sparke and Anguelov, 2012; Wald, 2008). For Braun and Craddock, it is just such efforts to distinguish and externalize biosecurity danger zones that simultaneously reveal the limits of the molecular risk management that Rose refers to in the terms of ethopolitics. Thus in her critical arguments about the excluded others of a worldwide biotech regime based on patents, profits and personal body-counting, Craddock (2008) documents a whole world of inhuman body-counting that is commonly depicted as only having itself to blame. Following Giorgio Agamben (1998), she describes this world as a space of exception in which the invisible hand of market-rule comes together with various cultural excuses for inaction to end up administering death rather than life. Also following Agamben, Braun suggests that such spaces of exception are nevertheless treated to new kinds of

pre-emptive sovereign control and domination from afar in the name of biosecurity. Here, he says, 'forms of pastoral power recede while new forms of sovereign power appear' (Braun 2007: 24–25).

For Braun the division and territorialization of biopolitical fate can thereby be mapped in terms of security and insecurity. He draws on work that has sought to untangle the tangled geoeconomic-cum-geopolitical discourses of security that divide the world dualistically into a peaceful core of neoliberal integration and a violent 'gap' or 'arc' of instability where illiberal geopolitical violence by the self-styled policemen of globalization is scripted as crucial for geoeconomic security in the neoliberal core (Roberts et al. 2003). Braun himself does not dwell on these unstable articulations of sovereignty, but he importantly adds to the critical-geopolitical argument by suggesting that the divisions between the so-called core and gap also operate to divide and distinguish the differential biopolitical regimes too. 'We must ask,' he therefore concludes,

whether the conditions of possibility for ethopolitics ... include the extension of sovereign power elsewhere in the name of biological security. For not only does the Global South lie outside the technoscientific and cultural networks that compose the ethopolitical for Rose, but arguably biological existence there is increasingly subject to projects that seek to pre-empt risk through new forms of sovereign power. We are faced with the troubling thought that in the molecular age, what appears to us in terms of an ethics of 'care of self', and as a pressing problem of democracy, may appear to others as yet another expression of empire (Braun, 2007: 25).

Braun's final thought is indeed troubling for those who find contemplative comfort in ethopolitics. It obviously troubles the singularity of 'life itself' and makes us think again about the uneven geographies of premature death that are the dispossessed underside of Western biomedicine, power and subjectivity in the age of neoliberal globalization. Furthermore it points in turn to the need to investigate what is obscured by

all the geoeconomic rankings of the World Bank and others that use medical metaphors to suggest that curing the world's 'failed states' of disease will give them the vitality they need to re-integrate economically and climb the ladder of capitalist growth (Sparke, 2009; and, on the application of disease metaphors to 'failed states', Manjikian, 2008). As Melinda Cooper argues in her brilliant critique, such keenly capitalist arguments ignore the very connections of capital that have made so many of the world's dispossessed populations sick in the first place. '[T]he simultaneity of the North-American biotech revolution and the troubling return of infectious disease of all kinds,' she argues, 'is symptomatic of the intrinsic contradictions of capitalism. The peculiarity of capitalism on this argument would lie in its tendency to create both an excess of promise and an excess of waste, or in Marx's words, a promissory surplus of life and an actual devastation of life in the present.' (2008: 58). Likewise, in a recent remapping of what they usefully call 'bio(necro)polis', Michael McIntyre and Heidi Nast argue that these same sorts of contradiction amidst connection also account for why 'the necropolis is a peculiar "spatiality-for" the benefit of the biopolis' (McIntyre and Nast, 2011: 1474).

Yet while the contradictions highlighted by Cooper, McIntyre and Nast clearly support Braun's argument about bioinequality, their emphasis on capitalist connections also simultaneously troubles the suggestion that the global south might 'lie outside the technoscientific and cultural networks that compose the ethopolitical.' By contrast, by tracing the ties of biocapital and their articulation with varied forms of race and gender formation too, Cooper, McIntyre and Nast instead indicate ways in which the Global South is subject to a different biopolitical regime partly because of the ways it is *already* incorporated into the technoscientific and cultural networks that make more privileged forms of biopolitics possible elsewhere. This is also a key point that Craddock

emphasizes in her ongoing analyses of the inequalities limiting access to life-saving medicines (Craddock, 2007, 2008, and 2012). The problem is not so much about being outside or disconnected from the networks of biocapital, but rather of being connected in ways that dispossess and disempower – of being subject, for example, to a pharmaceutical production regime underwritten by the World Trade Organization's (WTO) TRIPS rules that restrict the ability of governments in the Global South to provide their populations with medicines that can save lives. The world of molar body-counts is tied in these sorts of ways to the world of molecular body-counting through a form of adverse incorporation – something that a number of geographers have also highlighted with detailed ethnographies of dispossession too.

