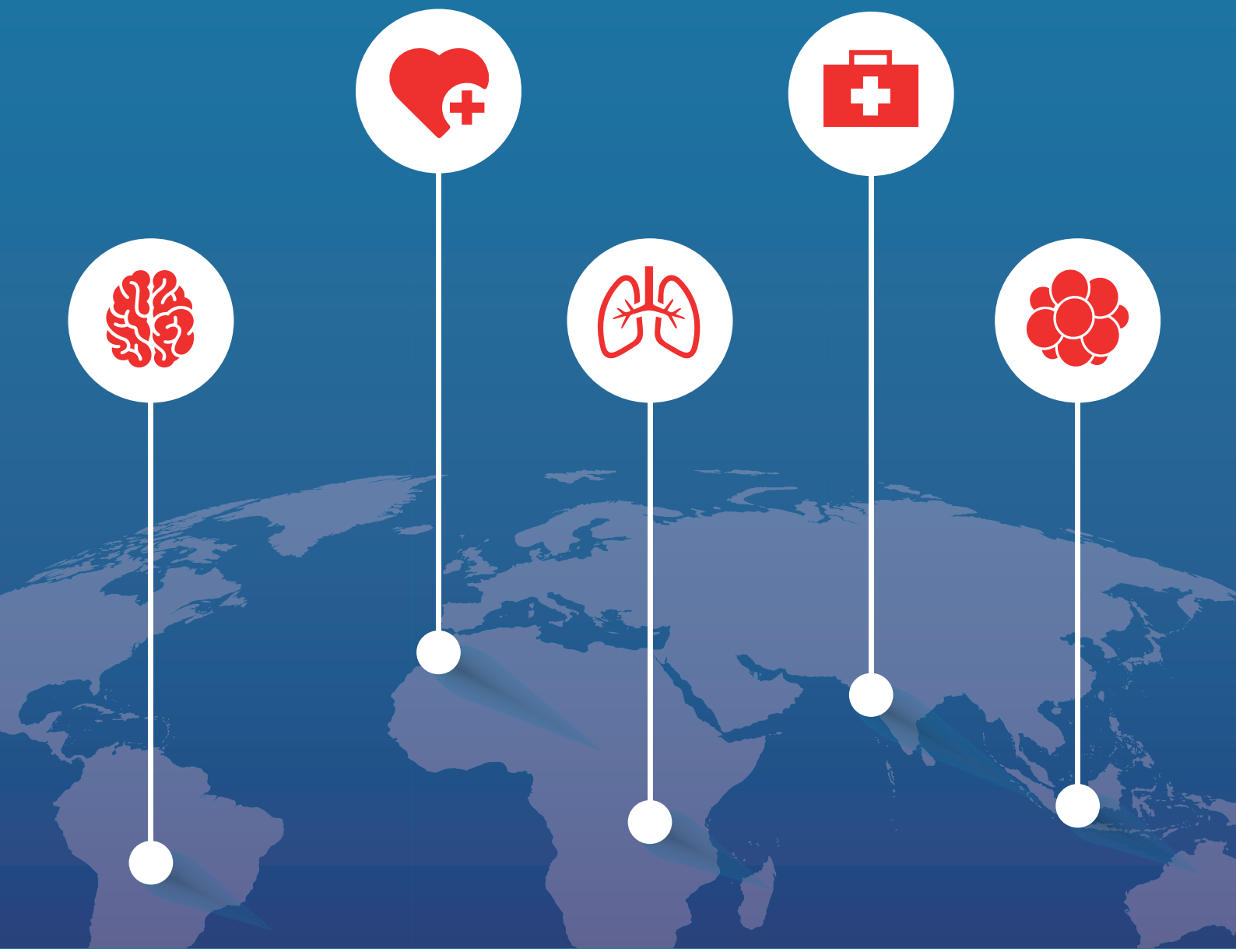
The Economist Intelligence Unit

THE NEXT PANDEMIC?

Non-communicable diseases in developing countries



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ABOUT THIS REPORT

The next pandemic? Non-communicable diseases in developing countries is an Economist Intelligence Unit report. It examines the growing burden of non-communicable diseases (NCDs) in low- and lower-middle-income countries, the drivers of this change, and possible solutions for how healthcare systems can bridge the resource gap to deliver appropriate NCD care for patients. The findings of this report are based on data analysis, desk research and five in-depth interviews with senior healthcare experts.

