

**Building momentum
for change through the G20**

BETTER DATA FOR BETTER NCD FINANCING



Acknowledgements

This report was authored by Adrian Gheorghe, PhD (independent consultant) with inputs from Marijke Kremin, Alison Cox, and Douglas Mushing (NCD Alliance) and made possible with the support of Merck MSD.

It is based on a review of published and grey literature and key informant interviews with NCD experts and advocates. A draft of this report was peer-reviewed by Dr. Bruno Meessen, WHO Health Economics and Financing Unit; Prof. Stephen Jan, George Institute for Global Health and University of New South Wales; Dr. Rachel Nugent, Independent Consultant; Dr. Beverley Essue, University of Toronto; and Dr. David Watkins, University of Washington.

© 2024 NCD Alliance

Published by the NCD Alliance

Editorial coordination: Marty Logan and Jennifer Bajdan

Design, layout and infographics: Mar Nieto



NCD Alliance

31-33 Avenue Giuseppe Motta
1202 Geneva, Switzerland

www.ncdalliance.org

Contents

| | |
|---|-----------|
| Acknowledgements | 2 |
| List of figures | 4 |
| Abbreviations | 4 |
| Executive summary | 5 |
| 1 Introduction | 7 |
| 2 Methodology | 9 |
| 3 NCDs in the G20 | 10 |
| 4 Data on public spending for NCDs across the G20 | 13 |
| 4.1. Resource commitments for NCDs | 14 |
| 4.2. Resources spent on NCDs | 18 |
| 4.2.1. Overall NCD expenditure | 18 |
| 4.2.2. NCD expenditure by condition | 20 |
| 4.3. Qualitative insights from key informant interviews | 23 |
| 5 Building momentum for change by measuring and reporting NCD spending | 24 |
| 5.1. The current state of play for NCD financing data in the G20 | 24 |
| 5.2. The argument for better NCD financing data across the G20 | 26 |
| 5.3. The way forward | 27 |
| Appendix 1. Classification of conditions and their global disease burden (2019) | 30 |
| Appendix 2. Methodological details | 31 |
| Appendix 3. Detailed results from the desk review | 34 |
| Works cited | 39 |

List of figures

| | |
|---|----|
| Figure 1. Health expenditure by financing scheme across the G20 | 11 |
| Figure 2. GDP per capita and premature NCD mortality by G20 membership, 2019 | 12 |
| Figure 3. Entry points for improving and increasing financing for NCD and mental health | 28 |

List of tables

| | |
|---|----|
| Table 1. Overview of progress towards SDG 3.4 across the G20 (2015-2019) | 12 |
| Table 2. Availability of data for public spending on NCDs across the G20 | 13 |
| Table 3. Typology of NCD-specific information in national health budgets across the G20 | 15 |
| Table 4. Budget allocations for NCDs in a selection of G20 members | 16 |
| Table 5. Preventive care spending in European G20 members (2019, EUR billion) | 18 |
| Table 6. Spending levels on NCDs across the G20 | 22 |
| Table 7. Qualitative overview of identified data sources for public spending on NCDs across the G20 | 25 |
| Table 8. What the G20 can do to improve NCD financing data | 29 |
| Appendix | |
| Table 1. NCD spending data as reported in identified sources (original currencies) | 38 |

Abbreviations

| | | | |
|--------------|----------------------------------|-------------|---|
| AUD | Australian dollar | NCD | Noncommunicable disease |
| CAD | Canadian dollar | NCDA | NCD Alliance |
| CVD | Cardiovascular disease | NHS | National Health Service |
| DALY | Disability-adjusted life year | OECD | Organization for Economic Cooperation and Development |
| EU | European Union | PHC | Primary health care |
| EUR | Euro | SDG | Sustainable Development Goals |
| GBP | British pound | SHA | System of health accounts |
| JPY | Japanese yen | US\$ | United States dollar |
| KII | Key informant interview | WHO | World Health Organization |
| LMICs | Low- and middle-income countries | ZAR | South African rand |
| MXN | Mexican peso | | |

EXECUTIVE SUMMARY

Only a few countries are on track to meet Sustainable Development Goal (SDG) 3.4 to reduce NCD premature mortality (between the ages of 30 and 70) by one third by 2030. The WHO Global NCD Action Plan calls for adequate, predictable, sustained, efficient, and equitable financing for NCDs. Appropriate data that measures NCD spending are integral to achieving this vision. This report analyses publicly available information on public spending for NCDs, summarises what data is available and identifies data gaps to increase the awareness of NCD funding for policymakers.

The focus is on G20 members, which represent the world's largest economies, three-quarters of the global NCD burden and, as the world's premier forum for the promotion of multilateral economic cooperation, are uniquely positioned to accelerate global investment for NCDs. Despite comprising most of the world's health spending, the majority of G20 members are not on track to meet SDG 3.4. Progress on NCDs is also essential for advancing key areas of the global and G20 policy agendas such as poverty reduction, fiscal sustainability and healthy aging.

Data sources were identified through an extensive desk review which comprised searching national sources for each G20 member; regional and global sources (e.g., international organisations such as the WHO and development banks); and academic literature. Where quantitative data was available, spending amounts were extracted and converted from currencies in which they were reported into International US\$ 2021 values for comparability. Key informant interviews were also conducted with organisations in the NCD Alliance network to gather information on how NCD care is financed in terms of funding sources, amounts, and financing mechanisms – with a focus wherever possible on cancer, cardiovascular disease, and diabetes; and to clarify country-specific data sources identified in the desk review, where needed and possible.

The report identified only one example of routinely published, granular public expenditure data covering all NCDs (and all conditions for that matter) – which was **Wales** in the United Kingdom. It also identified several examples of government-led, condition-specific spending exercises conducted at various time intervals where the public component cannot be separated, based on published information (**Australia, Canada, Germany, Japan**) and several one-off exercises i.e., research studies for **Argentina, Brazil, France, Germany, Korea Republic, Mexico,** and the **United States**.

As such, the data landscape of public spending for NCDs appears varied across the G20. **Data is available to an extent, more so for general resource commitments (usually in the form of annual budget allocations, presented partially) than for actual spending on NCDs.** Every type of data source has strengths and weaknesses in terms of breadth of NCDs considered, uniform methodology and reporting, granularity, availability across the G20 and periodicity (see table below) for a qualitative summary of these dimensions across the identified sources.



SUSTAINABLE DEVELOPMENT GOALS

| Type of spending information | Resource commitments for NCDs | | Actual expenditure on NCDs | | |
|------------------------------|-------------------------------|----------------|----------------------------|------------------|-------------------------|
| | Strategic documents | Health budgets | Government publications | Research studies | International databases |

DIMENSION OF INTEREST

| | | | | | |
|---|----------|----------|----------|----------|----------|
| Breadth of NCDs included | High | Variable | High | High | High |
| Uniform methodology and reporting | Variable | Variable | Variable | Variable | High |
| Granularity e.g., spending by condition, by population groups, by function. | Variable | Variable | High | High | Low |
| Availability across the G20 | Low | High | Low | Low | Low |
| Periodicity | Low | High | Variable | Low | Variable |

The report proposes **three high-level priorities** to advance NCD financing:

1. Improving the availability of data on financial resources for NCDs;
2. Improving the comparability and timeliness of NCD financing data by developing and adopting a uniform reporting standard; and
3. Improving the adequacy and efficiency of NCD financing by institutionalising the use of NCD financing data in resource allocation decisions.

G20 governments can advance these priorities by:

- Analysing and integrating NCD financing data across all relevant institutions and financing lines, including across administrative levels and continuum of care components, with a view to increasing the availability of NCD financing data.
- Engaging in condition-specific resource tracking, focusing on NCDs, as part of National Health Accounts exercises, with a view to improving data comparability.
- Institutionalising time-bound processes for collecting, analysing and disseminating NCD financing data.
- Using data to establish a baseline for NCD spending and to inform targeted increases aligned with specific policy objectives.

NCD researchers and advocates in the G20 can also contribute to this agenda by asking governments to:

- Publish available NCD financing data across all institutions and financing lines with an NCD remit in their settings.
- Make explicit the methodologies for collecting, analysing and integrating NCD financing data, with a view to improving clarity on the usefulness, strengths, and limitations of available data.
- Make available sufficiently granular NCD financing data for priority areas (e.g., prevention, best-buy interventions, priority conditions) and across the continuum of care components.
- Commit to predictable timelines for making NCD financing data available with a view to improving its periodicity.
- Commit to specific, targeted increases in resources for NCDs based on available data.

At a higher level, G20 structures such as the Joint Task Force on Finance and Health and upcoming G20 presidencies should elevate the profile of sub-optimal NCD financing data as part of an effort to make meaningful progress on the NCD agenda, but also to capitalise on the immediate synergies with existing G20 priority areas and structures, such as digital health, poverty reduction, and fiscal sustainability.

Implementing these recommendations is crucial for achieving the goals of the Global NCD Action Plan. They would lay the groundwork for generating a credible base of NCD financing and for charting a realistic course toward having sufficient resources available and allocated efficiently and equitably, ultimately leading to better health outcomes and a reduction in the global NCD burden.

1

INTRODUCTION

Noncommunicable diseases, including mental health and neurological conditions, (NCDs) are responsible for 41 million deaths every year, representing three in every four deaths worldwide (World Health Organization n.d.). Seventeen million deaths from NCDs occur between ages 30 and 69, with most of them (86%) in low- and middle-income countries (LMICs) (World Health Organization 2023). The top five NCDs alone – cardiovascular disease, chronic respiratory disease, cancer, diabetes, and mental health conditions – were estimated to inflict nearly US\$ 2 trillion in economic losses every year between 2010 and 2030 (Bloom, et al. 2011); this is comparable to the total output of France’s economy.

Sustainable Development Goal (SDG) 3.4 calls for the reduction of premature mortality from NCDs by one-third (33.3%) by 2030 from 2015 levels, measured by the probability of dying (mortality rate) between ages 30 and 70 years from cardiovascular disease, cancer, diabetes, or chronic respiratory diseases (World Health Organization n.d., World Health Organization n.d.). The World Health Organization (WHO) estimates that the global annual rate of reduction so far is just under 1% per year (or 3.8% between 2015 and 2019) (United Nations Department of Economic and Social Affairs n.d.), slower than the global reduction of NCD premature mortality between 1990 and 2017, which was, on average, 1.3% annually (Martinez, et al. 2020). Moreover, after accounting for population growth and aging, the burden of NCDs as captured by age-standardised, disability-adjusted life years (DALYs) has been decreasing, on average, by only half as much as it has been for communicable, maternal, neonatal, and nutritional diseases between 2010 and 2021 (6.4% compared to 12.9%) (Ward and Goldie 2024). Overall, global progress in reducing NCD premature mortality is slow and appears to be slowing further.

Action against NCDs will take additional resources but offers high returns on investment. The Lancet NCD Countdown 2030 estimated that most LMICs could achieve SDG 3.4 (and all could make substantial progress) by scaling up tailored selections from a menu of 21 cost-effective interventions; this could help prevent about 39 million deaths by 2030 and yield economic returns of US\$ 2.7 trillion, for an average benefit-cost ratio of 19:1 (NCD Countdown 2030 Collaborators 2022). WHO estimated that scaling up 16 NCD ‘best buy’ interventions in low- and lower-middle-income countries would return by 2030 at least US\$ 7 for every dollar spent in increased employment, productivity, and longer life, while saving 7 million lives and generating US\$ 230 billion in economic value (World Health Organization 2021).

