

ACHIEVING SDG 3

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INTRODUCTION

On the 25th and 26th of October, 2018, the global health community came together in Astana, Kazakhstan, at the Global Conference on Primary Health Care to renew a commitment to primary health care (PHC) to achieve Universal Health Coverage and the Sustainable Development Goals (SDGs). This date marks the 40th anniversary of the Alma Ata Declaration, a major milestone in the field of public health, which pointed to primary health care as the key to the attainment of the goal of Health for All by the end of the past millennium.

Much has been done in these four decades; infant and maternal mortalities have fallen by half, and much progress has been made in the fight against HIV and other epidemics. However, progress has been uneven across and within countries, and a significant gap remains between the original declaration's aspirational vision and the current reality of PHC throughout the world. PHC remains a neglected area of investment in most low- and middle-income countries, with limited prioritization in public sector spending, poor integration with other sectors, and alarming deficiencies in the quality of services delivered.

The 2030 Development Agenda and its 17 SDGs bring the spirit of Alma Ata back to life. High-quality PHC is critical to achieving universal health coverage (UHC), which, according to WHO, is the main landmark of SDG 3 and other health-related goals. With at least half of the world's population not having full coverage of essential health services, and about 100 million people still being pushed into "extreme poverty" because they have to pay for health care, UHC means that all individuals and communities receive the health services they need; from health promotion to prevention, treatment, rehabilitation, and palliative care; without suffering financial hardship.

With this series of policy briefs, the Sustainable Development Solutions Network's "Health for All" thematic group would like to add to the analysis of achievements and gaps still present on the road towards UHC and a comprehensive PHC implementation. PHC, as conceived by the Alma Ata Conference, refers to the principles of equity, community participation, and intersectoral action. In this regard, three of these policy briefs point to key topics such as public financing mechanisms, a workforce of professionalized community health workers, and the promise of new technology to increase access to and quality of care. These are all important tools to make primary care high-quality, accessible, continued, comprehensive, and coordinated. The other two briefs analyze the role of a "Health in All Policies" approach as a way to implement a multi-stakeholder, coherent, and intersectoral approach; and a case study of cities as an example of how to include health in a different sector's policies, such as urban planning.

We hope this compilation of evidence and policy proposals will contribute to the comprehensive fulfilment of Agenda 2030 and its aspiration of a world that truly ensures healthy lives and promotes well-being for all at all ages.

THE SDGS AND URBANISATION: MAKING THE CASE FOR HEALTH IN URBAN PLANNING

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Key Policy Messages

- Integrated and trans-sectoral city planning, including urban design and transport planning, is an important and currently underused strategy for improving health and wellbeing within the SGD framework.
- Health Impact Assessments (HIAs) should be mainstreamed into planning processes to ensure the inclusion of health criteria and indicators.
- Urban and transport planning provide a critical opportunity to address substantial challenges to population health and adaptation posed by climate change.
- There is an urgent need to increase public space for people, reduce motorized traffic and increase public and active transport, and increase the amount of green space in urban areas.

Although the Sustainable Development Goals (SDGs) and the New Urban Agenda were adopted by nations, cities are an important driving force in their implementation. Prosperous cities are sustainable cities, and the intrinsic link between the health of the planet and human health are the foundation on which future planning must be built. The SDGs provide an operational framework to consider urbanisation globally, while providing local mechanisms for action and careful attention to closing gaps in the distribution of health gains. Health is explicitly addressed in SDG 3 and urbanisation in SDG 11, but health is also present in at least 13 other targets. Notably, for the first time in such a global development roadmap, non-communicable diseases, urban health, equity, and sustainability are at the core of the agenda. Local decision-making that recognises urban policies as key public health interventions will be crucial to achieving SDG targets.

Urbanisation – High Stakes for Health

Currently, over 50% of people worldwide live in urban areas, and this is expected to increase to 70-80% in the next 20 years. The United Nations projects that nearly all global population growth occurring from 2016 to 2030 will be absorbed by cities.¹ Cities have long been known to be society's predominant engine of innovation and wealth creation, yet they are also a

¹ United Nations Population Division. *World Population Prospects The 2017 Revision*. New York: United Nations Population Division, 2017. https://population.un.org/wpp/Publications/Files/WPP2017_KeyFindings.pdf.

main source of pollution, disease, and crime.² Climate change and emerging environmental risks have been identified as “the biggest global health threat of the 21st century,”³ and have put further pressures on cities.

Urban design has a critical influence on health and offers a tremendous opportunity for protecting and promoting it. Well-designed, efficient urban systems are essential for cities and their citizens to thrive. Yet, current urban and transport development has been less than optimal, creating and exacerbating human exposures to motor vehicle crashes, air pollution, noise, heat island effects, lack of green space, and sedentary behaviour, among others. Changes in temperature and humidity exposures at levels beyond our current experience will negatively impact health.⁴ These exposures are related not only to premature mortality but also morbidity, and a growing burden of disease that has the potential to cripple even the best health care systems.⁵

We can consider that:

- Non-communicable diseases (NCDs) are now the largest burden of disease worldwide, accounting for 68% of global mortality, and costing a projected \$30 trillion from 2011-2030.⁶
- Physical inactivity accounts for 2.1 million premature deaths and ambient air pollution almost 4 million premature deaths each year.⁷
- 80% of cities worldwide exceed World Health Organization (WHO) limits for safe air (WHO, 2018).
- Heat extremes are responsible for more deaths worldwide than any other weather-related event.⁸
- Inequities are often exacerbated in urban contexts, contributing to poor health outcomes and leading to a cycle of entrenched poverty.⁹

Emerging evidence suggests that urban and transport planning contributes to considerable variation in the levels of environmental exposures that are associated with health effects. For

² Bettencourt LMA, Lobo J, Helbing D, Kuhnert C, West GB. “Growth, innovation, scaling, and the pace of life in cities.” *Proc Natl Acad Sci*. 104:17 (2007), 7301-7306.

³ Costello A, Abbas M, Allen A, et al. “Managing the health effects of climate change.” *The Lancet* 373 (2009): 1693-1733.

⁴ Milner J, Harpham C, Taylor J, et al. “The Challenge of Urban Heat Exposure under Climate Change: An Analysis of Cities in the Sustainable Healthy Urban Environments (SHUE) Database.” *Climate* 5:4 (2017):93. doi:10.3390/cli5040093.

⁵ Mueller N, Rojas-Rueda D, Basagaña X, et al. “Urban and Transport Planning Related Exposures and Mortality: A Health Impact Assessment for Cities.” *Environ Health Perspectives* 125:1 (2017):89-96. doi:10.1289/EHP220.

⁶ World Economic Forum. *The Global Economic Burden of Non-Communicable Diseases*. Geneva: WEF, 2011. www.weforum.org/EconomicsOfNCD.

⁷ Forouzanfar MH, Alexander L, Anderson HR, et al. “Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013.” *The Lancet* 386:10010 (2015):2287-2323. doi:10.1016/S0140-6736(15)00128-2.

⁸ Larsen L. “Urban climate and adaptation strategies.” *Front Ecol Environ* 13:9 (2015):486-492.

⁹ World Health Organization. *Global Report on Urban Health: Equitable, Healthier Cities for Sustainable Development*. Geneva: WHO, 2016. http://www.who.int/kobe_centre/measuring/urban-global-report/ugr_full_report.pdf

example, a study in Barcelona, Spain, estimates that 20% of premature mortality is due to urban and transport planning related environmental and lifestyle factors.⁵ Another health impact study of six cities demonstrated how changes in land use resulting in more compact cities can generate significant health benefits, reducing transport-related cardiovascular disease by 19% in Melbourne and increasing transport-related physical activity by 24% in San Paolo.¹⁰ Urban sprawl and the spread of low-density settlements is one of the main threats to sustainable territorial development; public services are more costly and difficult to provide, natural resources are overexploited, public transport networks are insufficient, and car reliance and congestion in and around cities are heavy.¹¹ Investments in infrastructure for cars results in higher car usage and, in turn, increasing air pollution and noise levels, stress, and lack of physical activity; exacerbating heat island effects; and reducing access to green space and weakening social contracts. On the other hand, investments in infrastructure for cycling leads to a reduction in air pollution, noise, stress, and heat island effects, while increasing physical activity, social contacts, and possibly green space. Planning interventions that reduce greenhouse gas emissions can have substantial benefits for both health and climate.¹²

These urban realities require novel, comprehensive approaches that protect and promote health and wellbeing. Health outcomes can be improved through modification of the built environment, giving urban planning a critical role in delivering health improvements.¹³ However, in city governance and scientific institutions, urban planning and development, mobility and transport, parks and green space, environmental departments, and public health departments often do not work in a coordinated or collaborative way. Health parameters and indicators are usually not included nor required in urban and transport planning processes.

Health in All Policies (HiAP) was put forth in 2013 by WHO as a practical and collaborative approach to improving the health of all people by incorporating health considerations into decision-making across sectors and policy areas, such as urban planning.¹⁴ The SDGs and mechanisms for implementation like the HiAP framework provide an excellent opportunity to address challenges in coordination and alignment of national, regional, and local institutions and priorities.

¹⁰ Stevenson M, Thompson J, de Sá TH, et al. "Land use, transport, and population health: Estimating the health benefits of compact cities." *The Lancet* 388:10062 (2016):2925-2935.