Our thanks are due to the following for their time and insight (listed alphabetically):

- Cary Adams, CEO, Union for International Cancer Control (UICC)
- Katie Dain, executive director, NCD Alliance
- Rachel Nugent, vice-president, Chronic Non-communicable Diseases Global Initiative, RTI International
- Miriam Schneidman, lead health specialist, Africa region, World Bank
- Rekha Viswanathan, programme manager, Global Health Group, University of California, San Francisco

The report was written by Katharine Pulvermacher and edited by Martin Koehring of The Economist Intelligence Unit. It was commissioned by the International Federation of Pharmaceutical Manufacturers and Associations (IFPMA) on behalf of Access Accelerated, an initiative to address the NCD burden.

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EXECUTIVE SUMMARY

Developing countries are facing a new challenge from an increase in non-communicable diseases (NCDs) such as cardiovascular disease, cancer, mental illness, diabetes and chronic respiratory disorders. At the same time, while substantial gains have been made in the battle against infectious diseases and child and maternal mortality, these remain a major concern, resulting in a double burden of disease.

This report is based on extensive data analysis and desk research, complemented by five in-depth interviews with experts on NCDs. The main findings of the research are as follows.

The burden of disease attributable to NCDs in developing countries is increasing relentlessly. NCDs account for over half of the overall burden of disease in lower-middle-income countries, and close to one-third in low-income countries. The evidence shows that, in absolute terms, this burden increased by nearly 30% between 2000 and 2015 and impacts people at a younger age than in wealthier countries, exacerbating social and economic costs. Cardiovascular disease is the main contributor to the increase.

Existing healthcare systems are ill-equipped to manage these conditions. In general, healthcare systems in developing countries have evolved to cope with the burden of infectious diseases and to improve child and maternal health. There is now a pressing need to include the prevention and management of chronic diseases in these systems, requiring new thinking on how such medical services are financed. These services include the provision and use of appropriate treatments as well as screening and diagnostic services.

Much could be achieved through preventive policy intervention, but there is no "one-size-fits-all solution". Driven by urbanisation, a shift to more sedentary occupations and less healthy diets, much of the increase could be mitigated through preventive healthcare policies. Such policies include targeting key risk factors, such as obesity, smoking tobacco products and alcohol abuse. Health awareness programmes, urban planning that facilitates physical activity and taxation strategies that seek to reduce demand for tobacco are all good starting points, but there is no "one-size-fits-all" solution; countries need to develop policy frameworks that reflect the national burden of disease, funding constraints and the nature of the healthcare system while also taking cultural factors into account.

Delivering appropriate NCD care to patients requires addressing multiple challenges. They encompass insufficient access to medical care and to healthcare facilities and professionals (physicians, nurses etc), but also policy weaknesses. Policies may not exist or, if they do, may not be comprehensive because they lack clear and achievable targets, adequate resources for implementation and monitoring, and evaluation processes.

Developing countries face an acute financing constraint for healthcare in general, and for NCDs in particular. On a per-capita basis, total spending on healthcare in low-income countries amounts to less than 1% of the expenditure of high-income countries, and in lower-middle-income countries it amounts to less than 2%. Out-of-pocket expenditure still represents the largest proportion of spending in developing countries, exposing most households to catastrophic healthcare expenditure. At the same time, only a tiny percentage of development assistance on health is allocated to NCDs.

Technological and organisational innovations as well as sustained, co-ordinated efforts across multiple stakeholders are required. The healthcare infrastructure developed to address Millennium Development Goals can be leveraged to face the NCD challenge. For example, there is an opportunity to leverage primary-care clinics established to deliver reproductive, maternal and child health to extend the provision of screening and treatment for cervical cancer and hypertension, as well as patient education programmes. Innovative business models offer the opportunity to create incentives for patients and healthcare providers to pursue prevention programmes. In both cases initiatives are in their infancy and warrant scaling up, an effort that will require financing.

INTRODUCTION

Developing countries—defined as low-income and lower-middle-income countries (World Bank definition)[1]—are facing a double burden of disease. While they continue the fight against infectious diseases such as AIDS, tuberculosis and malaria, they are increasingly falling prey to a rising tide of non-communicable diseases (NCDs), such as cardiovascular disease, cancer, mental illness and diabetes. With health systems that are ill-equipped to cope with the very different strategies needed to manage chronic diseases effectively, there is growing pressure to rethink the allocation of resources for health.