1. INTRODUCTION

Continued global leadership and greater action on NCDs will be essential to ensuring that all countries appropriately prioritise and invest in NCD prevention and care in the coming decades. However, three United Nations High-Level Meetings to date appear to have had little effect on domestic and global health funding for NCDs (Akselrod, et al. 2023) – the latter was estimated by the Institute of Health Metrics and Evaluation to be less than 2.1% of total development assistance for health in 2022 (Institute for Health Metrics and Evaluation 2024), but it may be as low as 0.8% (NCD Alliance and Global Alliance for Tobacco Control 2024).

The NCD Global Action Plan, adopted by the World Health Assembly (resolution WHA66.10), proposes among the policy options for Member States to “strengthen the provision of adequate, predictable, and sustained resources for prevention and control of noncommunicable diseases and for universal health coverage, through an increase in domestic budgetary allocations, voluntary innovative financing mechanisms, and other means, including multilateral financing, bilateral sources, and private sector and/or nongovernmental sources” (World Health Organization 2013). The financing working group of the NCD Global Coordination Mechanism similarly recommended that Member States “mobilise and allocate significant resources to attain the NCD-related targets” and “effectively and efficiently utilise and expand domestic public resources to implement national NCD responses, including by making greater use of revenue from tobacco and other health-related taxes to achieve national health objectives” (World Health Organization 2018).

What gets measured, gets managed. Currently, both the extent to which governments allocate resources for NCDs in line with the global calls referred to above and the extent to which appropriate data is available to inform such allocations are unclear. Greater information is needed to articulate more effectively “how” and “how much” to invest in the NCD response. Understanding what types of data are available is the first step towards assessing the appropriateness, predictability, comparability, and efficiency of resource allocation for NCDs.

This report analyses publicly available information on public spending for NCDs, summarises what data is available and identifies data gaps to increase the awareness of NCD funding for policymakers. The focus is on G20 members for several reasons. The G20 members combined account for about 75% of the global burden of NCDs. The G20 represents the world’s largest economies, and NCD financing data is expected to be available to a greater extent than in other settings, which can inspire lesson learning and practice sharing. Furthermore, as the world’s premier forum for the promotion of multilateral economic cooperation, and one whose members have diverse healthcare systems and financing approaches, the G20 is uniquely positioned to accelerate investment for NCDs. From working to stabilise the global economy following the 2008 financial crisis, to helping galvanise resources to help combat the COVID-19 pandemic and climate change, to promoting centralised hubs in important areas like infrastructure, antimicrobial resistance, and value-based healthcare, the **G20 has already demonstrated its ability to coalesce stakeholders around shared objectives and ensure member countries follow through on commitments.** Actions taken by the G20 could help shape the decision-making of non-G20 governments, providing policymakers with important cues and guidance on how to best formulate their respective national NCD policies.

2

METHODOLOGY

The principal aim of the report was to answer the question, “What data on public spending for NCDs is publicly available across the G20?”.

The related questions are:

- What types of data sources are available and what type of information do they report?
- To what extent does data cover the entire NCD spectrum, is granular, regularly published, and comparable across the G20?
- To what extent does available data on NCD spending allow setting NCD spending targets?

A broad definition of NCDs has been taken to cover all Group 2 conditions (World Health Organization 2020) within the International Classification of Diseases codes (**Appendix 1**). Specific examples were sought wherever possible for cardiovascular diseases, cancer, and diabetes. Two aspects of “public spending” on NCDs were examined: committed/allocated resources, which reflect primarily the extent to which public resources follow policy priorities, and actual spending on NCDs, which reflects primarily the extent to which resources are spent as intended. NCD spending across the continuum of care was considered, from prevention and early detection through post-treatment. “NCD spending” refers to activities or services that can be mapped across the continuum of care and excludes spending on biomedical or health services research. Private domestic expenditure (e.g., out-of-pocket payments, private health insurance) and development assistance for health channelled off-budget were not included.¹

Data sources were identified through an extensive desk review which comprised searching: national sources for each G20 member; regional and global sources (e.g., international organisations such as the

WHO and development banks); and the academic literature. Details of the search strategy are in **Appendix 2**. Sources were retained for analysis if they reported explicitly and unambiguously public spending information on one or more NCDs in a G20 member at the national level, i.e., not limited to sub-national units such as provinces or states.

Where quantitative data were available, spending amounts were extracted and converted from currencies in which they were reported into Int!\$ 2021 values using the CCEMG–EPPI Centre Cost Converter (University College London - Evidence for Policy & Practice Information Centre 2024).²

Key informant interviews (KIIs) were also conducted with organisations in the NCD Alliance (NCDA) network, primarily working in a G20 member country in NCD advocacy. The aim was to conduct one interview per country. Interviews aimed to gather information on how NCD care is financed in terms of funding sources, amounts, and financing mechanisms – with a focus wherever possible on cancer, cardiovascular disease, and diabetes; and to clarify country-specific data sources identified in the desk review, where needed and possible (**Appendix 2**).

Findings were summarised narratively in terms of the type of NCD spending information and its availability across the G20, coverage of NCDs, comparability of methods and reporting, and granularity. Gaps were identified and recommendations were formulated to the G20 governments, as well as for advocates and researchers, on how to bridge these gaps.

1 This decision has been made to keep the focus on public spending for health services. The other listed areas are nevertheless important, particularly private spending with a view to financial protection, and exploring data sources for them could benefit from targeted exploration in further research.

2 The International dollar (Int!\$) is a hypothetical currency unit that is designed to capture differences in relative prices across different settings; to convert a currency unit to international dollars, a purchasing power parity (PPP) exchange rate is used, which represents the number of units of a country's currency required to buy the equivalent quantity of goods and services as that which US\$ 1 can buy in the United States (Turner, et al. 2019).. PPP values from the International Monetary Fund were used in currency conversions. It can be argued that International US\$ are more useful for comparing actual costs than budget allocations; exchange rates rather than PPP rates may be more appropriate for the latter. Considering that most of the quantitative data presented in the report refers to actual spending and that PPP rates are more stable over time than exchange rates, International US\$ have been used throughout.

3

NCDS IN THE G20

G20 members share similarities, but also fundamental differences in terms of NCD burden and health system financing, which need to be accounted for before examining NCD spending information in the next section.

The G20 represents the world's 20 largest economies, accounting for more than 75% of the world's output as measured by the gross domestic product (GDP), about 70% of deaths and DALYs attributable to NCDs, and nearly two thirds of the world's population. The G20 also accounts for more than 90% of the world's health spending from public domestic sources.

The G20 is also a diverse group of countries. The 19 individual members alone, excluding the European Union (EU) and African Union, span five continents and three income groups; two-thirds have a federal or devolved form of government. Their health systems feature a range of health financing arrangements: in some, social health insurance dominates (e.g., France, Germany, Japan); in others, healthcare is predominantly financed through general taxation (e.g., United Kingdom, Italy, Saudi Arabia); and in others, voluntary private health insurance plays an important role (e.g., Brazil, South Africa), while reliance on out-of-pocket payments varies considerably from under 10% to more than 40% (Figure 1).

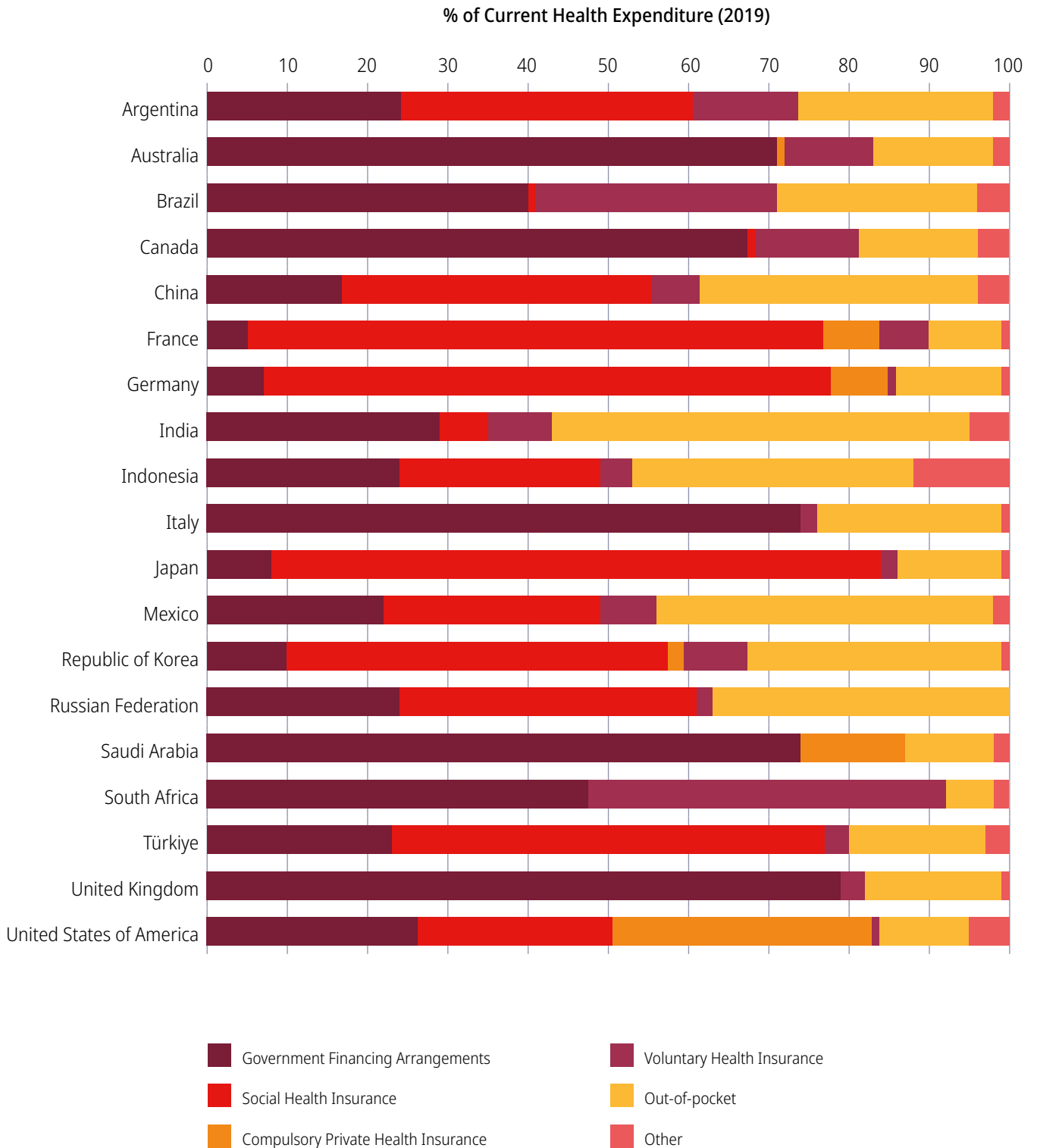
Moreover, the extent to which health is a priority in public spending, measured by the share of domestic health expenditure in general government expenditure, ranges from under 10% in some G20 members to over 20% in others. This variability must be borne in mind when examining the G20 as a group. Its economic diversity may be a uniting feature, but members' public administration, health systems, and health financing structures are organised differently.

