

Research Paper

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Analysing Proposals for Reform of the Global Health Architecture



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Summary

With the late 2015 target date rapidly approaching for the expiry of the Millennium Development Goals (MDGs) and for their replacement by a set of post-2015 Sustainable Development Goals (SDGs), assessing what will shape the new priorities in global health has presented a prime opportunity to recalibrate and to consider questions that are fundamental to sustaining progress. Is the current global health system fit for purpose? Will it be fit to meet future challenges? What could a more effective and efficient system look like? Focusing on these questions, this paper analyses recent changes affecting global health and their implications for the global health architecture; provides a synthesis of leading suggestions for future reforms to the architecture; and broadly sets out how a new governance architecture might look.

In order to describe how well the global health system has performed its key roles, and to evaluate how reform proposals address the major functions of the global health architecture, we refer to four broad functions of the architecture that we have adopted from the Lancet Commission on Investing in Health: leadership and stewardship; providing global public goods; controlling cross-border externalities (all core functions); and direct country assistance (a supportive function). By examining changes in global health and proposals to address institutional and functional gaps in the governance architecture, this paper helps to inform future discussions on priority areas for reform.

Our analysis shows that there is a need for reforms to the global health architecture as it will be considerably affected by emerging challenges. While the current post-2015 process focuses on addressing what might be termed the ‘what’ – on establishing new priorities – more thinking and debate are needed around the implementation arrangements that will be required to achieve the health targets of the forthcoming SDGs.

The three core functions of the global architecture, in particular, will require greater attention in the future, but the direct country assistance function also needs to change to meet emerging challenges, such as the graduation of low-income countries to middle-income status and the increased need for health systems strengthening. Making the system fit for purpose for the post-2015 period requires, in our view, architectural improvements in six key areas, to which the mnemonic BRIGHT is applied:

- Bolstering R&D and enabling access to new medical products and technologies
- Responding to global threats
- Intersectoral cooperation
- Greater focus on health systems strengthening
- Harmonized and less fragmented systems
- Transparency and accountability

In respect of reform proposals, our analysis finds that most focus on the more established global health challenges (rather than on the emerging challenges – such as health transitions, microbial evolution and climate change), and particularly on the fragmentation of the global health landscape and the need for more and better-channelled global health financing. These longer-standing problems – and related reform proposals – will continue to be of major importance after 2015.

None the less, we identified relevant reform proposals for each of the six broader architectural issues (BRIGHT), which then made it possible to sketch out the following possible cornerstones of the future architecture:

- Reform of the WHO and/or of the overall UN system for health, to create a multisectoral, development-focused response to global health
- Consolidation of funding channels
- Strengthened mechanisms for R&D and improved country access to new technologies
- A stronger system for responding to global threats
- Improved accountability

The implementation of major reforms to the architecture will require intensified dialogue among decision-makers, and their willingness to initiate and support change. This last occurred at the turn of the millennium, when an extensive restructuring of the architecture took place. Such decisive action appears to be required once again to enable the architecture to respond effectively to the challenges of the post-2015 world.

Introduction

Since 2000 the Millennium Development Goals (MDGs) have provided the backbone around which global health's agenda, targets and institutional structures have been shaped, and around which its actors have gathered. However, as the target date of late 2015 approaches for the expiry of the MDGs and their replacement by a set of post-2015 Sustainable Development Goals (SDGs), assessing what will shape the new priorities in global health has created a prime opportunity to recalibrate and to consider questions that are fundamental to sustaining progress. Is the current global health system fit for purpose? Will it be fit for meeting future challenges? What could a more effective and efficient system look like?

The objectives of this paper are twofold:

- The first is to review recent demographic, epidemiologic, economic, political and other relevant changes, and their implications for the global health system.
- The second is to provide – based on this review – a synthesis of key suggestions for reforms to the global health architecture that are proposed in response to both the existing architecture and emerging trends.

Analytical framework and methodology

This paper intends to answer a number of critical questions that need to be addressed as part of the Rethinking the Global Health Architecture project being undertaken at Chatham House:

- What significant changes occurred in the global health ecosystem since the turn of the millennium?
- What emerging trends and changes will shape the post-2015 era?
- What are the implications for global health of these trends and changes?
- To what extent will the global health system be fit for purpose in light of these trends and changes?
- What transformative reform proposals exist for strengthening the global health architecture?
- How well do these reform proposals respond to the emerging trends and challenges identified in global health?

In order to describe how well the global health system has performed its key roles and evaluate how reform proposals address the major functions of the architecture, we adopted a framework proposed by the recent Lancet Commission on Investing in Health (CIH),¹ which identifies four essential functions of the global health architecture. These functions build on an initial analysis by Jamison, Frenk and Knaul,² and follow-up work by Frenk and Moon.³ We selected this framework based on its widespread usage, which allows us to situate our analysis within the current global health architecture debate.

Table 1: Functions of the global health architecture proposed by the Lancet CIH

Function	Examples
Leadership and stewardship	Convening for negotiation and consensus-building; consensus-building on policy; cross-sectoral advocacy; agency for the disposed; advocating for sustainability and the environment.
Providing global public goods (GPGs)	Discovery, development and delivery of new health tools; implementation research, extended cost-effectiveness analyses, research priority-setting tools and survey methodologies; knowledge generation and sharing; sharing of intellectual property (e.g. drug patent pools, technology transfer); harmonized norms standards and guidelines (e.g. quality assurance of medicines, the WHO's vaccine position papers); market shaping (e.g. pooled procurement to reduce drug prices).
Controlling cross-border externalities	Responding to global threats (e.g. pandemic influenza, antimicrobial resistance, counterfeit drugs); surveillance and information-sharing.
Direct country assistance	Technical cooperation at national level; development assistance for health (DAH); emergency humanitarian assistance.

Our analysis is based on a 'mixed-methods' approach, which includes two key components:

- A review of the published relevant literature on: global health system developments over the past 20 years; changes anticipated in the future; and proposals for reforming global health governance over the past 10 years. This included peer-reviewed literature as well as 'grey literature', in the form of documents and reports published by global health foundations, multilateral institutions, think-tanks, donor agencies and non-governmental organizations (NGOs).ⁱ
- Key informant interviews with 11 representatives from leading global health agencies, including the WHO, UNAIDS and the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund). The interviews used a semi-structured approach to gather participants' views on the performance of the current global health system, discuss future global health challenges, and solicit thoughts on options for redesigning the architecture – including whether the current functions of the global health system are still appropriate for the post-2015 era.ⁱⁱ Eight interviewees (from Gavi, the Vaccine Alliance; the Global Fund; the Graduate Institute of International and Development Studies; UNAIDS; UNICEF; UNFPA; the WHO; and the World Bank) also attended a focus group discussion in Geneva in December 2014 to provide feedback on an early version of this paper. Further interviews, including with representatives from low-income countries (LICs) and middle-income countries (MICs), were to be conducted over the following months to inform the project's main report.

This paper takes a step-wise approach. The analysis begins with an assessment of changes in the global health 'ecosystem' since the introduction of the MDGs in 2000. The paper then discusses the key emerging epidemiologic, demographic, economic and political trends that will shape the post-2015 era. It further explores the likely impact of the SDGs – to be adopted by the UN General Assembly in September 2015 – on the global health agenda and architecture in the years to come. The paper then explores the implications of the emerging trends on the global health system, and examines

ⁱ We created an extensive list of search terms based on five major search themes: global health, the governance architecture, major actors and stakeholders, changes or proposals, and sector-specific keywords. The search platforms Google Scholar and Web of Science were used to conduct keyword searches. Citation searches were undertaken to capture additional missing literature.

ⁱⁱ Phone interviews were conducted with Nicole Klingen (World Bank), Dianne Stewart (UNFPA), Andrew Cassels (Graduate Institute of International and Development Studies), Marijke Wijnroks (the Global Fund), Gavin Yamey (University of California, San Francisco), Nana Kuo (Executive Office of the UN Secretary-General), Gaudenz Silberschmidt (WHO), Kumanan Rasanathan (UNICEF), Tim Martineau (UNAIDS), Kent Buse (UNAIDS), Lori Sloate (Gavi).

how its functions may need to change in light of these trends. A synthesis of analyses and studies on proposed changes and reforms to the global health architecture follows, categorizing the proposals by function and discussing the extent to which they fit the emerging needs of global health. The final section summarizes our key results and findings, and offers recommendations for how the functions of the global health architecture might be better conceptualized to fit the needs of the post-2015 era.

Where Are We Today? Changes in the Global Health ‘Ecosystem’ Since the Turn of the Millennium

In 2000 189 UN member states signed the Millennium Declaration, which established eight MDGs to be achieved by late 2015. The MDGs’ focus on specific, measurable targets benefited the global health community by providing clear objectives. Three of the eight goals (MDGs 4, 5 and 6) relate directly to health (see Table 2).ⁱⁱⁱ The MDGs have served as the bedrock of the global health agenda, markedly shaping the priorities and approach taken by stakeholders. They have also spurred dramatic growth in global health financing and the creation of new funding initiatives and mechanisms, which have fundamentally changed the landscape of global health.

Table 2: Health MDGs

Goal	Target
MDG 4: Reduce child mortality	4A: Reduce the under-five mortality rate by 2015 by two-thirds compared with the 1990 level
MDG 5: Improve maternal health	5A: Reduce the maternal mortality ratio by 2015 by three-quarters compared with the 1990 level 5B: Achieve by 2015 universal access to reproductive health
MDG 6: Combat HIV/AIDS, malaria and other diseases	6A: Halt by 2015 and have begun to reverse the spread of HIV/AIDS 6B: Achieve by 2010 universal access to treatment for HIV/AIDS 6C: Halt by 2015 and have begun to reverse the incidence of malaria and other major diseases

Source: UN Millennium Development Goals, <http://www.un.org/millenniumgoals>.

The MDGs have provided a focus for mobilizing and targeting substantial additional financial resources for health.^{iv} DAH has nearly tripled since the turn of the millennium, rising from \$10.9 billion in 2000 to \$30.6 billion in 2011.⁴ Preliminary estimates show that DAH increased further, to an all-time high of \$31.3 billion, in 2013, indicating that international support for global health remains strong in the run-up to the post-2015 development agenda. However, the rate of growth in DAH has slowed in recent years: having decreased by 1.6 per cent between 2011 and 2012, it increased by just 3.9 per cent between 2012 and 2013.

The resource distribution across the health MDGs has been uneven. The largest growth in funding relates to MDG 6, and especially to HIV/AIDS, with funding increases for MDGs 4 and 5 being much more modest. Disbursements for HIV/AIDS, TB and malaria grew from 5.6 per cent to 35.1 per cent of all DAH between 1990 and 2011 (from \$0.3 billion to \$10.7 billion). Funding for HIV/AIDS alone rose from 3.8 per cent to 25.1 per cent of total health aid in this period (from \$0.2 billion to \$7.7 billion). In contrast, DAH to reproductive, maternal, newborn and child health (RMNCH) increased much less significantly,

ⁱⁱⁱ Others, including MDG 1 on nutrition and MDG 7 on environmental sustainability (including drinking water and sanitation), are closely related to health.