At the same time, the evolution towards universal access to healthcare and the related elaboration of essential care packages offer an opportunity to ensure the effective prevention, diagnosis and treatment of the rising NCD burden in poorer countries. To realise this opportunity, and by doing so achieve Sustainable Development Goal 3.4—to reduce, by 2030, by one-third premature mortality from NCDs through prevention and treatment and promote mental health and well-being—will require a substantial increase in the resources currently available for combating NCDs in developing countries. The funding and health resource gaps that these countries face are multifaceted: they encompass insufficient access to medical treatment and to healthcare facilities and professionals (physicians, nurses etc), but also include policy weaknesses. For example, policies may not exist or, if they do, may not be comprehensive because they lack clear and achievable targets, adequate resources for implementation and monitoring, and evaluation processes.

This report examines how healthcare systems in low-income and lower-middle-income countries will need to expand their focus from infectious diseases to NCDs and why this is necessary, as well as proposals for bridging the resource gap.

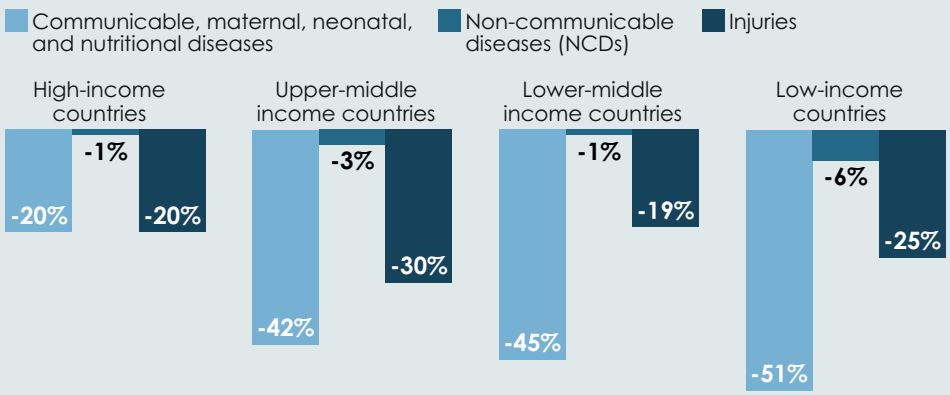
[1] World Bank, World Bank Country and Lending Groups. Available at: https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

CHAPTER 1: THE SCALE AND DRIVERS OF THE NCD BURDEN IN DEVELOPING COUNTRIES

All over the world, people are getting healthier. That, at least, is what the data on the burden of disease—in terms of disability-adjusted life years (DALYs)[2]—tell us when they are adjusted for population size: the population-adjusted burden of disease is decreasing for all categories (see Figure 1). But gains in the fight against non-communicable diseases (NCDs) have not been as great as in other disease areas, such as communicable, maternal, neonatal and nutritional diseases and injuries. This means that their share of the overall burden of disease in developing countries has increased dramatically over the last 15 years.

Figure 1

Changes in population-adjusted burden of disease (DALYs per 100,000 population): 2000 to 2015
(%)



Source: Institute for Health Metrics and Evaluation, Global Burden of Disease Study 2015 (GBD 2015), GBD Results Tool. Available at: http://ghdx.healthdata.org/gbd-results-tool

In 2015 NCDs accounted for just over half of the total burden of disease in lower-middle-income countries, and nearly one-third in low-income countries. This represents a significant increase since 2000 (see Figure 2).

At an absolute level the situation is even more serious: NCDs killed 15m people in developing countries in 2015—3.8m more than in 2000—with a corresponding increase of 28% in the burden of disease.[3] Because NCDs tend to affect people living in developing countries at a younger age than in wealthier economies, the economic impact is substantially larger. It is estimated that, of all the people who die from NCDs in lower-middle-income countries, one-half are under the age of 70 and 25% are younger than 60.[4]

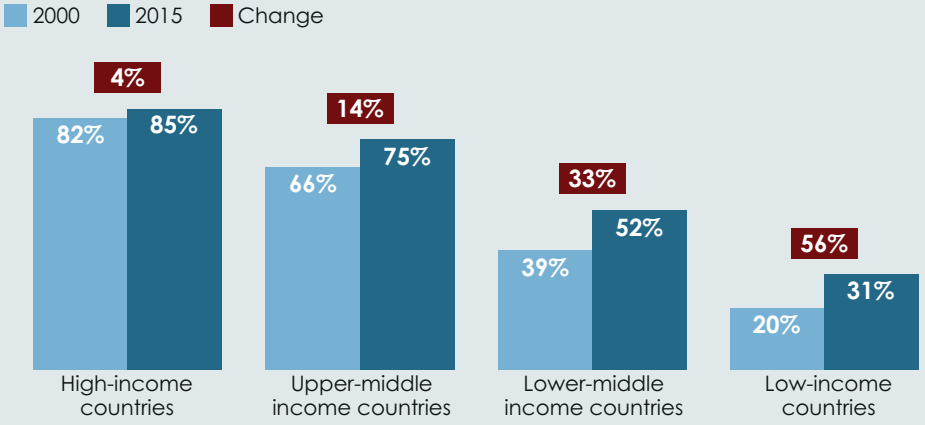
[2] The World Bank definition of DALYs is as follows: "DALYs for a disease or health condition are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for people living with the health condition or its consequences."