The burden of NCDs also varies across the G20. The age-standardised mortality attributable to NCDs ranges from as high as 6.6 to as low as 2.3 per 1,000 population. The risk of premature death due to NCDs also ranges from 25% to under 10%; however, these variations are in line with the level of economic development as measured by GDP per capita across the world (Figure 2).

NCD premature mortality across G20 members was 16% in 2015, about 5% lower in absolute terms, or about 25% lower in relative terms, than non-G20 members (Table 1). By 2019, the latest year for which data is available, the average unweighted progress across countries was comparable in absolute terms across G20 and non-G20 members, amounting to about 1% absolute decrease. Given that the baseline mortality for NCDs was lower in the G20, this translates into a more substantial (and statistically significant) average relative decrease in NCD premature mortality among G20 members than in other countries (6.3% vs 4.1%).

In other words, the G20 as a group appears to have improved NCD premature mortality somewhat more than non-G20 members between 2015 and 2019. Also, all G20 members made progress during this relatively short time span, ranging from an absolute reduction of 0.1% (Mexico) to as much as 4.7% (South Africa); among the 164 non-G20 countries for which data are available, 138 countries (about 85%) made progress over the same period. The NCD Countdown 2030 report projected, based on 2010-2016 trends in NCD premature mortality, that only one G20 member – South Korea – was on track to achieve SDG 3.4 by 2030 (NCD Countdown 2030 collaborators 2020).

Figure 1. Health expenditure by financing scheme across the G20



Source: Data for 2019 in the [WHO Global Health Expenditure Database](#).

Figure 2. GDP per capita and premature NCD mortality by G20 membership, 2019**Table 1.** Overview of progress towards SDG 3.4 across the G20 (2015-2019)

| NCD premature mortality, defined as the unconditional probability of death due to cardiovascular diseases (CVD), cancer, diabetes and chronic respiratory disease between ages 30-70 (%) | | | |
|--|-------------|-------------|--|
| | 2015 | 2019 | Relative reduction from 2015 to 2019 (%) |
| G20 MEMBERS | | | |
| Mean (median) | 16.0 (15.7) | 14.9 (15.5) | -6.3 (-4.6) |
| NON G20 MEMBERS | | | |
| Mean (median) | 21.3 (21.5) | 20.4 (20.8) | -4.1 (-3.7) |

Notes: Data from the [WHO Global Health Indicators](#) referring only to the 19 individual G20 members, excluding the European Union and African Union; data are unweighted.

4

DATA ON PUBLIC SPENDING FOR NCDs ACROSS THE G20

This section summarises the information identified on public spending for NCDs across the G20, with detailed, country-specific findings presented in Appendix 3.

Overall, data could be identified in the public domain on resources committed for NCDs, usually in the form of health budgets. Data on resources actually spent for NCD prevention and control was available to a lesser

extent across the G20, but across more types of data sources e.g., research studies, government reports, and international databases (Table 2).

Table 2. Availability of data for public spending on NCDs across the G20

| | Committed spending | Actual spending | | |
|----------------|--------------------|--------------------|------------------|-------------------------|
| | Health budgets* | Government sources | Research studies | International databases |
| Australia | Yes | Yes | | |
| Argentina | Yes | | Yes** | |
| Brazil | Yes | | Yes** | |
| Canada | Yes | Yes** | | |
| China | | | | |
| France | Yes | | Yes*** | |
| Germany | Yes | Yes** | Yes** | |
| India | Yes | | | |
| Indonesia | | Yes | | |
| Italy | Yes | | | |
| Japan | Yes | Yes** | | |
| Korea Republic | Yes | | Yes** | |
| Mexico | Yes | | Yes** | |
| Russia | | | | |
| Saudi Arabia | | | | |

4. DATA ON PUBLIC SPENDING FOR NCDs ACROSS THE G20

| | Committed spending | Actual spending | | |
|----------------|--------------------|--------------------|------------------|-------------------------|
| | Health budgets* | Government sources | Research studies | International databases |
| South Africa | Yes | | | Yes |
| Turkey | | | | |
| United Kingdom | | Yes | | |
| United States | Yes | | Yes | |
| European Union | Yes | Yes | Yes | |
| African Union | | | | Partially |

Notes:

* In the “Health budgets” column, “Yes” refers to national-level/federal health budgets which include at least one explicit appropriation for an NCD-related activity or healthcare delivery institution e.g., cancer institute.

** For information only – none allow discerning expenditure from public sources only.

*** For France, the research study is published by authors affiliated with a government institution and is informed by official government data, therefore it could also be considered “official government publication”.

4.1. Resource commitments for NCDs

Two types of data sources for resources committed for NCDs were identified: health budgets³ and NCD strategy documents e.g., investment cases, strategies, or action plans. National-level health budgets were publicly available for nearly all G20 members, but with substantial variability in terms of the type of information presented, its format, and its specificity to NCDs.

Table 3 summarises the types of instances encountered, and even these should be interpreted with caution because of potentially important differences in the amount and detail of the information provided in budgets even across countries in the same typology.

In about half of G20 members, at least one specific budgetary allocation for an explicit, NCD-related initiative or programme could be identified – this may be as concise as an NCD sub-programme without a wealth of detail of what it aims to deliver (e.g., **South Africa**), to a large number of NCD-related initiatives spread across different types of programmes and priority areas (e.g., **Australia, United States**). In the other G20 members, NCD-specific allocations could not be identified for various reasons, even if

the budgets themselves were available. Public sector finance management rules and health financing arrangements (e.g., how health service providers are paid) influence what information is available in budget documents and how it is presented. In some countries, for instance, budgets are formulated and presented using the so-called economic classification, which details allocated resources by their type (e.g., salaries, goods and services) not by their destination (e.g., NCD prevention), which makes it difficult if not impossible to discern NCD-related allocations even if they do inform budget formulation.

National-level health budgets have limitations for identifying NCD-specific commitments. The organisation of the health system and the nature of the health financing system determine to an important extent what is and is not included in the health budget. Moreover, in countries with a federal model of government where health is a state or provincial responsibility (e.g., India), looking at the federal budget (as this study did) only captures a part of the resource allocation picture as state budgets have a very important role to play.

3 For an advocacy audience, it is useful to acknowledge that the health budget presents information on how public resources are used – in essence, what is being funded, by how much, and how it will be financed. The public budget is an essential policy instrument, as it signals the extent to which public resources are directed towards recognised priorities. Moreover, in most countries it has the highest possible legitimacy as it is often ratified by the legislature. Usually, the budget operates on a yearly cycle, although the calendar start date varies across countries.

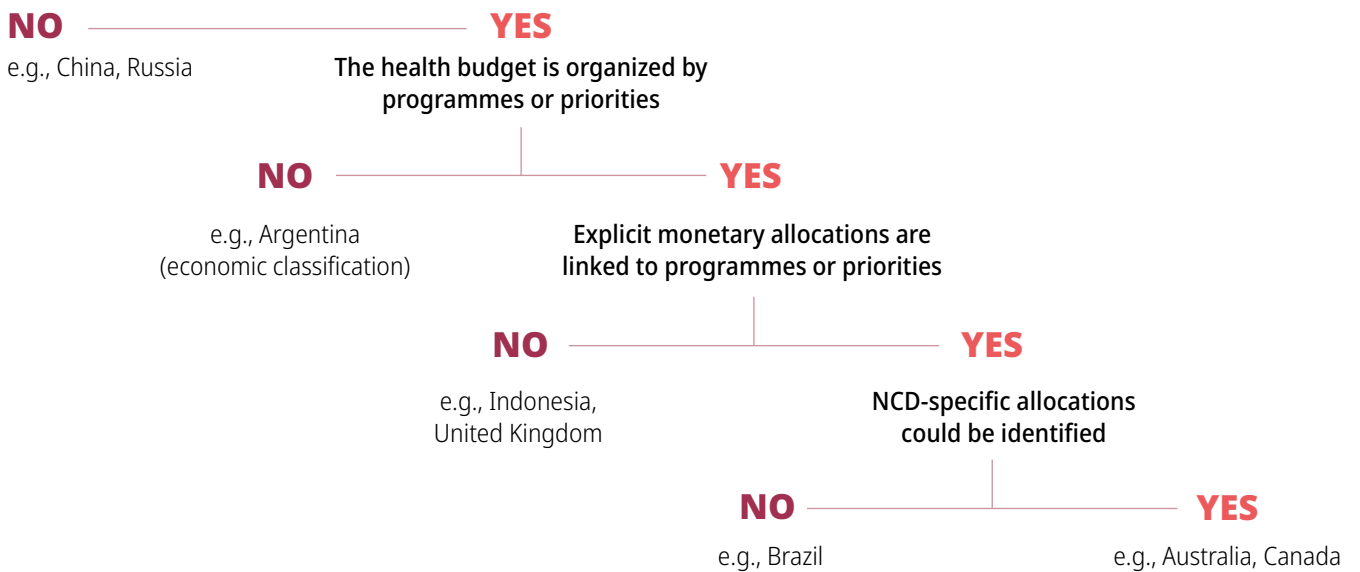
Also, **large budget allocations tend to go to schemes that are not disease-focused**; in such cases, NCD-specific allocations cannot be discerned. For example, in **South Africa's** 2023 health budget the NCD sub-programme has a minuscule relative allocation, but a much more significant allocation refers to "R2.2 billion over the medium term is allocated to the direct national health insurance grant for provincial health departments to contract health

professionals and health care services, including primary health care doctors, oncology services and mental health services," which cannot be apportioned by condition from the budget document alone. Similarly in India, the National Health Mission is a major government programme with a distinct NCD control component and its allocations should be considered in addition to those for the Ministry of Health and Family Welfare.

Table 3. Typology of NCD-specific information in national health budgets across the G20

| Typology | G20 examples |
|--|-------------------|
| Publicly available information on the health budget could not be identified. | China, Russia |
| The health budget is transparent and presented under the economic classification (e.g., salaries, goods and services), not by programmes or priorities. | Argentina |
| The health budgets make programmes and priorities transparent and with explicit sums allocated to them, but no NCD-specific allocations could be identified. | Brazil |
| The health budget makes programmes and priorities transparent and with explicit sums allocated to them, including for NCDs. | Australia, Canada |

Publicly available information on the health budget could be identified:



4. DATA ON PUBLIC SPENDING FOR NCDs ACROSS THE G20

Table 4 illustrates some of these limitations and challenges for a selection of four G20 members. NCD-specific allocations can vary greatly in terms of detail, and relative share of the total health budget. The differences in how budgets are structured make it very difficult, unfortunately, to summarise information

in such a way for more G20 members. Moreover, these examples illustrate that public health activities may be easier to discern in budget documents than clinical services, which are usually organised by financing schemes or types of health service providers, not by diseases (as discussed above).

