





# Strengthening evidence to inform health systems: opportunities for the WHO and partners to accelerate progress on non-communicable diseases

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Non-communicable diseases (NCDs) have a remarkably high burden globally, accounting for 74% of all deaths. Every year 17 million people die from an NCD before the age of 70, and 86% of these premature deaths occur in low-income and middle-income countries (LMICs).<sup>1</sup> The World Health Assembly endorsed the Global Action Plan for the Prevention and Control of NCDs 2013–2020 (NCD-GAP), now extended to 2030, to provide member states, international partners and the WHO with the tools, knowledge and policy options to reduce the impact of NCDs.<sup>2</sup> The NCD-GAP includes a specific objective relating to research for NCD prevention and control, however the midpoint evaluation for the NCD-GAP, published in 2020, found that ‘overwhelmingly, research has been the weakest NCD-GAP objective in terms of implementation.’<sup>3</sup> Progress towards the NCD-GAP and United Nations Sustainable Development Goal (SDG) targets has been slow and hugely disrupted by the COVID-19 pandemic, with only a handful of countries on-track to reach SDG target 3.4—a one-third reduction in premature mortality from NCDs through prevention and treatment by 2030.<sup>1</sup>

Implementation research presents an opportunity to accelerate progress towards SDG targets by scaling cost-effective proven interventions for NCD prevention and management, often referred to as the WHO Best Buys, and there is a strong and urgent need to foster collaboration, develop multi-stakeholder engagement mechanisms, and strengthen the agenda for this research area.<sup>4–6</sup> This commentary (based on the work of the WHO Technical Advisory Group on

## SUMMARY BOX

- ⇒ The World Health Assembly endorsed the Global Action Plan for the Prevention and Control of Non-Communicable Diseases (NCDs) 2013–2020 (NCD-GAP), now extended to 2030. An evaluation of the NCD-GAP, published in 2020, found that research has been the weakest NCD-GAP objective in terms of implementation.
- ⇒ Implementation research, aligned with NCD-GAP, offers a pathway to accelerate progress in scaling cost-effective NCD interventions, demanding collaboration, stakeholder engagement, capacity strengthening and financial investment.
- ⇒ A renewed research agenda for NCDs is needed to answer the important research questions for resource-limited settings. These often relate to the social and commercial determinants of health, prevention of shared risk factors or management within the broader health system and how to implement integrated strategies at the primary healthcare level.
- ⇒ Contextualisation is imperative to translating knowledge into policy and impact. Research agendas should, therefore, be shaped by national and regional priorities.

NCD-related Research and Innovation; see list of members at the end) proposes strategic directions for the WHO and its global partners to enhance research on NCDs (box 1), aligned with the three strategic shifts set out in the 13th Global Programme of Work (2019–2025): stepping up leadership; driving public health impact in every country; and focusing global public goods on impact, and with the Implementation Roadmap for the NCD-GAP, endorsed by the World Health Assembly in 2022.<sup>5,7</sup>

### Box 1 Recommendations for who on non-communicable disease (NCD)-related research to inform policy and practice

1. Global leadership through partnerships and networks:
  - a. Prioritise research, especially implementation research, to improve NCD programme delivery and enhance the capacity of research in countries;
  - b. Use a high level governmental regional/global intersectoral approach to pool resources for science, technology and innovation to improve novel evidence-based pragmatic solutions for SDG outcomes.
  - c. Sensitise global funding agencies on the NCD research needs and gaps.
  - d. Facilitate the development of regional and country strategies for research for NCDs.
  - e. Provide technical support through its collaborating centres at the regional level to build capacity in NCD research.
2. Driving public health impact in every country, addressing current and future health challenges:
  - a. Support member states through WHO country offices to identify national NCD research priorities.
  - b. Build leadership capacity among local researchers and research administrators in low-income and middle-income countries.
  - c. Strengthen data and surveillance capacity at the country level to ensure quality research.
  - d. Train local teams (implementers and researchers) at all levels of healthcare in a country where research is taking place to ensure local ownership and responsibility of the project after the funding period is over.
  - e. Support countries to develop a specific budget allocation for NCD research.
  - f. Support the creation of an enabling environment for research at the national level with strengthening of ethics committee, research infrastructure, research administration capacity and data security.
  - g. Support multicountry research projects, South-South collaborations and sharing of research protocols and outputs, leveraging regional partnerships and expertise.
3. Develop technical products to drive data quality and capacity, and catalyse research and innovation:
  - a. Orient and train WHO staff in implementation science and health policy and systems research.
  - b. Identify a prioritisation framework to assist in the creation of a research agenda.
  - c. Support mapping of the funding landscape for research for NCDs, thereby identifying underutilised funding resources.
  - d. Collaborate on publications in media including social media and peer-reviewed journals on the importance of NCD research.