[3] Institute for Health Metrics and Evaluation, *Global Burden of Disease Study 2015 (GBD 2015)*, GBD Results Tool. Available at: http://ghdx.healthdata.org/gbd-results-tool

[4] RA Nugent and RB Feigl, "Where Have All the Donors Gone? Scarce Donor Funding for Non-Communicable Diseases", *CGD Working Paper* 228, Center for Global Development, November 2010. Available from http://www.cgdev.org/content/publications/detail/1424546

Figure 2:

Percentage of total disease burden accounted for by NCDs (total DALYs)
(%)



Source: Institute for Health Metrics and Evaluation, *Global Burden of Disease Study 2015*

Which diseases are driving the increase?

Cardiovascular disease is the leading contributor to the increase in NCDs in developing countries; it now accounts for 12.8% of the total disease burden in lower-middle-income countries and for 6.4% in low-income countries. Cardiovascular disease is also a key driver of the changing nature of the burden of disease, accounting for 26% and 19%, respectively, of the increase in the NCD burden in lower-middle-income and low-income countries.[5] Diabetes, urogenital, blood and endocrine diseases, mental and substance-use disorders and cancer and musculoskeletal disorders combined account for a further 50% and 43%, respectively, of the change in the NCD burden since 2000 in lower-middle-income and low-income countries (see Figure 3).

Low-income countries in Africa that have seen the largest shifts in NCDs diverge slightly from this pattern. In these countries, which include Eritrea, Ethiopia, Rwanda, Tanzania, the Democratic Republic of the Congo, Niger, Chad and South Sudan, other non-communicable afflictions, such as congenital birth defects, skin diseases and hearing loss, have been significant drivers of the increase in NCDs, alongside heart disease, cancer, mental illness and diabetes.[6]

And what is driving the diseases?

Ironically, a key reason for the change in some countries, such as Rwanda, has been their progress in tackling the Millennium Development Goals (MDGs) that aimed to improve maternal health, reduce mortality rates for those under the age of five, and fight HIV/AIDS, tuberculosis and malaria. Despite this progress, HIV/AIDS remains the leading cause of death among adults in Rwanda, followed by malaria.[7] This means

[5] Institute for Health Metrics and Evaluation, *Global Burden of Disease Study 2015.*

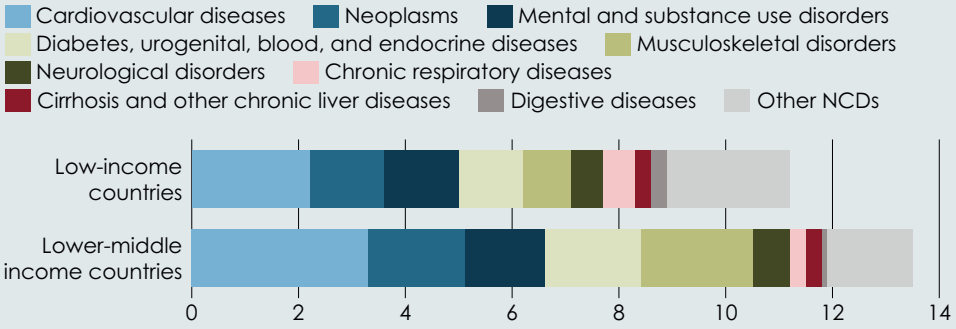
[6] *Ibid.*

[7] MDG Monitor, Fact sheet on current MDG progress of Rwanda (Africa), May 2015. Available at http://www.mdgmonitor.org/mdg-progress-rwanda-africa/

that Rwanda, like many other developing countries, is now facing a double or even triple burden of disease, having to confront infectious diseases, child and maternal ill health and a wave of NCDs that many health systems are simply not equipped to deal with, says Katie Dain, executive director of the NCD Alliance, which unites some 2,000 civil society organisations in more than 170 countries dedicated to improving NCD prevention and control worldwide.