¹¹ Montgomery C. *Happy City: Transforming Our Lives through Urban Design*. New York: Farrar, Straus and Giroux, 2013.

¹² Haines A, McMichael AJ, Smith KR, et al. "Public health benefits of strategies to reduce greenhouse-gas emissions: overview and implications for policy makers." *The Lancet* 374:9707 (2009):2104-2114. doi:10.1016/S0140-6736(09)61759-1.

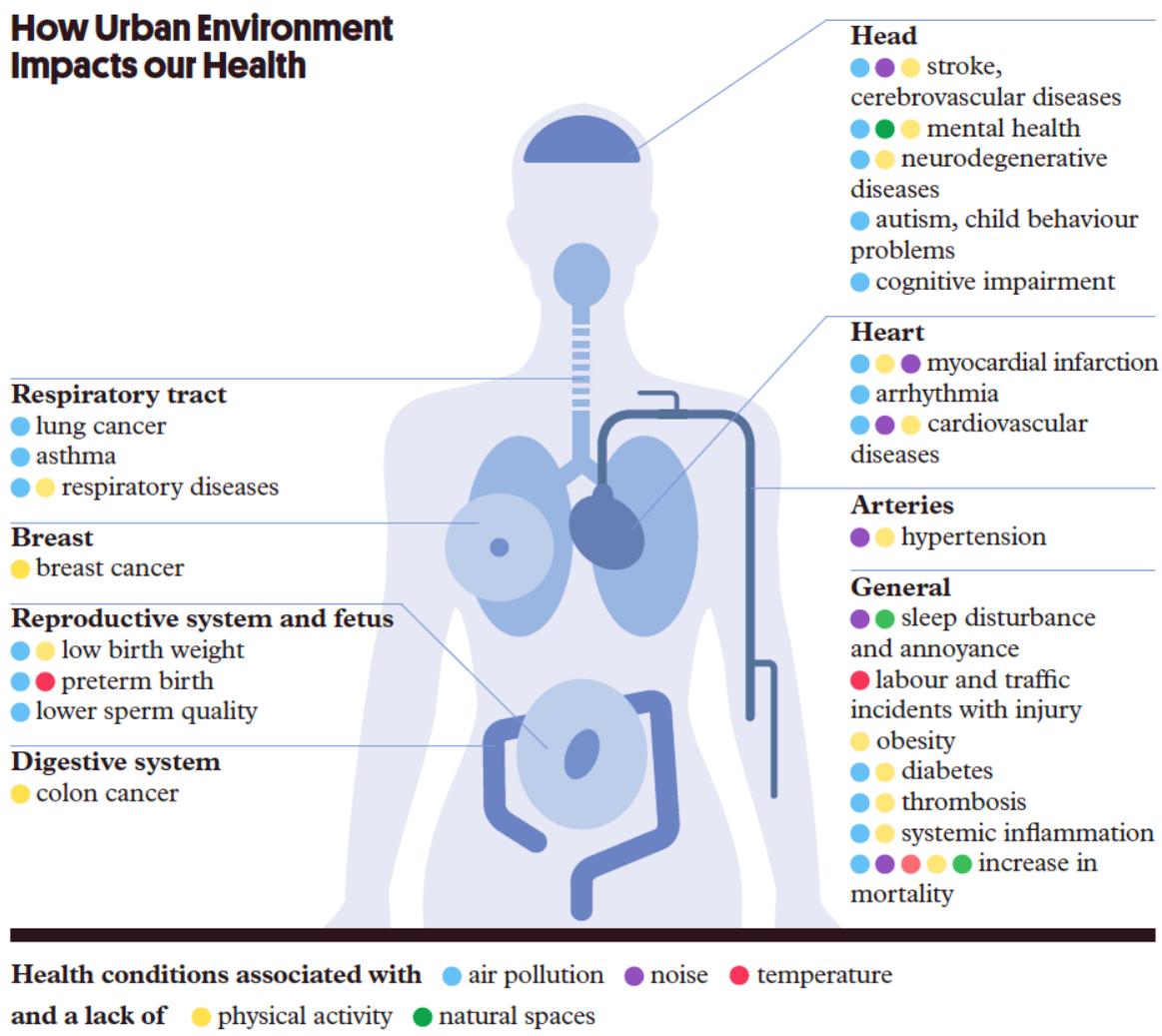
¹³ Rydin Y, Bleahu A, Davies M, et al. "Shaping cities for health: complexity and the planning of urban environments in the 21st century." *The Lancet* 379:9831 (2012):2079-2108. doi:10.1016/S0140-6736(12)60435-8.

¹⁴ World Health Organization. "The 8th Global Conference on Health Promotion, Helsinki, Finland, 10-14 June 2013." Accessed September 18, 2018. http://www.who.int/healthpromotion/conferences/8gchp/statement_2013/en.

The case for health in all urban policies

Cities are complex systems and thus strong political will and governance are needed to ensure changes happen. Policy makers, urban planners, and public health experts must work together across sectors to create and implement policies that impact health. Cities provide good opportunities for policy change as cities have direct local accountability and are generally more agile to act than national governments. The understanding and acknowledgement of linkages among land use, behaviour, exposures, morbidity, and mortality is essential for ensuring that policies include measurable health parameters. For example, a policy for creating green space should be measured in terms of land use and biodiversity as well as reductions in disease and promotion of healthy lifestyles. New tools such as Health Impact Assessments (HIAs) can help cities visualise and compare different urban policy scenarios and their effects on health.

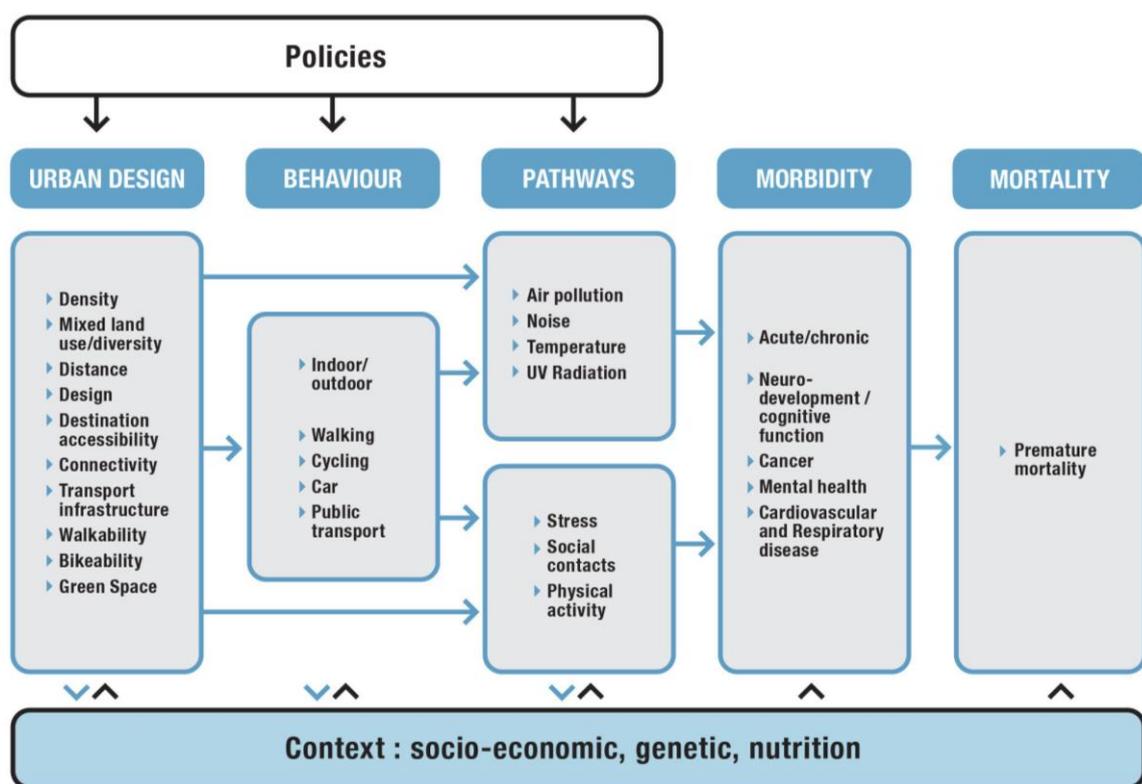
Figure 1. How Urban Environments Impact Our Health



Source: WHO; Natalie Mueller, 2017 ; 107:243-257. oi:10.1016/j.envint.2017.07.020.

The lack of attention given to health in the transport and urban planning agenda can be traced back to a lack of clarity in policy and guidance.¹⁵ Systemic approaches are needed to tackle multi-faceted environmental and health problems and should become the standard to avoid flawed sector-centric planning and decision-making.¹⁶ Therefore, a cultural shift and a reallocation of funding streams at the policy level are needed to include HIAs in proposed transport and urban development projects. Mitigation of adverse health impacts associated with a proposed transport or urban project should be considered and mandated in policy. Policy, in turn, should be accompanied by indicators to understand and visualize health impacts and their distribution to ensure equity.