In order to understand the underlying connections of adverse incorporation, it is important to remember that the worldviews and scripts that subtend the distinction between peaceful capitalist core and unstable disconnected gap remain geostrategic discourses (Sparke, 2007b). Geoeconomic emphases on market integration and geopolitical emphases on militarized land grabs therefore often obscure the underlying capitalist connections that the discourses aim at influencing (Sparke, 2013). The discursive emphases may alternate as ruling ideologies in different times and places, and they also can have profoundly material consequences on the ground, but they are not the same as the changing capitalist processes and spatial fixes that their users seek to secure (compare Sparke, 2005 with Cowen and Smith, 2009). Instead, as a number of recent studies have shown, geoeconomic discourses advertizing the security benefits of economic integration have a long history of obscuring exploitative ties that already exist, as well as working hand in glove – invisible hand in military gauntlet, might be a better metaphor for this double action – with *concurrent* assertions of geopolitical interest (Coleman, 2007; Domosh, 2012; Essex, 2012; Hyndman, 2012; and Morrissey, 2011).

The particular examples introduced by Essex about international hunger management show how attention to the discursive double action of geoeconomics and geopolitics is especially useful for analyzing bio-inequality in the context of neoliberal globalization. 'The hungry are the embodiment of neoliberalization's failure,' he says. But this is, in turn, obscured by the mix of geoeconomic assumption and geopolitical assertion that Essex argues is used to finesse a neoliberal solution: namely, efforts imagined in terms of 'reconnecting' the hungry through the targeted imposition of coercive and exploitative Food For Work programs. As Alan Ingram (2011) has argued, and as shall be further explored in the concluding part of this chapter, very similar solutions are also being advanced in response to the AIDS crisis – solutions that aim with geoeconomic hope to expand the incorporative reach of therapeutic citizenship by simultaneously activating geopolitical fears about AIDS orphans becoming, amongst other things, terrorists. However, in the case of AIDS interventions we also see another development that reveals a still more direct and contributive tie back to the world of biological citizenship from the necropolitical underworld of big body counts. In addition to the restrictive sorts of global ties already referenced – the trade rules that curtail access to essential medicines, and the agro-industrial networks that fail to feed the world's hungry – some of the AIDS-related connections are also more constitutive in character. They include, most notably, the ties of drug testing, biological research, and biomedical career-building in poor communities: practices that often serve to support biological citizenship elsewhere precisely because of the lack of such citizenship locally in poor countries (Crane, 2012; Wendland, 2008, 2012). It is to a wider review of such interdependencies that we now turn, focusing most especially on the flows of data, tissue and health-workers from spaces of big body-counts to spaces of biological citizenship.

BIO-DATA DEPENDENCIES

There are at least two key data flows coming out of places of macro body-counting to support privileged and personalized forms of microbiological body-counting elsewhere. First, there is the data being collected through drug-testing and other forms of clinical research in poor communities, often times involving tests for new drugs for illnesses or lifestyle 'needs' that are not even an issue in the contexts where the tests are conducted. And second there is the data that is generated through public health surveillance in the Global South, data that is demanded by world health regulations premised on an understanding of shared planetary vulnerability to diseases such as SARS and influenza, but data that, because of vast inequalities in access to medicines and public health protection, tends to turn the populations of poor countries into little more than canaries in the mineshafts of global disease data-gathering. In each case, the inclusive opportunities made possible by new biological knowledge are undermined by forces that limit their application and benefits.

A series of biological, economic and bio-ethical imperatives have increasingly come together to make the outsourcing of drug testing especially important for contemporary drug development (Cooper, 2008; Craddock, 2007; Petryna, 2007; Rajan, 2007). The biological advantage, indeed microbiological advantage, of recruiting experimental subjects in poor country settings is that their bodies allow researchers to test new drugs in living laboratories that are free from the pharmacological interference of other drugs. In the language of drug testing science, the bodies of fully enfranchised biological citizens make for far less optimal clinical trials because they are 'treatment saturated' – which is to say, full of pills. Poor people's bodies, by contrast, are usually much better for research because they are said to be 'treatment naïve' (itself a term loaded with old imperial assumptions about child-like natives). This means that new

drugs can be tested on poor people in the Global South without the risk of the drug-to-drug interactions that make it hard to show the specific effects of a single drug and which therefore undermine the statistical significance of drug trials conducted on 'treatment saturated' bodies (Petryna, 2007).

A large industry of contract research organizations (CROs) now caters to the need to find suitable experimental subjects all over the world. It does so in turn with cost-effectiveness as another key consideration. Economically it is much cheaper to recruit drug trial subjects in resource-poor contexts, and it is also more cost effective to conduct trials in countries where there are well-trained but less well-paid medical staff (middle and lower income countries, which previously made socialist investments in medical training, have become especially important for these reasons). This accounts for the rapid recent increases in CRO-administered trials in countries such as Russia, Hungary and India. Researchers writing in the *New England Journal of Medicine* report a pharma executive as saying that 'a first-rate academic medical center in India charges approximately \$1,500 to \$2,000 per case report, less than one tenth the cost at a second-tier center in the United States' (Glickman et al. 2009). Such huge cost savings mean that poor people in countries such as India are far more likely to encounter the world of biological citizenship through drug trials than through affordable access to medicines (Salter et al. 2007). One of the most thorough studies yet conducted on the interconnections between economic influences and pharmacogenomic drug development explains that as a result 'the more likely subject position for Indian populations with respect to genomics is not that of a *consumer* as much as that of *experimental subject*' (Rajan, 2007). Meanwhile, in many parts of sub-Saharan Africa, volunteering for clinical trials and experimental treatment programs is often the only way to secure access to any medical attention whatsoever (Nguyen, 2010). In such contexts of extreme poverty, therefore, CROs do not have to pay much or explain much in order to find ready and willing human subjects. The economics of

poverty and the economics of pharmacological research instead come to match supply and demand globally to create ties between the poor and the biological citizens who benefit from all the ongoing experimentation.

