

Capitalism, imperialism and class: essential foundations for a critical public health

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- Waitzkin, H., & Working Group on Health Beyond Capitalism (Eds.). (2018). *Health care under the knife: moving beyond capitalism for our health*. New York: Monthly Review Press.
- Holt-Giménez, E. (2017). *A foodie's guide to capitalism: understanding the political economy of what we eat* New York: Monthly Review Press and Food First Books.
- Smith, J. (2016). *Imperialism in the twenty-first century: globalization, super-exploitation, and capitalism's final crisis* New York: Monthly Review Press.
- People's Health Movement, Medact, Third World Network, Health Poverty Action, Medico International, & ALAMES (Eds.). (2017). *Global Health Watch 5: An alternative world health report* (Vol. 5). London Zed Books.

... one wouldn't start farming without some notion of growing plants, or build a website without knowledge of web software, or roof a house without understanding construction. Yet many, if not most, food activists trying to change the food system have scant knowledge of its capitalist foundations.

Eric Holt-Giménez (2017)

The same applies to public health. The four books under review would constitute an excellent starter pack for public health activists seeking to make sense of the wider political and economic context of their work.

Waitzkin's book starts with a personal anecdote illustrating the proletarianisation of medical work in the USA. While working for a corporate health care provider he was instructed to undertake training regarding the use of ICD-10¹ in physician billing. Waitzkin was critical of the educational quality of the package and the implicit encouragement to 'up-code' diagnoses to higher levels of severity to inflate billing. He refused to participate and was suspended and disconnected from the computer system without any provision for the ongoing needs of his patients. After pointing out that abandoning patients was unethical and possibly illegal he was eventually reconnected and under protest completed the training.

The concept of proletarianisation is a reference to the work of Braverman (1974) who described the progressive disempowerment of skilled craftsmen under Taylorism (Sheldrake, 1996) as the engineers in the front office studied and modelled the work processes on the shop floor and through standardization of tasks and the division of labour progressively reduced the scope for judgement and autonomy at the workplace, separating conception from execution, transforming work from a source of pride into an experience of expropriation. At the time Braverman was writing, medical practice was the *sine qua non* of professional autonomy but no longer. Waitzkin and his colleagues describe how information technology, new metrics and new management tools, such as 'pay for performance', are driving a process of standardization and managerial control which, despite high medical incomes, gives effect to this process of 'proletarianisation'.

There is nothing intrinsically wrong with using information technology and developing new metrics, in particular, if they are directed to improving quality, efficiency and equity. However, in the context of corporate health care and private health insurance the proletarianisation of medicine has become a necessary part of maintaining the profits of health care companies and the insurance and pharmaceutical industries. In 2015 the US spent 17% of its GDP on

1. International Classification of Diseases, 10th edition

health², a total of \$3.2 trillion³. Assuming a 15% profit on turnover this amounts to around \$500 billion per year being transferred from tax payers, premium payers and patients into the profits of the health care, electronics and plastics industries including big pharma and the insurance giants. However, across the US economy generally, profits are being accumulated well in excess of opportunities for investment in productive enterprise and are instead finding their way into the banks, managed investment funds and the pockets of 'high net worth individuals' from whence they are redirected largely into speculation in stocks, financial derivatives, and various other asset classes including food commodities.

The Waitzkin collection includes several chapters which track the emergence of 'managed care', a system designed to maximize turnover and to maximize profit from that turnover. 'Managed care' provides for a range of health care plans customized for low, middle and high income families and designed to extract the maximum revenue realizable at each level while applying a dizzying set of controls, restrictions and conditions to ensure that the care packages provided are as profitable as possible. The proletarianisation of medicine, the subordination of clinical autonomy to corporate bureaucracy, is the price that the medical profession pays for its participation in this machine.

In suggesting directions for health activists in the US, the Waitzkin collection varies between a very general call for revolutionary transformation and an extended discussion of 'single payer' health insurance as in Canada. Single payer financing is far more efficient in terms of collecting and disbursing funds than the chaos of competing health insurance plans in the US. Single payer financing also provides for greater policy control over access, quality and resource allocation. Single payer financing would reduce health care expenditure in the US by around 15-20% corresponding to \$600 billion per year. However, this would involve downsizing the insurance companies and reduced dividends for shareholders.