Figure 2. Conceptual frame work for the relationship between urban and transport planning, environmental exposures and health



Nieuwenhuijsen 2016

Policy change requires building an effective dialogue ensuring public awareness and acceptance, as some measures can be restrictive in nature and therefore be politically unpopular (for example, vehicle restricted areas and congestion charging zones). Participation should also include a variety of professionals and stakeholders that are already acting or can act to

¹⁵ Nieuwenhuijsen MJ, Khreis H. "Car free cities: Pathway to healthy urban living." *Environ Int.* 94 (September 2016):251-262. doi:10.1016/j.envint.2016.05.032.

¹⁶ Nieuwenhuijsen MJ. "Urban and transport planning, environmental exposures and health-new concepts, methods and tools to improve health in cities." *Environ Heal.* 15:S1 (2016:38. doi:10.1186/s12940-016-0108-1.

improve health in cities, and involve citizens in the development of future urban and transport scenarios.

Environmental factors are highly modifiable, and environmental interventions at the community level have been shown to be more effective than interventions at the individual level.¹⁷ Changes in the urban environment are long-lasting and are arguably permanent, whilst behavioural change campaigns and programmes can be more difficult to maintain.¹⁸ To be able to know at which level and to what extent actions can be targeted effectively, decision-makers need recommendations and quantification of the impacts associated with a range of available, plausible, and feasible policy measures (or packages of measures) that can effectively address current issues. Without the latter, more effective measures may be overlooked.¹⁹⁵

Giles-Corti et al. (2016) have identified eight integrated regional and local interventions that, when combined, encourage walking, cycling, and public transport use, while reducing private motor vehicle use. Together these interventions create healthier and more sustainable compact cities that reduce the environmental, social, and behavioural risk factors that affect lifestyle choices, inequalities, environmental pollution, and safety. Urban policies should target and support these interventions:

- Facilitate destination accessibility
- Ensure equitable distribution of employment across cities
- Manage demand by reducing the availability and increasing the cost of parking
- Design pedestrian-friendly and cycling-friendly transport networks
- Achieve optimum levels of residential density
- Reduce distance to public transport
- Enhance the desirability of active travel modes, for example by creating safe, attractive neighbourhoods and safe, affordable, and convenient public transport.

Evidence evaluating different urban and transport scenarios support policies that:

- Provide higher residential density, mixed land use, and access to local destinations required for daily living
- Move towards a combination of active and public transport and lower-emission motor vehicles
- Provide green spaces that are accessible to all residents
- Recuperate public space by reducing private motor vehicles areas
- Connect street networks (either measured individually or combined into a composite “walkability” index)
- Ensure that the benefits as well as the costs of interventions are equitably distributed

¹⁷ Chokshi DA, Farley TA. “The Cost-Effectiveness of Environmental Approaches to Disease Prevention.” *N Engl J Med.* 367:4 (2012):295-297. doi:10.1056/NEJMp1206268.

¹⁸ Saelens BE, Sallis JF, Frank LD. “Environmental correlates of walking and cycling: Findings from the transportation, urban design, and planning literatures.” *Ann Behav Med.* 25:2 (2003):80-91. doi:10.1207/S15324796ABM2502_03.

¹⁹ May AD, Khreis H, Mullen C. “Option Generation for Policy Measures and Packages: The Role of the KonSULT Knowledgebase.” *Case Studies on Transport Policy* 6:3 (2018):311-318.

Further Reading

- Integrating Human Health into the Urban Development and Transport Planning Agenda.²⁰
- Making Healthy Places: designing and building for health, wellbeing and sustainability.²¹
- The Happy City: transforming our lives through Urban Design.¹¹
- Health In All Policies.²²
- Land use, transport, and population health: estimating the health benefits of compact cities.¹⁰

²⁰ Nieuwenhuijsen MJ, Khreis H (Eds). *Integrating Human Health into Urban and Transport Planning: A Framework*. Springer International Publishing, 2019. doi:10.1007/978-3-319-74983-9.

²¹ Dannenberg AL, Frumkin H, Jackson R. *Making Healthy Places: Designing and Building for Health, Well-Being, and Sustainability*. Island Press, 2011.

²² World Health Organization. *Helsinki Statement Framework for Country Action*. Geneva: WHO, 2014. <http://www.searo.who.int/entity/healthpromotion/helsinki-statement-framework-for-country-action.pdf?ua=1>

HEALTH TECHNOLOGIES FOR STRENGTHENING PRIMARY HEALTH CARE

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Key Policy Messages

- Health technology is advancing rapidly, and offers many solutions for improving primary care
- Technologies can improve the quality of care and patient outcomes, make care more cost-effective, improve the experience of health care providers, and more
- Technologies need to be well-adapted to the communities they serve for successful adoption; for example, technology for a resource-rich setting may not work in a resource-poor one, or an urban solution may not work in a rural context
- Technologies should be safe and easy to use

Alma Ata's Call for Appropriate Health Technologies

In 1978, the Declaration of Alma-Ata called on countries to develop primary health care as the principal pathway to strengthen health systems and advance human development by promoting health in all dimensions.²³ Values of equity, people centeredness, community participation, and self-determination defined the ethos of the Alma-Ata Declaration.

Forty years after this historic declaration, people in most regions of the world are relatively healthier, wealthier, and living much longer and productive lives. Significant strides have been made in bringing down deaths from many infectious diseases, including HIV/AIDS, malaria, and tuberculosis, as well as in reducing extreme poverty. However, this progress has been uneven and there are still widespread health and income disparities within countries and between countries. Rapid ongoing health transitions are being propelled by developmental, demographic, nutritional, and epidemiological transitions. The rising burden of chronic non-communicable conditions, as well as emerging and re-emerging infectious conditions, pose challenges to health systems in low- and middle-income countries (LMICs), further exacerbating health disparities.

A key pillar of primary health care, as highlighted by the declaration of Alma Ata, is “practical, effective and socially acceptable technologies that are accessible, affordable by community and national health systems, encourage self-reliance, and result from participatory processes.”²³ Health technologies, in their varied forms, have a high potential to strengthen health systems in LMICs by improving outreach, effectiveness, and equity of health services. They can enhance communication between patients and health care providers, deliver a wide

²³ Beard TC, Redmond S. Declaration of Alma-Ata. *The Lancet* 313 (1979):217–8.

range of services to remote and vulnerable populations, empower communities to take charge of their own health, and improve health information systems. Use of technology is one of the most promising paths to revolutionize and improve primary health care.

In the past few decades, the global health community has increasingly recognised the importance of using Appropriate Technologies for Health (AHT) in primary health care settings. AHT refers to methods, procedures, techniques, and equipment that are scientifically valid, adapted to local needs, acceptable to users and recipients, and maintainable with local resources.²⁴

Health Technologies for LMICs

Health technologies designed for the developed world often prove to be inappropriate or inaccessible in the developing world. Reasons for this include poor infrastructure, an insufficient or poorly-trained workforce, or inadequate financial resources to buy and maintain complicated technologies. Additionally, the spectrum of diseases and health priorities in developing countries often differ from those of the developed world, requiring unique diagnostic, treatment, and preventative approaches. Appropriate health technologies in an under-resourced health system tend to be new technologies or adaptations of existing technologies that can sustainably meet the varied conditions of developing countries and the unique needs of underserved communities.

These technologies can either be ‘hard,’ employing engineering design, available materials, and manufacturing equipment to bring about solutions that further self-reliance and determination; or ‘soft,’ bringing about change by influencing individual and community decision-making behaviour through social participation and action.²⁵

Health Technologies in LMICs Should Be:

- Effective, both in theory and in practical use
- Safe (difficult to use incorrectly)
- Affordable, in both up-front and maintenance/recurrent costs
- Acceptable to all who are affected by it
- Sustainable, in that technology can be maintained, repaired, and re-supplied

Examples of Sustainable Health Technologies for Primary Health Care in LMICs

Technological innovation has played a key role in health, with progress in many areas, including food safety, healthy environments, new medicines and vaccines, diagnostic tests, curative care, and artificial limbs and aides for rehabilitation. Various technologies are being used as

²⁴ Cohen J. “[Appropriate technology in primary health care: Evolution and meaning of WHO’s Concept.](#)” *International Journal of Technology Assessment in Health Care* 5:1 (Jan 1989):103–9.

²⁵ Goodyear L, Tsu V, Kaisel D, Lalwani T. “[Appropriate Health Technologies: Concepts, Criteria, and Uses.](#)” Global Health Education Consortium, 2009.

tools for strengthening health systems and health care delivery. One example is a GPS-enabled tracker to monitor inhaler usage by asthmatics, with information reported to a central database and used to identify individual, group, and population trends on asthma catalysts (e.g. pollen counts). Another is smart phone applications used to track and assist patients with managing chronic conditions like diabetes or to self-track exercise, blood pressure, and other health indicators. A third example is clinical decision support software (DSS) for the evidence-based management of hypertension and diabetes.