Worse still, as movies and books such as *The Constant Gardener* dramatize, recruiting experimental subjects in poor country settings also offers researchers a way of avoiding the bioethical regulations that apply to clinical trials in wealthy countries (Le Carré, 2004; Angell, 2005). Even if the resulting abuses do not lead to the murder and conspiracy depicted in fiction, the inequalities in political-economic power and protection are all too real, and the resulting loss of rights for experimental subjects all too common. Here again we come back to the basic question of access to benefits. The World Medical Association's *Helsinki Declaration* on the treatment of human subjects states that at the end of a clinical trial, participating subjects should have access to the best therapy identified by the study (WMA, 1964). However, with some notable exceptions relating to the hybrid public-private drug development partnerships of contemporary global health programs, very few of the drugs being tested in off-shore trials are ever affordable to local communities and so they effectively have no access. Relatedly, there is also a common disconnect between the wealthy country diseases (such as allergies) for which new drugs are being tested and the more acute and deadly diseases (such as malaria and TB) that create the biggest burden in poor countries. As Craddock (2007, 2012) and others explain, there has generally been far less economic incentive to develop drugs for the poor, and so less than 10 per cent of drug development investment globally is spent on diseases that actually affect 90 per cent of the world's population. This looks like division, and it is undoubtedly an illustration of health inequality. Yet at the same time, members of the disenfranchised 90 per cent are still clearly connected to the lives of the more privileged 10 per cent by drug-testing. They may never benefit from the new therapies, or even understand their purpose, but they are systematically

exposed to testing risks precisely so that risk-managing biological citizens elsewhere can avoid them.

A second set of ties between the two worlds of body-counting exists because of the ways in which responses to disease threats are organized in the context of economic globalization. 'Disease knows no boundaries' is the common cliché used to introduce global health as a field of study and to legitimate a shared global approach to data-gathering in the age of global tourism, global migration and global trade (Skolnik, 2012). And yet, in case after case, real pandemics reveal that the benefits of such data sharing are often limited to those countries and communities who can afford to respond to the threats detailed in the surveillance data (Giles-Vernick and Craddock, 2010). In the case of the 2008–2009 H1N1 influenza scare, for example, it soon became clear that poor countries would be unable to access vaccines and anti-viral medicines, even as they were asked by the World Health Organization (WHO) to expend precious public health resources gathering surveillance data for the benefit of wealthier populations (Sparke and Anguelov, 2012). The WHO's 2005 International Health Regulations are necessarily inclusive and apply equally to all 194 member countries – countries that are known in the binding contractual terms of the regulations as 'States Parties'. By contrast, the H1N1 scare showed that the stockpiling of anti-virals by rich countries along with their state party contracts with private sector vaccine makers left poor countries excluded and very vulnerable (Sparke and Anguelov, 2012).

In addition to revealing the inequalities in access to medicine, H1N1 simultaneously also led to innovations in personalized biological citizenship. There was in fact an app for that. The new iPhone application known as '*Outbreaks Near Me*' was one of the most telling public health innovations to come out of the response to the pandemic: a radically localizing, marketizing and individualizing disease surveillance technology. Not near us, not near our nation-state, but 'near me', the

application promised individual users GPS-enabled alerts when an outbreak might be occurring in their personal vicinity. In addition, the app also offered consumers the opportunity to become disease detectives themselves by being the first to spy and report signs of an outbreak. 'You will get credit as a disease detective,' the ad on iTunes explained, 'and your find will be featured on the Health Map website (www.HealthMap.org).' Here the traditional state authority over the production of surveillance data and the mapping of public health geography was being usurped by an upstart example of Web 2.0 or Neo-Geo cartography (Sparke, 2010). The result was being advertized to the consuming classes – those that could afford to purchase iPhones, pay the monthly fees, and invest effort in reviewing and installing apps – to buy themselves personalized but electronic and hence mobile biological risk management enhancements. It should be noted that an important feature of the Health Map website itself is that all its data and diseases maps are free for anyone with access to the Internet. The site's creators also adapted its citizen-science possibilities to contribute to relief efforts in Haiti after the devastating 2010 earthquake. But if one reviews the locations of infectious disease proliferation that are charted more generally on the site, and if one then compares these locations with the most likely locations of Internet-enabled users, the asymmetries in global data flows – i.e. where they come from versus who they benefit – reveal obvious bio-inequalities. The special focus on flu data itself is also telling in this regard: the possibility that it could spread from poor to rich right around the world trumps the reality of much more lethal diseases – malaria and cholera, for example – afflicting but *not* spreading broadly beyond communities of the poor.