^{iv} National security concerns of donor countries further led to increases in financing for health, with fears stoked by the rapid spread of HIV/AIDS.

from \$1.0 billion in 1990 to \$6.1 billion in 2011, with the share of RMNCH funding as a proportion of DAH remaining largely stable.^v Funding for family planning was especially scant in the early years of the MDGs.^{vi} However, the launch in 2010 of the UN Secretary-General's Global Strategy for Women's and Children's Health, and the commitments made in 2012 at the London Summit for Family Planning, reflect the increased high-level support that has been given to the RMNCH agenda in recent years.

A range of high-profile financing mechanisms, such as the Global Fund, the US President's Emergency Plan for AIDS Relief (PEPFAR) and UNITAID, were explicitly founded to accelerate progress towards achieving the health MDGs. Others, such as Gavi, that were launched just before the adoption of the MDGs, nevertheless refer to the MDGs as providing a key framework for their missions. Some newer partnerships, such as Roll Back Malaria, have focused on the provision of technical support to countries. UN initiatives such as Delivering as One and the H4+ partnership (comprising the WHO, UNAIDS, UNFPA, UNICEF, UN Women and the World Bank) have attempted to coordinate support through streamlining funding. UNAIDS, founded in 1996 (i.e. before the adoption of the MDGs), is a key provider of technical assistance and of global leadership and stewardship in tackling HIV/AIDS.

Estimates suggest that well over 100 global health initiatives have emerged since the turn of the millennium.⁵ Health partnerships account for a large share of global health funding. The share of DAH channelled through Gavi and the Global Fund increased from 0.03 per cent (\$3.4 million) in 2000 to a projected 17.8 per cent (\$5.6 billion) in 2013. Over the same period, the share of funding channelled through traditional multilateral channels decreased.

The new initiatives have also introduced new forms of governance and funding approaches, including performance-based financing as well as mechanisms that allow for increased country 'ownership'. Innovative financing mechanisms, such as the UNITAID airline levy and the International Finance Facility for Immunisation (IFFIm), continue to raise substantial resources for health.^{vii}

Partnerships with the private sector are now frequently seen as not only necessary, but also as being desirable for developing successful health initiatives.

The increasing participation of private (non-state) actors such as foundations, civil society and the private sector has transformed the global health landscape. The Bill & Melinda Gates Foundation, as one of the pre-eminent donors in public health, has been the single most influential new actor. Funding from the Gates Foundation now represents 6 per cent of all DAH; between 2000 and 2009 it served as the fourth largest source of funding for global health. Civil society has been crucial in terms of advocacy and in drawing attention to important health issues, especially in the case HIV/AIDS.⁶ Pressure on and engagement with the pharmaceutical industry has led to price cuts for many drugs. Partnerships with the private sector are now frequently seen as not only necessary, but also as being desirable for developing successful health initiatives.

Furthermore, new global initiatives emerged to improve the tracking of progress towards achieving the MDGs, particularly MDGs 4 (reducing child mortality) and 5 (improving maternal

^v There was a small increase from 18.5 per cent in 1990 to 20.0 per cent in 2011. See Dieleman J, Murray CJL, Haakenstad A. *Financing Global Health 2013: Transition in an Age of Austerity*. Seattle: Institute for Health Metrics and Evaluation; 2014.

^{vi} Target 5B, providing universal access to reproductive health, was adopted in 2007.

^{vii} Nevertheless, they remain a modest source of funding when compared with traditional donors, suggesting further potential for these mechanisms; see: Atun R. Innovative financing for health: what is truly innovative? *The Lancet*. 2012; 380 (9859): 2044–49.

health). Initiatives such as the Commission on Information and Accountability for Women's and Children's Health (spearheaded by the UN Secretary-General to improve accountability for MDGs 4 and 5), and the independent Expert Review Group (iERG) established in 2011 to track the progress of the Global Strategy on Women's and Children's Health, demonstrate new commitments towards ensuring that targets are achieved.

Despite these successes, significant challenges persist. Overall levels of international funding remain inadequate, while weak predictability in funding flows makes long-term planning difficult.^{viii} The health MDGs are also associated with new challenges, including the creation of financing silos and the verticalization of initiatives without sufficient integration with broader health systems.^{ix} The focused approach that has surrounded interventions for MDG 6 (combating HIV/AIDs, malaria, etc.) is notably lacking in the case of MDGs 4 and 5, leading to even greater fragmentation in the maternal and child health landscape.⁷ Furthermore, the MDGs make no mention of health systems strengthening (HSS), although this is essential to improving coverage with key interventions. Overall, it is widely acknowledged that there has been insufficient focus on HSS since 2000.⁸

Domestic funding for health has increased since the establishment of the MDGs, and is the largest source of health expenditure in developing countries. Nevertheless, growth in national financing has been slower than desired, and substantial further increases in domestic spending are needed.

Domestic spending on health by developing countries increased by 122 per cent from the adoption of the MDGs in 2000 to 2011, the year for which most recent data are available. Countries in Asia increased spending by 278 per cent on average, while both sub-Saharan Africa and the North Africa/Middle East region more than doubled domestic expenditures (106 per cent and 101 per cent respectively). Increasing domestic spending on health remains a key goal, as reflected in initiatives such as the 2001 Abuja Declaration of the African Union (AU). While increases in domestic health expenditure reflect progress, more remains to be done: as of 2013 only six of the 55 AU member states that committed to the Abuja Declaration had successfully reached the target of spending more than 15 per cent of their domestic budget on health, although others were close to achieving that goal.⁹ Evidence indicates that rapid increases in DAH have sometimes led to external financing 'displacing' domestic funding for health. One study on sub-Saharan Africa found that for every \$1 increase in DAH, domestic expenditures on health fell by between \$0.43 and \$1.14.¹⁰ Domestic financing for health serves as the primary source of health spending in developing countries, reaching more than \$520 billion in 2010 (compared with \$28 billion from DAH in the same year).

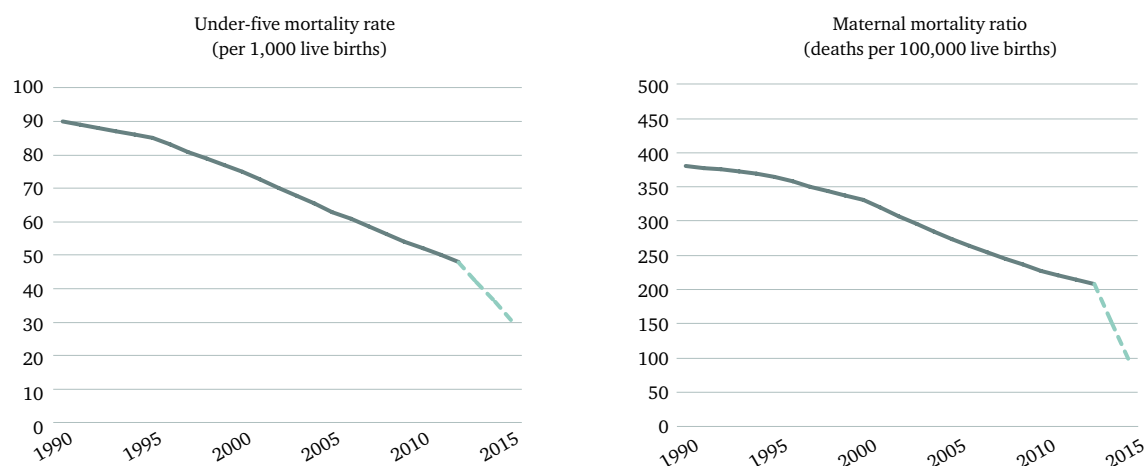
Since the adoption of the MDGs, there has been major progress in terms of health improvements across the world. Reductions in infectious diseases have led to a significant shift in the disease burden, with non-communicable diseases (NCDs) responsible for an increasing share of global death and illness.

Available evidence indicates that the global support for the MDGs and the focused attention on specific goals have yielded demonstrable results. Scaled-up access to antiretroviral therapy has averted millions of deaths from AIDS, while maternal and child mortality dropped, respectively, by 45 per cent and 49 per cent between 1990 and 2013 (see Figure 1). Both the global child mortality rate and the global maternal mortality ratio have declined faster since 2000 than in the previous decade.

^{viii} Examples include the financing gap outlined in the Global Strategy for Women's and Children's Health, which was estimated at \$88 billion from 2011 to 2015. On volatility of funding, see: Hsu J, Pitt C, Greco G, Berman P, Mills A. Countdown to 2015: changes in official development assistance to maternal, newborn and child health in 2009–10 and assessment of progress since 2003. *The Lancet*. 2012; 380 (9848): 1157–68. Lane C, Glassman A. Bigger and better? Scaling up and innovation in health aid. *Health Affairs*. 2007; 26(4): 935–48.

^{ix} IHP+ (the International Health Partnership) aims to mobilize organizations and national governments to support a single, country-led national health strategy, and to put the principles of development cooperation into practice (e.g. ownership; harmonization; accountability).

Figure 1: Progress towards MDGs 4 and 5*



* Broken lines show the accelerated rate of decline that would be needed to reach MDGs 4 and 5.^{11,12}

Despite this progress, the three health MDGs are unlikely to be reached by late 2015. Achieving MDG 4 in 2015 would require there to have been an annual decline in child mortality of 4.4 per cent from 2014, whereas the annual decline between 1990 and 2013 was only 2.2 per cent.^x Furthermore, the neonatal mortality rate has fallen much more slowly than the child mortality rate. Maternal mortality dropped from 380 per 100,000 live births in 1990 to 210 per 100,000 live births in 2013,¹¹ a rate of decline that is too slow to reach Target 5A. Progress towards attaining Target 5B is also insufficient.¹³

With regard to MDG 6, the number of newly infected HIV-positive people worldwide fell by 38 per cent over a decade, from 3.4 million in 2001 to 2.1 million in 2013.¹⁴ Significant progress has also been made towards reaching universal access to HIV/AIDS treatment (Target 6B). In 2002 only about 300,000 people received antiretroviral therapy, but by 2012 10.6 million people had access to HIV/AIDS treatment. However, almost 40 per cent of HIV-infected people in LICs and MICs still do not have access to these life-saving drugs.

The progress achieved by LICs and MICs in tackling infectious and RMNCH diseases means that the disease burden around the world has shifted increasingly towards NCDs. As enormous progress is made in reducing infectious disease mortality (and this is likely to continue, given the access to vaccines, drugs and financial resources), cancer, heart disease and other NCDs are increasingly becoming dominant causes of death and disability worldwide. This epidemiologic transition, along with other changes affecting the global health architecture, is discussed in the next section.