Figure 3:

Contribution by NCD disease area to the increase in the overall NCD burden between 2000 and 2015 (total DALYs)
(percentage points)



Source: Institute for Health Metrics and Evaluation, *Global Burden of Disease Study 2015*

[8] *Ibid.*

Moreover, as the table below shows, even those countries that have most successfully managed to reduce the population-adjusted burden of NCDs still face an absolute increase in terms of the actual impact on the health system, economy and wider society. For example, Nigeria successfully reduced the population-adjusted burden of diabetes by 14.5% between 2000 and 2015, but the absolute burden of disease still increased by 26.7% over the same period, given the rise in the population during that time.[8] The case of Rwanda—where the population-adjusted burden of NCDs fell the most out of 83 low- and lower-middle-income countries—also illustrates the importance of strong partnerships between government, donors and implementing agencies, adequate funding, political will, getting policy right, and following through on implementation.[9,10]

[9] NCD Synergies, Country profiles, Rwanda. Available at: http://ncdsynergies.org/country_profile/rwanda/

[10] Management Sciences for Health (MSH) / LIVESTRONG Foundation, *A Health Systems Approach to Non-Communicable Diseases in Uganda and Rwanda: Study Tour Summary Document February 14–23, 2014*. Available at: https://www.msh.org/sites/msh.org/files/rev_post-trip_report_msh-lf_study_tour_2014.pdf

Table 1: DALYs per 100,000 population (rate) and total DALYs (numbers) in the five countries with the largest reductions in the rate of NCD burden, 2000-2015

	Rwanda		Lao PDR		Nigeria		Burundi		Ethiopia	
	rate	numbers	rate	numbers	rate	numbers	rate	numbers	rate	numbers
All NCDs	-24.5	10	-19.5	2.9	-19.4	19.5	-18.8	34.6	-16.6	25.1
Cancers	-13.1	26.6	-6.5	19.5	-13.2	28.7	-13	44.2	-12.5	31.3
Cardiovascular diseases	-45.2	-20.2	-29.7	-10.2	-30.2	3.5	-41.3	-2.8	-24.5	13.3
Mental disorders	1.8	48.3	7.5	37.5	0.9	49.5	1.3	67.9	7	60.6
Diabetes	-10	31.1	14.9	46.9	-14.5	26.7	-20.4	32	-1.4	47.9

Source: Institute for Health Metrics and Evaluation, *Global Burden of Disease Study 2015*

The increase in NCDs in developing countries is attributable to environmental factors such as urbanisation, demographic factors such as higher life expectancy, and social factors that impact lifestyles. As people work in increasingly sedentary jobs and rely more on motorised transport to commute to and from work, they become less physically active. Time constraints also play a role in reducing the opportunity to exercise, as does the rising popularity of fast food or street food. Eating healthily is typically more expensive than consuming less healthy, calorie-rich foods that sate the appetite and are easily available. Prevention—through urban planning, regulation, taxation and public-awareness programmes—can go a long way towards addressing many of these issues.[11]

Prevention also extends to the risk factors. For example, tobacco use is a major risk factor for cardiovascular disease, cancer and diabetes. Countries such as Australia, Brazil and the UK, which have implemented increasingly strict tobacco control legislation, including taxation, have been successful in reducing smoking. For the moment, tobacco consumption in Africa, which is home to 27 out of 31 low-income countries, is still relatively low. But the World Health Organisation (WHO) warns that smoking prevalence is increasing in Africa,[12] while the World Lung Foundation cautions that "Africa presents the greatest risk in terms of future growth in tobacco use; without appropriate prevention policies across the continent, Africa will lose hundreds of millions of lives in this century due to tobacco smoking".[13] Meanwhile, high tobacco-smoking prevalence is already a major issue in some developing countries in Asia, such as Indonesia and Nepal.[14]

Cary Adams, CEO of the Union for International Cancer Control (UICC), advises against taking a "one-size-fits-all" approach and emphasises that for NCD strategies to be effective, they must take the country-specific burden of disease into account, since this is what will help to prioritise funding. "Our starting point is for countries to recognise the challenges, and then work with experts to define how to use limited funds most successfully. Building on existing health infrastructure wherever possible, rather than investing in new facilities from scratch, is a key requirement. That won't always work, since cancer centres—which some countries don't even have yet—require very specific equipment and operational expertise."