The following are some of the most promising technologies for use in LMICs in a primary care setting:²⁶

- 1. Lab-in-a-Backpack “Point of Care Screening/Diagnostic”:** This backpack contains tools to perform physical exams and laboratory tests at the point-of-care. Tools include an oil immersion microscope, centrifuge, otoscope, ophthalmoscope, glucometer, pulse oximeter, sphygmomanometer, rapid diagnostic tests, and first aid supplies. The back pack has a chargeable battery via a solar panel or a port. The backpack technology has been used in clinics in rural settings and by medical bridges in fourteen developing countries.
- 2. Mobile Phone Image Transmission for Diagnosis:** This technology was first developed in Italy. It connects basic health care facilities in remote areas with more specialised facilities farther away. The technology has been tested in rural settings in Uganda and Bangladesh. Testing of further clinical applications is underway.
- 3. Portable Telemedicine Unit:** This device can be used in a mobile telemedicine unit, can be connected to a server as a base unit, and can be used for both primary and secondary care in both rural and urban settings. Its feasibility has been tested at community health care centres and in ambulances in Indonesia. A local hospital in Sukabumi, Indonesia, is currently serving as its base unit.
- 4. Fetal Heart Rate Monitor:** The Fetal Heart Rate monitor has the potential to improve health outcomes for babies by aiding life changing decision-making during child birth. It has the ability to obtain a quick reading of the fetal heart rate within 30 seconds. It is simple to use and has been successfully piloted in nine South African primary care maternity facilities run by midwives.
- 5. Medical Data Communication System:** The system allows any type of medical data to be transmitted from the point-of-service to the desired specialist, providing real-time opinions.
- 6. Portable, Power-Free Medical Instrument Sterilizer:** This sterilizer is designed to be used in rural health clinics or during an outbreak, where there is no access to electricity or clean water. It can be reused, and is operable through batteries. The sterilizer is currently being evaluated in low-resource settings to be made commercially available.
- 7. Anaesthesia Delivery for Low-Resource Settings:** This anaesthesia machine is an efficient delivery system. The machine provides general anaesthesia and ventilator support for patients during surgery while displaying various patient parameters.
- 8. Mobile Supply Chain Management Tool:** This product is designed to strengthen logistics management through the use of mobile technology. Its purpose is to support health workers and other agents who manage logistics in low-resource settings.

²⁶ World Health Organization. [Compendium of innovative health technologies for low-resource settings](#). Geneva: WHO, 2014.

Figure 3. Photos of Promising Technologies



9. **Compact portable ultrasound:** This device provides a non-invasive ultrasound for immediate visualization. It is easy to carry and its battery capacity allows the device to be used in low-resource settings. It is used by health care workers in Indonesia, Tanzania, Ghana, and Bangladesh, and has shown very encouraging results.
10. **Electronic Health Record (EHR) Solution:** The United Nations Relief and Works Agency for Palestine Refugees (UNRWA) has developed a patient-centred e-health record system to support primary health services for common illnesses, maternal and child health, NCDs, laboratory workups, and pharmacy information for 5 million Palestinian refugees in Jordan, Syria, Lebanon, the West Bank, and Gaza. As of 2017, it had been rolled out in 121 primary health centres with an 89% satisfaction rate amongst doctors.²⁷ The tool can assist with medication safety, tracking, and reporting, and also develop medical datasets for research purposes.
11. **Portable Solar Powered Units for Emergency Obstetric Care:** Solar Powered Suitcase is an economical, easy-to-use, portable power unit that provides health workers with highly efficient medical lighting and power for mobile communication and small medical devices. It was originally designed to support timely and efficient emergency obstetric care, but can

²⁷ Ballout G, Al-Shorbaji N, Abu-Kishk N, Turki Y, Zeidan W SA. [“UNRWA’s innovative e-Health for 5 million Palestine refugees in the Near East.”](#) *BMJ Innovations* 4 (2018):128–34.

be used in a range of medical and humanitarian settings. This solar powered suitcase has been installed and tested in many countries in Sub Saharan Africa, Asia-Pacific, and the Americas, and has shown encouraging results for increased uptake and scale up.²⁸

The Way Forward

The incorporation of health technologies in the primary health care system has many benefits. A health technology model has the potential to improve the patient experience, quality of care, and accuracy of data. Big data, telehealth, and other technologies also have an enormous scope to provide better management in a primary care setting.²⁹

Steps to Ensure Effectiveness of Technologies for Primary Health Care in LMICs

- Knowledgeable and skilled users
- Clear practice guidelines and policies
- Effective financing and distribution to ensure access and availability
- Community efforts to bring patients into contact with services in a timely manner

Technologies alone cannot improve health; they only have impact if they are incorporated into a comprehensive health delivery system. That system, whether in a limited resource setting or a fully industrialized country, consists of infrastructure and the people (both providers and patients) that come into contact with the technology. Appropriate health technologies need to be adapted to the human, physical, and financial resources available in the environment where they will be used. Defining the attributes and characteristics of appropriate health technologies needs to take place early in the product development cycle to ensure that the technology is adapted to user needs, rather than users having to adapt to the technology. Sustainable solutions depend on developing effective, low-cost technologies as well as developing the social structures, political will, and individual and group behaviour change that make technologies accessible, acceptable, and responsive to a perceived need. The transformational promise of health technologies to resource-constrained health systems is very attractive for enhancing outreach, effectiveness, and equity. However, rigorous evaluation is essential to objectively assess their impact as they are scaled up.

Roadmap for Strengthening Health Technologies for Primary Health Care in LMICs

The development of appropriate health technologies for resource-poor settings is typically driven by perceived health needs rather than market demand. Co-design strategies that engage end-users to develop technology solutions is a fundamental means to ensure that their needs will be met in appropriate, effective, and culturally relevant ways. Appropriate solutions often emerge as “bottom-up” innovations from end-users, as much as from “top-down” products from technologists.

²⁸ We Care Solar. “We Care Solar Suitcase.” Accessed September 18, 2018. <https://wecaresolar.org/resources/we-care-solar-suitcase>.

²⁹ AbuKhoua E. “Analytics and Telehealth Emerging Technologies: The Path Forward for Smart Primary Care Environment.” *Journal of Healthcare Communications* 2:67 (2017).

Needs assessment should be a collaborative effort between public sector health specialists, private sector organizations (for profit as well as not for profit) involved in technology dissemination and implementation, and end users. Public health technologies, in particular, depend on achieving consensus among public and private partners regarding perceived needs and solution approaches, as well as a shared understanding among partners of the processes of health technology development, evaluation, licensing, distribution, and monitoring.

In cases where a need has emerged due to market failure, public sector stakeholders need to determine what incentives are necessary to engage the private sector in developing and fulfilling end-user demand. At times, the participation of international agencies and regulatory bodies to endorse products or aggregate demand can provide the incentive needed to develop technologies that would not otherwise be pursued.

Health Technology Assessment (HTA) must be undertaken by multi-disciplinary teams which can assess health impact, cost effectiveness, feasibility of use in prevailing or planned health system conditions, acceptability to health care providers and the public, scalability, and affordability by the health budget in scaled-up deployment. In primary health care settings, ease of use by non-physician health care providers and acceptability to patients and the public are especially important considerations.

Technology for Universal Health Coverage (UHC)

As countries race towards the targets set by the Sustainable Development Goals (SDGs) for 2030, technology can be an accelerator of progress towards primary health care-led UHC. Full population coverage of essential health services is increasingly possible with the use of appropriate technologies. Low-cost, high-impact technologies can reduce the health burden while averting high health care costs arising from delayed recognition and avoidable complications of common disorders. Innovative technologies can greatly enhance the quality of primary health care through diagnostic aids and decision support systems. By reducing information asymmetry between patients and care providers, technology can also promote a patient-centric partnership model of health care.

Technology can infuse strength into a well-configured health system but cannot substitute for structural weaknesses and functional failures of the health system. A competent health workforce is needed for optimally utilizing technologies, especially in primary health care settings, and good governance must ensure the appropriate use of technologies to maximize health benefits and minimize risks and financial costs. Innovations in the design, development, deployment, and delivery of technologies must be encouraged by health system managers, while implementation research must undertake health technology assessment to assess health impact, societal benefit, and effects on equity gaps.

As comprehensive primary health care rises again as a renewed global health commitment at Astana in October 2018, health technologies can make the slogan of “Health for All” a reality in the twenty-first century.

HEALTH IN ALL POLICIES: OPPORTUNITIES IN THE SUSTAINABLE DEVELOPMENT GOALS AGENDA

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Key Policy Messages

- The HiAP strategy promotes strong and effective whole-of-government, multi-sectoral, and multi-stakeholder partnerships to develop coherent policies and programs towards achieving health and well-being for all.
- HiAP is a useful health governance tool to achieve the SDGs.
- HiAP evidence and best practices are emerging on all continents, including low- and middle-income countries.
- At least five countries (Australia, Spain, Latvia, Switzerland, and Venezuela) included HiAP examples in their Voluntary National Reviews at the High Level Political Forum.

Health is Central to Sustainable Development

Public policies and programs can reinforce or undermine both individual and population health. In order to protect and promote global health, it is essential to consider the social, environmental, economic, cultural, and political determinants of health.³⁰ This effort must be coupled with a deep understanding of the complex trade-offs as well as mutually reinforcing relationships between health and unlike sectors, such as agriculture, energy, and transport, as well as the health implications of even broader policies including environmental protection, labour rights, and intellectual property. Thus, the achievement of health goals requires policy coherence and shared solutions across multiple sectors that usually operate in silos: that is, integrated intersectoral action or a “health in all policies” approach.

³⁰ Institute of Medicine (IOM). *Global Development Goals and Linkages to Health and Sustainability: Workshop Summary*. Washington, DC: The National Academies Press, 2014.