TISSUE AND ORGAN DEPENDENCIES

Alongside the bioinequalities highlighted by sample-and-benefit sharing controversies, there are still more stark asymmetries involved

in organ exchanges between the world's poor and rich. In the transnational trade in 'fresh' organs, we see the risk-managing strategies of today's biological citizens being supported by an especially egregious risk-making exploitation of others. The kidneys, corneas, intestines, tendons, livers and even lungs that are globally traded are not all sourced in the same way, with some 'donations' remaining genuine gifts, while others involve the legalized sale of tissues-turned-commodities by so-called Commercial Living Donors (Waldby and Mitchell, 2006). Yet others involve illegal transactions and trafficking on the 'red market' of the sort depicted in movies such as *Dirty Pretty Things* (Carney, 2011). By adding commodified organs and tissue to biomedical supply chains, and by also enabling a growing business in medical transplant tourism in countries such as Pakistan, India and the Philippines, today's transplant trading markets eclipse older ethical boundaries between gift economies and commercial economies at the same time as they transcend the old territorial boundaries of national organ donation systems, national waiting lists and associated national regulations (Waldby and Mitchell, 2006).

The boundary between legal and illegal transplant trading is itself constantly moving, with both new biomedical technologies and new laws frequently enabling or forcing the trading to go in new directions. Key advances in the molecular suppression of the immune system needed to prevent the rejection of transplants have been vital. Likewise, all sorts of developments in *in vitro* fertilization allow for the transnational outsourcing of pregnancy and childbirth to surrogate mothers. At the same time, some countries such as India and the Philippines have imposed bans on what were once highly liberalized transplant markets, while notably illiberal governments, such as China's, allow for the procurement of prisoner organs after they are executed. In 2006, 11,000 transplants involved the organs of executed Chinese prisoners: including 8,000 kidneys, 3,000 livers and 200 hearts (Budiani-Saberri and Delmonico, 2008).

Since 2007, when China passed a human transplantation act banning commercial organ trading, it is estimated that the number of transplants going to foreigners was cut in half, but many other places can provide for the lost supply. Indeed, a large network of supply chains exists, and the key nodes in this network – Bombay, Chisenau, Johannesburg, Lima, Lvov, Manila and Tel Aviv – have become the 'global cities' of the transplant business.

According to the anthropologist and anti-trafficking activist Nancy Scheper-Hughes, the circulation of organs through the transplant cities network follows the pattern of financial globalization with value moving from the Global South to the North: 'from poorer to more affluent bodies, from black and brown bodies to white ones, and from females to males' (Scheper-Hughes, 2005: 150). At one end of these value chains we find individual biological citizens doing personalized risk management with all sorts of body-counting concerned with the durability of both their own organs and those they hope to acquire. At the other end, the sellers of organs report another set of body-counting calculations altogether. For them, coming of age in places such as the Bangon Lupa slum of Manila means becoming legally old enough to sell a kidney. These desperate kinds of personal calculations may also often lead to lies about their ages, their names and their medical histories of exposure to diseases such as TB, AIDS and dengue fever. Such is the desperation involved that some scholars disagree with the absolutist arguments made by Scheper-Hughes and others for legislative bans on commercialized transplants. They counter that the economic forces driving people to sell parts of their bodies will continue, and so the best alternative to forcing organ trafficking further underground is to regulate it and thereby extend a very basic form of medical citizenship with monitoring and post-operative health care to the biological progenitors of the 'gift of life' (Yea, 2010).

Many other economic imperatives can be found structuring the ties of transplants,

including the complex calculations of biological citizens navigating the hybrid public–private systems shaping access to tissue and transplants within national programs such as the United Network for Organ Sharing (www.unos.org/) in the United States (which notably allows non-national citizens to become biological citizens of the program so long as they can pay). Actuarial approaches predominate in these systems too, turning the health of the self into a complex numbers game mixing-up molecular and market data in the calculation of individualized risk and reward. Ranging from strictly microbiological body-counts relating to antibody levels and blood types, to medical-situational numbers relating to things like time left to organ failure, to the socio-economic counts associated with insurance coverage, income and financial net worth, these individualized body-counting practices become the basis of each individual's biological citizenship. Not surprisingly given the wider market metrics and influences, socio-economic class thereby also tends to become a key determinant of who is most advantaged and who stands a poorer chance of being approved for a transplant. Biological citizenship is, in this sense, internally stratified by economics too, and not just a matter of insiders versus outsiders.

Bereft of rights within transplant systems for which they serve as the ultimate external short cut, commercial living donors remain outsiders when it comes to personal risk management. They have no health citizenship rights or protections against risk, and instead are integrated into the trading of organs and tissue through the biology of the genetic-matching designed to reduce risk for others. Indeed, inverting the actuarial approach of transplant beneficiaries, an individual decision to sell an organ at a particular moment of economic crisis is generally followed by *increasing* forms of risk thereafter. Post-operative complications and chronic pain are common, and Commercial Living Donors (CLDs) also often have to deal with forms of social stigma and exclusion too, including being seen as weak, disabled or unviable for

marriage (Scheper-Hughes, 2005). They therefore endure underclass experiences of extreme vulnerability and significant personal danger while they provide the vital biological material that helps other people in more privileged positions manage their own risks more effectively. In the end, however, some of the same vulnerabilities and dangers that drive commercial living donors to sell their organs can still eventually come back to haunt recipients of their organs and the bio-medical infrastructure of biological citizenship too. 'Even physicians who would have no part in the organ trade,' note two contributors to the *American Journal of Transplantation*, 'now bear a responsibility for the medical care of those recipients who return ... with unknown risks of donor transmitted infection (such as hepatitis or tuberculosis) or a donor-transmitted malignancy' (Budiani-Saberi and Delmonico, 2008: 926).