Table 4. Budget allocations for NCDs in a selection of G20 members

| G20 member (budget year) | Total health budget | | NCD-specific initiatives or programmes |
|----------------------------------|-----------------------|-----------------------|--|
| | Original currency | Int\$ 2021 billion | |
| Australia (2022-2023) | AUD 105.75 billion | 68.12 | In the Budget Strategy and Outlook Budget Paper No. 1 2022-23: 513.8 million for “prevention, health promotion, early detection and management of chronic conditions”. In the Budget Measures Budget Paper No. 2, at least 15 distinct initiatives amounting to at least 271 million annually, on average. |
| Mexico (2024) | MXN 96.99 billion | 8.63 | 885.5 million for the “Prevention and Control of Overweight, Obesity and Diabetes”. Numerous distinct allocations to public health service providers, some of which are NCD-specific e.g., oncology institutes. |
| South Africa (2023) | ZAR 60.11 billion | 8.08 | 83.9 million for the “non-communicable diseases subprogramme”. |
| United States (2024) | US\$ 144 billion | 126.92 | In the Appendix Budget of the U.S. Government FISCAL YEAR 2024, at least 13 distinct programmes amounting to over US\$ 32 billion. |

Notes: AUD – Australian Dollars; MXN – Mexican Pesos; ZAR – South African Rand.

Strategic plans offer an indication of the intention to finance NCD actions. A published analysis of NCD strategies across eight high-income countries, including **Australia, Canada, Germany,** and the **United Kingdom,** found that these countries’ NCD strategies did not include information on how much implementing the strategy would cost or how it would be financed (Gassner, Zechmeister-Koss and Reinsperger 2022). **Australia’s** National Preventive Health Strategy 2021-2030, however, included a reference to increasing spending on NCDs prevention to up to 5% of health expenditure by 2030, without further details on what informed the choice of this target, what was the baseline, or how this increase would be funded (Australian Government - Department of Health 2021).

Only one NCD investment case could be identified for G20 members – for **Saudi Arabia,** a package of cost-effective interventions (tobacco control, diet and physical activity awareness, salt reduction, and clinical interventions for CVD and diabetes) would cost an estimated SAR 27.1 billion over 15 years (2020-2034) (Grafton, D., Elmusharaf K., Jung J., et al. 2021). Again, there is no binding link between actions (or interventions) modelled in investment cases and resources allocated and actually spent later in the future; however, there are indications in the literature that investment cases may have a positive contribution towards improving funding for NCDs e.g., by harmonising language between the ministries of Health and Finance (Troisi, G; Small, R; Chestnov, R; et al. 2024).

4. DATA ON PUBLIC SPENDING FOR NCDs ACROSS THE G20

Across the European Union, health is the responsibility of its Member States, therefore most NCD spending is done at country level from domestic budgets. At the bloc level, committed financing for NCDs is captured in the Healthier Together EU Non-Communicable Diseases Initiative (European Commission 2022) which details allocations for NCD-related initiatives across a range of programmes. A major component is captured in the annual EU4Health programme, whose latest plan 2024 (European Commission 2023) includes allocations for Member States' health authorities principally focused on cancer e.g., preventing cancers

caused by infections (EUR 20 million), strengthening digital capabilities for cancer centres (EUR 20 million), personalised cancer medicine (EUR 27.9 million), palliative care (EUR 16 million); but also mental health (EUR 8 million) and health promotion for NCDs (EUR 16 million). Other NCD activities are financed from other programmes that have a broader, non-exclusive to health purpose e.g., Cohesion Policy Funds, The Structural Reform Support Programme (SRSP) and Technical Support Instrument (TSI), The Digital Europe Programme and Connecting Europe Facility, and The Recovery and Resilience Facility (RRF).

Box 1. What to purchase? Data on cancer medicines

The prices of newly launched cancer medicines have been increasing steadily, and so has the number of cancer patients being treated. Global spending on cancer medicines is expected to double from 2022 to 2027, from about US\$ 200 to over US\$ 400 billion, the highest expected growth rate among therapeutic areas.

Many countries, including most G20 members, have processes in place that evaluate the benefits and risks of medicines (and other health technologies) before committing public resources to them – a process usually called Health Technology Assessment (HTA). Even though the criteria used to evaluate medicines are similar, the way these are implemented and, therefore, the results of the evaluation are not, which leads to important differences across countries in terms of which cancer medicines they reimburse. Moreover, countries also have different approaches in setting and adjusting prices, and in how they offer access to innovative (and often, most expensive) cancer medicines. Italy and England have dedicated funds, for example, with earmarked shares to innovative cancer medicines.

Even when considering multiple factors, it is still difficult to identify approaches that unequivocally lead to desirable outcomes. Many variables are needed to allow conclusions on the value of spending on cancer medicines in a particular context. However, understanding expenditure on cancer medicines is currently not straightforward. Databases of medicine sales are the closest to an integrated, comparable data source, but, as summarized in an [OECD report on the topic](#), there are many caveats to interpreting this data – for example, it does not include distribution mark-ups or confidential rebates, which vary from one country to another and can only be compared with caution and subject-specific knowledge. A key recommendation of the report has been to enable tracking use of cancer medicines by indication, which could support expenditure monitoring, price adjustments where needed and contribute to real-world evidence on medicine performance.

4.2. Resources spent on NCDs

The report identified two types of NCD spending data reported: overall NCD expenditure and condition-specific expenditure.

4.2.1. Overall NCD expenditure

South Africa is the only G20 member for which NCD spending data was available in an international multi-country database – the WHO Global Health Expenditure Database. Specifically, domestic general government health expenditure (GGHE-D) on NCDs amounted in 2019 to ZAR115.24 billion, representing about 43% of total GGHE-D and equivalent to roughly US\$ 296 per capita (adjusted for purchasing power parity, 2019 values). In the same database, NCD GGHE-D data (2019) are available for 37 of 55 African Union Member States, including South Africa.

The WHO Global Health Expenditure database also has information on spending by function, of which preventive care and long-term care are particularly relevant for NCDs. For long-term care, total health expenditure data is available for the year 2019 for 87 countries, of which 13 are in the G20, but data on spending from domestic sources alone is available only for **Canada, India, and South Africa**. For preventive care, 2019 data is available for 118 countries, of which 17 are in the G20; however, data on spending from domestic sources alone is available only for **Canada, China, India, Mexico, and South Africa**.

Several sources refer to NCD spending in the European Union, but they invite cautious interpretation. A European Parliament resolution on NCDs from December 2023 (European Parliament 2023) states,

“NCDs account for the largest share of Member States’ healthcare expenditures, resulting in an estimated cost of EUR 115 billion, or 0.8 % of GDP annually” without referencing the source of these figures; however, the same statement appears in the Health Together EU NCD Initiative referred to above, with a reference to the Health At A Glance 2016 report of the Organization for Economic Cooperation and Development (OECD). That document indeed mentions EUR 115 billion, but in relation to “potential economic loss each year” as a result of lost earnings due to NCD premature mortality, not to healthcare expenditure (Organization for Economic Cooperation and Development 2016).

Moreover, the European Commission publishes data for health spending on preventive healthcare (on average 0.37% of GDP) and long-term care (on average 16.6% of current health expenditure) for its Member States (Eurostat 2022). It is difficult to ascertain how much of each goes towards NCDs. While it is plausible that most long-term care spending is for NCDs, prevention spending is defined broadly (includes immunisations) and is categorised in a way that does not allow drawing NCD-specific insights; moreover, not all countries report this data completely. Data from four European G20 members, although incomplete, suggests immunisation may not represent more than 20% of preventive care spending; however the distribution may be different in other EU Member States (**Table 5**).

Table 5. Preventive care spending in European G20 members (2019, EUR billion)

| Country | Information, education and counselling | Immunisation | Early disease detection | Healthy condition monitoring | Surveillance and risk and disease control | Preparing for disaster and emergency response | Total preventive care |
|----------------|--|--------------|-------------------------|------------------------------|---|---|-----------------------|
| Germany | 1.7 | 2.2 | 1.8 | 4.9 | 3.3 | No data | 13.9 |
| France | 0.7 | 0.7 | 0.4 | 3.2 | 0.5 | 0.05 | 5.5 |
| Italy | No data | No data | No data | No data | No data | No data | 7.3 |
| United Kingdom | 3.4 | 1.0 | 0.9 | 6.2 | 0.7 | No data | 12.2 |

Source: [Eurostat](#)

Box 2. What to purchase? Data on preventive care

Evidence on the value of prevention* abounds. For example, preventive interventions for CVD have been estimated to have an **average return on investment of 5.6 when economic returns are considered, or higher than 10 when including the value of social returns** (Bertram, et al. 2018). More broadly, evidence from England suggests that spending on public health (of which prevention is a component) is about three times more productive than spending on the rest of the health system in terms of health gains per £1 spent (Martin, Lomas and Claxton 2020).

However, funding for preventative services is particularly complex for many reasons. One is that responsibility for prevention is often spread across many types of organisations, straddling multiple sectors (government, civil society, and, to a lesser extent, private sector) and, within government, multiple administrative levels i.e., central/federal and sub-national (state/provincial and local/community).

Another aspect, particularly relevant to NCDs, is that many modifiable risk factors for NCDs lie outside the remit of the health sector, e.g., education, housing, climate. As such, it is not only relevant how much the health sector invests in prevention, but also how much other sectors invest. Some countries may also have political and policy priorities that cut across social sectors, such as providing care for special groups like indigenous populations (e.g., First Nations in Canada, Aboriginal and Torres Strait Islanders in Australia), veterans, and refugees – which may have dedicated administrative structures and funding lines. The health budget is an important part of the picture, but not the only one – in some contexts, perhaps not even the main one.

Prevention is often organised as a large collection of programmes and projects. Identifying them and piecing together what they do and how they are financed is no easy task. One of the major challenges entails cutting through high-level labels. For example in **Canada**, the Public Health Agency of Canada is the governmental agency with a public health remit. One of its programmes is the Healthy Canadians and Communities Fund (previously the Multi-sectoral Partnerships to Promote Healthy Living and Prevent Chronic Disease programme (MSP)). It aims to improve health by supporting interventions that prevent chronic disease, particularly cancer, diabetes, and CVD (Public Health Agency of Canada 2024). It currently funds 20 projects amounting to nearly CAD 10 million.

Prevention is rarely budgeted for explicitly, however. **Australia** is the only identified case in the G20 of an explicit policy aim for prevention spending – 5% of current health expenditure by 2030 – but no additional details on why and how are available. There is, as such, a gross mismatch between the potential of prevention as a highly (perhaps the most) cost-effective way to prevent disease and the way resources for prevention are currently allocated and monitored. Not recognising prevention in health budgets disincentivises doing it. There are calls, for example in the **United Kingdom**, to recognise and ringfence prevention budgets (The Health Foundation 2023). Moreover, not recognising prevention makes it very difficult to understand who does what, and with what results. An ongoing project, also in the UK, aims to answer some of these questions by drilling down into local government spending on prevention (CIPFA and The Health Foundation n.d.).

* *By prevention we mean reducing risk factor exposure and improving social and economic determinants of health.*

4. 2. 2. NCD expenditure by condition

A variety of data source types report some information on public spending for specific NCDs.