Health in All Policies: A Tool to Accelerate Progress Towards Sustainable Development

The World Health Organization (WHO) defined Health in All Policies (HiAP) as “an approach to public policies³¹ across sectors that systematically takes into account the health implications of decisions, seeks synergies, and avoids harmful health impacts in order to improve population health and health equity.”³²

The unprecedented changes created by globalization over the past decades have led to an increase in the complexity of social structures, a growing number of global health actors, and widening inequities within and across nations. These, combined with epidemiological and demographic transitions and the associated rise in noncommunicable diseases, aging populations, and climate change requires reshaping how we develop public policies towards health.³⁰

The HiAP strategy promotes strong and effective whole-of-government, multi-sectoral and multi-stakeholder partnerships to develop coherent policies and programs towards achieving health and well-being for all. Moreover, it provides a “horizontal governance”³³ approach to complex or ‘wicked’ health problems that involves the highest levels of government, political, and executive leadership for effective priority setting, innovation in policy making, and implementation of sustainable solutions.³⁰

Health in All Policies and Opportunities within the SDG Framework

HiAP is still being informed by evidence-based knowledge that draws upon empirical observation and scientific assessment. Although there is relatively strong scientific agreement on the multiple interactions between health and other sectors³⁴ such as nutritious food, sanitation, clean water and air, and education, to name a few, addressing the underlying determinants of health is difficult because they are, as defined by Kickbush³⁰, complex, multi-faceted, and dynamic. Challenges for truly horizontal governance include public institutions working in silos, with different mandates, budgets, accountability mechanisms, timing, and organisational cultures. For example, at the national level, environmental and health issues almost invariably fall under different ministries or agencies. Further, there is a tendency towards short-term, market-oriented approaches to policy-making, and a lack of monitoring progress and evaluating impacts.³⁰

³¹ This approach to health governance has evolved in the past few decades, building upon health promotion conferences such as Alma Ata, 1978, the Ottawa Charter, 1986, or the 1988 Healthy Public Policy Conference in Adelaide, Australia; speeded up with the Finnish Presidency of the European Union in 2006, and framed as such in 2011 Rio Political Declaration and the 2013 Helsinki Statement, among others.

³² Government of South Australia & World Health Organization. *Progressing the Sustainable Development Goals through Health in All Policies: Case studies from around the world*. Adelaide: Government of Australia, 2017. http://www.who.int/social_determinants/publications/Hiap-case-studies-2017/en

³³ Kickbusch I, Buckett K (Eds). *Implementing Health in All Policies: Adelaide 2010*. Adelaide: Department of Health, Government of South Australia, 2010.

³⁴ Galvão LAC, Haby MM, Chapman E, Clark R, Magalhães Câmara V, Raggio Luiz R, et al. “The new United Nations approach to sustainable development post-2015: Findings from four overviews of systematic reviews on interventions for sustainable development and health.” *Rev Panam Salud Publica* 39:3 (2016):157–65.

However, the 2030 Agenda constitutes a unique opportunity to advance forward in this regard. Despite significant progress towards the achievement of specific goals, progress was uneven under the Millennium Development Goals (MDGs), which did not include calls for better governance.³⁰ Instead, the Sustainable Development Goals (SDGs), adopted by all countries in 2015, provide a new, medium-term framework for global development and sustainability, one that is structured around a twofold axis of equity and sustainability and considers a global geographical scope. In the particular case of global health, it is the first time that infectious and non-communicable diseases are aligned with environmental and socio-economic determinants to provide a truly comprehensive picture of the challenge and define the response accordingly. Implicit in the SDG framework is considering those interactions^{35,36,37,38} in ways that promote policy coherence, or the need to continuously monitor and evaluate progress through a set of largely agreed targets and indicators. Thus, the SDGs recognize the interdependence across all sectors and the need for up-to-date empirical knowledge to provide a solid entry point to advance HiAP, while HiAP provides a tool for SDG implementation. Achieving the SDGs will rely on strengthened technical core capacities and the build-up of much stronger linkages between communities and agencies in those various interrelated areas to enable a more holistic approach to health governance.

The table illustrates some of the opportunities in addressing HiAP challenges within the SDG agenda. Based on these challenges and opportunities, the following are recommendations to position HiAP in the context of the SDGs:

- Establish a common HiAP framework with objectives and indicators that addresses health-related SDGs
- Develop monitoring and evaluation guidelines for HiAP actions to allow routine monitoring and evaluation
- Develop measurable social, health, and/or environmental outcomes in relation to HiAP
- Promote high level political commitment from the local to global level towards implementation of HiAP within the SDG agenda
- Support development of professional skills and competencies needed to identify windows of opportunity to advance HiAP in the health sector
- Build the capacity of governments, businesses, and communities to work together in HiAP within the SDG agenda
- Promote knowledge exchange platforms between academia and policy makers to better integrate political and technical health aspects, identify relevant research areas, and develop evidence-based policies

³⁵ Nilsson M, Griggs D, Visbeck M. "Policy: Map the interactions between Sustainable Development Goals." *Nature* 534:7607 (2016):320-2. doi: 10.1038/534320a.

³⁶ International Council for Science (ICSU). *A Guide to SDG Interactions: from Science to Implementation* [D.J. Griggs, M. Nilsson, A. Stevance, D. McCollum (eds)]. Paris: International Council for Science, 2017.

³⁷ Nunes AR, Lee K, O'Riordan "T. The importance of an integrating framework for achieving the Sustainable Development Goals: The example of health and well-being." *BMJ Global Health* 1:e000068 (2016). doi:10.1136/bmjgh-2016-000068.

³⁸ Nilsson, M. "Understanding and mapping important interactions among SDGs. Background paper for Expert meeting in preparation for HLPF 2017. Ready institutions and policies for integrated approaches to implementation of the 2030 Agenda." Vienna: Måns Nilsson, 2016.

- Promote HiAP implementation research, especially on governance and funding mechanisms
- Promote utilization of Health Impact Assessments as a tool to take practical action on HiAP. Health impact indicators provide information on progress and policy efficacy in ways that are tangible and easily understood (e.g. road transportation restrictions in cities and air pollution's health impact)³⁹

Health in All Policies in practice

Despite of the mentioned challenges, there are a handful of examples of HiAP globally. The first wave of countries that started implementing HiAP a decade ago usually show the added value of intersectoral action for health around a specific health problem. One of the pioneer examples was the Finnish city of Seinäjoki⁴⁰ that curbed a childhood obesity epidemic by integrating HiAP into their municipal strategies. This strategy involved the urban planning department, with the task of improving school playgrounds, the recreation department that implemented more physical activity in schools, nutrition experts who worked with day care centres to eliminate sugary snacks and with schools to serve healthier lunches, and finally the health department that carried out comprehensive, yearly health examinations in schools, which included parent education on healthy eating. As a result, the proportion of five-year-olds who were overweight or obese halved from a prevalence of around 20% to around 10%. Health policy makers involved in this project described difficulty in convening non-health policy-makers, helping them understand the impact of their work on health outcomes, and building partnerships between health and other government departments.

One could argue that HiAP is only applicable in developed countries with sophisticated legislative and organizational models such as that of Finland, but there is emerging or new evidence on all continents, including low- and middle-income countries, such as China, Suriname, Zambia, Namibia, and Ecuador. A recent publication³⁰ presents several examples of different HiAP approaches being implemented, highlighting high-level commitment and intersectoral collaboration through mechanisms such as “National Health Assemblies, Commissions, task forces, or working groups” with representation from different ministries or agencies (California (USA), Thailand, Suriname), ad-hoc legislation such as “National or Municipal Health Acts” (Thailand,⁴¹ Wales); specific evaluation tools (Health Lens Analysis, South Australia⁴² or Health Impact Assessments, Wales), local community-led initiatives around urban planning and local investment decisions (Healthy Neighbourhoods in Quito, Ecuador; Greater Christchurch Urban Development Strategy, New Zealand).

³⁹ See more examples of HIA at <http://www.who.int/hia/examples/en>.

⁴⁰ Read the full case at <http://www.who.int/features/2015/finland-health-in-all-policies/en>.

⁴¹ Rajan D, Mathurapote N, Putthasri W, Posayanonda T, Pinprateep P, de Courcelles S, Allouc A, Ros E, Delobre A, Schmets G. *The triangle that moves the mountain: Nine years of Thailand's National Health Assembly*. Paris: WHO, SciencesPo, and National Health Commission of Thailand, 2016.

⁴² Lawless AP, Williams C, Hurley C, Wildgoose D, Sawford A, Kickbusch I. “Health in All Policies: evaluating the South Australian approach to intersectoral action for health.” *Can J Public Health* 103:7Suppl1 (2012):eS15-9. <http://www.ncbi.nlm.nih.gov/pubmed/23618043>.