^x Remarkably, the global annual rate of decline has increased from 1.2 per cent in 1990–95 to 4.0 per cent between 2005 and 2013.

Beyond 2015: Emerging Trends and Challenges in the Post-2015 Era

In this section, we first discuss major economic, epidemiologic and other changes affecting the post-2015 era. We then explore the extent to which the SDGs cover these challenges, and evaluate how the SDGs may affect the global health agenda and architecture in the years to come.

Emerging trends and challenges in global health

We identified a number of global health changes that will likely require focused action in the post-2015 era. During the interviews with key informants, we also discussed these emerging challenges and how they may affect global health in future. These challenges can be grouped into five broad types of changes, as outlined in Table 3.

Table 3: Key changes and emerging trends in global health

Key changes	Description
Health transition: epidemiologic and demographic changes	<ul style="list-style-type: none"> • Rise of NCDs • Ageing populations • Injuries • Large youth populations in developing countries
Microbial evolution	<ul style="list-style-type: none"> • Concern over new pandemics • Antimicrobial resistance
Environmental threats	<ul style="list-style-type: none"> • Effects of climate change on health • Environmental degradation
Economic changes	<ul style="list-style-type: none"> • Transitioning of LICs into MICs • Increased importance of domestic financing • Catastrophic medical expenses
Political developments	<ul style="list-style-type: none"> • Rise of large MICs as regional and global powers

Health transition

One of the most fundamental shifts affecting global health is the rising burden of disease and mortality caused by NCDs. In part as a result of the recent achievements in combating communicable diseases, this ‘epidemiologic transition’ has seen NCDs displace infectious diseases as the world’s leading causes of both morbidity and mortality. Globally, four of the five leading causes of death in 2012, including the top three, were NCDs.¹⁵ In every region excluding sub-Saharan Africa,^{xi} the three leading causes of death were all NCDs. Worldwide, close to two-thirds of deaths are attributable to NCDs (an increase of 30 per cent between 1990 and 2010); 80 per cent of these deaths occur in low- and middle-income countries (LMICs).¹⁶ In LICs and lower-middle-income countries (lower-MICs) that are still battling

^{xi} While NCDs are not yet the leading causes of death and disability in sub-Saharan Africa, its age-standardized rate of cardiovascular disease is nevertheless higher than that found in HICs. Jamison DT, Summers LH, Alleyne G, Arrow KJ, Berkley S, Binagwaho A, et al. Global health 2035: A world converging within a generation. *The Lancet*. 2013; 382 (9908): 1898–955.

infectious diseases, the introduction of NCDs has created a ‘double burden’ of disease that in many cases overstretches already weak health systems. The major health challenge in many countries will thus be to keep people healthy into old age, rather than just ensuring their survival.

The WHO has identified four behavioural risk factors as key drivers behind the NCDs epidemic: tobacco use, lack of physical activity, excessive alcohol consumption and unhealthy diet.¹⁷ In addition, there are strong links between the rise of NCDs and increased urbanization. As worldwide urbanization trends continue, and tobacco use, high body mass, low physical activity and other related trends rise, we are likely to see even higher rates of diabetes, cardiovascular disease, cancer and other major NCDs.^{17, 18}

Rapid population ageing and growth have also driven the epidemiologic transition. From a global population of 2.5 billion in 1950, subsequent declines in mortality saw the world population soar to 6.1 billion by 2000. The global population is projected to reach 8.1 billion by 2025, and to increase to 9.6 billion by 2050 (a 33 per cent increase from 2013).¹⁹ Virtually all population growth will be concentrated in LMICs. A significant challenge for global health concerns ageing: the over-65 demographic is increasing at three times the rate of the overall population, and age is a key driver in the rise of NCDs. According to the Global Burden of Disease Study 2010, 39.2 per cent of the increase in NCDs seen between 1990 and 2010 can be attributed to populations ageing.^{20, 21} A rise in disability, as a result of population ageing and improved rates of survival from events that would previously have proved fatal, has also contributed to the rise in NCDs.

The reduction in child mortality in LMICs has brought about a large increase in the youth population – notably adolescents – of many countries. Overall in LICs, 28 per cent of the population is under 15, with nearly 50 per cent aged under 24.¹⁹ Many live in countries with a double burden of disease (both infectious and non-communicable), suggesting that early preventive interventions are important to mitigating a future rise in NCDs. The rate of injuries has further increased, driven largely by road traffic accidents. (Road traffic deaths now represent the most frequent cause of death among young adults, with the highest death rate among poor populations in sub-Saharan Africa.)

Microbial evolution

Outbreaks in the 21st century of severe acute respiratory syndrome (SARS), H1N1 influenza, Middle East respiratory syndrome, and most recently Ebola have drawn attention to the ability of viruses to spread quickly across borders. In addition to the threats posed by pandemics,^{xii} the increase in the number of antimicrobial-resistant infections introduces major challenges to the sustainability of many essential health interventions. Discoveries of drug-resistant TB and malaria have raised serious concern, particularly in LICs and MICs, while drug-resistant infections acquired in hospitals strain health systems even in wealthy countries. With very few new products under development (only two new antibiotics have been approved in the United States since 2009), many experts fear that without significant changes in the use of antibiotics, more bacteria will develop antimicrobial resistance, drastically reshaping the calculus of health interventions – from treating previously minor bacterial infections to performing surgery.

^{xii} While recent flu outbreaks have been moderate, experts fear that the global health architecture is ill-prepared to handle a major outbreak of a severe flu pandemic. Among other factors, insufficient resources – the 2013 WHO pandemic budget was less than \$8 million – could hamper an effective response.

Environmental threats

Without significant action on environmental regulation, climate change is likely to increase in importance and severity through the 21st century. At present, the health effects of climate change remain relatively small.²² However, as temperatures continue to increase, so do the chances of severe weather events that can have strong and disruptive impacts on the health and wellbeing of populations around the world.^{xiii} A rise in average temperatures will contribute to increased death and injury from extreme heat and worsening air pollution, particularly in urban areas. Urban air pollution is already one of the main risk factors for respiratory and cardiovascular diseases; compounded by rising rates of urbanization and population growth, rising temperatures will further drive increases in NCDs. Estimates also suggest that by 2020, crop yields in some sub-Saharan African countries may be reduced by 50 per cent; this would exacerbate existing problems of food insecurity and undernutrition. Environmental factors at present contribute to one-quarter of the burden of disease globally. There is also increasing evidence that environmental degradation, such as deforestation, has triggered disease outbreaks. Scientists believe that as deforestation forces wildlife out of its natural habitats, the likelihood of human contact with viruses such as Ebola increases.^{23, 24}

Economic changes

One of the most transformative changes currently occurring is the rapid and sustained economic growth that has vaulted many LICs to MIC status. Accompanying this economic growth has been a shift whereby – compared with 1990, when 90 per cent of the world’s poor lived in LICs – more than three-quarters of the world’s poor now live in MICs.²⁵ Yet the graduation of countries to middle-income status is not necessarily accompanied by concurrent health improvements. Rather, this transition has resulted in the shifting of the locus of the global burden of disease, 70 per cent of which – including 63 per cent of the burden of HIV/AIDS and 73 per cent of the burden of TB – is now in MICs.

Bilateral donors have become increasingly reluctant to support MICs, and key multilateral agencies and global health partnerships traditionally use national income status as a priority criterion for determining what kind of support will be provided, as well as under what conditions.

Pockets of high burden among vulnerable or marginalized populations in MICs will continue to need attention regardless of their country’s income status, but the graduation of countries from LIC to lower-MIC status can have significant implications for the resources available within affected countries. Bilateral donors have become increasingly reluctant to support MICs, and key multilateral agencies and global health partnerships traditionally use national income status as a priority criterion for determining what kind of support will be provided, as well as under what conditions. Gavi is currently revising related policies (eligibility; co-financing; graduation), and the Global Fund similarly revised its eligibility and counterpart policy in 2013.

Recent projections indicate significant continued economic growth in LICs and lower-MICs. Many countries should be able to mobilize substantial domestic resources for health in the coming years.¹

^{xiii} The WHO has identified five broad social determinants, affected by climate change, that will serve as pathways to impact health outcomes: air, water, food, shelter, and freedom from disease.

Ensuring that this growth translates into increased domestic spending on health is critical, given that the rise in donor funding for health has slowed and that new issues – such as combating NCDs, and universal health coverage (UHC) – further increase the need for domestic health funding. Domestic spending on health has never been more important.

Insufficient public financing for health has led private individuals to absorb much of the rise in healthcare costs through out-of-pocket payments. Annually, an estimated 150 million people experience financial catastrophe because of the cost of care, while many others forgo necessary treatment because of their inability to pay.²⁶ The increase in NCDs, disability, and other age-associated health challenges is likely further to increase cost of care. Without adequate investments in insurance and other social protection mechanisms, much of this increase will likely fall on vulnerable individuals and households.^{xiv}

Political developments

The rise of large, powerful MICs introduces the potential for important shifts in the donor landscape. Brazil, China and India, for example, are among countries that were traditionally aid recipients and have recently also become donors (while still receiving aid).^{xv} These countries also play key roles in respect of research and development (R&D) and the production of vaccines and drugs. How exactly Brazil, China, India and other so-called ‘regional powers’ will come to engage with the developing international aid system remains to be seen. Already, some signs point to a desire to participate both within and outside existing structures. The recent conclusion of an agreement establishing the Asian Infrastructure Investment Bank, a new international financial agency backed by both China and India, suggests that some countries may eschew existing institutions in favour of new pathways to exert influence.²⁷

An overview of health in the SDG agenda

In putting an emphasis on intersectoral cooperation as well as on broader determinants of health, the SDGs offer significant opportunities for improving global health in the post-2015 era. The SDGs reflect an evolving understanding of the sector, which has moved away from a narrow focus on addressing mortality to encompass, more broadly, reducing morbidity and promoting well-being and health throughout the life course.^{xvi} Compared with the health MDGs, which relate to specific issue areas, the broad nature of the SDGs’ proposed objective to ‘encourage healthy lives and promote well-being for all at all ages’ could form the basis for a more horizontal approach to global health that addresses the underlying health system as an integral part of achieving specific disease targets.

The expanded set of priorities – 17 goals and 169 targets²⁸ (to be monitored by a set of indicators focused on measurable outcomes) – that are likely to comprise the SDGs, as proposed by the UN General Assembly’s Open Working Group on SDGs, underscores a significant departure from the

^{xiv} Fan and Savedoff found that as domestic financing for health increased, out-of-pocket spending has fallen in the last 15 years among many LICs. However, they caution that commensurate reductions in out-of-pocket spending will only be observed when domestic government spending for health increases. See Fan V, Savedoff W. The health financing transition: A conceptual framework and empirical evidence. *Social Science & Medicine*. 2014; 105:112–21.

^{xv} For example, India has argued that its human and technological resources are better suited to providing assistance to developing countries because of its experience as an emerging economy.