An alternative focus for advocacy would be a national health service, as in the UK, but the current transformation of the British NHS - increasingly oriented around private providers, private insurers and a market structures for allocating resources – suggests that closer attention to the wider ideological context is also needed. One of the core questions which Waitzkin and colleagues set out to answer was, '*What are the connections among health care, public health, and imperialism?*' Several chapters explore the roles played by the Rockefeller and Gates foundations in US and global health but to contextualize the health crisis in the context of imperialism⁴ would require a more systematic analysis of imperialism than the Waitzkin collection provides.

In terms of analyzing the impact of imperialism on global health, food systems are an excellent place to start and, in the 'Foodie's guide to capitalism', Eric Holt-Giménez⁵ takes a systematic approach to global food systems. The failures of the current global food regime can be encapsulated in two statistics regarding stunting and obesity. First, 23% of all children under 5 globally (155 million children) are stunted or short for age (World Health Organisation, 2018) meaning that they are not eating enough protein. A significant proportion of these children are headed for metabolic and neurological consequences as well as their height restriction. Second, in 2016, 1.9 billion people were obese or overweight including 41 million children under the age of five⁶.

Central to Holt-Giménez's narrative is the rise of industrial agriculture. In 18th century Britain 'the commons' were fenced off to enable landowners to produce wool for the factories. Small farmers who lost access to the commons were forced to migrate to the cities where they added to the 'reserve army of the unemployed'; forced by the discipline of the workhouse to send their children into the mines or factories or to resort to theft, risking

2. <http://apps.who.int/nha/database/ViewData/Indicators/en>

3. The World Bank reports that US total GDP for 2016 was \$18.6 trillion, <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=US>

4. 'Imperialism' is a contested and evolving concept. In general it refers to a configuration of international relations centred on a dominant power which can require subordinate states to align their policies with the interests of the dominant power. Modern usages do not require direct political governance as under the Roman Empire or under European colonialism. Imperialism in the context of globalization allows for global domination by a consortium of imperial powers, variously the 'Global North', or the 'triad' of the USA, Europe and Japan. Different usages of 'imperialism' place varying emphases on the dynamics of capitalism and class as they operate across the imperium.

5. Holt-Giménez is the executive director of Food First, the think tank founded by Frances Moore-Lappé (*Diet for a small planet*) and Joseph Collins in 1975.

6. <http://www.who.int/mediacentre/factsheets/fs311/en/>

transportation or worse. In a modern day reprise of the 18th century enclosures, 'land grabbing', particularly in Africa, is building new fences to exclude peasants from areas traditionally understood to be held in common. Land grabbing reflects in part the speculative use of idle capital anticipating returns through industrial mono-cropping for biofuels, animal feed, or feedstocks for manufacturing (e.g. palm oil) (McMichael, 2013).

Of course, the growth of megacities in the Global South reflects much more than peasants being excluded by land grabs. More significant is the explosion in productive capacity associated with fossil power and agro-technology. Industrial scale farms can produce vastly more food than the farmer's family needs and thereby provide cheap food for large cities. However, when foodstuffs from subsidised farms in the Global North are dumped cheaply in the cities of the Global South (Wise, 2010) the viability of peasant farming is undercut, stoking again the flow of unemployed rural labour to the cities. Just as the enclosures of the 18th century ensured cheap labour for the industrial revolution, so the paradigm of industrial agriculture is driving small farmers from their land, reinforcing the reserve army of the unemployed in the Global South and enabling the outsourcing of labour-intensive manufacturing from the Global North to countries and workers willing to accept subsistence wages (or less).

Presently the main resistance to industrial scale agriculture is coming from the agroecology movement – the science and practice of sustainable farming. Recycling organic waste instead of commercial fertiliser; rotating crops to replenish the soil; controlling pests through interplanting; and using farm-grown seed stock; these technologies can achieve dramatic levels of productivity. It is labour intensive compared with input dependent, industrial scale agriculture but preserves the land and supports the farmer (King, 2004 [1911]).