HEALTH-WORKER DEPENDENCIES

While some doctors do global work when they confront infections that are transmitted transnationally, many other health workers, including large numbers of nurses and care assistants as well as physicians, work globally because they move themselves. Traditionally, this involved younger nurses and doctors moving between the world's richer countries, but over the last two decades health-worker migration from poor countries to rich countries has also increased significantly, representing an especially important interdependency between the divided worlds of body-counting we have been considering here. Poor countries that spend already limited health budgets training doctors and nurses for domestic work are losing these workers to higher paying jobs with better benefits and working conditions overseas. It is estimated that about \$500 million is lost this way each year on the training of health workers who leave for richer countries (Serour, 2009). Sometimes leaving within 2 years of finishing their training, these departing health

workers represent an especially tragic loss for the 57 poor countries that the WHO lists as already suffering from critical shortages of less than 23 doctors, nurses and midwives per 10,000 population (WHO, 2012).

At the same time, rich countries have seen their share of foreign-trained doctors and nurses climb, adding to what are already especially high ratios of health workers per capita – physician ‘density’ in the United States and United Kingdom, for example, is about 27 doctors per 10,000 population. In 2008, the percentage of foreign-trained doctors was 23 per cent in Australia, 26 per cent in the United States, 32 per cent in the United Kingdom and an enormous 36 per cent and 39 per cent in Ireland and New Zealand, respectively. Similarly the percentages for nurses show a significant dependence on foreign-trained workers with Ireland at 47 per cent, New Zealand at 22 per cent, Australia at 16 per cent and the United Kingdom and the United States at 8 per cent and 4 per cent, respectively (OECD, 2010). As a result of these sorts of data, scholars now regularly write about the problem of health worker ‘brain drain’ from poor countries, with one 2003 article in the *British Medical Journal* asking whether we should call it ‘the great brain robbery’ and another in the *New England Journal of Medicine* in 2005 answering that: ‘the exodus constitutes a silent theft from the poorest countries through the loss of public subsidies for medical education’ (Patel, 2003). More recently and more urgently, an article in *The Lancet* has even described the active recruitment of health workers from sub-Saharan Africa as an international crime against humanity (Mills et al. 2008).

Connecting the two worlds of body-counting with their own bodies and care work, migrant health-workers experience the divisions very personally. They can be torn quite painfully between their own personal needs for reasonable pay and the costs to the countries and communities they leave behind. These costs are certainly very real. For example, a 2004 report indicated that with Ghana losing so many health workers to the

United Kingdom, the country had lost around £35 million of the investment it put into medical and nursing training – representing simultaneously a saving of £65 million in training costs for the United Kingdom (Martineau, 2004). However, as policy makers have struggled to respond to these and other injustices produced by health worker migration, they have had to remain mindful of the personal needs and rights of individual health workers too. As a result, the WHO’s Global Health Workforce Alliance mostly focuses on attempting to strengthen retention and remuneration in poor countries, rather than banning health worker migration itself. Similarly, the *Global Code of Practice on the International Recruitment of Health Personnel* developed and announced by the WHO in 2010 counterpoints observations about global needs and principles with an ongoing emphasis on health worker migration rights (WHO, 2010).

One other kind of compromise written into the WHO’s 2010 *Global Code of Practice* concerns another criticism commonly made about the recruitment of health worker migrants by rich countries, namely that it leads to forms of training in poor countries that are not well-suited to local needs. Whereas the complicated diagnostics of biological citizenship in rich countries require health workers with a knowledge of diverse microbiological metrics and tools, these skills are often of little use in low income settings that lack expensive diagnostic technology. Or, worse still, they are only used in poor countries in efforts to attract wealthy medical tourists to private hospital-hotels with adverts that talk about ‘First World Treatment at Third World Prices’ (Smith, 2012: 7). In response, the WHO calls specifically for member states to ‘educate, retain and sustain a health workforce *that is appropriate for the specific conditions of each country, including areas of greatest need.*’ However, there is also an awareness built into the Code that mutual educational benefits come out of health worker migration if it is sufficiently well managed with bilateral

and multilateral measures. If these principles end up being honored, they could illustrate how forms of interdependency that are currently structured by bioinequality might ultimately end up being transformed into improved health citizenship for all. Certainly this is the hope of other recent calls for globalized health worker education for the globalized twenty-first century (Frenk et al. 2010). However, as allied advances in global health programming already illustrate, many of the same bioinequalities that structure flows of bio-data, organs and health workers also continue to limit the inclusivity of efforts to make global health a reality for all. It is with these challenges that this overview of unequal global body-counting will now conclude.

GLOBAL HEALTH, ENTWINED BIOPOLITICS AND ENCLAVED OUTCOMES

The recent take-off of 'Global Health' as a key term of governance has been a particularly protean reflection of globalization, its connections, contradictions and ideational concern with the global entwining of lives across the planet. As such it has also systematically led to new efforts to transcend the bioinequalities we have been reviewing here, and offer new forms of more personalized biological citizenship to populations that previously only counted anonymously in annual death tolls of excess mortality and high DALY counts (Disability Adjusted Life Years is the metric for burden of disease counts in a population that aims at summing up in a single number both the lives lost to disease and the lives diminished by disease at the same time). The promise of much of this work has perhaps been best articulated as an effort to build utopias in what remains a dystopian world (Farmer, 2008). However, precisely because of all the violent structural forces and enduring inequalities of this dystopian world, the hopeful vision of making global health a name for an entwined reality

of health for all has repeatedly led to limitations and enclaved outcomes on the ground: outcomes in which the spaces of intervention that are imagined and built as utopias end-up being limited both spatially and temporally in their ability to offer lasting health citizenship to everybody.