WHO can strategically support organisations and countries to identify implementation gaps and prioritise their NCD research agenda to reduce the burden of NCDs. Several WHO departments, initiatives and hosted partnerships as well as the Science Division are involved in NCD research, including the Department of Research for Health, the NCD Department including the WHO Rehabilitation 2030 initiative, the Mental Health and Substance Use Department, the Global NCD Platform, the Alliance for Health Policy and Systems Research, the

Human Reproduction Programme and the International Agency for Research on Cancer.<sup>8–11</sup> These departments produce technical products to help guide research prioritisation and identify gaps in NCD research at regional and country level and also conduct implementation research at country level.<sup>12</sup> WHO can also leverage its position and convening power to impact the NCD research agenda at global, regional and national level; highlighting evidence gaps, leading and convening discussions among stakeholders, influencing funders and engaging actors beyond the health sector to advance and sustain gains in NCD targets towards healthier populations.

Research agenda on specific NCDs often focus on discovery science and biopharmaceuticals, largely driven by public and private interests in high income settings.<sup>13</sup> However, critical domains of NCD research such as implementation science and health systems and policy research are frequently neglected, or conducted at small scale. While research in NCDs is predominantly disease specific, the important questions for resource-limited settings often relate to the social and commercial determinants of health, prevention of shared risk factors or management within the broader health system.

For example, technical assistance on integrating NCDs into primary healthcare is one of the most frequent requests to WHO from Member States, and this area represents an opportunity to rapidly improve outcomes through increased awareness, early diagnosis and appropriate treatment, follow-up and rehabilitation of NCDs. The research agenda needs to shift to larger scale studies that can truly inform national strategies, across the continuum of research from public health interventions to the structure and organisation of specific health services. Furthermore, global public health demands and needs would be better served by a shift in emphasis from individual level to structural or systems solutions.<sup>14</sup> For maximum impact and sustainability, implementation science research should cover the entire spectrum of the iterative implementation cycle through needs assessment, cocreation and contextualisation of novel interventions, through communication for coimplementation and evaluation of impact.<sup>15</sup>

NCD research suffers from a lack of equitable funding. There is a discrepancy between the NCD disease burden and research activity, particularly in LMICs; for example, a recent systematic review found that 37% of implementation science research in LMICs concerned cervical cancer, which accounts for 0.35% of disability-adjusted life-years, while 8% concerned hypertension, the leading risk factor for the top two global causes of death: ischaemic heart disease and stroke.<sup>16</sup> Research funding is dominated by high income funding organisations and industry, structured along disease-specific lines, with negligible focus on the health systems and policy research that is much needed in resource limited settings.<sup>13</sup> To attract funding, both domestic and external, and encourage investment in disproportionately unfunded NCD research areas, a compelling business case must be made for the return

on investments.<sup>17</sup> While the benefits of implementing the Best Buy interventions for NCDs have been clearly set out, there is a need to focus implementation research on scaling up interventions to tackle the high burden diseases, in low-income settings.<sup>18</sup>