The logic of capitalism demands that all opportunities are taken for 'adding value' to the food chain. Holt-Giménez describes how the industrial paradigm creates markets for fuel, machinery, fertilisers, pesticides, herbicides and hybrid seeds and, on the downstream side, for grain merchants, food manufacturers and supermarkets. It is the logic of capitalism which discounts the farmer and the environment. It is the logic of imperialism which enforces the power of herbicide/seed monopolies; which demands the destruction of publicly managed food reserves to ensure free rein for the grain merchants and food speculators; which demands free trade in manufactured food products from the North but authorises Northern tariff barriers to agricultural commodities from developing countries.

The logic of industrial agriculture is epitomised in concentrated animal feedlot operations, in particular for pigs and poultry, in which grain is converted into meat in cruel conditions and at significant environmental cost (including the genesis of potentially pandemic influenza strains and the spread of antibiotic resistance).

John Smith's magnificent book on 'capitalism's final crisis' provides a framework within which the chaos of US health care and the failures of global food systems can be contextualised.

Smith places the outsourcing of labour intensive processes from the Global North at the centre of his narrative, including in-house outsourcing, where transnational corporations transfer labour intensive operations to subsidiaries in the Global South, and arms' length outsourcing where independent suppliers in low wage countries compete for contracts for labour intensive processes.

The magnitude of outsourcing from North to South is seriously under-reported in official statistics because, while in-house outsourcing is recorded as foreign direct investment (FDI), arm's length outsourcing is only captured (and then imperfectly) in the export data from the low wage country. More distorting is the fact that the official measurement of 'value added' in assembly is based on the subsistence wages of the assembly line workers, while the massive mark ups in marketing and retail are recorded as value added in the country of sale. Smith argues that the value added in assembly and in retail should be measured in terms of the necessary labour time required rather than the price which is paid for that labour, or the magnitude of the mark-up. Against this approach, conventional trade data grossly understate the transfer of value from South to North which is mediated through such outsourcing.

Both Holt-Giménez and Smith point towards egregious exploitation of the farmers and workers of the Global South by transnational corporations. But is this the price of 'development'?

'Development' is used in various different ways but is generally taken to mean that there are economic systems in place for creating, realising and sharing value; that there are decent jobs for everybody; that food and fibre are produced through agriculture which is gentle on the land; that resources flow equitably for food, housing, health,

education and social security; that there is capital for social and economic infrastructure; and that there is collective wealth sufficient to provide for recreation and cultural activities.

Under colonialism explicit policy decisions were taken by the colonisers to prevent economic development in the colonies; to make their economies subordinate to the needs of the colonial power. The smashing of Indian hand looms by the British (Marx, 1853) illustrates.

With decolonisation and the ideological competition between communism and capitalism in the mid 20th century, there was a need for a new discourse which at least paid lip service to the aspirations of the Global South. This was provided by the paradigm of 'modernisation' (Rostow, 1960). The argument was that improvements in agricultural productivity create a capacity to release and feed an industrial workforce who then make things which can be sold above the cost of production and thereby create capital which can be invested in further improving productivity in both agriculture and manufacturing. Modernisation assumes that each country (Britain or Bangladesh) industrialises autonomously, following the same pathway and with the same articulation with the global economy; there are no limits to growth; the global economy is an open system.

These assumptions had been challenged from the late 1940s, by 'dependency theory'⁷ which developed a critique based on declining terms of trade experienced by the Global South: the prices of exports (largely commodities) fall while the prices of imports (manufactured goods from the Global North) increase (reflecting monopoly pricing power in the North in contrast the exporters of unbranded commodities from the Global South). As a consequence of declining terms of trade, revenues from agricultural or mineral exports are soaked up in paying for manufactured imports and are not in fact available for investing in domestic industrialisation. Dependency theory gave rise to 'import substitution' as a preferred paradigm for industrialisation; tariffs and quotas would be used to protect infant industries from imported manufactured goods even if they might be cheaper and of better quality. The logic of import substitution was embedded in the so-called New International Economic Order (NIEO) which was promoted by the Non-Aligned Movement and adopted by the UN General Assembly in 1974 (Toye, 2014). The NIEO is cited in the Alma-Ata Declaration on Primary Health Care in 1978.