The WHO's *2015 Global Survey on National Capacity for the Prevention and Control of NCDs* showed that, while progress had certainly been made with respect to the number of low-income and lower-middle-income countries that reported having operational NCD plans or strategies, there were serious shortfalls with respect to the quality of these plans. For example, in the WHO Africa region, which is home to most low-income countries, less than half of the reporting countries had an operational, multisectoral, integrated NCD policy, strategy or action plan. Less than 40% of African respondent countries had plans covering four major NCDs (cardiovascular disease, diabetes, cancer and chronic respiratory disease) and four major risk factors (tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol), although globally only 41% of countries reported having such plans.[15]

[11] S Van de Vijver, A Hilda *et al*, "Status report on hypertension in Africa - Consultative review for the 6th Session of the African Union Conference of Ministers of Health on NCD's", *The Pan African Medical Journal*, 2013;16:38.

[12] WHO, Global Health Observatory (GHO) data, Prevalence of tobacco smoking. Available at: http://www.who.int/gho/tobacco/use/en/

[13] World Lung Federation, The Tobacco Atlas, Cigarette Use Globally. Available at: http://www.tobaccoatlas.org/topic/cigarette-use-globally/

[14] WHO, World Health Statistics 2016, Tobacco control. Available at: http://apps.who.int/gho/data/node.sdg.3-a-viz?lang=en

[15] WHO, *Assessing national capacity for the prevention and control of noncommunicable diseases: report of the 2015 global survey*, 2016. Available at: http://www.who.int/chp/ncd_capacity/en/

Similarly, significant progress has been made in terms of the increase in the number of developing countries that have population-based cancer registries, but even so, less than 40% of low-income countries and less than 45% of lower-middle-income countries have such registries. Monitoring of diabetes is even less advanced: less than 20% of low-income countries have diabetes registries of any kind.[16]

To bridge the gap represented by these shortfalls, serious capacity constraints will need to be overcome by increasing the availability of both expertise and funding.

[16] *Ibid*.

CHAPTER 2: CONFRONTING THE RESOURCE GAP

Because of resource constraints many developing countries are facing a vicious cycle, with diseases often undiagnosed until treatment is more expensive and outcomes are more likely to be fatal, while lack of access to palliative care creates a seemingly unnecessary burden of suffering for patients and their families. For example, 83% of the world's countries have low to non-existent access to gold-standard pain management such as morphine, the main constraint being overly stringent regulations.[17]

There are shortfalls with equipment too. Many countries do not have the radiotherapy equipment they need to cope with treating cancer,[18] an observation confirmed by Mr Adams of the UICC. In Bangladesh, where cancer accounts for 4.6% of the total burden of disease, the National Institute of Cancer Research and Hospital (NICRH) in Dhaka, the capital, has only six radiotherapy machines—less than half of what it needs to accommodate current demand. And the country has only one-tenth of the number of radiotherapy centres recommended by the WHO based on its population size and burden of disease.[19] In Sub-Saharan Africa, excluding South Africa, not a single country has more than one radiotherapy machine per 1m people (in North America, there are ten machines per 1m). In the whole continent of Africa, there are 295 radiotherapy machines: excluding the 148 machines in North African countries and 82 in South Africa, that leaves 65 for the rest of the continent.[20]

All of this comes down to funding—how much, how it is allocated, and how many people are trained to operate and maintain additional machines. Spending on healthcare in low-income and lower-middle-income countries is tiny compared with upper-middle-income and high-income countries (see Table 2), even though it represents a similar proportion of GDP (6%) as in upper-middle-income countries (see Table 3).

Table 2: Total health expenditure per capita in low- and lower-middle-income countries as a percentage of spending in upper-middle-income and high-income countries (2014, current US$)

	Upper-middle-income countries	High-income countries
Low-income countries	7.1%	0.7%
Lower-middle-income countries	17.4%	1.7%

Source: World Bank, World Development Indicators

At an aggregate level, out-of-pocket expenditure still represents the largest portion of healthcare spending, leading to concerns about catastrophic levels of healthcare expenditure and the pressure to establish universal access to healthcare through insurance (see Figure 4). This is not to minimise the importance of global development assistance for health (DAH), which reached a total of US$36.4bn in 2015. Of this, US$475m

[17] Worldwide Palliative Care Alliance, *Global Atlas of Palliative Care at the End of Life*, January 2014. Available at: http://www.who.int/nmh/Global_Atlas_of_Palliative_Care.pdf

[18] R Atun, DA Jaffray *et al*, "Expanding global access to radiotherapy", *The Lancet Oncology*, Volume 16, Issue 10, 1153-1186.