^{xvi} At the time of writing, the SDGs were under review and still subject to change. The Post-2015 Sustainable Development Agenda is expected to be adopted by UN member states at a summit in New York, convened as a high-level plenary meeting of the UN General Assembly, in September 2015.

approach taken by the MDGs. (See Annex 1 for the draft SDG 3 on health.) The proposed SDGs suggest a growing recognition of the linkages between health and other sectors, and aim to facilitate intersectoral cooperation by identifying the linkages between individual goals, in so doing recognizing opportunities for coordination and efficiency gains. The targets within SDG 3 on health facilitate greater synergy across sectors through their explicit focus on health outcomes related to other SDGs, including on the environment, water and gender equality. The inclusion of a wider set of issues by the SDGs as health targets raises the appeal of adopting a more horizontal approach to achieving the overall goal on health. The targets cover many rising challenges, such as NCDs, injuries and environmentally related disease. The wider set of global issues addressed by the SDGs goes far towards recognizing the many social, environmental and other determinants affecting health.

While the SDGs offer many opportunities for advancing global health, they also invite risk: under the Open Working Group's proposal on SDGs, only one of the broadened set of 17 goals is dedicated to health, compared with three of the eight MDGs. Health must now 'compete' with the sectors that are to receive expanded attention. This broader approach may possibly limit the level of funding and political capital targeted explicitly at health.

Beyond these potential concerns for global health specifically, the sheer increase in the proposed number of goals and targets raises questions over whether the SDGs can be as effective as the MDGs in serving as a normative framework for global action. One of the major strengths of the MDGs has been their ability to focus the agenda and mobilize funding around a limited set of clearly defined and globally accepted goals. By contrast, the SDGs encompass a much broader set of issues, providing less clear guidance for both donors and developing countries alike.

How Fit for the Future Is the Current Global Architecture, in Light of Emerging Trends and Challenges?

In this section, we explore the impact of emerging trends on the global health system and assess which institutional and functional weaknesses and gaps in the architecture are likely to become more pronounced, and what opportunities are appearing.

Direct country assistance

While the rise in DAH and the creation of new funding mechanisms have contributed to progress towards achieving the MDGs,²⁹ one concurrent weakness has been the creation of financing silos and the verticalization of initiatives without sufficient integration with broader health systems issues. To sustain and build on progress made so far, improving countries' health systems will be of key importance in the coming years – as emphasized in the report of the Global Thematic Consultation on Health, and reflected in the SDGs.

Health systems will have to adapt to emerging demographic, environmental and health challenges, and they also have to meet the higher expectations outlined in the SDGs (e.g. on UHC). It is also important that health systems work more cross-sectorally to address the broader determinants of health, and that they address health needs throughout the life course and among vulnerable populations. Health systems will also need to place special attention on the introduction and scaling up of new technologies and approaches. Thus, as countries get wealthier and disease patterns change, the costs for health systems will also rise.

Given that external financial assistance will only be able to cover a small portion of this cost, increased domestic health spending will be absolutely critical. The Lancet CIH, using IMF forecasts, projected substantial economic growth into the next decade, which should enable countries to spend more on health themselves.^{xvii} However, even as LICs and lower-MICs increasingly assume responsibility for domestic health expenditures, the poorest countries will continue to rely on international support for HSS, as well as for health service delivery. Many of these are fragile and conflict-affected states, and people living in these countries are disproportionately affected by major health problems.

Global health agencies must continue to explore how their funding strategies can address the rising challenges of poor populations and pockets of high disease burden in MICs. As highlighted above, key players such as Gavi and the Global Fund are currently revising or rethinking their policies on eligibility, co-financing and graduation. However, serving vulnerable populations in MICs is a larger challenge that the architecture needs to address.

^{xvii} The CIH estimates that the price of HSS would be \$30 billion per year for the next two decades. The cost represents less than 1 per cent of the projected additional GDP that will be available to LICs and lower-MICs due to increased economic growth forecast over the next 20 years. Jamison DT, Summers LH, Alleyne G, Arrow KJ, Berkley S, Binagwaho A, et al. Global health 2035: A world converging within a generation. *The Lancet*. 2013; 382 (9908): 1898–955.

A key question is also how the global architecture can support countries in expanding their fiscal space and commitment to financing for health and health systems, and increase public funding for poor and vulnerable populations (particularly women and children).³⁰ In its recent efforts to launch a Global Financing Facility for Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH), the World Bank has put the mobilization of domestic financing for long-term sustainability at the centre of its design.

Furthermore, the need for international support to fight NCDs will become more pronounced in the future, as the burden of NCDs rises and the focus shifts from preventing mortality to reducing morbidity and promoting healthy lives. This includes potentially increased financing for the poorest countries to help introduce and scale up key NCD interventions – including hepatitis B and HPV vaccines, and implementing tax increases, advertising regulations and sales regulations on alcohol, tobacco and other products contributing to the burden of NCDs. The role of technical assistance and political advocacy to ensure that countries create the fiscal space for domestic financing to fight NCDs and injuries, and to support the development of effective policies and strategies, will also be critical.

Overall, this analysis shows that direct country assistance as a function of the global health system remains highly relevant, but that substantial shifts will be required to meet the demands of the post-2015 world. Reflecting the increase in domestic funding and reduced importance of international funding in many countries – as these experience economic growth – donors will have to shift their focus to the poorest countries (without neglecting the pockets of burden in MICs), and the overall system will need to adapt to the changed landscape. ‘Upstream’ technical assistance – including fiscal space analysis for health but also more generally – will become more important. In addition, the fragmentation of direct country assistance among donors remains a persistent challenge that continues to lead to inefficiencies and burdensome processes for recipient countries. Value for money – or how to allocate resources to ensure that the greatest health impact is achieved for the lowest cost – will remain an important topic. Improving the performance of the system requires that these issues should be addressed.

Management of negative externalities

Major infectious disease outbreaks at the beginning of the 21st century (e.g. SARS in 2003) led to the strengthening of the International Health Regulations (IHR) in 2005, the development of the 2009 Pandemic Influenza Preparedness and Response WHO guidance document, and to some extent also to more robust responses to global outbreaks of disease, as in the case of the 2009 H1N1 influenza pandemic. However, despite the stronger IHR that emerged after the SARS epidemic, the much-delayed response to the 2014 Ebola outbreak indicates that more robust control methods, such as strengthened global surveillance and rapid response mechanisms, are needed. Experts fear that the global health architecture is ill-prepared to handle future outbreaks, including a severe flu pandemic.

Capacity constraints among leading international agencies have hampered effective responses to epidemics. The majority of the WHO budget is earmarked funding by donors, while funding for the WHO’s core work in emergency and epidemic and pandemic response has fallen significantly in recent years.^{31, xviii} The programme budget for outbreak and crisis response was reduced from \$469

^{xviii} Funding for the WHO’s 2014–15 programme budget breaks down to 23 per cent from assessed contributions and 77 per cent from voluntary contributions, with most of the latter earmarked funding. See World Health Organization. Proposed Programme Budget 2014–2015; Geneva: World Health Organization. Sixty-sixth World Health Assembly Document number: A66/7; 2013.

million in 2012–13 to \$241 million in 2014–15, the epidemic and pandemic response department was disbanded, and its former responsibilities were split among other departments.³²

In addition to the weak global response to epidemics, poor global coordination so far in addressing the rising challenge of antimicrobial resistance all but guarantees that the issue will continue to gain in importance in the post-2015 era, as drug resistance worsens and the supply of effective antibiotics declines.

At the country level, weak health systems increase the likelihood that epidemics will spread, which again points to the increased importance of HSS (especially through direct country support). The 2014 Ebola outbreak demonstrated the inability of weak health systems to cope with such a rapid increase in caseload. A shortage of trained health professionals and equipment, and too few supplies, coupled with weak supply chains and insufficient capacity for public health surveillance and outbreak control, allowed a virus that has been manageable in stronger systems to spiral out of control. Cross-sectoral challenges may further compound negative externalities, as the possible links between the spread of Ebola and deforestation suggest.

In an increasingly globalized world, the persistent threats of new pandemics and infectious disease outbreaks, compounded by inadequate responses to challenges from antibiotic resistance, indicate that effective management of negative externalities will become an increasingly important task for the global health architecture to fulfil. While the current system is not ‘fit for purpose’ (as shown by the Ebola crisis), establishing an effective framework to respond to global threats appears to be a key priority for the global health community.

Leadership and stewardship

Efforts to develop strong leadership and stewardship in global health have been hampered by various factors, including institutional budget constraints and politically driven decision-making. At the same time, however, the multi-sectoral nature of many new health challenges makes the need for strong leadership and stewardship more pronounced.

Strong leadership and stewardship is crucial both for priority-setting and for providing guidance for fulfilling the other functions of the global health architecture. The WHO has a unique leadership role within global health – a role built into its constitution.^{xix} However, other global health organizations, such as UNAIDS and UNFPA, among others, also assume crucial leadership and stewardship roles in the global architecture.

While the WHO has a key role to play, it is constantly challenged, with political priorities often seen to supersede independent, evidence-based decision-making.³³ Other actors have increasingly stepped in to provide leadership on critical health matters. Most recently, this was demonstrated by the role played by non-state actors in the Ebola crisis – in particular, Médecins Sans Frontières acted as a primary implementer and advocate. Nevertheless, the inability of partners to coordinate funding and delivery effectively suggests that significant weaknesses still exist in global health stewardship.

As health challenges become increasingly complex and their linkages to other sectors more apparent, the need for strong leadership and stewardship within global health will become more important. Active stewardship is needed to drive consensus-building on policy and to forge links

^{xix} Article 2a of the WHO Constitution states that the WHO shall ‘act as the directing and coordinating authority on international health work’.

with other sectors that affect health. In many cases, the linkages between health and other sectors are not clearly understood by actors on both sides. Articulating these links is critical to developing the relationships necessary to address the many determinants of health. Just as the World Bank's focus on health in its 1993 *World Development Report* brought the sector to the attention of many economists and ministries of finance for the first time, strong leadership that can compellingly demonstrate the importance for multi-sectoral cooperation is critical to addressing effectively the health challenges of the post-2015 era.

GPGs

Providing GPGs is a core function of the global health system. Four GPGs are discussed here: R&D, market-shaping, norm- and standard-setting, and knowledge-generation and -sharing.

Despite impressive developments in the institutions supporting R&D,^{xx} there remain major concerns regarding insufficient scientific innovation and funding for R&D, notably for diseases of Type II – incident in high-income countries (HICs) and LICs, where the burden of disease rests on the poor – and Type III – incident almost exclusively in poor countries. When it comes to discovering and developing medicines, vaccines and diagnostic tests, the world has largely ignored the infectious diseases that disproportionately kill the poor. Although global R&D spending has more than quintupled since 1990, to \$248 billion in 2009, only 1–2 per cent of total R&D funding is channelled to research for these diseases. The WHO-mandated Consultative Expert Working Group on Research and Development (CEWG) has called for a doubling of current R&D expenditures in this area – to \$6 billion, from the \$3 billion currently spent.³⁴

When it comes to discovering and developing medicines, vaccines and diagnostic tests, the world has largely ignored the infectious diseases that disproportionately kill the poor.