The import substitution model was always opposed by the rich countries but was finally put away during the 1980s under structural adjustment. The economic slowdown of the 1970s was characterised by 'stagflation' with declining growth rates (stagnation) associated with inflation (the so-called 'wage price spiral'). Reagan's interest rate hike of 1981 (to 20%) was directed to deepening the recession and increasing unemployment with a view to weakening the bargaining power of labour. However, it also triggered the Third World debt crisis as low and middle income countries faced huge increases in the cost of rolling over debts which had been accumulated when interest rates were much lower. With the debt trap came structural adjustment, policy packages imposed by the IMF (as the lender of last resort) in order to increase export earnings to pay off the debts. The reforms required under structural adjustment (repackaged as the Washington Consensus in the late 1980s) obliterated any trace of import substitution (replaced in the conventional wisdom by the 'export oriented' development paradigm).

Undoubtedly the theory of modernisation corresponds in some degree to the pattern of economic development taking place in some countries today. However, under global capitalism this modernisation dynamic confronts severe constraints associated with the dynamic of overproduction, magnified by trade liberalisation. The theory of 'overproduction' is based on the trend that fewer workers are needed to produce (in both agriculture and manufacturing) for larger and larger markets. As a consequence wages as a conduit to support buying power are choked off; leading to underconsumption which is the corollary of overproduction.

The responses of corporate strategists and their political henchpersons to declining profits include: seeking new markets (including junk foods, high fashion and the privatisation of public services and infrastructure); preventing competition (including consolidation through mergers and acquisitions and extreme intellectual property protection); reducing costs (union busting, outsourcing to low wage platforms, replacing labour with technology, externalising costs to the environment, tax avoidance); and preventing effective regulation (capture of governments, protecting the TNCs through investment dispute settlement provisions in trade agreements). These strategies exacerbate the overproduction dynamic; exacerbate environmental degradation; and contribute to widening

7. See discussion of Prebisch-Singer hypothesis from page 207 in Smith (2016)

inequalities in income, wealth and power. They certainly explain the trajectory of health care financing in the US as described by Waitzkin and colleagues and contextualise the rising prevalence of hunger, stunting and obesity as explained by Holt-Giménez. These outcomes are the inevitable and direct consequences of the private control of capital and the political power of the corporations.

Beyond these consequences lies the risk (Smith says inevitability) of a devastating economic collapse. Key to this prediction is the explosive growth of the financial sector as a proportion of the economy. In the face of overproduction there has been a sharp decline in the proportion of profit which is flowing into productive investment. Instead profit is directed back to shareholders in dividends and share buybacks, and from there into bank accounts and various forms of asset speculation. The banks are faced with an upwelling of cash partly because of the 'investment strike' but also due to 'quantitative easing' whereby the central banks lend at low interest to the big financial institutions in the hope of promoting investment. Abundant cash adds to the urgency, for the banks, of on-lending so as to make money out of money. In the years since the 2008 crash there has been a continuing accumulation of household, corporate and government debt; now (early 2018) well above the levels prevailing before the 2009 crash. For a while debt supports consumption (as well as asset speculation) until the bubbles burst and the defaults begin.

The risk of economic collapse arises from the interaction between debt and deflation. The threat of deflation (falling prices of goods, services and labour) arises from weakening demand – those who can buy already have enough stuff and those who have real needs cannot buy. Deflation is already a reality in Japan. Generalised deflation would increase the risk of business failures which, in the presence of heavy debt and over-valued assets, points towards a concatenation of defaults.

John Smith's book provides a searing account of the economics of 21st century imperialism but it offers only limited political guidance for Waitzkin and his colleagues seeking to reform US health care, or for Holt-Giménez and his colleagues at Food First, seeking to promote agroecology.

Smith's account of the politics of imperialism is largely framed around the confrontation of capital versus labour although he also highlights the significance of patriarchy and racism. He projects the growth of a more coherent, better organized working class in the Global South as a potential force for revolutionary transformation. He is also very critical of the way unions in the Global North have supported 'labour clauses' in trade agreements under the guise of labour solidarity but influenced also by the benefits to Northern labour of domestic protection.

It is evident that class analysis needs to be applied at the global as well as the national level. Robinson (2004) recognizes traditional class analysis as conceived at the national level but also projects a class confrontation at the global scale which frames the politics of 21st century imperialism. Robinson posits a transnational capitalist class (TCC) which he describes as self-aware, culturally coherent, and densely networked (epitomised by the World Economic Forum meeting annually at Davos). The TCC comprises both the owners and executives of the corporations and also the political and bureaucratic leaderships of the imperialist countries. Honorary membership is bestowed on those political leaders from the Global South who throw their lot in with the TCC and disregard the interests of their own masses.