- **Argentina, Brazil, and Mexico:** a research study published by the Inter-American Development Bank estimated age-specific total health expenditure by condition for these three countries, by extrapolating to the national level partial data available in selected sources – a sample of four nationally representative health facilities in Argentina, DATASUS, and SIASUS databases in Brazil and IMSS in Mexico (Rao, et al. 2022).
- **Australia:** the Australian Government's Productivity Commission issues annually the Report on Government Services; its health component has four sections – "Primary and community health", "Public hospitals", "Ambulance services", and "Services for mental health". Under the last section (Australian Government - Productivity Commission 2024), data tables provide multi-annual information on expenditure on mental health services by the Australian Government as well as state and territory government; data are disaggregated by state/territory; funding source, and service delivery platform (e.g., psychiatric hospital, public hospital, community, ambulatory). In 2021-2022, the last year for which information is available, total public spending on mental health services in Australia, across all levels of government, amounted to AUD 11.6 billion or about AUD 450 per person; federal spending accounted for 37% of the total.
- **France:** a research study authored by and using official data from the main third-party payer in the French health system, la Caisse Nationale d'Assurance Maladie (Rachas, et al. 2022).
- **Indonesia:** the public health insurance agency BPJS publishes a summary of its audited accounts of spending through the national health insurance scheme JKN. This summary presents total condition-specific expenditure for the 10 most expensive conditions, which include CVD, cancer, and chronic kidney disease (BPJS 2023).
- **United Kingdom:** the National Health Service (NHS), funded through general taxation, functions as a distinct entity in each of the four nations – England, Scotland, Wales, and Northern Ireland. In **Wales**, the statistical office publishes annually – **the only case we identified across the G20** – reports of NHS expenditure by programme budget categories, which are mapped to conditions and disaggregated by primary/secondary care; spending on general items that cannot be mapped to conditions, such as general medical services, is also reported (StatsWales 2024). In **Scotland**, a

similar reporting by programme budget categories mapped to conditions is available, but 2011-2012 is the last year for which information is available (Scottish Government 2015). In **England**, similarly structured condition-specific information appears to be currently available for pharmaceutical spending only (NHS Business Services Authority n.d.).

- **United States:** an academic study published by Dieleman et al (Dieleman, J; Cao, J; Chapin, A; et al. 2020) compiled numerous data sources and produced national-level estimates of condition-specific spending from public and private funding sources.
- Government organisations in **Australia** (Australian Government - Australian Institute of Health and Welfare 2023), **Canada** (Public Health Agency of Canada 2018), **Germany** (DESTATIS Statistisches Bundesamt 2022), and **Japan** (Ministry of Health, Labour and Welfare of Japan 2022) have conducted and published comprehensive analyses of health expenditure across all conditions. These publications have fixed periodicity e.g., every five years in Germany, every year in Australia – except Canada, where the last published exercise was conducted in 2010 and published in 2017.

The methodologies of these analytical exercises differ greatly (**Appendix 3**). Apart from sources for France and Wales, they take a broad perspective whereby a multitude of public and private financing sources are considered jointly and cannot be distinguished; only Dieleman et al. (Dieleman, J; Cao, J; Chapin, A; et al. 2020) for the United States distinguish between public and private financing sources. Disaggregation is possible, however, across other dimensions specific to each source e.g., by gender, age group, or type of service provider; moreover, some sources go beyond direct medical costs to include other aspects such as the cost of caregiving and social benefits received (e.g., sick pay).

Something to keep in mind with condition-specific expenditure is that not all health spending can be mapped to conditions; this fraction varies widely across countries – for example in **England**, about a third (GBP 50 billion of more than GBP 150 billion (NHS Business Services Authority n.d.)) of NHS spending can be mapped to conditions using programme budget categories, although the mapping itself could not be identified in the public domain, while in **Australia**, more than 70% of health expenditure can be mapped to conditions (Australian Government - Australian Institute of Health and Welfare 2023).

Notwithstanding the limited comparability, seven NCD categories – cancer, endocrine conditions including diabetes, mental health, neurological, circulatory, chronic respiratory, and musculoskeletal – account for 45-55% of public spending that could be allocated to all conditions, based on the three settings where such information is available (**France, United States, and Wales**). This translates into a per capita range of

Int\$ 1,800 – 2,200 public spending for these seven NCDs, or 3.3 – 4.5% of GDP (Table 6). The range is, as expected, much wider when spending from public and private sources is included; at the same time, a GDP gradient is also apparent with high-income countries' spending, on average, more than middle-income countries on a per capita basis.

It should be noted that several G20 members such as **Canada** (Canadian Institute for Health Information 2023), **France** (Direction de la recherche, des études, de l'évaluation et des statistiques (DREES) 2023), **Mexico** (Gobierno de Mexico - Secretaria de Salud 2024), **United Kingdom** (Office for National Statistics 2021) and **United States** (Centers for Medicare & Medicaid Services 2023), also produce and publish regularly national health expenditure reports which categorise health spending following the three dimensions in the core accounting framework of the System of Health Accounts 2011 (SHA) (OECD, Eurostat and World Health Organization 2017) – healthcare function (e.g., preventive care, curative care, long-term care), healthcare provider (e.g., hospitals, ambulatory care) and financing scheme (e.g., government schemes, compulsory contributory health insurance schemes). None, however, report health expenditure

disaggregated by conditions, although the SHA allows and has methods for it.

Finally, for a few G20 members condition-specific expenditure information was also available in international sources. Research published in 2016 by the OECD offers additional information for some G20 members. Based on 2011 data, these figures include estimates for **Germany** and **South Korea**, where expenditure on six major NCDs as a share of current health spending both public and private was roughly 60% and 50%, respectively. There is no known re-iteration of this publication (OECD 2016).

For the **European Union**, available research studies appear to focus on specific conditions and include expenditures from all sources. For example, Hofmarcher et al. (2020) estimated cancer spending for every EU member state, calculating an average of EUR 195 per capita equivalent to 6.2% of total health expenditure (Hofmarcher, et al. 2020). Similarly, CVD was estimated by Luengo-Fernandez et al. (2023) to cost on average EUR 347 per capita, or 10.6% of total health spending (Luengo-Fernandez, R; Walli-Attaei, M; Gray, A; et al 2023).

Box 3. How to pay? Data on provider payment methods

There has been growing interest over the past decades to explore alternatives to paying health service providers based on volume or activity with a view to creating appropriate incentives for better care and to balance the multitude of incentives and consequences in a way that is aligned with policy objectives. Examples include:

- Population-based payments, where a fixed amount is paid per person for a defined package of service, regardless of utilization.
- Performance-based payments, where financial rewards or penalties are given on top of the base payment (fee for service) for attaining (or not) specific objectives, often in relation to quality of care.
- Bundled payments, where a single amount is paid for procedures that combine fees for physicians, hospitals and other healthcare providers to cover an episode of care from beginning to end. They can incorporate shared savings, where providers can retain and distribute among themselves the difference between target prices and incurred costs – incentivizing them to provide good quality services while keeping costs down.

A recent joint report by the OECD and WHO [Purchasing for quality chronic care](#) reviewed the global evidence base and conducted eight country case-studies where such payment methods have been applied to paying for chronic care. Overall, the global evidence base suggests that the effect of **various performance-related payment methods on the outcomes of chronic care has been lower than expected**. The case studies examined a range of country experiences with implementing innovations in provider payment mechanisms: bundled payments in Australia, Canada, Germany; and performance-based payments in Indonesia, China and South Africa.

A key emerging message is that evidence remains weak or inconclusive as to whether these alternative provider payment methods are effective in achieving their intended objectives. This uncertainty may have to do with the necessity of iterating the design of payment mechanisms until the optimal balance is found, with the difficulty of evaluating the impact of such complex interventions, or both. Having **population-level data on financing and outcomes was also identified as crucial for making meaningful comparisons** and understanding the value of the proposed approaches at the level of the health system. **Another key lesson drawn has been that payment mechanisms are important but cannot be expected to work as intended without investments in physical infrastructure, data systems, and human capacity.**

Table 6. Spending levels on NCDs across the G20

| | Wales | France | United States | Australia | Argentina | Brazil | Canada | Germany | Japan | Mexico |
|--|---|--------------|---------------|--|-------------|--------------|--------------|--------------|--------------|-------------|
| Expenditure source | Public spending only, different methodologies | | | Public and private spending, different methodologies | | | | | | |
| Year | 2022-2023 | 2015-2019 | 2016 | 2020-2021 | 2018 | 2019 | 2010 | 2020 | 2020 | 2018 |
| Population (million) | 3.1 | 66.6 | 323.1 | 26.0 | 44.5 | 211.8 | 34.0 | 83.1 | 126.3 | 124 |
| Gross Domestic Product (Int\$ billion in Year) | 126.7 | 3,455 | 21,097 | 1,444 | 1,222 | 3,738 | 1,760 | 4,995 | 5,459 | 2,778 |
| Total spending across all conditions (Int\$ billion), of which: | 12.5 | 230.0 | 1290.6 | 96.1 | 47.7 | 190.5 | 131.4 | 570.0 | 307.8 | 70.8 |
| Cancer | 1.0 | 27.7 | 52.6 | 9.3 | 3.7 | 64.0 | 5.5 | 57.8 | 46.9 | 4.5 |
| Endocrine diseases, of which: | 0.5 | | | 2.8 | 2.0 | 5.5 | 5.6 | 23.0 | 20.9 | 5.7 |
| Diabetes | 0.2 | 11.9 | 61.6 | 1.7 | | | | 9.8 | 11.8 | |
| Mental health | 1.4 | 31.3 | 116.5 | 6.9 | 3.7 | 7.1 | 10.7 | 74.4 | 19.0 | 1.0 |
| Neurological | 0.5 | 10.6 | 95.2 | 3.0 | 0.4 | 6.0 | 2.8 | 31.0 | 15.5 | 1.2 |
| Circulatory | 1.0 | 32.4 | 161.3 | 9.2 | 5.9 | 9.4 | 13.4 | 74.8 | 60.0 | 7.9 |
| Chronic respiratory | 0.7 | 4.8 | 58.2 | 1.1 | 4.7 | 7.5 | 6.7 | 9.5 | 1.4 | 10.8 |
| Musculoskeletal | 0.6 | 4.7 | 159.0 | 9.4 | 2.0 | 7.2 | 6.9 | 55.0 | 24.8 | 2.4 |
| Sub-total for 7 NCD groups | 5.7 | 123.5 | 704.5 | 41.7 | 22.4 | 106.8 | 51.7 | 325.6 | 188.5 | 33.5 |
| Share in total spending across all conditions | 45.3% | 53.7% | 54.6% | 43.4% | 43.5% | 56.1% | 39.4% | 57.1% | 61.2% | 47.2% |
| Per capita spending | 1,834.5 | 1,854.5 | 2,180.4 | 1,602.5 | 503.3 | 504.5 | 1,521.6 | 3,918.7 | 1,492.1 | 269.9 |
| Share of GDP | 4.5% | 3.6% | 3.3% | 2.9% | 1.8% | 2.9% | 2.9% | 6.5% | 3.5% | 1.2% |

Notes: All spending figures are presented in International US\$ 2021 values after conversion from original currencies – see Appendix 3 for original data reported in the respective sources. Population figures reflect the (earliest) reference year for each source. Data for Wales, Argentina, Brazil, Canada, and Mexico do not distinguish between chronic and acute respiratory conditions, therefore in these cases expenditure for respiratory conditions is an overestimate. GDP data from the [World Bank](#); for Wales, calculated as a share of the United Kingdom's GDP based on data from the [Office for National Statistics](#).