Capacity building is essential to expand and strengthen NCD research, especially in LMICs. Often capacity building resources are more readily available for programme implementation than they are for research. Such capacity building should be focused on building a framework that addresses four key elements: (1) target group, (2) level of engagement (individual, organisational and institutional), (3) duration and (4) current research skills and experience. Many organisations are currently involved in research capacity building—it is vital to foster infrastructural and institutional capacity by building on shared learning from previous experience, creating support networks and by empowering research teams from LMICs to access relevant training resources.<sup>19</sup> Capacity strengthening should focus both on developing education and training strategies and resources, and on building research infrastructure to support research activities. An example is the Global Initiative for Cancer Registry Development, which aims to improve the quality and availability of data on cancer in children, particularly in resource-limited settings.<sup>20</sup>

Accountability and sustainability of research are essential, though these areas are often unaddressed and neglected. To avoid knowledge loss, consideration must be given to scaling up and sustaining interventions. This can be done by moving from pilot studies to larger-scale implementation studies, identifying ways to continue learning from research after funding is completed, and involving implementors and end-users of the research in the study process. Formal cost-effectiveness and budget impact analyses are also important to engage policy-makers. Bodies with convening power, such as WHO collaborating centres and hosted partnerships (ie, Alliance for Health Policy and Systems Research), can help build relationships between policy-makers, ministries of health, public service providers, the private sector, NGOs and researchers to facilitate intersectoral collaboration.

There are challenges to bringing research into the agendas of Ministries of Health. Research agendas should be shaped by national and regional priorities and capacities, and be comprehensive and evidence based; therefore, contextualisation is imperative to translating knowledge into policy and impact. Additionally, public and private research organisations, civil society, private companies, bilateral donors, and philanthropic entities all are involved in setting the NCD research agenda. This makes for a complex global context in which a lead agency can be challenged as it hopes to influence change. A first step could be to promote an approach to embed and fund implementation research alongside all NCD programme and policy development.

Implementation research is highlighted in the Implementation Roadmap 2023-2030 for the NCD-GAP as

part of the strategy to accelerate progress towards the NCD-GAP targets and SDG target 3.4.<sup>5</sup> Implementation research is key to sustaining and scaling up proven interventions, determining implementation challenges (eg, feasibility, acceptability, coverage, fidelity) in settings with different populations and resources, and providing context-specific answers on how to implement policies and interventions for maximum impact. A subgroup of the technical advisory group is focused on supporting NCD-related implementation research at the country level. This subgroup will leverage existing global and regional networks, to facilitate technical expertise and mentorship for key partners wishing to embed implementation research into their implementation of new policies, programmes and practice.

While resources for NCD prevention and control programmes must be enhanced in most countries (more money for health), better impact can be achieved at every level of resource allocation, through efficiency gains which can accrue from improved allocation and utilisation of available resources (more health for the money). Implementation research can help identify how this can be achieved and make it attractive to policy-makers.

Strong research agendas are critical to mitigating NCD burden globally. As a global leader, WHO can facilitate collaboration and coordination, and help promote the building of multidisciplinary research capacity and capability in Implementation Science/Health Policy & Systems Research (IS/HPSR) across multisectoral organisations and nations (panel 1). WHO can also drive public health globally to address current and future public health challenges by supporting its member states to identify, fund; and build capacity for national-level NCD research and develop technical products that drive data quality and capacity, and catalyse research and innovation. With focused and evidence-based support from WHO, NCD research can effectively address the most pressing public health burden and challenges of today.