This recommendation was recently echoed by the CIH, which identifies stronger investments in R&D for new health tools (e.g. for infectious diseases, RMNCH disorders and NCDs) as one of the most effective ways to help achieve rapid improvements in health. It also points to a need to develop new institutional structures and global financial instruments to support GPGs. Other issues that will gain more relevance will be helping to build local research capacity and supporting international research networks.

Market-shaping activities – such as pooled procurement to achieve reduced prices for health products, and long-term purchase commitments to encourage increased market competition and to accelerate the pace at which new products are developed – represent another key GPG. Innovations in health, such as new and improved vaccines and drugs, hold great promise for the prevention and management of disease. New technological breakthroughs present further opportunities for improvements in health. Mobile and digital advancements have drastically reduced the cost and time required to process data, opening up new frontiers for delivering better, cheaper and more

^{xx} The emergence of product development partnerships (PDPs) in the 1990s, such as the Drugs for Neglected Diseases initiative and the Global Alliance for TB Drug Development, led to significant improvements in drug development for infectious diseases. Global health actors have also established different innovative new approaches like patent-pooling, and the creation of new institutions for R&D, such as the Advanced Market Commitments for vaccines.

personalized care. While organizations such as Gavi, UNITAID and the Global Fund (among others) recognize market-shaping as a priority area for action – contributing to improved country access to health products at an affordable price – it is acknowledged that more can be done to achieve better prices for quality medicines and products, and to ensure that countries have improved access to these products.³⁵

Global norm- and standard-setting is a key GPG, and there continues to be a need for effective negotiating platforms to develop and implement international agreements. The WHO plays a leading role in developing, monitoring and enforcing international rules and norms.^{xxi} It has produced international conventions and agreements, regulations, and non-binding standards and recommendations. The WHO's governance mechanism, which brings together health ministers from nearly all states, provides it with the legitimacy to develop norms, while its technical credibility allows it to convene experts to develop best practice. In recent years, a number of important initiatives were adopted, such as the Framework Convention on Tobacco Control (FCTC) in 2005.

At the same time, there is criticism of the politically driven process of the World Health Assembly and the challenges regarding the implementation of global agreements.³⁶ In the future, norm-setting will remain important, and while it is widely acknowledged that the WHO will continue to play a critical role in consensus-building, and in the development and implementation of international agreements, there are also voices demanding more effective processes through new or improved mechanisms, such as an expanded role for non-state actors³⁷ (discussed in more detail below).

Knowledge-generation and -sharing have received increasing attention in past years, with a range of initiatives focusing on this particular sub-function. Further progress has been made in terms of accountability. Global initiatives – such as the Partnership for Maternal, Newborn and Child Health (PMNCH) and Countdown to 2015 – have been formed in recent years to create and distribute key global health knowledge; and, as highlighted above, global accountability mechanisms – such as the iERG on Information and Accountability for Women's and Children's Health, which reports to the UN Secretary-General – were established to monitor progress on women's and children's health. The establishment of the Institute for Health Metrics and Evaluation (IHME), based in Seattle, has also created an alternative resource for data. Initial recommendations were made to create accountability platforms for the post-2015 development framework in order to track progress towards achieving targets.³⁸ This entails focusing more strongly on health outcomes and impacts. Demand for accountability and transparency will only increase.³⁹

The global architecture can also help to facilitate stronger knowledge-exchange between LMICs. Many MICs, in particular, have a track record of adopting cost-effective approaches to domestic health issues. Recent South–South collaboration between MICs and LICs has seen some of this accrued knowledge shared between countries (e.g. shared learning on tobacco and alcohol taxation policies).¹ As demand for exchanging knowledge on good practices continues to increase, the global architecture should adjust to ensure that it can better foster global learning on effective control strategies.

^{xxi} Other UN agencies (e.g. UNICEF and UNFPA) also have normative functions, but on a much more limited scale than those of the WHO. The UN General Assembly has also adopted resolutions on NCDs and on UHC (acknowledging therein the WHO's leading role).

Summary

It is clear that the current functions of the global health architecture will continue to hold relevance in the post-2015 world, though changes are needed to ensure they can address emerging global health challenges more effectively.

While the global health architecture will continue to play a key role in direct country assistance, the structure of this function may need to change as the economies of LICs continue to grow. There also appear to be fundamental challenges that are not adequately covered by the current global health system. In particular, the global health architecture seems underprepared to address multi-sectoral challenges effectively, including NCDs, and stronger mechanisms are needed to support countries in scaling up domestic financing for health and during their transition into middle-income status. Direct country assistance must also evolve to support health systems more effectively.

The three core functions of the global health architecture – leadership and stewardship, provision of GPGs and management of externalities – will require more attention if they are to become fit for addressing the emerging challenges of the post-2015 world. There is a need for R&D for the poorest countries, and the architecture should more strongly facilitate this R&D as well as ensuring country access to new technologies. Global health actors should continue to adopt innovative market-shaping approaches that enable new medical products and technologies to reach countries. The demand for knowledge-generation and for transferring lessons learned (sharing ‘good practices’) will increase, and the need for effective forums for the negotiation of international agreements remains crucial. The system for surveillance and management of outbreaks (and for tackling other threats such as increasing drug resistance) must improve significantly.

Overall, the present functions of the global health architecture will remain important in the post-2015 world, but this analysis suggests that meeting forthcoming changes in global health will require significant changes to this architecture in order to make it fit for purpose in the post-2015 world. In particular, these architectural improvements must focus on six key areas, to which the mnemonic BRIGHT is applied:

- Bolstering R&D and enabling access to new medical products and technologies
- Responding to global threats
- Intersectoral cooperation
- Greater focus on HSS
- Harmonized and less fragmented systems
- Transparency and accountability

Reform Proposals for Strengthening the Global Health Architecture

We undertook an extensive review of the published and grey literature to gain a comprehensive understanding of existing proposals on reforming the global health architecture. We define our inclusion criteria for ‘transformative reforms’ as proposals that, if implemented, would significantly address identified weaknesses in the architecture, and which offer concrete steps towards implementing the proposed reforms. In focusing on new, innovative approaches with a transformative character, we excluded proposals that did not make specific recommendations for addressing the identified systemic weaknesses. For example, proposals calling for greater funding or more harmonization were included only if they also presented specific, transformative approaches to addressing challenges.

Based on this definition, we identified reform proposals and categorized them based on what functions they address, and on how well they respond to emerging trends and challenges in the global health arena identified above. This process of mapping existing reform proposals brings an important analytical element to setting the post-2015 agenda in that it will allow us to identify whether proposals address emerging trends.

What reforms are suggested? What functions are addressed by the proposed reforms?

As a first step, we mapped the identified reform proposals according to which function, or set of functions, they aimed to address. This helped to identify key focus areas of existing proposals, as well as functions of the global health architecture that – despite the fact that our analysis of emerging trends points to their critical importance – were receiving comparatively less attention.

We found a wide spectrum of proposed reforms. Some target just one organization, but have broader implications for the entire constellation of global health actors (e.g. reform of the WHO); some would affect multiple actors (e.g. a radical consolidation of multiple global health actors); and others address one specific function of the global health architecture (e.g. innovative reforms to increase R&D for neglected diseases).

Table 4 summarizes reform proposals from analyses over the past 10 years (see also Annex 2).^{xxii} As shown in the table, we grouped proposals based on whether they were strongly cross-cutting in focus – and would thus affect all four functions – or whether they relate most strongly to one specific function. In the latter case, proposals were grouped according to the primary function they are setting out to improve.^{xxiii}

^{xxii} 2005–14.

^{xxiii} As the objective was to identify transformative reform proposals, all thematically similar reforms with a similar focus were clustered together. For example, the multiple proposals to expand the Global Fund were grouped alongside those to merge the Global Fund and Gavi.

Table 4: Functions addressed by reform proposals

Reform proposal	Function addressed	Short description
Three global agencies	Cross-cutting (all functions)	Proposes radical consolidation of architecture into three agencies: for financing; norms and standards; and advocacy and accountability
Framework Convention on Global Health	Cross-cutting (all functions)	Creation of a legally binding framework to govern global health obligations of states
UN reform	Cross-cutting (all functions)	Harmonization of support by streamlining multiple UN agencies working in health into one delivery mechanism
UN-HEALTH	Cross-cutting (all functions)	Transformation of the WHO into UN-HEALTH, based on the UNAIDS model, plus changes related to R&D, accountability and consolidating funding channels
WHO reform	Cross-cutting (all functions)	Various reforms, e.g. strengthening the performance of the WHO by building a firewall between the WHO's technical departments and politically driven governance
Collective rights-based approach	Direct country assistance	Legally enshrine collective rights thereby creating obligations for states
Global Financing Facility for RMNCAH	Direct country assistance	Increase funding for RMNCAH, mobilize domestic resources and harmonize/better target financing and delivery of RMNCAH services
Global Social Health Protection Fund	Direct country assistance	Redistribution of resources through an expanded health fund with contributions based on weighted burden-sharing
Principal Financier	Direct country assistance	A principal financier in global health would fund integrated health strategies (operating independently of technical implementers)
Global Fund for Health	Direct country assistance	Various proposals for expansion of current Global Fund to cover more health issues and HSS, as well as for a merger with Gavi
Taxes to mobilize funding	Direct country assistance	Mobilization of resources for health through innovative tax mechanisms
DALY tradeable credit market	Direct country assistance	Generate DAH through development of cap-and-trade-type market for DALYs
Coherent global framework for health financing	Direct country assistance	Framework to shape responsibilities/goals of international and domestic health financing
Alternative eligibility criteria for health ODA	Direct country assistance	Modify or eliminate country income thresholds as criteria for DAH
Convention on R&D	GPGs	Binding framework to scale up investments in R&D and develop states' obligations for R&D
Health Impact Fund	GPGs	Pay-for-performance proposal to encourage pharmaceutical industry to sell drugs at near the cost of production
Expanded World Bank focus on GPGs	GPGs	Develop a new arm of the World Bank focused on providing technical leadership in GPGs
Pandemic Preparedness Fund	Management of negative externalities	Creation of a reserve fund for emergency responses (e.g. at the WHO or the World Bank)
Global action networks/networked governance proposals	Leadership and stewardship	Overcome democratic deficits in global health governance through multi-stakeholder approach
Multi-stakeholder forums at the WHO (e.g. Committee C, World Health Forum)	Leadership and stewardship	Overcome democratic deficits in global health governance through multi-stakeholder approach
UN Global Health Panel	Leadership and stewardship	Overcome coordination challenges and democratic deficit in global governance for health through a multi-stakeholder approach

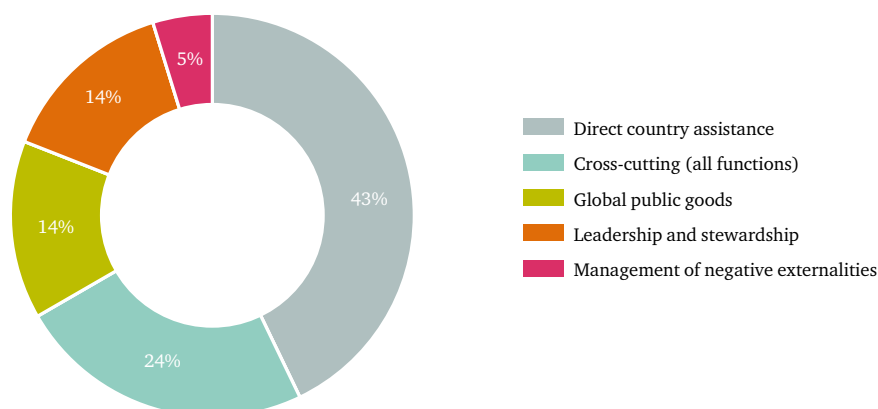
Many proposals focus on improving direct country assistance. There are far fewer reform proposals for the three other (core) functions of the global health architecture, with only one proposal focusing on addressing negative cross-border externalities.