4.3. Qualitative insights from key informant interviews

Key informant interviews were conducted with representatives of organizations doing NCD advocacy and/or research in Argentina, Australia, Brazil, Indonesia, Japan, and Mexico, as well as with a specialist in an international financing institution with health sector operations in some of the G20 members.

Most interviewees agreed that assembling a comprehensive, data-informed picture on NCD financing as a whole is and has always been a major challenge. Commonly cited reasons include: such data is simply not available in the public domain; or some data may be available, but in a format that does not allow the external user to interpret and aggregate it in a straightforward manner. For example, information on spending for publicly procured drugs is available as documentation for each tender/drug individually and putting it together by condition requires extensive effort; and the NCD continuum of care is fragmented across a large number of institutions and administrative levels (central/federal, state/province, and local authorities), and NCD financing information is better documented for some of these entities than for others.

Piecing together a comprehensive picture on spending for prevention and early detection appears particularly difficult, and not necessarily for complete lack of data (see also Box 1). One reason is that responsibility for these components tends to be distributed across multiple administrative layers, sometimes with unclear accountability lines. Another reason is that action in these areas often takes the form of a myriad of projects and initiatives, often localised, spread across agencies and ministries, and time-bound, with uncertain prospects for sustainability or scale-up. While this makes sense from the perspective of bringing interventions close to the community, adapting implementation to local circumstances, and adopting a cross-sectoral approach to NCDs, it makes it very difficult to aggregate information at the national level, not in the least because of the large volume of information to be gathered from multiple sources and identified only with the help of local experts or officials. Related to this, most interviewees agreed that **sub-national authorities (state/province and local/community) were just as relevant as central/federal authorities for NCD action**, if not more so, therefore programmes and activities at this level should be considered when assembling the big picture.

When a national-level NCD policy or action plan is available in some form, the costs and funding sources for its implementation are often not made explicit in public documents – this perception of the interviewees is broadly aligned with the literature (Gassner, Zechmeister-Koss and Reinsperger 2022). The format of such policy documents varies – they may be rather generic, akin to statements of intent that outline the priority areas, or they may be more detailed and include, for example, specific indicators and associated targets. The opposite situation may also apply, where multiple official sources cover provisions on care and financing. For example, in Argentina there are distinct laws for paediatric cancer and diabetes that protect access to care for patients with these conditions. In addition, there are more general provisions like **Resolución 201/2002** on the Programa Médico Obligatorio, which provides a list of goods and services with full coverage to beneficiaries for certain conditions, and **Resolución 310/2004**, which stipulates the level of reimbursement for condition-drug pairs.

Interviewees perceived that little to no information was available about the value of NCD spending in the form of economic evaluations or return-on-investment analyses. There were some examples of NCD actions that included impact evaluations, which were conducted and published, e.g., health checks among age 40+ in Japan. Some of the interviewees' countries have institutionalised processes for assessing the value of health interventions – usually called a Health Technology Assessment – but this was not mentioned.

5

BUILDING MOMENTUM FOR CHANGE BY MEASURING AND REPORTING NCD SPENDING

This final section synthesises insights from previous sections and proposes a way forward. Before doing so, the limitations of this report should be acknowledged. While the study's approach has been systematic and effort has been made to identify as many data sources as possible for every G20 member, including by approaching national experts wherever possible, it is possible that some data sources may have been missed. Moreover, language barriers have prevented in some cases a deeper exploration of available sources; where needed, identified documents were translated using Google Translate. However, the report's aim has not been to provide a compendium of NCD expenditure data or a definitive account, but rather to maximise breadth and give a credible overview that can inform further analysis, debate, and action.

5.1. The current state of play for NCD financing data in the G20

Overall, a “one stop shop” for a comprehensive, granular, internationally comparable, and timely picture for NCD spending from public sources appears to be exceptionally rare across the G20. The report identified one example of annually published, granular public expenditure data covering all NCDs (and all conditions for that matter) – **Wales** in the United Kingdom, where healthcare is predominantly funded from public sources. There are also several examples of government-led, condition-specific spending exercises conducted at various time intervals where the public component cannot be separated based on published information⁴ (**Australia, Canada, Germany, Japan**) and several one-off exercises i.e., research studies for **Argentina, Brazil, France, Germany, Korea Republic, Mexico**, and the **United States**. It is possible that more data on NCD public spending is available but not analysed nor published – this would

be supported by the key informants' overall limited awareness of available NCD financing data in their settings.

The data landscape of public spending for NCDs appears to vary across the G20. Data is available to an extent, more so for resource commitments (usually in the form of annual budget allocations, however, presented partially) than for actual spending on NCDs, even though more types of data sources are available for the latter. Every type of data source has strengths and weaknesses in terms of the breadth of NCDs considered, uniform methodology and reporting, granularity, availability across the G20, and periodicity (**Table 7**).

4 It can be argued that with careful and appropriate analytical assumptions, this component could be approximated. Such an approximation is beyond the scope of this report and would in all certainty require the input of experts involved in the respective exercises.

Table 7. Qualitative overview of identified data sources for public spending on NCDs across the G20

| Type of spending information | Resource commitments for NCDs | | Actual expenditure on NCDs | | |
|---|-------------------------------|----------------|----------------------------|------------------|-------------------------|
| Type of data source | Strategic documents | Health budgets | Government publications | Research studies | International databases |
| DIMENSION OF INTEREST | | | | | |
| Breadth of NCDs included | High | Variable | High | High | High |
| Uniform methodology and reporting | Variable | Variable | Variable | Variable | High |
| Granularity e.g., spending by condition, by population groups, by function. | Variable | Variable | High | High | Low |
| Availability across the G20 | Low | High | Low | Low | Low |
| Periodicity | Low | High | Variable | Low | Variable |

Broadly speaking, there is a positive message on NCD breadth and granularity. Most of the available data covers a broad spectrum of NCDs, going beyond the “big five” responsible for the most deaths and disability worldwide. Also, spending data in most sources can be disaggregated, at least partially, to some extent. However, disaggregation approaches vary widely, and more detailed information appears to be available on public health programmes than on clinical services, e.g., diagnosis and treatment.

International comparability, availability across the G20, and periodicity, on the other hand, generally appear to be low. Comparability is limited given that the purposes for which available data has been collected vary, and so do their methodologies, limitations, and how data is presented. Availability may be low by type of data source, but overall it is plausible that some data can be identified for most countries. Moreover, periodicity is low given that most identified instances are either ad hoc (standalone research projects) or published years apart. There are examples of initiatives that appear to have been discontinued (e.g., Canada, England, Scotland) or to remain one-off (e.g., OECD study with information on Germany and Korea Republic). **Health budgets remain the most regular source of information, but how they are structured and presented allows only in a few instances the identification of allocations for NCDs and tracking their evolution over time.**

The positive side of this state of play is that a considerable number of analytical efforts have been made to date and can be drawn on for capturing relevant information on NCD spending. This constitutes **a strong base for governments interested in improving action against NCDs to share and learn from existing practices** (e.g., institutionalised resource tracking exercises in Wales, Australia, Germany, and Japan) and incorporate what is feasible and appropriate into their own settings to improve NCD resource allocation and decision-making. To that end, the G20 could excel in its role as a platform for policy dialogue and technical collaboration, linking it to existing priorities such as digital health and poverty reduction. The fragmented and partial nature of the data landscape also suggests that it is possible that even more data may be available but hasn't been analysed or hasn't been made publicly available yet.

Overall, it has been found, albeit based on a limited number of countries where data was available, that NCD spending accounts for more than half of public spending for health that can be allocated to conditions. This translates, as an order of magnitude, to 2-3 GDP percentage points. Several broader challenges to identifying NCD financing data have also been made apparent. A substantial proportion of NCD spending, particularly for clinical services such as diagnosis and treatment, cannot be apportioned

because it is allocated and channelled through non-specific mechanisms like health insurance. Moreover, assembling a comprehensive picture is difficult because of the large number of government and non-government actors with a remit on NCDs, particularly

for prevention. Related to this point, relevant activities and transactions may be outside the health sector such as sick pay benefits; therefore a Ministry of Health-only view gives a limited picture.

5.2. The argument for better NCD financing data across the G20

NCDs are one of the major public health challenges currently faced by the G20, one which can only intensify over the coming decades given increasing pressures from financing, aging, and the climate crisis. Conversely, it is difficult to see how meaningful progress can be made towards key priorities for the G20 such as fiscal sustainability, equity, poverty reduction, pandemic preparedness, and action on the climate crisis, without reducing the NCD burden.

Better data on NCD financing would allow national (and global) actors to ascertain whether public funding for NCDs in their setting is **“adequate, predictable and sustained”**, as well as efficient and aligned with equity goals. This report has argued that, currently, this seems hardly possible. Adequacy of NCD spending appears particularly difficult to ascertain: a “grand total” for public spending on NCDs is available for a minority of G20 members; there is little information on which areas receive public spending, or how public and private spending is balanced (except for Dieleman et al (Dieleman, J; Cao, J; Chapin, A; et al. 2020) for the United States) – paradoxically, more information on total and public-private NCD spending is more readily available for LMICs⁵ (World Health Organization 2020). Also, there aren't many comprehensive, comparable benchmarks available for NCD spending, but the available indications suggest a massive current underspend relative to needs, e.g., Lancet Countdown NCD 2030. Predictability is also difficult to ascertain; but there are reasons to believe it is less of a concern given that evidence from OECD countries suggests that health budgets are formulated based on a combination of historical allocations, cost drivers (e.g., demographic changes, technological uptake) and the launch of new initiatives (Vammalle, et al. 2024). The efficiency of NCD spending is another unknown given the limited and difficult-to-compare data on what NCD resources are being spent on. This aspect is essential given key considerations such as the high potential for fragmentation and duplication of NCD initiatives.

Moreover, better NCD financing data can also inform specific programmatic or health financing policy decisions related to what to spend on and how. Prevention, for example, is a well-documented example of providing good value for money, however budgeting

and tracking systems are currently not equipped to capture it appropriately (see Box 2 above). How health service providers are paid is another area where many G20 countries have attempted innovations to improve chronic care outcomes, particularly by moving away from paying based on activity volume (e.g., fee-for-service) to more complex arrangements like performance-based payments or bundled payments (where a single amount is paid to multiple providers for covering an episode of care). An OECD study has found that despite some successes, including in G20 countries such as Australia, Germany, Canada, or Indonesia, impacts have been lower than expected; however, the evidence is still accumulating, and its generation could be supported by more systematic and comprehensive system-level data collection on financing and outcomes (World Health Organization and the Organisation for Economic Co-operation and Development 2023). Having population-level data on financing and outcomes (rather than for the project or pilot area only) was identified as crucial for making meaningful comparisons and understanding the value of the proposed approaches at the level of the health system. Another key lesson drawn has been that payment mechanisms are important but cannot be expected to work as intended without investments in physical infrastructure, data systems, and human capacity.

Last, but not least, better NCD financing data can strengthen policymakers' accountability towards improving the health of their populations as well as credibility in their commitment both to stated domestic priorities and global agendas. This is particularly important as NCDs account for a substantial share of health spending. Particularly given this substantial share, it can be argued that any health financing reform (unrelated to NCDs) is likely to impact NCD spending and outcomes – not having good enough financing data leaves decision-makers largely unaware of potential implications of system-level decisions on the NCD agenda.