Up until 2000, 'International Health' was still the dominant discourse in policy-making circles, and, even in its more inclusive institutional incarnations in the WHO and other UN agencies, it remained marked by notions of national interest and national sovereignty as opposed to more globally entwining ideas about shared planetary problems and goals. The 'national' in 'inter-national' therefore indexed the ways in which development assistance for health still tended to be marked by national interests, economic associations, and investment priorities as well as related colonial legacies and post-colonial aspirations. With the dawn of the new millennium, however, global health has eclipsed international health, continuing a rapid rise as the preferred policy-making focus. This take-off of interest in global health is also clearly evident in new educational initiatives and research funding too, of course. Universities are appealing to students everywhere with new global health classes, degrees and service opportunities. These discursive and educational shifts clearly reflect the widespread programming changes and funding opportunities created by all the philanthropies, multilateral agencies and NGOs that now either support or operate 'global health' as a suite of biomedical humanitarian programs beyond the borders and bureaucracies of national-state power.

If we follow the money that is actually spent on global health projects around the world, this too tells a take-off story, albeit one that has now hit the turbulence created by the ongoing economic crises (IHME, 2011). This Development Assistance for Health (DAH) data illustrates the dramatic rise in global health funding and the huge role being played by the Bill and Melinda Gates foundation (BMGF) and other philanthropies and NGOs.

It also shows the significant role being played by the big multilateral global agencies – the World Bank; the Global Fund to Fight AIDS, TB and Malaria (GFATM); and the Global Alliance for Vaccines and Immunizations (GAVI) – as well as the increased funding provided by Bilateral Development agencies (most notably USAID, and the UK's DFID), which is often itself increasingly invested in the name of global health. In this way, the common concern with the entwining of human life and death across the planet has been matched by an entwining of aid and intervention efforts for global health too. And it is these efforts that have repeatedly sought to bridge the gaps in body-counting that have been the focus of this chapter.

However, when we follow the money still further and look at where and how it is being spent on the ground an altogether less entwined picture emerges. What we are frequently seeing as a result of the new investment in global health are, instead, parallel patterns of enclaving and exceptionalism in which the extension of biological citizenship into impoverished areas is curtailed by wider political-economic imperatives. Thus while we are undoubtedly witnessing a set of transnational initiatives that have deterritorialized older national and inter-national health programs, the vertical interventions they have produced on the ground have themselves been reterritorialized anew, creating a series of micro, sub-national clinical compounds and research centers – republics of therapy, in Ngyuen's terms – that are often enclaved-off from the frail, defunded horizontal health systems that still serve the vast majority of the world's poor.

Other literatures, including the now extensive debates in *The Lancet* and elsewhere over 'vertical' versus 'horizontal' versus 'diagonal' approaches to global health already point to the enclaving pattern and its limitations (for an extended literature review and evaluation see WHO, 2009; for advocacy of quite different diagonal approaches see Frenk, 2006; Ooms et al. 2008; and Sepúlveda, 2006). These writings may not

refer specifically to the 'republic of therapy' as an enclave, but concern with this geographical problem – and most specifically, the idea of escaping the limitations of verticalized biomedical enclaving – still tends to inform the policy recommendations being made. Whether or not Global Health Initiatives (GHIs) can contribute to long term Health Systems Strengthening (HSS), would seem thus to depend on the degree to which disease-specific vertical programs can 'diagonalize' out of siloed enclaves of intervention to provide wider systems support and sustainability. It was in this same spirit that President Obama's own GHI involved a signature commitment to finding synergies across interventions and thereby moving beyond the limits of enclaved disease-specific programs. In the words of a 2009 speech, the resulting shift in strategy was clear: 'We cannot simply confront individual preventable illnesses in isolation' (Obama, 2009). Likewise, a growing awareness of the dangers of enclaving also informs calls for critical self-evaluation and monitoring amongst global health NGOs operating at arms length from national governmental control (Pfeiffer et al. 2008). A key concern in this regard is the problem of global health interventions creating internal brain drain problems in poor countries when health workers leave employment in national ministries of health drawn by the allure of higher pay and better conditions within health intervention enclaves.

Due to all these ongoing concerns, both the enclaving of global health and the search for alternatives look set to receive increasing attention going forward. Moreover, given the push provided by global health leaders calling for 'health systems synergies' (Frenk et al. 2010), and given the parallel pull produced by the economic crisis for global health to move from disease-selectivity to systems sustainability, it seems that the search for exits from the global health enclave will intensify. At the same time a series of anthropological investigations have now begun to provide us with more vivid pictures of what enclaving looks and feels

like on the ground, and why it might be a problem. Ngyuen's account of AIDS treatment centers in West Africa, is especially telling in this regard. He illustrates how inside republics of therapy a kind of partial and time-limited sovereignty of clinical triage is in operation. Entering into these spaces of therapeutic sovereignty, he argues, HIV/AIDS patients are obliged to tell particular sorts of stories about being seropositive in order to pass through the triage assessment process and qualify for treatment. To become a citizen of the clinical enclave, therefore, they must narrate their seropositivity in a way that replicates rituals of national biopolitical normalization found in rich countries, effectively reenacting them, albeit only partially and temporarily, in special sub-national clinical spaces created by NGOs and foreign aid in poor countries. 'Relief efforts,' argues Ngyuen, 'are thus political in the strongest sense, projecting the power of life and death, and doing so through an apparatus that has linked truth-telling to a vast epidemiological machinery for sorting out people' (Nguyen, 2010: 13).