Figure 2 shows the distribution of reform proposals by function. Nine – the largest number of all suggested reforms (43 per cent of the total) – focus on strengthening the direct country assistance function, either through the mobilization of (more predictable) international and domestic resources for global health, or through an improved focusing of funding – such as by the creation of or improvement of funding channels. While this function remains of key importance in the post-2015 world, it also received substantial attention and experienced major progress during the MDGs era, particularly when compared with other more neglected functions of the global health architecture.

We identified three proposals that target GPGs. As with direct country assistance, improving the provision of GPGs – most notably through increased R&D – has received increased attention since 2000, with numerous new initiatives launched, although much remains to be done.

There are also three proposals on leadership and stewardship. These argue that the strategic coordination in global health would be improved were non-state actors to become more strongly involved in the WHO and in other international bodies.

Figure 2: Distribution of reform proposals by global health function



Only one proposal explicitly focuses on addressing negative externalities, such as pandemic influenza and antimicrobial resistance. Given that surveillance and information-sharing for the prevention and containment of such global threats is part of the WHO's core mandate, proposals for reforming the WHO also cover the management of externalities. None the less, considering the critical nature of the issue and the focus on health security by many countries, it is surprising that there are not more proposals that explicitly focus on this function of global health. There is an urgent need further to improve this particular function, and more thinking appears to be required on how to make it fit for the future.

There are five cross-cutting proposals that suggest large-scale changes to the global health architecture, including reforms of the UN system, and Gostin's proposed legally binding framework for global health that would hold states strongly accountable.⁴⁰

Overall, this discussion indicates that certain functions are targeted much more strongly than others. Below, we complement this overall assessment of reforms with a finer-grained assessment of how the different reform proposals intend to improve the different functions.

Direct country assistance

In response to the challenges of insufficient levels of international and domestic financing and the high volatility of DAH, a range of proposals for increasing funding for health have been advanced. These reforms can be categorized into three different types: innovative tax-based mechanisms; solidarity mechanisms; and market mechanisms.

Innovative tax-based mechanisms come in different forms. The High Level Taskforce on Innovative International Financing for Health Systems, for example, recommended in 2009 further harnessing ‘solidarity’ levies on airline tickets,⁴¹ as currently used by UNITAID. Proposals to institute a small tax on international financial transactions to support development assistance have also gained traction.⁴²

A number of reform proposals call for investment frameworks to hold all countries accountable for their financial responsibilities for global health (‘solidarity mechanisms’). In calling for a global Social Health Protection Fund, Ooms et al. propose a method of improving health financing and distribution through a weighted burden-sharing formula among countries.⁴³ Gostin’s global plan for justice calls for ‘soft norms’, whereby countries would agree to contribute a certain percentage of their GNI to a Global Health Fund covering a universal package of services.⁴⁴ The Chatham House Working Group on Health Financing recommends a similar measure, calling on HICs to contribute at least 0.15 per cent of GDP to external financing as part of a coherent global framework for which also requires all countries to devote at least 5 per cent of their GDP to domestic financing for health.⁵

Meier and Fox propose the creation of a legal framework that enshrines collective rights, creating international obligations for states to support global health.⁴⁴ This approach builds on human rights regimes, and argues that the notion of human rights should be extended beyond the individual. Public health, as a collective public good, is seen as also requiring collective rights. By legally enshrining collective rights, Meier and Fox envision a system that allows developing countries to pursue rights-based claims and to facilitate binding international obligations for DAH.

The most innovative proposal comes from Carrasco et al.⁴⁵ Building on a model from the environment sector, they propose a tradeable credit market in DALYs, analogous to carbon cap-and-trade mechanisms. This model would see wealthy countries increase DAH through the purchase of DALY ‘credits’ to offset domestic investments in non-cost-effective health interventions at home. Their proposals for global health ‘permits’ argue that significant expenditure in wealthy countries on interventions with low cost-effectiveness is an inefficient allocation of funds to address the global burden of disease, but could be harnessed – through the purchase of DALY ‘credits’ – to offset insufficient health expenditures in LICs. Both HICs and MICs would act as net contributors, although HICs would be expected to absorb most of the cost.

Several proposals call for reforms of the existing global health financing channels. These proposals suggest consolidating the current funding mechanisms, or broadening their mandates, so that support to countries is provided in a much more integrated manner. One proposal deals explicitly with new eligibility criteria for DAH to ensure that vulnerable populations within MICs are not cut off from international support.³⁴

A variety of proposals focus on streamlining financing, through either the establishment of new institutions, the expansion of institutional mandates or the merging of multiple existing institutions. Dybul et al. call for a move away from vertical financing towards support for integrated national health strategies.⁴⁶ They call for this to be accomplished through the emergence of principal financiers, who could either be a new facility or a transformed existing institution, with the Global Fund or World Bank seen as particularly appealing options.

Related proposals – less radical, but still far-reaching – call for an expansion in the mandate of the Global Fund to include maternal and child health, thereby effectively addressing all the areas covered by the MDGs, or merging the Global Fund and Gavi to create one combined Global Fund for Health.^{47–50}

Most recently, the Global Financing Facility for RMNCAH, hosted by the World Bank, has begun the process of outlining how it might help to consolidate the highly fragmented RMNCAH financing and technical assistance landscape. A proposal for such a financing mechanism housed at the World Bank was initially made in 2011.⁷

Country transitions to middle-income status have led global health experts to call for a re-evaluation of the criteria used to allocate DAH. In evaluating the Global Fund, the Center for Global Development (CGD) working group recommends allocation based on cost-effectiveness criteria rather than on country income status. Noting a mismatch between countries with the highest disease burden (measured by DALYs) and the top recipients of health aid, with high pockets of disease burden in MICs, Glassman recommends eliminating income proxies as a method for DAH allocation, in favour of an approach based on disease burden, coverage gaps and cost effectiveness.^{51, 52}

GPGs

Reform proposals for GPGs focus particularly on R&D. These proposals are remarkably varied in their level of ambition, ranging from coordination mechanisms to binding R&D conventions, to pay-for-performance models for pharmaceutical companies. One suggestion sees a greater role for the World Bank in taking leadership on providing a wide array of GPGs.⁵⁶

Hollis and Pogge's proposed Health Impact Fund (HIF) represents a pay-for-performance model that would pay pharmaceutical companies based on their product's health impact.⁵³ Companies would receive a share of a reward pool – financed by governments^{xxiv} – in exchange for selling new products at their lowest possible cost for the first decade. After the initial 10-year period, companies would further be expected to allow generic production of their registered products.

The WHO-mandated CEWG proposes a legally binding convention on R&D, which would aim to establish state obligations for R&D, and in doing so increase sustainable R&D funding, particularly aimed at developing countries and at Type II and Type III diseases. By focusing on Type II and Type III diseases, as well as Type I diseases (defined as diseases incident in both rich and poor countries, with large numbers of vulnerable populations in each) in the context of developing countries, the CEWG envisions a framework convention that complements existing intellectual property law by addressing areas in which existing rules insufficiently address R&D, intellectual property and innovation. A convention would aim to improve funding for R&D (including promoting technology transfers to developing countries) and delivery of health products.³⁸

^{xxiv} While the HIF proposal assumes that financing would come from participating states, it does not specify the mechanism for doing so. Based on the assumption of a \$6 billion fund, Hollis and Pogge estimate that countries would need to contribute 0.03 per cent of their GNI, though the model does not call for a threshold contribution amount.

The creation of independent global observatories for surveillance and information-sharing has been proposed by a number of global health commissions. As part of a strengthened coordination mechanism for R&D at the WHO, the CEWG recommends the creation of a global health R&D observatory to collect data and share lessons learned.³⁸ Similarly, the Lancet Commission on Global Governance for Health recommends the establishment of a UN-mandated Independent Scientific Monitoring Panel on Global Social and Political Determinants of Health, modelled after the Intergovernmental Panel on Climate Change.⁵⁴

Latterly, during the Ebola crisis, the World Bank has been able to deploy hundreds of millions of dollars in emergency funding – an approach that, while enormously important, also reflects the frequently ad hoc nature of the response to international emergencies.

Due to its broad technical expertise and ability to develop innovative financing instruments, the World Bank has been proposed as a top-choice institution to take on the challenge of addressing GPGs. A CGD report recommended that the World Bank develop a mandate, financing instrument and governance structure to expand and improve its work on GPGs.⁵⁵ The new arm could be supported by economies such as China, reflecting the importance of involving emerging markets in addressing the provision of GPGs.⁵⁶ A dedicated GPG arm would allow the World Bank to deploy its technical knowledge and international influence to support the development of GPGs, such as a vaccine for Ebola. Latterly, during the Ebola crisis, the World Bank has been able to deploy hundreds of millions of dollars in emergency funding – an approach that, while enormously important, also reflects the frequently ad hoc nature of the response to international emergencies. Moreover, the Bank's multi-sectoral expertise would allow it to address many GPGs beyond the health sector, such as climate change, that can also have an impact on health outcomes.

Leadership and stewardship

A global health system with diffuse leadership and many actors has created challenges for stewardship and coordination. Some proposals see reducing the democratic deficit at state-led international institutions (such as the WHO) as a viable avenue towards improving institutional legitimacy and therefore coordination between actors. Kickbush et al. propose to address this through the creation of a multi-stakeholder 'Committee C' at the World Health Assembly: while states would still be the only actors allowed to vote, they argue that the involvement of non-state actors at the highest level would nevertheless improve strategic coordination in global health.³⁷ The WHO proposed a similar measure in 2011, outlining a multi-stakeholder 'World Health Forum', but this was later rejected by member states. Sridhar et al. build on the 'Committee C' approach, proposing that it be operationalized through global action networks.⁵⁷

Other proposals, while reiterating the centrality of the WHO, recommend situating new mechanisms beyond the WHO itself. Mackey and Liang propose the UN as a solution to the perceived disorganization within the global health architecture.⁵⁸ Their proposal for a UN-based Global Health Panel envisages a multi-stakeholder panel with pooled UN funding and greater policy coherence, where – as the chair – the WHO would play a central role. By freeing decision-making from its current political constraints, the Global Health Panel would allow the WHO to focus on its technical areas of expertise.