⁵ Public sources account, on average, for 37% and 59% of NCD spending in low-income and middle-income countries, respectively.

5.3. The way forward

Making meaningful progress against NCDs requires spending enough and spending well. The International Dialogue on Sustainable Financing for NCDs and Mental Health in June 2024 made clear that improving NCD financing requires whole-of-government, whole-of-health sector approaches, where the generic Ministry of Health is central, but other State and non-State actors also have a role to play (Figure 3). Not only can such meaningful progress happen when appropriate data are put to good use, but improving the state of NCD financing data should follow the same whole-of-government, whole-of-health approach.

The G20 is in an excellent position to drive change in improving NCD financing, starting with better data on how public resources are being spent. Through its wide geographical reach and representation of countries with diverse health systems – many of them among the most affected by NCDs globally – but also with substantial resources at their disposal, G20 members, collectively and individually, can lead the way in this area.

This report argues for two priority areas: improving the quality of NCD financing data in terms of availability, periodicity, granularity, and comparability; and improving the use of NCD financing data in policymaking.

Improving the quality of NCD financing data entails several lines of action. These include disseminating more of the available data on NCD financing within government and across the spectrum of public institutions – and making it available to decision-makers and the public; analysing more of the routinely collected data, an aspect perhaps most relevant for countries with a social health insurance health financing architecture, where data on claims can provide important insights; making data available at policy useful time intervals; and, where needed, collecting more data on NCD financing also appears necessary, particularly for meaningful disaggregation e.g., by continuum of care component.

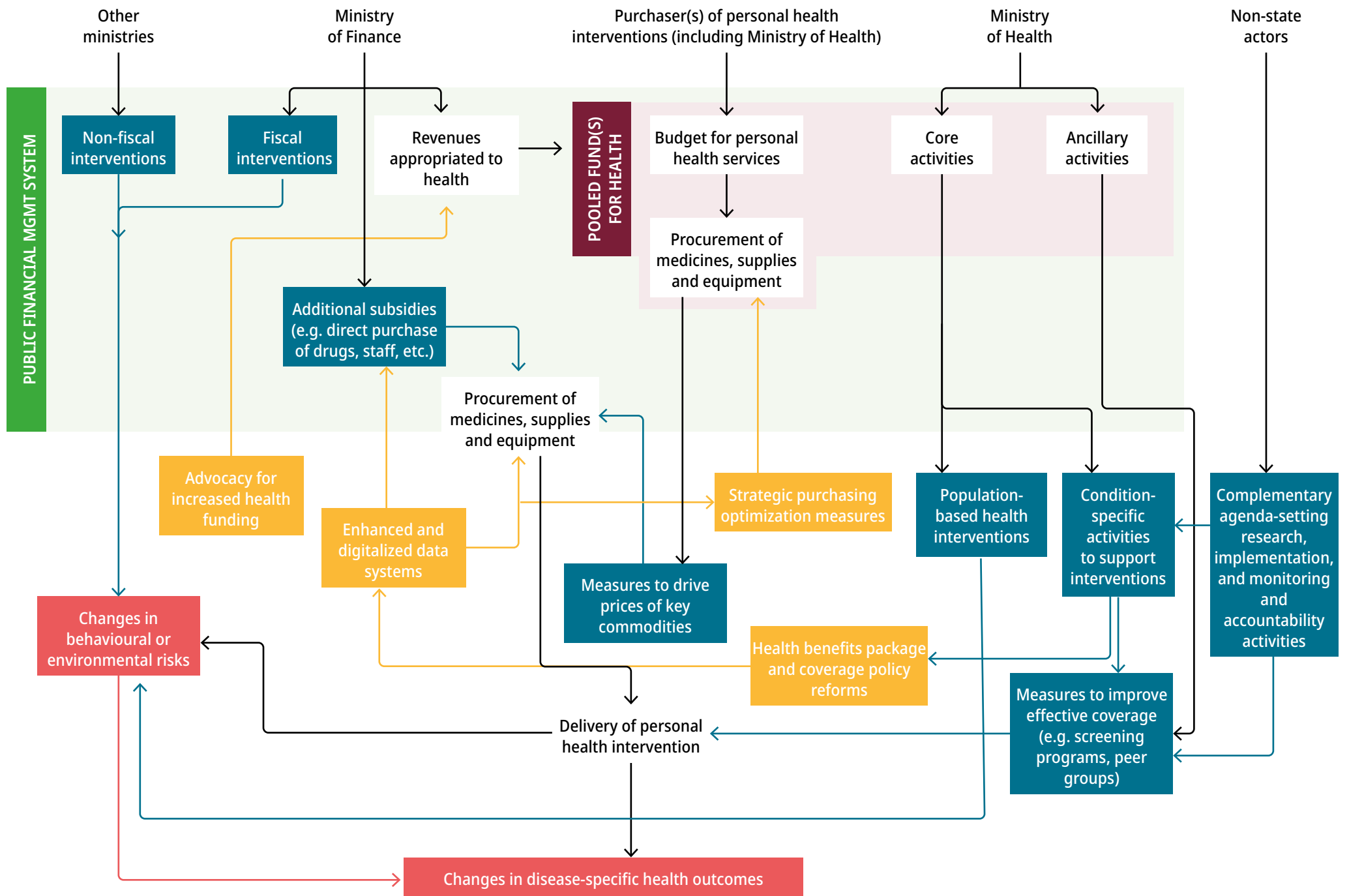
It should be acknowledged that resource tracking is expensive and dependent on extensive human, technical, and informational capabilities. Strengthening this for NCDs would come at a time when many health systems are already stretched in terms of reporting

responsibilities. However, when timely and reliable, such data can provide insights that few other types of information can. On the other hand, this call for more data also needs to be put in the context of similar calls, some of which have obvious synergies with the NCD agenda, e.g., the Lancet Global Health's Commission on financing primary health care (PHC) (Hanson, K; Brikci, N; Erlangga, D; et al. 2022). Moreover, the Commission's recommendation for better tracking of PHC spending is relevant for NCDs as well: "Most importantly, each country should establish a clear definition of PHC expenditure that is compatible with how its health system organises services; it can then use this definition to track spending over time to monitor progress."

Improving the use of NCD financing data also entails several lines of action. At a domestic level, countries should be more explicit about their NCD-related priorities, clarifying synergies with other agendas and making efforts to align resource tracking accordingly. This report has found that **Australia** provides such an example, with the available mental health spending data aligned with the explicit policy focus on this area. At a higher level, the G20 can significantly provide leadership for the global NCD agenda by calling for and supporting the use of resource tracking data to inform NCD financing targets, which the NCDA has called for in a recently published policy brief (NCD Alliance 2024), akin to the 2021 UN Political Declaration for HIV/AIDS (calling for US\$ 29 billion annually by 2025 (United Nations General Assembly 2021)) and the 2023 UN Political Declaration for Tuberculosis (calling for US\$ 35 billion annually by 2030 (United Nations September)).

Table 8 summarises what governments and non-government actors in G20 Member States, and the G20 as a collective, can do to advance these areas. Implementing these recommendations is crucial for achieving the goals of the Global NCD Action Plan and for advancing a host of related G20 agendas. They would set the conditions for generating a credible base of NCD financing and for charting a realistic course toward having sufficient resources available and allocated efficiently and equitably, ultimately leading to better health outcomes and a reduction in the global NCD burden.

Figure 3. Entry points for improving and increasing financing for NCD and mental health



Source: [International Dialogue on Sustainable Financing for Noncommunicable Disease and Mental Health | June 2024 - Synthesis of Technical Background Papers](#).

Note: Actions in blue are targets of disease- or programme-specific budgets. Actions in yellow are generic but could be leveraged to increase or improve financing within the core health service financing and delivery system (white boxes) to influence risk factors and disease outcomes (purple).

Table 8. What the G20 can do to improve NCD financing data

| Priority area for NCD financing data | Domestic action for G20 governments | Domestic action for researchers and advocates | G20 Joint Task Force on Finance and Health | G20 presidency |
|--------------------------------------|--|---|--|---|
| Availability | <ul style="list-style-type: none"> Identify the full spectrum of institutions and financing lines with NCD remit, across administrative levels and continuum of care components. Ensure routinely collected data on NCD activity and financing are shared and analysed, across all administrative levels and including sub-national data. Identify alignment between available data and policy objectives, and work to close data gaps including by collecting new data where needed. | Ask governments to publish available NCD financing data across all institutions and financing lines with NCD remit, across administrative levels and continuum of care components. | <ul style="list-style-type: none"> Include NCD financing within the scope of the Task Force. Organise a thematic dialogue whose aim is to identify practical solutions for bridging the gaps in NCD financing data across all aspects of data quality and for use in decision-making. Give particular attention, in collaboration with WHO, to exploring barriers and opportunities of using the SHA Methodology for the routine generation of granular and comprehensive NCD expenditure data. | <ul style="list-style-type: none"> Acknowledge in a political declaration the necessity to improve resource tracking data for NCDs, highlighting synergies with existing G20 priorities such as digital health, healthy aging, and poverty reduction. Call for tighter cooperation with the WHO, OECD and the World Bank for using established methodologies such as the System for Health Accounts to improve the quality of NCD financing data. |
| Comparability | Conduct condition-specific resource tracking as part of National Health Accounts exercises. | Ask governments to make explicit the methodologies for collecting, analysing, and integrating data. | | |
| Granularity | <ul style="list-style-type: none"> Collect, analyse, and disseminate NCD financing data in a way that reflects the organisation of the health system and enables policy action. Improve the availability of NCD financing data across all continuum of care components, from prevention to palliative care. | Ask governments to make available spending data for priority areas (e.g., prevention, best-buy interventions, priority conditions) and all continuum of care components, from prevention to long-term care. | <ul style="list-style-type: none"> Lead an initiative for developing a global standard on reporting NCD expenditure data aligned with global NCD targets, building on shared experiences and good practices across the G20, with a view to improving data comparability and its relevance for policy action. | |
| Periodicity | Institutionalise time-bound processes for collecting, analysing, and disseminating NCD financing data. | Ask governments to commit to predictable timelines for making data available. | | |
| Use in decision-making | Use data to establish a baseline for NCD spending and to inform targeted increases aligned with policy objectives. | Ask governments for specific, targeted increases in resources for NCDs based on available data. | | |

Appendix 1. Classification of conditions and their global disease burden (2019)

Classification of conditions and data on deaths and disability adjusted life years (DALYs) are from the [WHO Global Health Estimates](#).