In a similar argument, this is also a pattern that Peter Redfield depicts in his anthropological account of the emergency response camps created by Médecins Sans Frontières (MSF). Within the enclave of the camp, Redfield (2005) suggests, patients are temporarily moved into a zone of partial health citizenship where they can have rights to treatment and even to reliable food and other forms of support that are not available outside the enclave. Redfield re-employs the terms of Agamben to argue thus that emergency health camps function to move people out of the zone of *zoe* or 'bare life' and into an enclaved space of *bios*, albeit with temporary and circumscribed access to biological citizenship based on biomedical humanitarianism. The partial and fleeting forms of biological citizenship that these anthropological accounts suggest exist in global health enclaves are clearly tied to the molecularization of health rights and responsibilities that Rose (2007) locates in the consumption of

personalized biomedicine in rich countries too. Whether it is CD4 counting, or just blood pressure and calorie counting, some of the same body-counting metrics associated with personalized medicine are also practiced in global health enclaves, along with allied practices of making individuals responsible for their own numbers and risk management. As Ngyuen and Redfield both make clear, such enclaves thereby play host to the some of the same sorts of ethical dilemmas surrounding the enlistment and responsabilization of therapeutic citizens that go on in wealthier settings too. At the same time, however, the possibilities for sustained inclusion as fully enfranchised and engaged biological citizens are much more limited in poor country contexts. For example, opportunities still remain very limited in such contexts for using the advanced CD4 diagnostics needed to tailor anti-retroviral levels personally on an ongoing basis (AIDS2031, 2011: 40). For related reasons, the interpretation of seroprevalence data is often done from afar, thereby reproducing the 'distance between the places where the data are collected and where they are "cleaned," analyzed, and disseminated, [and] between those who serve as objects of analysis and those who perform the analysis' (Sangaramoorthy and Benton, 2012: 289). For these sorts of reasons, the ethical edges of the global health enclave – where inclusive treatment ends and exclusion starts – tend to be much more abrupt, and thus much more geographically obvious and consequential too.

Other observers have drawn attention to the imposing materiality of enclave 'edges', along with all their ethical shortcomings. Here, for example, is how the physician and anthropologist Claire Wendland (2008) has described such ethical edges in Malawi, where the enclave appears as ethically disconnected from an underfunded health system and wider socio-economic causes of ill-health.

Today, someone who walks from the northwest toward the Malawi hospital ward where I watched a young woman die long ago may

still pass the herbalists selling their medicines. Those approaching from the east or south must make their way between the gleaming buildings of the transnational research projects. Gates, Wellcome, the Centers for Disease Control (CDC), Johns Hopkins are all represented: all the big guns in international research, plus many smaller guns. The studies conducted within have been carefully vetted, stamped, and approved as ethical; there will be no more research on second-best therapies, though this restriction sometimes means the projects are not very relevant to the local clinical world. Climate controlled, well equipped, stuffed with staff and microscopes and laboratory reagents and automated specimen processors, the research buildings make for a striking contrast with the hospital they surround. It is sometimes hard not to see them as parasites feeding on an emaciated host (Wendland, 2008).

Notwithstanding, all the ethics manuals and Institutional Review Board (IRB) protocols now governing research with human subjects in poor communities, Wendland suggests there remains a profound ethical disconnect between such research and the wider socio-economic situations in which it is being conducted. People might receive top quality care inside the enclave, but the moment they leave and return to their communities all the problems of poor nutrition, unemployment, economic insecurity, dispossession and political violence remain the same negative societal determinants of health that made them vulnerable to sickness in the first place.

Many other accounts of global health practice are filled with similar concerns with the ethical enclaving of health clinics, NGO compounds and the research projects therein. For example, in an article entitled, “‘All I Eat Is ARVs’: The Paradox of AIDS Treatment Interventions in Central Mozambique”, another anthropologist and physician Ippolytos Kalofonos (2010) argues that a further ethical disconnect is evident in the widespread inability of many anti-retroviral (ARV) drug recipients to find the food they

need outside the global health enclave, food that becomes both ironically and urgently vital when their bodies start to recover from the symptoms of AIDS. Other extended studies of Prevention of Mother To Child Transmission (PMTCT) programs in Africa are now revealing similar disconnects associated with enrollment attrition in ARV treatment for mothers after they have given birth (Ferguson et al. 2012). As has also been documented in the case of Brazil, even when enrollment is successfully widened and maintained by the government sponsored ‘pharmaceuticalization’ of biological citizenship, mass ARV programs can also function to close-off the possibility of cheap generics for second-line AIDS treatments and other diseases (Biehl, 2007: 1099). This is because the access-pricing deals with pharmaceutical companies that make pharmaceuticalization possible also allow businesses to negotiate broader market access at the same time as inoculating themselves from political critique by being seen to contribute cheap or free medicines to the government sponsored programs. Meanwhile much microbiological research on AIDS, which is supposedly premised on reaching out to underserved populations with new medicines, has been found to repeatedly reimpose the molecular maps of more privileged biological citizens in ways that steer studies away from the subtypes and clades (viral varieties) of AIDS that most affect Africans (Craddock, 2007; Crane, 2011). Referring back to Rose’s account of biological citizenship, but carefully attuned to its uneven geography, Johanna Crane concludes thus that