HiAP challenges	Opportunities in SDGs
Imbalance between the technical and political aspects of health. ^{43, 44, 45}	The SDGs, unlike the MDGs, address technical and political processes and challenge governments and partners to be more political, systemic, and holistic in their thinking. ³⁰
Inadequate awareness of HiAP across other sectors. ^{40, 41, 46}	The SDGs are universally accepted; therefore, linking HiAP within the SDG agenda provides a channel to overcome shifting political priorities, integrate HiAP within national development agendas, and raise awareness of HiAP as a tool to achieve SDG 3 (Good Health and Well-Being) and more. ^{39, 40}
Shifting political priorities leading to uncertainty in sustaining HiAP efforts. ^{30, 47}	
Limited research on different governance and funding mechanisms needed to operationalize HiAP. ^{30, 48}	SDG Goal 17 (Partnerships for the Goals) calls for stronger commitment to partnership and cooperation through establishing policy coherence and an enabling environment for sustainable development at all levels and by all actors. This has been backed by increasing UN publications addressing financing and institutional coordination mechanisms to implement the SDGs at national and global scales. This illustrates the possibility of the SDGs to provide a platform to encourage further research and promote understanding of effective governance, funding, and partnership structures to develop sustainable solutions towards Health for All, under the HiAP premise. ⁴⁹
Inadequate evidence on linkages between sectors, making it difficult to initiate and sustain partnerships. ^{30, 39, 40, 41, 42, 43, 44}	The SDGs address all sectors, providing a platform to develop a HiAP framework that addresses health in all SDGs. ^{50, 51} UN Resolution A/RES/70/1 explicitly states that “the Sustainable Development Goals . . . are universal, indivisible and interlinked.”

⁴³ Thematic Group on Health for All. *Health in the Framework of Sustainable Development: Technical Report for the Post-2015 Development Agenda*. New York: Sustainable Development Solutions Network, 2014.

⁴⁴ Kickbush I. “[Health in All Policies](#).” *BMJ* 347: f4283 (2013).

⁴⁵ World Health Organization. *Demonstrating a Health in All Policies Analytic Framework for Learning from Experiences*. Geneva: WHO, 2013.

⁴⁶ Leppo K, Ollila E, Pena S, Wismar M, Cook S (Eds). *Health in All Policies: Seizing opportunities, implementing policies*. Ministry of Social Affairs and Health of Finland, National Institute for Health and Welfare, European Observatory on Health Systems and Policies, UNRISD, Ministry for Foreign Affairs of Finland, 2013.

⁴⁷ Howard R, Gunther S. *Health in All Policies: An EU Literature Review 2006-2011 and Interview with Key Stakeholders*. Equity Action, 2012.

⁴⁸ Baum F, Delany-Crowe T, MacDougall C, Lawless A, van Eyk H, Williams C. “Ideas, actors and institutions: lessons from South Australian Health in All Policies on what encourages other sectors’ involvement.” *BMC Public Health* 17:1 (2017):811. <http://www.ncbi.nlm.nih.gov/pubmed/29037182>.

⁴⁹ Molnar A, Renahy E, O’Campo P, Muntaner C, Freiler A, Shankardass K. “[Using Win-Win Strategies to Implement Health in All Policies: A Cross-Case Analysis](#).” *PLoS One* 11:2 (2016):e0147003.

⁵⁰ Benson Wahlén C. “[UNDP Releases Guidance on Mechanisms for SDG Implementation](#).” New York, IISD, 2018.

⁵¹ “United Nations Partnerships for SDGs platform.” Accessed 28 Jul 2018. <https://sustainabledevelopment.un.org/partnerships>.

Perhaps HiAP is more graspable when it is implemented in specific settings or within local geographical boundaries. Cities are the perfect context both to understand the linkages between health, its social and environmental determinants, and to implement solutions following a HiAP rationale. Urban life poses challenges that push us to rethink how we plan urban environments, both promoting spaces that enable a healthier life style (e.g. green or blue spaces and their connection with physical exercise and mental health) and mitigating exposures such as noise, air pollution, and cigarette smoke.⁵² For example, the Alliance for Healthy Cities⁵³ includes middle-income countries, especially in Asia,⁵⁴ rapidly moving forward in promoting health, improving urban environments, and addressing environmental challenges.

Conclusions

In summary, while more needs to be done to increase public participation, foster intersectoral collaboration, and measure the health impact of other sectors' policies, HiAP appears as a very good strategy to bring awareness about the social determinants of health and to implement inclusive, equity-oriented, evidence-based policy making that promotes health. HiAP also appears as a very useful health governance tool to achieve the SDGs. Both areas are advancing not only in theory but also practically, with at least five countries (Australia, Spain, Latvia, Switzerland, and Venezuela) mentioning or reporting on HiAP examples in their Voluntary National Reviews (VNRs) at the United Nations High Level Political Forum.⁵⁵ It is the responsibility of the public health community to ensure a more systematic expansion, with the support of innovative tools and processes, especially in countries where health-related SDGs are likely to remain unattained in 2030.⁵⁶

⁵² Read more about ISGlobal's Urban Planning, Environment and Health Initiative and the "Cities that we want" Project at https://www.isglobal.org/en/publication/-/asset_publisher/ljGAMKTwu9m4/content/informe-digital-interactivo-5-claves-para-ciudades-mas-saludables.

⁵³ Read more about the "Alliance for Healthy Cities" at <http://www.who.int/life-course/partners/alliance-healthy-cities/en>

⁵⁴ World Health Organization. *Promoting health in the SDGs. Report on the 9th Global Conference for Health Promotion: All for Health, Health for All, 21-24 November 2016*. Geneva: World Health Organization, 2017.

⁵⁵ Check all 153 reports (as of September 2018) at <https://sustainabledevelopment.un.org/vnrs>

⁵⁶ GBD 2016 SDG Collaborators. "Measuring progress and projecting attainment on the basis of past trends of health-related Sustainable Development Goals in 188 countries: An analysis from the Global Burden of Disease of Disease study 2016." *The Lancet Global Health Metrics* 390:10100 (2017):1423-1459.

PUBLIC FINANCING: THE KEY TO UNIVERSAL HEALTH COVERAGE

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Key Policy Messages

- The equity principles underlying Universal Health Coverage (UHC) have profound implications for how countries should finance their health systems.
- Out-of-pocket financing is inefficient and grossly inequitable.
- Every country close to achieving UHC has, at some point in its history, at least partly socialized its health financing system.
- Evidence indicates that compulsory public financing mechanisms (general taxation and social health insurance) are the most effective, efficient, and equitable way to attain UHC.

Universal Health Coverage (where everyone receives the health services they need without suffering financial hardship) is driving the global health agenda. Twice in the last six years, all the world's countries have committed themselves to UHC, through a UN resolution in 2012⁵⁷ and in signing the Sustainable Development Goals (SDGs) in 2015.⁵⁸ In fact, many leading health agencies including the World Health Organization (WHO) and the World Bank see the attainment of UHC as the best strategy to achieve SDG 3 (Good Health and Well-Being).

Strictly speaking, no country has, or probably ever will, reach a perfect state of universal coverage, where every person receives every conceivable health service they need at optimal quality with no financial hardship. UHC is therefore often likened to a journey rather than a destination. However, it is undoubtedly the case that some countries are closer than others to the goal of ensuring all citizens have adequate access to a reasonable level of services.⁵⁹ This isn't just a function of national wealth, as some middle-income countries are closer to UHC than the world's biggest economy, the United States, where 29 million people still lack health insurance.⁶⁰

⁵⁷ United Nations. *General Assembly, sixty-seventh session, Agenda item 123, Global health and foreign policy (A/67/L.36)*. New York: United Nations, 2012.

⁵⁸ United Nations. *Transforming our world: The 2030 Agenda for Sustainable Development (A/RES/70/1)*. New York: United Nations, 2015.

⁵⁹ The World Health Organization and The World Bank. *Tracking Universal Health Coverage: 2017 Global Monitoring Report*. Washington, D.C.: WHO and WB, 2017.

⁶⁰ National Center for Health Statistics, Center for Disease Control and Prevention. Available at: <https://www.cdc.gov/nchs/fastats/health-insurance.htm>

Extensive research shows that to progress towards UHC, countries need to implement a series of reforms across each of the six building block systems identified by the WHO: service delivery, health workforce, information systems, medicines, financing, and governance.⁶¹

However, of these, it is arguable that the most important reforms (which directly impact on the other five building blocks) relate to health financing, where the traditional rationale for government intervention has been the need to correct massive market failures in the financing of health services. The Nobel Laureate Kenneth Arrow was one of the first people to recognize that consumers of health services risked being exploited by health suppliers because of their lack of medical knowledge.⁶² In an unregulated free market for health services, vulnerable consumers can easily be sold ineffective services or services they do not need, spending unaffordable sums in the process.

The goal of **universal** health coverage makes the case for government intervention in health financing even stronger, because UHC is driven by a fundamental concern for and recognition of the importance of protection, rights, and equity. This is not only due to the universal nature of the goal – that **everyone** should have coverage. It also relates to the requirement that health services should be allocated according to needs, and in ensuring that nobody suffers financial hardship the health system has to be financed according to people's ability to pay. In other words, UHC can only be achieved in a health financing system where healthy and wealthy members of society subsidize services for the sick and the poor.⁶³ A market for health services where people buy and sell services as they chose will not deliver this outcome, since it will leave the poor without access to adequate care when sick.

The equity principles underlying UHC therefore have profound implications for how countries should finance their health systems and, in particular, which financing mechanisms will prove effective, efficient, and equitable in attaining UHC.