Management of negative externalities

As highlighted above, there is only one major reform proposal that specifically addresses negative cross-border externalities. An independent review of WHO pandemic preparedness in 2011 recommended the creation of a minimum \$100 million contingency fund for emergency responses to global health threats, particularly for pandemics, although the proposal was not taken forward.⁵⁹

Gostin has argued that the presence of an emergency fund at the WHO would have mitigated some of the political considerations that may have affected a slow global response to the current Ebola epidemic.⁶⁰ Renewed calls for an emergency fund for pandemics have been echoed elsewhere, with the president of the World Bank, Jim Yong Kim, recently raising the idea of a fund to be housed at the Bank.⁶¹

Cross-cutting proposals

Cross-cutting proposals would directly affect all four functions of the global health system. Accordingly, related reforms are ambitious in scale and include important suggestions for changes to major existing institutions, as well as options intended to challenge current thinking on the system.

Gostin suggests creating a legally binding Framework Convention on Global Health.⁴⁴ Establishing this Framework Convention would have major implications for all four functions of the global health architecture. It would articulate states' and the international community's responsibilities for health, enshrine the 'right to health', develop innovative financing mechanisms, improve data collection, promote transparent, accountable, inclusive governance, and promote leadership in global health.

Another proposal calls for the radical consolidation of existing global health agencies into three agencies. Sidibe and Buse argue that only three agencies are necessary in global health, covering financing, norm- and standard-setting, and advocacy and accountability.⁶² This rather provocative model would also radically change and simplify the crowded global health landscape.

There are a number of proposals to reform the WHO, which would affect all global health functions. Some of these suggest establishing greater autonomy for the WHO's technical implementation arm and decoupling its technical work from political considerations.^{39, 33} This approach identifies the WHO's current multiple roles (i.e. as a provider of stewardship and of technical expertise) as difficult to navigate, with conflicting interests sometimes influencing decision-making. By protecting its scientific mandate from its more political leadership functions, a reformed WHO might fulfil both responsibilities more effectively, thus improving its status both as a provider of scientific and technical assistance (encompassing the GPGs, management of negative externalities and direct country assistance functions) and in international leadership on global health (leadership and stewardship).

The multitude of UN actors engaging in global health has long led to calls for reform. Attention on the SDGs and the post-2015 agenda have brought renewed focus on the fitness for purpose of the UN system.^{xxv} Hendra calls for a scaling-up of existing initiatives to harmonize UN agencies, proposing an expansion of the Delivering as One initiative and concurrent improvement in the UN's focus on speaking with 'one voice'.⁶³ In its initial phase, Delivering as One focused on streamlining leadership,

^{xxv} Criticism of the UN system is frequently targeted at its perceived organizational dysfunction and donor-driven funding, both of which create a siloed, fragmented approach to operations. See also: Future United Nations Development System. UN Fit, or Unfit, for Post-2015 Purpose? Briefing: 2014: <http://www.futureun.org/media/archive1/briefings/FUNDS-Briefing20-Browne-Weiss.pdf>.

budgets, programmes and overheads. In its second phase, Hendra argues, the focus must shift away from process to effective delivery of results.^{xxvi, 64}

Nordström recently made a more far-reaching proposal, calling for a strengthened WHO – termed ‘UN-HEALTH’ – that explicitly works cross-sectorally (like UNAIDS).⁶⁵ Rather than taking the traditional medical and healthcare perspective, UN-HEALTH would be based on a different paradigm that would consider health as a core dimension of development. Being at the centre of the global health architecture, this proposed organization would provide leadership and stewardship, and would also manage the negotiations of new global intergovernmental agreements (requiring an independent governance structure). The organization would be complemented by a simplified Global Fund for Health (the suggested merger of Gavi and the Global Fund), a transparent platform for obtaining health products and technologies, and an independent accountability facility.

Do reform proposals match with the identified challenges?

Many proposals focus on meeting the sustained challenges that now confront the global health architecture – including addressing the unfinished MDGs beyond 2015, and also tackling the issues that have recently risen up the global health agenda (such as NCDs and injuries). The fragmentation of the global health landscape and the level and quality of global health funding are the most commonly identified challenges in the literature; and, as emphasized in the previous subsection, there are a number of reforms that focus on streamlining and scaling up funding for health. These include the proposed simplified Global Fund for Health (see above, merging Gavi and the Global Fund).^{xxvii} Scaling up available funding through innovative mechanisms is another suggestion that was mentioned in the literature and by interviewees.^{xxviii}

Other major reform proposals relate to the perceived need for stronger global health leadership and stewardship, and for effective arrangements to negotiate international treaties and conventions. These proposals focus on reform of the WHO and also of the wider UN system, to bring the different parts of the global system together. These are far-reaching reforms that could provide improvements on a range of issues, including coordination, global health standard-setting, and knowledge-generation and -sharing.

There are fewer reform proposals that explicitly focus on the emerging issues, such as health transitions, climate change, and the rise of large MICs as regional and global powers. However, a closer assessment shows that there are relevant reform proposals that focus on the six overarching architectural issues identified above (BRIGHT). In the following subsection, we discuss the existing reform proposals for these issues.

^{xxvi} Others see the main challenges as rooted less in operations than in vision: Lidén (2013) called for the heads of UN health agencies to develop more ambitious goals, arguing that institutional reform is less important than a strong vision. Lidén, J. UN health agencies need vision more than reform. Chatham House Expert Comment. [Online] London: Chatham House, the Royal Institute of International Affairs; 2013. Available from: https://www.chathamhouse.org/media/comment/view/196350?dm_i=1TYE%2C22AE5%2CBM8TVS%2C7FUA7%2C1 [Accessed 10 March 2015].

^{xxvii} Interviewees expressed very diverging views about whether such a merger would be realistic and useful. A number of interviewees suggested that the two organizations should more strongly harmonize their processes. It was also mentioned that there will likely be a greater need for collaboration on malaria, as recent evidence indicates that a malaria vaccine could be an important addition to current control strategies.

^{xxviii} Yet others call for a shift away from disease-specific funding, towards the funding of health systems and UHC. See for example Röttingen JA, Ottersen T, Ablo A, Arhin-Tenkorang D, Benn C, Elovainio R, et al. *Shared Responsibilities for Health: A Coherent Global Framework for Health Financing: Final Report of the Centre on Global Health Security Working Group on Health Financing*. London: Chatham House, The Royal Institute of International Affairs; 2014.

Bolstering R&D and enabling access to new medical products and technologies

As highlighted earlier, a range of proposals address increasing R&D for Type II and Type III diseases. These proposals focus on increasing funding for R&D, improving access to developed drugs, and increasing the R&D conducted in LMICs. Encouragingly, one potentially transformative reform targeting market-shaping is already under way. The Global Fund is designing an online marketplace to facilitate the purchase of medical products and technologies. If successful, this e-marketplace could serve to improve transparency, efficiency and quality within global markets, while also advancing country ownership of procurement processes. The platform reflects many of the principles advocated in reform proposals related to GPGs, and could further benefit other functions of the global health system, such as the provision of direct country assistance, by improving value for money.

While this initiative is promising, many reforms related to R&D and new medical products and technologies have not been implemented in the past, though they may have in principle addressed the needs of developing countries. High costs and the need for strong political and financial commitment have created formidable barriers to effective implementation. However, this may also be related to the fact that the global health architecture is still working out how best to work in partnership with the private sector, which would be useful not only to scale up R&D, but also to address other important topics poised to become more relevant in the future (e.g. NCDs).

Responding to global threats

Only one reform proposal related to the management of negative externalities – perhaps the most underperforming function in global health. While the creation of a dedicated fund for public health emergencies could potentially be a useful addition to the global health architecture, it is critical that the current system for responding to global threats, such as pandemics, antibiotic resistance and counterfeit drugs, should be more generally improved. Developing this system is closely linked to WHO reform and resourcing. Interest in global health has strengthened in recent years, based on concern over the security implications of pandemics and infectious diseases. Developing effective responses to global threats is critical to allaying these biosecurity concerns.

Intersectoral cooperation

Despite the attention given to determinants of health and to the need for a multi-sectoral approach in the draft SDGs, few reform proposals within the global health field focus on developing cooperation between relevant sectors. Improving health cannot be resolved by the health sector alone, and needs to become part of a much larger intersectoral and political agenda.^{xxix} Tackling NCDs will also require action beyond health, including addressing air pollution, product marketing policies, cooperation with ministries of finance on so-called ‘sin taxes’ (e.g. taxes on alcohol and tobacco) and other consumption deterrents, and agricultural and food policies. Actions are also needed to address determinants of health that are traditionally not perceived as being within the domain of the health sector – such as climate change, agriculture and food security, and transport and road safety.⁶⁶

The most concrete and ambitious reform proposal that addresses the intersectoral challenge is the idea of UN-HEALTH. Building on the UNAIDS model, this reform – if it were implemented – would

^{xxix} Education, and water, sanitation and hygiene (WASH) interventions, for example, have a considerable impact on women and children’s health, and on health more generally.

transform the WHO to enable it to pursue a multi-sectoral, development-focused response to global health. Other proposed reforms to the WHO also have the potential to strengthen cross-sectoral action. For example, Hoffman and Røttingen argue that strengthening the WHO's stewardship capacity would allow it to become a stronger advocate for the role of health in other sectors, including the environment.³⁹

Greater focus on HSS

The need for targeted support for HSS will become more pronounced in the future, and there are reform proposals that focus on HSS. Many of the proposals focusing on direct country assistance clearly also touch on providing HSS support. These include calls for an expansion in the mandate of the Global Fund, or the creation of a unified Global Fund for Health, which would take on a greater financing role for HSS; this would also be the case for the Principal Financier suggested by Dybul and colleagues.⁴⁶ As highlighted above, increased HSS support would also assist in addressing the rise in NCDs. It could potentially also help to finance UHC – through the development of insurance systems and other approaches – in countries with the greatest needs. Proposals related to the mobilization of additional financing are also linked to HSS. Many of the proposals to develop the suggested Global Fund for Health, for example, emphasize the need to invest in systems strengthening.⁴⁹

Harmonized and less fragmented systems

Fragmentation among actors in the global health landscape remains a major challenge, with frequent calls to streamline and scale up funding for health. Addressing fragmentation is crucial from a country perspective: the demands of managing multiple funding, reporting and indicator requirements take time, talent and resources away from focusing on health interventions themselves, and can skew domestic health priorities in the direction of donor wishes, rather than towards what is best for the country. Proposals that address this weakness include the suggested unified Global Fund for Health.