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## REFERENCES

- World Health Organization. *Invisible Numbers: The True Extent of Noncommunicable Diseases and What to do About Them*. Geneva: World Health Organization, 2022. Available: <https://apps.who.int/iris/handle/10665/362800>
- World Health Organization. *Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020*. Geneva: World Health Organization, 2013. Available: <https://www.who.int/publications/i/item/9789241506236>
- World Health Organization. *Mid-Point Evaluation of the Implementation of the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020 (NCD-GAP)*. Geneva: World Health Organization, 2020. Available: [https://www.who.int/publications/m/item/mid-point-evaluation-of-the-implementation-of-the-who-global-action-plan-for-the-prevention-and-control-of-noncommunicable-diseases-2013-2020-\(ncd-gap\)](https://www.who.int/publications/m/item/mid-point-evaluation-of-the-implementation-of-the-who-global-action-plan-for-the-prevention-and-control-of-noncommunicable-diseases-2013-2020-(ncd-gap))
- World Health Organization. *Tackling NCDs: 'Best Buys' and Other Recommended Interventions for the Prevention and Control of Noncommunicable Disease*. Geneva: World Health Organization, 2017. Available: <https://apps.who.int/iris/handle/10665/259232>
- World Health Organization. *Draft Implementation Road Map 2023-2030 for the Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2030*. Geneva: World Health Organization, 2022. Available: [https://apps.who.int/gb/ebwha/pdf\\_files/WHA75/A75\\_10Add8-en.pdf](https://apps.who.int/gb/ebwha/pdf_files/WHA75/A75_10Add8-en.pdf)
- Marten R, Mikkelsen B, Shao R, et al. Committing to implementation research for health systems to manage and control non-communicable diseases. *Lancet Glob Health* 2021;9:e108-9.
- World Health Organization. *The Thirteenth General Program of Work, 2019-2023*. Geneva: World Health Organization, 2019. Available: <https://apps.who.int/iris/bitstream/handle/10665/324775/WHO-PRP-18.1-eng.pdf>
- WHO. Global Observatory on health R&A. n.d. Available: <https://www.who.int/observatories/global-observatory-on-health-research-and-development>
- World Health Organization. *Strategy on Health Policy and Systems Research: Changing Mindsets*. World Health Organization, 2012. Available: <https://ahpsr.who.int/publications/i/item/2015-07-15-who-strategy-on-health-policy-and-systems-research>
- Cieza A, Kwamie A, Magaqa Q, et al. Framing rehabilitation through health policy and systems research: priorities for strengthening rehabilitation. *Health Res Policy Syst* 2022;20:101.
- World Health Organization. *A Blueprint for Dementia Research*. Geneva: World Health Organization, 2022. Available: <https://www.who.int/publications/i/item/9789240058248>
- World Health Organization. *A Systematic Approach for Undertaking A Research Priority-Setting Exercise: Guidance for WHO Staff*. World Health Organization, 2020. Available: <https://apps.who.int/iris/handle/10665/334408>
- Pramesh CS, Badwe RA, Bhoo-Pathy N, et al. Priorities for cancer research in low- and middle-income countries: a global perspective. *Nat Med* 2022;28:649-57.
- Chater N, Loewenstein GF. The I-frame and the s-frame: how focusing on individual-level solutions has led behavioral public policy astray. *Behav Brain Sci* 2022;46:e147.
- Owolabi M, Miranda JJ, Yaria J, et al. Controlling cardiovascular diseases in low and middle income countries by placing proof in pragmatism. *BMJ Glob Health* 2016;1:e000105.
- Hategeka C, Adu P, Desloge A, et al. Implementation research on noncommunicable disease prevention and control interventions in Low- and middle-income countries: a systematic review. *PLoS Med* 2022;19:e1004055.
- Bertram MY, Sweeny K, Lauer JA, et al. Investing in non-communicable diseases: an estimation of the return on investment for prevention and treatment services. *Lancet* 2018;391:2071-8.
- World Health Organization. *Saving Lives, Spending Less: A Strategic Response to Noncommunicable Disease*. Geneva: World Health Organization, 2018. Available: <https://www.who.int/publications/i/item/9789240041059>
- Reeder JC, Guth JA. What have we learned from 40 years of supporting research and capacity building? *PLoS Negl Trop Dis* 2015;9:e3355.
- Piñeros M, Mery L, Soerjomataram I, et al. Scaling up the surveillance of childhood cancer: a global roadmap. *J Natl Cancer Inst* 2021;113:9-15.