The simplest mechanism to finance health care is for people to pay directly for services as they use them through user fees, but there is now a global consensus that out-of-pocket financing is inefficient and grossly inequitable.⁶⁴ This is because in a health system dominated by user fees, only the rich can access the care they need and poorer citizens risk either suffering disastrous health shocks due to lack of care or being plunged into poverty if they do access services. There can be other dire consequences of unaffordable user fees: in some countries with weak governance systems, thousands of people are detained in hospitals when they cannot pay their bills.⁶⁵ This represents a gross violation of their human rights and is a vivid illustration of the failings of a health system where providers are allowed to demand what they like from vulnerable consumers.

⁶¹ World Health Organization. *Everybody's Business: Strengthening Health Systems to Improve Health Outcomes*. Geneva: WHO, 2007.

⁶² Arrow K. "[Uncertainty and the Welfare Economics of Medical Care](#)." *The American Economic Review* 53:5 (1963).

⁶³ Evans DB et al. *The World Health Report. Health Systems Financing – The Path to Universal Coverage*. Geneva: WHO, 2010.

⁶⁴ Robert E and Ridde V. "[Global health actors no longer in favour of user fees: A documentary study](#)." *Global Health* 9:29 (2013).

⁶⁵ Yates R, Whitaker E, Brookes T. *Hospital Detentions for Non Payment of Fees – A Denial of Rights and Dignity*. UK: Chatham House, 2017.

As demand for health care is often unpredictable, infrequent, and expensive, economic theory indicates that insurance mechanisms should play an important role in financing health care. In such systems, people pre-pay into a pooled fund and financial resources only flow out to those requiring services. This is indeed the basis of most other financing mechanisms, but the equity requirements of UHC mean that some insurance mechanisms are more effective than others.

In particular, private voluntary insurance schemes, where people can choose if and when to join and can leave at will, fail to create stable pools of resources where services are allocated according to need and funded according to ability to pay. In a free market for health insurance products there are huge incentives for rich and relatively healthy people to create their own schemes and attempt to exclude the sick and the poor. This tends to leave high-need people in schemes that are financially unviable – a situation known as adverse selection. In the United States, a decision to remove a mandate requiring people to purchase health insurance is already increasing adverse selection, leaving many without insurance and others with higher costs. It has further affected the poorest and sickest demographics, as they no longer have access to subsidies set up under the Affordable Care Act.⁶⁶ This has taken the US further from the UHC goal it agreed to at the United Nations.

The recent experiences of the US highlight the fundamental requirement for an equitable UHC financing system; pooled contributions must be compulsory and progressive. As countries like the United States and South Africa show, in a health system dominated by private insurance, the rich and powerful will not adequately subsidize services for the less privileged. As Dean Jamison, one of the leading authors of the Lancet Commission's *Investing in Health* said in 2013, "The path to UHC cannot work with reliance on voluntary private insurance."⁶⁷

Instead, wealthier members of society must be compelled to contribute more to subsidize the less privileged and as this can only be accomplished through exercising the power of the state and sanctioning those who fail to comply. In other words, only a publicly-governed health financing system can deliver the cross subsidies required for universal coverage. Furthermore, to achieve this outcome there is a major role for the state in overseeing each of the main functions of the financing system: raising revenues, pooling resources, and purchasing services. All these functions need to operate efficiently and equitably to build a health financing system capable of delivering UHC.

The two main public financing mechanisms that governments across the world use to build such a system are financing from general taxation (sourced from all forms of government revenues and allocated through national and local government budget processes) and compulsory social health insurance (progressive payroll taxes paid into a dedicated health insurance fund). In the past, much has been made of the differences between what have been described as the Bismarck (social insurance) and Beveridge (general taxation) models, but in reality, they are very similar. Both rely on compelling wealthier members of society to pay

⁶⁶ Collins R et al. [First Look at Health Insurance Coverage in 2018 Finds ACA Gains Beginning to Reverse](#). New York: The Commonwealth Fund, 2018.

⁶⁷ Lane R. "[Dean Jamison – Putting economics at the heart of global health.](#)" *The Lancet* 382:9908 (2013).

higher amounts into pooled health funds in return for the same level of needs-related care as other members of society.

In fact, some commentators argue that the Bismarck-Beveridge debate is dead⁶⁸ because most countries now use a combination of these compulsory mechanisms to create large pools of public financing, with social insurance schemes in Europe increasing their reliance on general revenue taxes as a source of funds.

What is clear is that every country close to achieving UHC has, at some point in its history, at least partly socialized its health financing system. This has involved replacing inefficient and inequitable private financing with compulsory, progressive public financing. These transitions have tended to be highly political, launched by leaders responding to political pressure from the majority of the population.⁶⁹ This history is shared by all high-income countries (with the exception of the United States and Ireland), and many middle- and even low-income countries, including Thailand, Malaysia, Sri Lanka, Costa Rica, Brazil, and Rwanda. The world's most populous country, China, is a fascinating case; China implemented publicly-financed UHC in the 1950s, lost it when private financing dominated in the 1980s, and is now regaining it using enormous increases in tax financing.⁷⁰

In highlighting the superior performance of public financing, it is important to emphasize that even countries close to UHC also utilize private financing mechanisms, including user fees and private insurance. So long as wealthy people pay their fair contributions into the publicly-governed pool, there is no reason why they shouldn't also be allowed to purchase additional services or voluntary insurance. However, it is vitally important that the services funded by public financing are readily available and of adequate quality to meet the needs of everyone who chooses to use them. If the standard of publicly-financed care is grossly inferior to what can be purchased privately, this can lead to inequitable two-tier systems in which the middle classes always use the private sector and cease to care about the public system.

Social solidarity is essential for the functioning of an equitable UHC financing system and this can only be achieved when the median voter feels they have a stake in sustaining the public system.

⁶⁸ Kutzin J. "[Bismarck meets Beveridge on the Silk Road: coordinating funding sources to create a universal health financing system in Kyrgyzstan.](#)" *Bulletin of the World Health Organization* 87 (2009):549-554.

⁶⁹ Savedoff W et al. [Transitions in Health Financing and Policies for Universal Health Coverage: Final Report of the Transitions in Health Financing Project.](#) Washington: Results for Development Institute, 2012.

⁷⁰ Yip, W et al. "[Early appraisal of China's huge and complex health-care reforms.](#)" *The Lancet* 379:9818 (2012):833-842.

THE COMMUNITY HEALTH WORKER REVOLUTION

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Key Policy Messages

- The greatest revolution in public health today is the rise of the professionalized Community Health Worker (CHW).
- CHWs are most effective when professionalized (remunerated, trained, supervised, and provisioned).
- CHWs are a remarkable bargain, costing \$7 annually per person covered
- The expansion of CHWs, particularly in low-resource settings, is critical to achieving SDG 3.

The greatest revolution in public health today is the rise of the professionalized Community Health Worker (CHW). The evidence is overwhelming that professionalized CHWs can greatly improve health delivery at low cost in countries at all income levels,⁷¹ and are therefore vital to realizing Universal Health Coverage (UHC), a target of Sustainable Development Goal 3, which aims to ensure healthy lives and to promote wellbeing for all at all ages. The recent commitment by African leaders to deploy “2 million African community health workers”⁷² to fight AIDS and other diseases is a breakthrough in the quest for UHC. So too is the launch on October 26th, 2018 of the “WHO guideline on health policy and system support to optimize community health worker programmes,” which marks a critical codification of the basic principles of this newly recognized professional cadre.

CHWs have long played a role in national health programs. China’s public health campaigns of the 1950s and 1960s were enabled by the famous “barefoot doctors.” The 1978 *Alma Ata Declaration*, which called for Health for All by 2000, envisioned the massive deployment of CHWs. Two widely admired, large-scale CHW initiatives were launched during the early part of the Millennium Development Goals (MDGs). One was Ethiopia’s deployment of Health Extension Workers (HEWs), undertaken by Dr. Tedros Adhanom Ghebreyesus, then Minister of Health; the other India’s deployment of Accredited Social Health Activists (ASHAs). Additional work led by Dr. Miriam Were, Vice Chancellor of Moi University in Kenya, and Dr. Henry Perry from Johns Hopkins University, also demonstrated the efficacy of large-scale CHW deployment in Africa and Latin America.

CHWs are local workers, typically with a secondary education, trusted by the community in which they live and serve. In the past, CHWs were volunteers, often with minimal training, supervision and meagre provisions. Compensation, if any, would be gifts from the community.

⁷¹ Perry H, Zulliger R, Rogers M. “[Community Health Workers in Low-, Middle-, and High-Income Countries: An Overview of Their History, Recent Evolution, and Current Effectiveness.](#)” *Annual Review of Public Health* 35 (2014):399-421.

⁷² UNAIDS. [2 million African community health workers](#). Geneva: UNAIDS, 2017.

The concept of CHWs as professionalized health workers – remunerated, trained, supervised, and provisioned – emerged in the early 2000s. One key development was the rapid expansion of mobile phone coverage into remote, low-income, rural communities starting around 2005, which enabled supportive supervision, as well as monitoring via real-time data for policy dashboards and for expert-system guidance. As CHW responsibilities expanded, so too did the need for better training, supervision, and remuneration.

Online tools for CHWs burgeoned after 2010 with the arrival of smartphones programmed with new public-health applications such as Dimagi’s CommCare and other systems. Other new technologies, such as community-based rapid diagnostic tests for many diseases (most notably malaria), and new medicines greatly expanded the effectiveness of CHWs. CHWs gained versatility, with new roles and responsibilities in the continuum of care.