[19] "Public Hospitals: Cancer treatment facilities scanty", *The Daily Star*, January 16th 2016. Available at: http://www.thedailystar.net/frontpage/cancer-treatment-facilities-scanty-202615

[20] International Atomic Energy Agency, DIRAC (DIrectory of RAdiotherapy Centres). Available at: https://dirac.iaea.org/

Table 3: Total health expenditure per capita by country income group, 2014

	Current US$	% of GDP per capita
Low-income countries	37	6%
Lower-middle-income countries	90	4%
Upper-middle-income countries	518	6%
High-income countries	5,251	12%

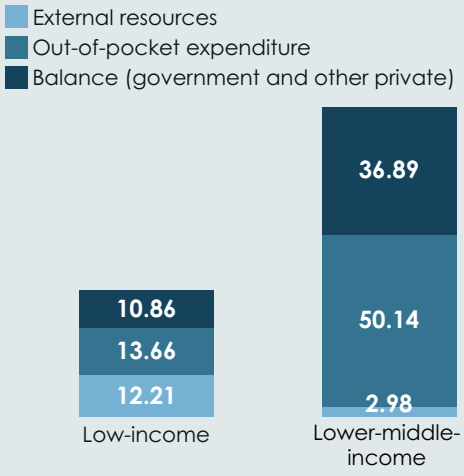
Source: World Bank, World Development Indicators

(1.3%) went on NCD funding, representing a decrease of 3.4% from 2014, according to data from the Institute for Health Metrics and Evaluation (IHME), an independent health research centre at the University of Washington in Seattle. Of the NCD DAH, 27% was allocated to mental health and 8.7% to tobacco-control activities. Overall DAH to Sub-Saharan Africa, which, as mentioned previously, is home to 27 of the world's 31 low-income countries, has increased substantially, from 1.7% of all DAH in 1990 to 34.3% in 2013—and this does not take account of funding that would have been included in global programmes.[21] Most of this funding, though, has gone on fighting HIV/AIDS and improving maternal and child health, in line with the MDGs.

Figure 4:

Composition of healthcare spending in developing countries in 2014

(US$ per capita)



Sources: World Bank, World Development Indicators; WHO

To face this challenge and ensure that more funding flows to address NCDs, donors' allocation priorities will need to change. Factors that donors could consider as drivers in their decision-making with respect to DAH allocations include a country's specific burden of disease; the economic impact of disease; national financial capacity; and the healthcare financing gap. Donor and advocate strategies for DAH are influenced by "aid coherence and harmonisation, health systems strengthening, the possibility of crowding out national spending, and avoidance of verticality in funding wherever possible".[22] "Vertical funding" in the donor space refers to the tendency to provide funding for specific health challenges or disease areas rather than general support for the healthcare sector.

[21] Institute for Health Metrics and Evaluation (IHME), *Financing Global Health 2015: Development assistance steady on the path to new Global Goals*. Available at: http://www.healthdata.org/sites/default/files/files/policy_report/FGH/2016/IHME_PolicyReport_FGH_2015.pdf

[22] RA Nugent and AB Feigl, *Where Have All the Donors Gone?*

CHAPTER 3: OPPORTUNITIES, OUTLOOK AND INNOVATIONS

Over the last 15 years or so health systems in developing countries have to a significant extent been shaped by the desire to meet the Millennium Development Goals (MDGs), resulting in services appropriate for acute conditions, managing infectious diseases and delivering better maternal and infant care. The 2030 Sustainable Development Goal on Health (Goal 3) explicitly includes a target for NCDs: "By 2030, reduce by one-third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being."[23] Given the impact that the MDGs have visibly had on driving spending priorities, the inclusion of a specific target for NCDs could see an increase in funding for their prevention and delivering effective treatment in developing countries over the next 13 years and beyond.

There is also an opportunity to leverage the healthcare infrastructure developed to address MDGs. The key here is a shift towards patient-centricity, rather than approaches that are inherently disease-centric or body-part-centric. This is particularly important in a context where even distinctions between disease types are beginning to break down, a good example of which is the link between infectious diseases and cancer, as in cervical cancer caused by the human papillomavirus (HPV) or liver cancer caused by viral hepatitis. Leveraging existing resources may include simple interventions, such as routinely checking blood pressure in a bid to manage hypertension proactively.