not only is bioscientific knowledge about HIV in Africa limited, but most of the knowledge that does exist has been gleaned using tools predicated upon molecular maps of an HIV strain rarely found in Africa. It is within these tools that the geographic and economic inequalities of the global epidemic have become embedded at the molecular level, in technologies that always refer back to the ‘West’ – Western viruses, Western research capacity and Western markets (Crane 2011: 163).

Crane's critical work is also especially attentive to the problems of efforts to correct Western-centrism by conducting more global health oriented microbiological research in Africa (Crane, 2010a, 2010b, 2012). She argues thus that: 'US universities must come to terms with the fact that the very poverty and inequality that they aspire to remedy is also what makes their global health programs both possible and popular. In other words, in the world of academic global health, inequality is a valuable opportunity' (Crane 2010b: 93). Here we come back to Wendland's metaphor of the global health research clinic as a parasite. This critique may sound harsh (especially given the huge funds devoted to fighting malaria and other parasitic diseases in global health), but Crane's work, as well as Wendland's more recent writing on global health training conducted in African research enclaves, indicates all sorts of value extraction occurring alongside the research. There may well be local benefits too, and so turning the metaphor of a parasite into a theoretical framework for analysis is still something of a stretch. But the bioinequalities involved certainly indicate an unequal form of symbiosis. Western researchers and students can build their global health careers with brief stints in the African enclaves even as African students and researchers are effectively excluded from research gatherings by the same poverty that creates African disease vulnerability in the first place (Crane, 2010a; Wendland, 2012). Relatedly, the research being conducted in an ethically vetted enclave may sometimes extract research findings that offer little immediate value to the host communities (Crane, 2012). And then, beyond these problems of research value extraction, there are yet others associated with the ways bioinequalities also skew health-worker movements inside poor countries: either by pulling health professionals away from national health systems to focus on single diseases (Pfeiffer, 2008), or encoding privilege in ex-pat mobility versus local fixity (Redfield, 2012), or by giving foreign aid-workers the opportunity to live an enclaved

NGO 'high-life' with unfortunate echoes of imperial excess and exploitation in the fortified administrative enclaves of (former) colonies (Fluri, 2009; Mbakwem and Smith, 2009).

Due to all of these dystopian dynamics, it may well be argued that the utopian promise of the global health therapeutic enclave is being turned into another 'necropolis' functioning as a "spatiality-for" the benefit of the biopolis'. McIntyre and Nast's description of the strange and strained geography of 'bio(necro)polis' certainly seems to fit many of the emerging patterns of emergency global health, and even the work of *Partners in Health* has been critiqued for being complicit with a humanitarian form of anti-politics that obscures exploitation in the name of ethical intervention (Dubal, 2012). Dubal's disaffected renunciation of Paul Farmer ignores how the latter's concept of structural violence helps highlight rather than hide processes producing bioinequality, but his points about Jim Kim's pragmatic business partnerships are much more persuasive. Indeed, as well as capturing the evolving ideological accommodations of the new World Bank president very well (Bond, 2012), they also point to the apolitical implications of global health targeting as a geographical problem itself.

Practiced as an exceptional series of spatially targeted and temporally limited vertical interventions that are funded competitively for short periods of time, what we call global health seems unlikely to go from promise to reality, i.e. to being a description of equal health citizenship for all globally. It may continue to name a set of biomedical programs, but if the sorts of bioinequalities outlined in this chapter remained unaddressed, it will also continue to be a 'misnomer' when applied to the real human geography of sickness and health globally (Heywood, 2002). No doubt all sorts of geographies of blame will go on being offered to explain away these inequalities and exceptions. But geographers can, for the same reason, contribute to an alternative by persistently mapping the

ties that bind biopolitical destinies across the divisions of bioinequality. Work on the neo-liberalization of global health programming (Ingram, forthcoming) is vital in this regard, but so too is wider research on global forces shaping bioinequalities through many other more distal dynamics ranging from the gendering of care (Major, 2008; Atkinson et al. 2011) to biosecurity policy (Hinchliffe and Bingham, 2008) to climate change (Dempsey, 2012). Complexity theory may help us map bio(necro)polis more carefully (Curtis, and Mylène 2010), and the empirical mapping work itself undoubtedly opens up a big agenda for geographical research on global health (Brown and Moon 2012). But only by conducting such research in a way that stays attuned to adverse incorporation across unequal life-and-death-worlds can we help those who remain committed to building global health utopias include more of the excluded as enfranchised biological citizens worldwide. If we do not, and if we fail to deliver the sort of space-connecting geographical research that this chapter has suggested is needed, we risk, instead, of becoming geographers *to blame* for ongoing inequalities in global life and death.

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