The TCC confronts an assemblage of national working classes, middle classes and excluded and marginalized classes; the global 99%. Sense of identity across this assemblage is largely shaped by specificities of culture, ethnicity and religion. Where there is a sense of class it is largely understood in national rather than global terms. This assemblage of subaltern classes has a limited consciousness of the common roots of problems like inequitable health care financing and industrial agriculture. Compared with the rich and complex communication networks which bind the (relatively small) TCC, the communication networks and opportunities which might support a shared analysis and collaborative strategies across the 99% are thin and sparse. Divisions across class, gender, language and ethnicity constitute significant barriers to concerted action.

This narrative of a united TCC confronting a divided assemblage of national subaltern classes opens up new ways of thinking about anti-imperialist strategy. Prominent in any such discussion is the prospect of *convergence*: listening across differences, building solidarity across boundaries, recognizing the commonalities and exploring collaboration.

Explication of the institutional processes generating specific grievances, for example, denial of access to health care or the bankrupting of small farmers, is essential in this project of convergence. It is fundamental in strategizing for reform but it also allows for the mapping of the practical realities of *governance* onto the abstractions of capitalism, imperialism and class. Contextualising the mechanisms of governance in terms of these more abstract frameworks can support the convergence of different constituencies because, while the governance structures may be specific to particular grievances, the more abstract frameworks (of capitalism, imperialism and class) point to the underlying dynamics which affect everyone.

The idea of *global governance* provides a useful framework in which to locate these institutional mechanisms at the global level. The modalities of global governance include war, trade agreements, structural adjustment and austerity. The deployment of such modalities is planned and executed in the conference rooms, discussion papers and think tanks of the TCC. Examples include: the role of Pfizer in the development of the TRIPS Agreement, setting the stage for extreme intellectual property protection for pharmaceuticals (Drahos, 2002); and the role of agribusiness in the deliberations of the Codex Alimentarius, ensuring that authoritative food standards do not create barriers to the marketing of junk foods (Smythe, 2009). The concept of the 'multi-stakeholder partnership' (or global public private partnership) as a vehicle for consolidating the role of the TCC in global governance is spelled out in detail in the World Economic Forum's Global Redesign Initiative (World Economic Forum, 2010). An exhaustive review of the role of corporations in shaping the institutional structures of global governance is provided in Braithwaite and Drahos (2000).

The goal of building solidarity across the assemblage of subaltern constituencies is illustrated in the work of the People's Health Movement (PHM), an international network of individuals and organisations seeking to build a global movement around 'Health for All' (including access to health care and the reform of food systems). Through the Global Health Watch series⁸ PHM and collaborating organisations articulate an analysis of health issues (including food) which links injustice on the ground to the specific governance structures and to the wider political and economic context. Through People's Health Assemblies⁹ PHM creates opportunities for listening and sharing across different constituencies. Through its International People's Health University¹⁰ PHM is contributing to capacity building of individuals and networks. Through WHO Watch¹¹ PHM and collaborating organisations are documenting the policies, politics and power of global health governance and providing a platform for policy dialogue and advocacy which links the local and the global. Through its regional and country circles PHM is reaching out to grassroots community activists and to other social movements and networks.

However, there are substantive grounds for Holt-Giménez's warning against an over-reliance on the social movement strategy which, referring to the 'food movement', he describes as highly fragmented and somewhat class-blind with little understanding of the role of capitalism in the social oppressions they are fighting. Holt-Giménez is in effect calling for activists to work through political as well as social movements although he recognizes the limitations of 'old left' political practice. His critique could go further. It is necessary also to look closely at the barriers to convergence, including xenophobia and communalism, which are stoked by the personal and collective insecurities associated with contemporary capitalism: the material insecurity associated with poverty; insecure futures associated with the lack of social provision (education, housing, urban amenity) and social protection (sickness, disability, aged pension, unemployment); and the existential insecurities associated with alienation and isolation.

The organs of the national and transnational capitalist classes have been very effective in playing on these insecurities and in projecting 'the other' as the cause of our grievances. Patriarchy and racism figure strongly in this process. The assumptions and practices of patriarchy and racism antedate capitalism by thousands of years and continue to oppress and divide. However, under capitalism they have been enrolled to deepen division, divert attention and provide scape goats.