Innovative solutions to improve the consistency and frequency of routine checks have been emerging over recent years. Triggerise's Movercado platform is an interesting example of just such a solution, combining social-marketing techniques, mobile-phone technology, mobile money and incentives for micro-entrepreneurs and consumers alike to drive healthy consumer behaviour based on the simple principle of "rewarding people for doing the right thing". Launched in Mozambique in 2012 with donor funding, Movercado is now operating in Kenya, where its "Tiko Companion" (the system used to generate SMS vouchers for healthcare products in return for healthy behaviour) is being applied to managing hypertension and diabetes as well as antenatal care.[24]

Social franchises for health could also play a role in expanding primary-care services targeting NCD prevention, screening, early diagnosis and treatment. Although the focus of these NGO-led organisations has historically been predominantly on family planning and sexual and reproductive health, there are signs that a wider group of services is increasingly being made available. Social franchising in the healthcare context is understood as "a network of private sector healthcare providers that are linked through agreements to provide socially beneficial health services under a common franchise brand".[25] Such networks may provide medical goods and services and are part of a general trend to apply commercial principles to the provision of public goods and services. Social franchising for health is still in its infancy, and most franchises take

[23] UN, Sustainable Development Goals, Goal 3: Ensure healthy lives and promote well-being for all at all ages. Available at: http://www.un.org/sustainabledevelopment/health/

[24] Triggerise. Available at: http://triggerise.org/

[25] Social Franchising for Health. Available at: http://www.sf4health.org/about-social-franchises

the form of clinics. So far, most of the focus has been on family planning, sexual and reproductive health as well as maternal and child health, followed by HIV/AIDS and malaria.

However, the prevention, diagnosis and treatment of certain NCDs is piggy-backing on many programmes whose primary focus lies elsewhere: for example, 23 of the 64 programmes reviewed in the 2015 Clinical Social Franchising Compendium offer screening and/or treatment for cervical cancer, and five of these also offer breast-cancer screening. Six programmes screen, treat and monitor hypertension, and four cover diabetes to some extent.[26]

Social franchising for health does not promise a silver bullet for financing, since programmes are overwhelmingly funded by donors, but the approach does offer the opportunity to improve service delivery and outcomes by leveraging scale and bolstering quality assurance. The inclusion of NCD-related services is most likely to occur in countries which are actively implementing universal access to health insurance, and where the prevention, screening and treatment of NCDs are included in the essential-care package.

Innovative solutions for financing the fight against NCDs have not yet been concretised. However, the WHO's working group on how to realise governments' commitment to provide financing for NCDs mooted the possibility of dedicated bond financing, among other potential solutions, at a meeting in Geneva in February 2015. Other suggestions included setting up a trust fund for NCD financing and instituting a global solidarity tax.[27]

[26] The Global Health Group, *Clinical Social Franchising Compendium: An Annual Survey of Programs: findings from 2014*. Available at: http://www.sf4health.org/sites/sf4health.org/files/wysiwyg/Clinical%20Social%20Franchising%20Compendium%202015-nov.pdf

[27] C Courtney, *Innovative financing for NCDs*, Working Group on how to realise governments' commitment to provide financing for NCDs, February 2015, Geneva. Available at: http://www.who.int/global-coordination-mechanism/working-groups/innovative_financing_wg_5_1.pdf?ua=1

CONCLUSION

Low-income and lower-middle-income countries are facing an emerging NCD crisis that most healthcare systems in the developing world are ill-equipped to cope with. This comes at a time when most developing countries are still struggling to contend with infectious diseases and improve child and maternal health, resulting in a double burden of disease.

Improving the prevention and diagnosis of NCDs as well as the delivery of appropriate care to patients in developing countries will require a stronger focus on addressing multiple challenges, among them the lack of access to care, healthcare facilities and professionals as well as the need to improve health literacy and education. Policy gaps will also have to be bridged to make targets clear and achievable, allocate adequate resources to implementation and monitoring, and boost evaluation processes. Addressing these challenges will require technological and organisational innovations as well as sustained, co-ordinated efforts across multiple stakeholders.

The systems put in place to achieve health-related MDGs can be leveraged to expand healthcare services that focus on the prevention, early diagnosis and treatment of NCDs. There are also interesting opportunities to embrace new service-delivery models and to scale up business and technological innovations that offer the possibility of leap-frogging more traditional ways of increasing health awareness and driving consumer behaviour. Harnessing such opportunities and strengthening health policy and infrastructure will undoubtedly require more funding than is currently allocated to NCDs. Fiscal policy, such as earmarked taxes, and a move towards universal access to health insurance are potential sources of such funding, with the caveat that additional funding must be linked to outcomes in order to address the NCD challenge effectively.

There is also scope for changing how donors prioritise the allocation of funding to NCDs, since in-country funding—whether from government or consumers—is unlikely to be sufficient to fill the gap. Innovative solutions for increasing healthcare funding in developing countries have yet to be concretised but could provide a more sustainable solution than reliance on aid.

In the absence of an adequate response, the potential social and economic impact of the increasing burden of NCDs threatens to cripple many of the health gains that have been achieved since the turn of the century.

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