In 2006, the Millennium Villages Project (MVP) introduced professionalized CHWs at Millennium Village sites in ten countries in sub-Saharan Africa. In the MVP context, professionalization meant remuneration, training, supervision, provisioning with mobile phones (ultimately smartphones), information systems, and backpacks with kits of medicines, diagnostics, and other tools. The end line evaluation of the MVP recently published in *The Lancet Global Health* demonstrates the efficacy of the MVP health system, built heavily on the cadre of professionalized CHWs.⁷³

At the World Economic Forum in 2013, the MVP and Columbia University’s Earth Institute launched the *One Million Community Health Worker Campaign (1mCHWc)*.⁷⁴ Novartis’ CEO at the time, Joe Jimenez, joined the program on behalf of Novartis and other companies, and President Paul Kagame of Rwanda represented the MDG Advocates and the UN Broadband Commission. The goal of the *1mCHWc* was to support African nations to mobilize at least 1 million professionalized CHWs across the continent.

The 2014 Ebola epidemic of West Africa further demonstrated the essential role of CHWs. Their relative absence in Liberia, Sierra Leone, and Guinea at the start of the epidemic was one key reason the epidemic spread nearly uncontrolled in the early phase: community health delivery was scant or non-existent in the impacted communities, and communities’ trust of public health institutions was low. Several groups, most notably Last Mile Health in Liberia, Partners in Health in Sierra Leone, and the Earth Institute in Guinea, introduced CHWs for Ebola case management, contact tracing, reporting, surveillance, public awareness, and trust-building between the communities and public health institutions.

The experience led to a further boost of support by African leaders for CHW deployment. Yet, despite the proven success of CHWs and calls for increased international support for CHW financing, the international community did little at that point to step-up its financing of CHWs. In this context, the *1mCHWc* launched a detailed costing of the deployment of CHWs. The

⁷³ Mitchell S et al. “[The Millennium Villages Project: a retrospective, observational, endline evaluation.](#)” *The Lancet Global Health* 6:5 (2018):e500-e513.

⁷⁴ One Million Community Health Worker Campaign. [New Campaign to Train One Million Community Health Workers for sub-Saharan Africa](#). New York: 1mCHWc, 2013.

results, published in *The Bulletin of the WHO*, showed that CHWs are a remarkable bargain, costing \$7 annually per person covered and approximately \$3,750 annually per CHW.⁷⁵

The next breakthrough came with the 2015 decision by Ghana's former President John Mahama to deploy a national cadre of 20,000 CHWs in Ghana, with a stipend paid by the Youth Employment Agency within the Ministry of Employment and Labour Relations. President Mahama recognized the double benefit of a national CHW program in bolstering public health while providing a valuable career path for young secondary school graduates engaged locally in national service. His successor, President Nana Akufo-Addo, Co-chair of the SDG Advocates, has not only continued the program but is complementing it with a national program of tele-medicine for both CHWs and clinics.

UNAIDS is a leading champion of CHW scale up, in recognition of the vital role CHWs play in the implementation of UNAIDS's 90-90-90 program to bring the AIDS epidemic to an end by 2030. The UNAIDS program calls for 90 percent of HIV-infected individuals to know their status through testing; 90 percent of those who know their status to be put on antiretroviral medicines (ARVs); and 90 percent of those on ARVs to successfully suppress their viral load. By 2030, the goal would be to reach 95-95-95. The consequence would be to break the transmission of HIV/AIDS.

CHWs are needed at each step of the 90-90-90 cascade: to identify HIV-infected individuals, to enable them to start ARVs, and to help them adhere to drug regimens. These are tasks for which CHWs are uniquely capable. One can identify comparable unique CHW capacities in other similar disease-control contexts such as malaria control.

For this reason, the leadership of UNAIDS, in conjunction with the *1mCHW Campaign* and the UN Sustainable Development Solutions Network, brought the CHW campaign as a key part of 90-90-90 to African Union (AU) leaders in 2017.⁷⁶ AU leaders endorsed a scale up to *2 Million African community health workers*. In 2019, the AU is considering the establishment of new funding modalities to support CHW scale-up.

Recently, a consortium of philanthropic foundations and funding agencies have pledged \$50 million to scale up 50,000 CHWs in 6 countries with the leadership of Last Mile Health and Living Good, contingent on a matching \$50 million. One question about this initiative is the reported intention of Living Good to develop a cost-recovery model through social marketing of drugs and other health treatments, an approach that has a disappointing record in the past (e.g. in the failed era of social-marketing of anti-malaria bed nets during 2000-2005, before the mass, free distribution of bed-nets that we advocated in the UN Millennium Project, 2005).

An important new paper by Victoria Chou, Henry Perry, and others demonstrates that the expansion of CHWs could avert an astounding 3 million maternal and child deaths (mid-point

⁷⁵ McCord G, Liu A, Singh P. [Deployment of community health workers across rural sub-Saharan Africa: financial considerations and operational assumptions](#). *Bulletin of the World Health Organization* 2012;91 (2013):244-253b.

⁷⁶ UNAIDS. [African Union endorses major new initiatives to end AIDS. Press Statement](#). Geneva: UNAIDS, 2017.

estimate) during 2016-2020 if the CHW cadre is expanded during that interval in 73 high-disease-burdened countries.⁷⁷ The Africa region would be the greatest beneficiary of this global effort, with an estimated 58% of the lives saved. The areas of greatest impact would include “nutritional interventions during pregnancy, treatment of malaria with artemisinin compounds, oral rehydration solution for childhood diarrhoea, hand washing with soap, and oral antibiotics for pneumonia.” One should add the long-term benefits of 90-90-90 as well.

The evidence is also growing that CHWs have a role to play in high-income countries, especially among poor and marginalized communities. These communities often suffer severe disease burdens due to the “social determinants” of health, including drug dependency, disability and chronic unemployment, mental illness, obesity, social marginalization (such as immigrant status), and poverty. CHWs can reach such marginalized individuals; enable them to interact effectively with neighbourhood clinics, hospitals, and social service agencies; help them to adhere to prescription regimens; and help them to address other urgent social needs. Manmeet Kaur of City Health Works in Harlem, New York City, USA, is demonstrating the CHW model in the context of New York’s vulnerable population.⁷⁸

The revolution of professionalized CHWs has therefore begun. We now have the experience base, the burgeoning tools of the ICT revolution, the low cost of CHW systems, the readiness of political leaders to co-invest in CHWs, and the scaling-up of philanthropic contributions. What is still missing is a large-scale, globally coordinated CHW scale-up effort.

We call on the governing boards of the Global Fund to Fight AIDS, TB, and Malaria (GFATM), the Global Alliance for Vaccines and Immunizations (GAVI), the Global Financing Facility in Support of Every Woman Every Child (GFF), the US President’s Plan for Emergency AIDS Relief (PEPFAR), the US President’s Malaria Initiative (PMI) and others, to endorse plans for their respective organizations to channel increased funds towards the rapid scale up of CHW systems. We urge the African Union to establish a special funding mechanism, such as a new AU-supervised trust fund for African health systems, to partner with international donors and UN agencies in this effort.

We also call on individuals with high net worth to join the effort, following the inspiring example of Bill and Melinda Gates. The world’s 2,208 billionaires (identified on 2018 Forbes List) have an estimated combined net worth of \$9.1 trillion dollars.⁷⁹ The annual cost of a fully-funded CHW system for Africa deploying 2 million CHWs is on the order of \$7.5 billion per year, or roughly 0.08% of the combined net worth of these billionaires. It is hard to imagine a better investment on the planet than the CHW scale up endorsed by the African leaders.

⁷⁷ Chou V et al. “[Expanding the population coverage of evidence-based interventions with community health workers to save the lives of mothers and children: an analysis of potential global impact using the Lives Saved Tool \(LiST\)](#).” *Journal of Global Health* 7:2 (2017):020401.

⁷⁸ City Health Works website, <http://cityhealthworks.com>.

⁷⁹ Forbes. [Forbes Billionaires 2018](#). New York: Forbes, 2018.

The **UN Sustainable Development Solutions Network (SDSN)** has been operating since 2012 under the auspices of the UN Secretary-General. SDSN mobilizes global scientific and technological expertise to promote practical solutions for sustainable development, including the implementation of the Sustainable Development Goals (SDGs) and the Paris Climate Agreement.

The **Public Health Foundation of India (PHFI)** is a public private initiative that has collaboratively evolved through consultations with multiple constituencies including Indian and international academia, state and central governments, multi & bi-lateral agencies, and civil society groups. PHFI is a response to redress the limited institutional capacity in India for strengthening training, research and policy development in the area of Public Health.

The **Barcelona Institute for Global Health, ISGlobal**, is the fruit of an innovative alliance between the “la Caixa” Foundation and academic and government institutions to contribute to the efforts undertaken by the international community to address the challenges in global health. The pivotal mechanism of its work model is the transfer of knowledge generated by scientific research to practice, a task undertaken by the institute’s Education and Policy and Global Development departments.

Chatham House, also known as the Royal Institute of International Affairs, is a world-leading source of independent analysis, informed debate and influential ideas on how to build a prosperous and secure world for all. It’s Centre on Global Health Security examines key global health challenges and how they manifest themselves as foreign policy and international affairs problems.





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