8. See www.ghwatch.org for GHW1 through to GHW4. The most recent volume, GHW5 is published (People's Health Movement et al., 2017) but not yet posted on the GHW website.

9. The fourth People's Health Assembly is planned for November 2018.

10. www.iphu.org

11. www.ghwatch.org/who-watch

The convergence that is needed to confront the TCC and radically transform global politics and economics, will need to bring together a network of social, political and cultural movements: addressing grass roots injustices while articulating a clear economic, political and cultural analysis; building solidarity across difference in the context of mobilizing and campaigning; contributing to the cultural environments in which people can find security beyond materialism and xenophobia.

The 'big picture' analysis does not discount the importance of specific local struggles, including over health care financing or agroecology. Rather, it provides context for ensuring that local and immediate struggles are undertaken in ways which also contribute to change at the macro level; the essence of a critical public health. The four books discussed in this essay contribute significantly to this project.

References

- Braithwaite, J., & Drahos, P. (2000). *Global business regulation* Cambridge: Cambridge University Press.
- Braverman, H. (1974). *Labor and monopoly capital: the degradation of work in the twentieth century* New York: Monthly Review Press.
- Drahos, P. (2002). *Developing countries and international intellectual property standard-setting*.
<http://www.anu.edu.au/fellows/pdrahos/articles/pdfs/2002devcountriesandipstandards.pdf>
- Holt-Giménez, E. (2017). *A foodie's guide to capitalism: understanding the political economy of what we eat* New York: Monthly Review Press and Food First Books.
- King, F. H. (2004 [1911]). *Farmers of forty centuries: organic farms in China, Korea and Japan* New York: Dover Publications.
- Marx, K. (1853, June 10). The British Rule in India. *New-York Daily Tribune*. Retrieved from
<https://www.marxists.org/archive/marx/works/1853/06/25.htm>
- McMichael, P. (2013). Land Grabbing as Security Mercantilism in International Relations. *Globalizations*, 10(1), pp. 47-64. doi:10.1080/14747731.2013.760925 Retrieved from
<http://dx.doi.org/10.1080/14747731.2013.760925>
- Moore-Lappé, F. (1971). *Diet for a small planet* New York: Ballantine Books.
- People's Health Movement, Medact, Third World Network, Health Poverty Action, Medico International, & ALAMES (Eds.). (2017). *Global Health Watch 5: An alternative world health report* (Vol. 5). London Zed Books.
- Robinson, W. I. (2004). *A Theory of Global Capitalism: Production, Class, and State in a Transnational World* Baltimore, MD: Johns Hopkins University Press.
- Rostow, W. W. (1960). *The Stages of Economic Growth: A Non-Communist Manifesto* Cambridge: Cambridge University Press.
- Sheldrake, J. (1996). *Management Theory: From Taylorism to Japanization* Melbourne: International Thomson Business Press.
- Smythe, E. (2009). In whose interests? Transparency and accountability in the global governance of food: agribusiness, the Codex Alimentarius and the World Trade Organization. In J. Clapp & D. Fuchs (Eds.), *Corporate power in global agrifood governance* (pp. 93-124). Cambridge, MA: MIT Press.
- Toye, J. (2014). Assessing the G77: 50 years after UNCTAD and 40 years after the NIEO. *Third World Quarterly*, 35(10), pp. 1759-1774. doi:10.1080/01436597.2014.971589 Retrieved from
<http://dx.doi.org/10.1080/01436597.2014.971589>
- Wise, T. A. (2010). *Agricultural Dumping Under NAFTA: Estimating the Costs of U.S. Agricultural Policies to Mexican Producers*. <http://www.ase.tufts.edu/gdae/Pubs/rp/AgricDumpingWoodrowWilsonCenter.pdf>
- World Economic Forum. (2010). *Everybody's business: Strengthening international cooperation in a more interdependent world. Report of the Global Redesign Initiative*.
http://www3.weforum.org/docs/WEF_GRI_EverybodysBusiness_Report_2010.pdf
- World Health Organisation. (2018). *Reducing stunting in children: Equity considerations for achieving the Global Nutrition Targets 2025*. Geneva: <http://apps.who.int/iris/bitstream/handle/10665/260202/9789241513647-eng.pdf?sequence=1>