Transparency and accountability

Accountability has an important part to play in the post-2015 world. The most transformative proposals suggest developing independent global accountability facilities that would hold governments and policy-makers accountable for health outcomes, as well as for their financial and non-financial commitments to health.^{63, 67} These facilities would assess and regularly report on health outcomes, implementation of policies and fulfilment of commitments.^{xxx}

Given the importance of accountability, global health stakeholders reported during the conducted interviews that this should become a function in its own right, rather than being subsumed under the GPG function.

^{xxx} The WHO iERG, the mandate of which ends in 2015, recently recommended establishing a new and fully resourced independent review group for post-2015, the function of which would be to track and propose actions to accelerate global and country progress towards improved women's and children's health. While being of key importance, this recommendation is focused on the health of women and children rather than health overall. See independent Expert Review Group on Information and Accountability for Women's and Children's Health. *Every Woman, Every Child: A Post-2015 Vision*. iERG. Report number: 3; 2014.

Conclusion

The global health architecture has contributed significantly to progress towards the MDGs in the past decade. Our analysis suggests, however, that the architecture should be reconfigured so as effectively to address major future challenges. While the current post-2015 process focuses on the ‘what’, more debate is needed around how the future global health targets can be achieved. More thinking is needed on the implementation arrangements that are required to achieve the eventual SDG health targets.

Our analysis suggests that there is need for reform, as emerging challenges will considerably affect the global health architecture. Making the system fit for purpose for the post-2015 period requires significant changes. The core functions – leadership and stewardship, provision of GPGs, and management of externalities – will require greater attention in the future. The direct country assistance function also needs to change substantially: even if LICs and LMICs experience economic growth, they will require targeted support to expand their fiscal space for health, while the poorest countries will continue to rely on donor support. The Ebola crisis shows that health systems are not only key to increasing access to health services, but also underscores the importance of creating strong health systems to avoid global public bads.⁶⁸ Given that none of the existing channels has a strong focus on financing for HSS, institutional adjustments are likely to be required to provide HSS support to the countries – including many fragile states – in greatest need.

Overall, we recommend that architectural improvements should focus on six key areas (BRIGHT):

- Bolstering R&D and enabling access to new medical products and technologies
- Responding to global threats
- Intersectoral cooperation
- Greater focus on HSS
- Harmonized and less fragmented systems
- Transparency and accountability

As regards reform proposals, our analysis finds that these tend to focus on the more well-established global health challenges, particularly on the fragmentation of the global health landscape and the need for more and better-channelled global health financing, rather than on addressing emerging challenges (such as health transitions, microbial evolution and climate change). These longer-standing problems – and related reform proposals – remain of key importance for addressing the unfinished health-related MDG agenda, and are also relevant for tackling the emerging challenges that will affect global health in future.

There are reform proposals for each of the six broader architectural issues (BRIGHT), which as such will be relevant for the dynamics of the post-2015 era. The smallest number of proposals relate to the management of externalities – at present perhaps the most underperforming function in global health. Based on the six architectural issues (BRIGHT) and the respective reform proposals, it will be possible to chart the way forward, i.e. to establish a vision of the global health architecture of the future. Possible cornerstones of this future architecture will include:

- Reforming the WHO and/or the overall UN system for health to create a multi-sectoral, development-focused response to global health
- Consolidation of funding channels
- Strengthened mechanisms for R&D and improved country access to new technologies
- A stronger system for responding to global threats
- Improved accountability

Implementing major reforms to the architecture will require dialogue among the leading decision-makers in global health, as well as their willingness to initiate and support reform. Major changes to the architecture were initiated around the turn of the millennium. Similar bold action appears to be required to improve the architecture so that it can respond effectively to the challenges of the post-2015 world.

Annex 1: Proposed SDG 3 – Ensure Healthy Lives and Promote Wellbeing for All at All Ages

- 3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births;
- 3.2 By 2030, end preventable deaths of newborns and children under five years of age;
- 3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases;
- 3.4 By 2030, reduce by one-third premature mortality from non-communicable diseases through prevention and treatment, and promote mental health and well-being;
- 3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol;
- 3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents;
- 3.7 By 2030, ensure universal access to sexual and reproductive health care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes;
- 3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health care services, and access to safe, effective, quality and affordable essential medicines and vaccines for all;
- 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination;
- 3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate;
- 3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all;
- 3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing states;
- 3.d Strengthen the capacity of all countries, particularly developing countries, for early warning, risk reduction and management of national and global health risks.

Source: United Nations. Open Working Group proposal for Sustainable Development Goals. [Online] 2015. Available from: <https://sustainabledevelopment.un.org/content/documents/1579SDGs%20Proposal.pdf> [Accessed 21 July 2015].

Annex 2: Short Description of Reform Proposals

Proposed reform	Related authors	Brief description
Collective rights-based approach	Meier and Fox	Proposes an international framework for collective rights. Individual human rights approach isn't adequate; needs legally enshrined international obligation.
DALY tradeable credit market	Carrasco, Coker, Cook	Proposes tradeable credit market in DALYs analogous to carbon cap-and-trade; rich countries investing in domestic interventions that are not cost-effective would need to purchase DALY credits, thereby increasing DAH for recipient states.
Expanded World Bank focus on GPGs	Birdsall; Gostin	Develop a new arm of the World Bank, focused on providing technical leadership in GPGs.
Framework Convention on Global Health	Gostin	Rights-based approach that creates a new internationally-binding legal instrument enshrining domestic and international obligations and right to health.
Global action networks/networked governance proposals	Sridhar, Khagram, Pang	Proposes multi-stakeholder approach to global governance for health, helmed at the WHO ('Committee C') and operationalized through flexible multi-stakeholder 'global action networks'. Would address issues of democratic deficit at the WHO, although voting rights would still only be held by member states.
Global Financing Facility for RMNCAH	Schrade, Schäferhoff, Yamey, Richter	Proposes new financing facility for RMNCAH, to be housed at the World Bank. Objectives include ensuring sustainable, domestically driven RMNCAH financing, as well as strengthening of civil registration and vital statistics systems, and scale up and deployment of GPGs. Additional goal: to coordinate and streamline global financing architecture for RMNCAH.
Global Fund for Health	Dybul, Piot, Frenk; Ghebreyesus (in Morris); Sachs; Cometto, Ooms, Starrs, Zeitz; Hill, Vermeiren, Miti, Ooms, Van Damme	Various proposals call for expanding the mandate of the existing Global Fund, including suggestions to merge the Global Fund with Gavi. Calls for a shift in global health architecture from institutions based on disease to those based on function, with the emergence of principal financiers vs technical implementers. Need for new Bretton Woods-style meeting.
Global Social Health Protection Fund	Ooms, Stuckler, Basu, McGee	Proposes a global social health protection fund to distribute health funding; funds based on weighted burden sharing. Envisions the World Bank and the WHO as technical partners, with a diminishing financial role.
Health Impact Fund	Hollis and Pogge	Pay-for-performance proposal that would pay pharmaceutical companies based on their products' health impact, in exchange for the sale of products at cost of production and allowing generic production.
WHO reform	Clift; Hoffman and Røttingen	The WHO should be split into a political arm and a technical arm, with a firewall between the two. Technical implementation must not be held hostage to political considerations; need for greater autonomy.
Three global agencies	Sidibe and Buse	Argues that only three global health agencies are needed, covering: financing, norms and standards, and advocacy and accountability. An 'apex mechanism' could coordinate the three, plus the private sector.
UN Global Health Panel	Mackey and Liang	Proposes more efficient coordination of the global health system at UN level by a UN Global Health Panel, 'with active participation of WHO', representing a 'unified system of participation for joint engagement', and requiring pooling of UN funds. Membership would be multi-stakeholder. Would avoid democratic deficit of the WHO, and external influence based on funding at the WHO.

Analysing Proposals for Reform of the Global Health Architecture

Multi-stakeholder forums at WHO (e.g. 'Committee C', World Health Forum)	Kickbush, Hein Silberschmidt; WHO	Reversing the present democratic deficit at the WHO by creating a multi-stakeholder committee (Kickbush et al: Committee C. WHO: 'World Health Forum'), allowing for participation by non-state actors. Helps with normative and strategic coordination in global health.
Convention on R&D	CEWG report	Proposes a legally binding convention on R&D. Objectives include setting state obligations, increasing sustainable R&D funding, including R&D in developing countries; and increasing R&D for Type II and Type III diseases.
Coherent global framework for health financing	Working Group on Health Financing (Chatham House Centre on Global Health Security)	Framework to shape responsibilities/goals of international and domestic health financing.
Alternative eligibility criteria for health ODA	Center for Global Development	Modify or eliminate country income thresholds as criteria for DAH.
Pandemic Preparedness Fund	WHO	Creation of a reserve fund for emergency responses (e.g. at the WHO or World Bank).
Taxes to mobilize funding	Various – e.g. see International Task Force on Health System Financing	Mobilization of resources for health through innovative tax mechanisms.
Principal Financier	Dybul, Piot, Frenk	Principal financier in global health for funding integrated health strategies (sidelined by technical implementers).
UN reform	Hendra	Harmonization of support by streamlining multiple UN agencies working in health into one delivery mechanism.
UN-HEALTH	Nordström	Transformation of the WHO into UN-HEALTH, based on the UNAIDS model plus changes related to R&D, accountability and consolidating funding channels.

Acronyms

AU	African Union
CEWG	Consultative Expert Working Group on Research and Development
CGD	Center for Global Development
CIH	Lancet Commission on Investing in Health
DAH	development assistance for health
DALY	disability-adjusted life year
FCTC	Framework Convention on Tobacco Control
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
GDP	gross domestic product
GNI	gross national income
GPGs	global public goods
HICs	high-income countries
HIF	Health Impact Fund
HPV	human papillomavirus
HSS	health systems strengthening
iERG	independent Expert Review Group on Information and Accountability for Women's and Children's Health
IFFIm	International Finance Facility for Immunisation
IHME	Institute for Health Metrics and Evaluation
IHR	International Health Regulations
lower-MICs	lower-middle-income countries
LICs	low-income countries
MDGs	Millennium Development Goals
MICs	middle-income countries
NCDs	non-communicable diseases
NGOs	non-governmental organizations
ODA	overseas development assistance
PEPFAR	US President's Emergency Plan for AIDS Relief
PMNCH	Partnership for Maternal, Newborn and Child Health
R&D	research and development
RMNCAH	reproductive, maternal, newborn, child and adolescent health
RMNCH	reproductive, maternal, newborn and child health
SDGs	Sustainable Development Goals
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UHC	universal health coverage
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNITAID*	
WHO	World Health Organization

* Stand-alone acronym; UNITAID was founded in 2006 as the International Drug Purchase Facility

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