Mapping to ICD-10 codes is also from the [WHO](#).

| GHE Code | Group | Condition | ICD-10 codes | Deaths (000s) | % of total deaths | DALYs (000s) | % total |
|-------------|-------------|---|---|---------------|-------------------|------------------|-----------|
| 0 | | All Causes | | 55,416 | 100.0 | 2,531,710 | 100 |
| 10 | I. | Communicable, maternal, perinatal and nutritional conditions | | 10,201 | 18.4 | 688,344 | 27 |
| 20 | A. | Infectious and parasitic diseases | A00-B99, G00-G04, G14, N70-N73, P37.3, P37.4 | 5,101 | 9.2 | 311,318 | 12 |
| 380 | B. | Respiratory Infectious | H65-H66, J00-J22, P23, U04 | 2,604 | 4.7 | 114,431 | 5 |
| 420 | C. | Maternal conditions | O00-O99 | 196 | 0.4 | 12,649 | 1 |
| 490 | D. | Neonatal conditions | P00-P96 (minus P23, P37.3, P37.4) | 2,038 | 3.7 | 201,821 | 8 |
| 540 | E. | Nutritional deficiencies | D50-D53, D64.9, E00-E02, E40-E46, E50-E64 | 263 | 0.5 | 48,125 | 2 |
| 600 | II. | Noncommunicable diseases | | 40,805 | 73.6 | 1,582,656 | 63 |
| 610 | A. | Malignant neoplasms | C00-C97 | 9,297 | 16.8 | 242,568 | 10 |
| 790 | B. | Other neoplasms | D00-D48 | 138 | 0.3 | 2,781 | 0 |
| 800 | C. | Diabetes mellitus | E10-E14 (minus E10.2, E11.2, E12.2, E13.2, E14.2) | 1,496 | 2.7 | 70,411 | 3 |
| 810 | D. | Endocrine, blood, immune disorders | D55-D64 (minus D64.9), D65-D89, E03-E07, E15-E34, E65- E88 | 316 | 0.6 | 36,894 | 1 |
| 820 | E. | Mental and substance use disorders | F04-F99, G72.1, Q86.0, X41-X42, X44, X45 | 347 | 0.6 | 168,135 | 7 |
| 940 | F. | Neurological conditions | F01-F03, G06-G98 (minus G14, G72.1) | 2,299 | 4.2 | 87,481 | 3 |
| 1020 | G. | Sense organ diseases | H00-H61, H68-H93 | 1 | 0.0 | 100,073 | 4 |
| 1100 | H. | Cardiovascular diseases | I00-I99 | 17,864 | 32.2 | 388,295 | 15 |
| 1170 | I. | Respiratory diseases | J30-J98 | 4,137 | 7.5 | 106,478 | 4 |
| 1210 | J. | Digestive diseases | K20-K92 | 2,455 | 4.4 | 87,544 | 3 |
| 1260 | K. | Genitourinary diseases | E10.2-E10.29, E11.2-E11.29, E12.2, E13.2-E13.29, E14.2, N00-N64, N75-N76, N80-N98 | 1,642 | 3.0 | 83,942 | 3 |
| 1330 | L. | Skin diseases | L00-L98 | 97 | 0.2 | 20,025 | 1 |
| 1340 | M. | Musculoskeletal diseases | M00-M99 | 151 | 0.3 | 110,631 | 4 |
| 1400 | N. | Congenital anomalies | Q00-Q99 (minus Q86.0) | 533 | 1.0 | 51,797 | 2 |
| 1470 | O. | Oral conditions | K00-K14 | 1 | 0.0 | 22,898 | 1 |
| 1505 | P. | Sudden infant death syndrome | R95 | 30 | 0.1 | 2,703 | 0 |
| 1510 | III. | Injuries | | 4,410 | 8.0 | 260,710 | 10 |
| 1520 | A. | Unintentional injuries | V01-X40, X43, X46-59, Y40-Y86, Y88, Y89 | 3,159 | 5.7 | 191,810 | 8 |
| 1600 | B. | Intentional injuries | X60-Y09, Y35-Y36, Y870, Y871 | 1,250 | 2.3 | 68,900 | 3 |

Appendix 2. Methodological details

For the desk review, the following sources were searched:

- National data sources for each G20 member e.g., Ministry of Health, Ministry of Finance or Economy, Treasury, Parliament (for budget laws), public health insurance bodies, public health institutes. When sources were available in the local language, they were translated into English using Google Translate.
- Regional data sources e.g., for Latin America – Pan-American Health Organization (PAHO) and Inter-American Development Bank (IADB), for Asia – Association of Southeast Asian Nations (ASEAN), for Africa – African Union, for Europe – European Commission, for high-income countries – Organization for Economic Cooperation and Development (OECD).
- Global data sources e.g., World Health Organization, World Bank, Institute for Health Metrics and Evaluation.
- Academic literature was searched in PubMed and grey literature was searched in Google Scholar for sources published after 01 January 2018. Literature sources are important for two reasons: they may identify research studies focused on quantifying chronic disease investment; and they may identify studies that describe the nature of NCD investment mechanisms.

The PubMed search strategy used was:

```
((chronic[Title] OR noncommunicable[Title] OR non-communicable[Title] OR NCD*[Title] OR "long-term"[Title])
AND (invest*[Title] OR spend*[Title] OR expenditure*[Title] OR budget*[Title] OR cost*[Title])) AND (G20[Title]
OR Australia*[Title] OR Argentina*[Title] OR Brazil*[Title] OR Brasil*[Title] OR Canad*[Title] OR China[Title] OR
Chinese[Title] OR France[Title] OR French[Title] OR German*[Title] OR India*[Title] OR Indonesia*[Title] OR
Ital*[Title] OR Japan*[Title] OR Korea*[Title] OR Mexic*[Title] OR Russia*[Title] OR Saudi[Title] OR Arabia*[Title] OR
"South Africa"[Title] OR Turkey[Title] OR Turkish[Title] OR UK[Title] OR "United Kingdom"[Title] OR British[Title] OR
England[Title] OR English[Title] OR "United States"[Title] OR US[Title] OR USA[Title] OR "European Union"[Title] OR
EU[Title] OR "African Union"[Title])
```

Identified sources were not considered if:

- Reporting NCD investment data across a group of countries, all or some G20 members, without disaggregation by country or G20 country bloc (e.g., "expenditure on chronic diseases in Europe" where "Europe" means "continental Europe" is ambiguous and wouldn't be accepted; conversely "European Union member states" is acceptable).
- Reporting investment data across a group of conditions, some of which NCDs, without disaggregation by condition (e.g., "expenditure on respiratory diseases" without distinguishing between acute and chronic conditions).
- Reporting NCD investment information at a sub-national level (e.g., institutional or provincial-level studies).

Documents or policies not available in English were translated with Google Translate and native speaking experts were consulted for clarifications where needed.

For key informant interviews, the following information sheet was distributed to prospective interviewees, which includes the interview guide.

Note: the term "investment" (understood as public financing resources for NCDs) was used during the initial framing of the work, later replaced with "public spending" for improved clarity.

Information Sheet

You are kindly invited to participate in a key informant interview to document case studies for this NCD Alliance (NCDA) project. Your participation is invaluable for developing a better understanding of existing investment data for noncommunicable diseases (NCDs) across G20 Member States and how to improve it. This document outlines the project's background as well as details about the case studies and the interview itself. For any clarifications, please reach out to dmushinge@ncdalliance.org

Thank you for your participation!

Background

NCD Alliance (NCDA) is currently conducting a project that will deliver an analysis of funding data and data gaps for investment in tackling NCDs across the G20 members; derived from this analysis, the project will also deliver investment case studies, and develop recommendations for improved data collection and monitoring. The main output of the project will be a report of up to 35 pages.

In this project, "**NCD investment**" refers to public financial resources allocated to NCDs across the continuum of care: prevention, early detection, diagnosis, treatment, and long-term follow-up (including rehabilitation and end-of-life care). Initiatives or mechanisms that combine public and private financing sources are within scope.

In Phase 1 of the project (completed), publicly available data on NCD investments across G20 countries have been identified, analysed and summarised. In **Phase 2 (ongoing)**, case studies on NCD investment are being conducted, largely based on interviews with organisations in NCDA's network across G20 members. Phase 3 (upcoming) will focus on synthesising main messages and formulating recommendations for improving the conduct and reporting of NCD investments, based on findings in Phases 1 and 2.

About the case studies

The case studies have two main purposes:

- To gather information on how care for selected NCDs is financed from public sources, in terms of funding sources, amounts, and financing mechanisms, in your country.
- To clarify some of the country-specific information gathered in Phase 1, where possible.

In terms of "selected NCDs", the project is particularly interested in case study information on **cardiovascular diseases (CVD), cancer, and diabetes**.

Information for case studies will be collected through key informant interviews (KII). Each KII will be conducted online and is expected to last about 1 hour. The interview guide below gives an indication on the main areas of interest for the project, but it is not a script and there is flexibility to steer the discussion towards closely relevant areas if need be. The intention is to record interviews only for note taking purposes i.e., to make sure information is presented accurately in the final report. Key informants would be asked for consent to record the interview at the beginning, after being given the chance to request any clarifications about the project, if needed. The interview recording files would be stored only on a shared drive with access only to the NCDA project team, which includes the project's external consultant.

In the final report there will be no quotations from the KIIs or direct attribution of statements to individuals or organisations; however the information will be mapped to the respective G20 member e.g., how diabetes care is financed in country X. All information collected during the interviews will remain confidential and will not be shared outside the NCDA project team.

If the remit of a key informant's organisation covers:

- more than one NCD, key informants are kindly asked to consider in advance and discuss maximum 2 NCDs in the interview, keeping in mind the focus on **CVD, cancer, and diabetes**.
- more than one country, e.g., international federation, key informants are kindly asked to focus on 2, maximum 3, members of the G20 in the interview.

Interview guide

Introductions

- Could you please begin with a brief introduction of your organization's work and your role in the organization?

For all the following questions, if in your country the sub-national government (e.g., state, province) has explicit health responsibilities e.g., "health is a state matter", in your responses please refer to both central government and sub-national government, with examples if possible.

General information about NCD investment in your country

- What are the main specific documents guiding the government's NCD policies e.g., policies, strategies, investment cases, operational plans?
 - Are they publicly available?
 - How recent are they? How often are they updated?
 - Are they legally binding? How are they enforced and monitored?
 - What type of information do they include?
- What are the main official sources that present the government's financial commitments for tackling NCDs e.g., budgets, national/sub-national accounts, audited programme accounts?
 - Are they publicly available?
 - How often are they published/updated?
 - How is information structured?
 - What level of detail do they include?
- Could you describe the factors influencing the current levels of NCD investment in your country? For example, is funding for NCDs primarily based on historical allocations, regular needs assessments, or detailed strategic planning with cost analyses?
- What would you say are the most relevant gaps or areas for improvement in available data on NCD investment in your country?

The following section refers to one or more NCDs, as relevant to your organization and keeping in mind the project's focus on CVD, cancer and diabetes.

For the NCD(s) chosen:

- What are the government's main initiatives for delivering medical goods and services in this area across the continuum of care – prevention, early detection, diagnosis, treatment, long-term follow-up?
- How are these initiatives structured from a programmatic perspective e.g., as standalone health programmes, as interventions included in the health benefit package, as special initiatives (e.g., cancer drugs fund)?
- What is the approximate size of the financial commitments underpinning these initiatives? How are these financial commitments documented?
- How are the main various programmes and initiatives financed in terms of:
 - Funding sources e.g., central or state budget, national insurance.
 - Specifying and identifying the relevant beneficiaries e.g., population groups.
 - Specifying the goods and services (interventions) delivered and paid for/ reimbursed e.g., medication, procedures, diagnostic tests, population health programmes.
 - Contracting and paying for goods and services e.g., fee-for-service, per diem, case-based payments, results/performance-based payments, bundled payments.
- How would you say these programmes and initiatives are going? Are there any official evaluations? Consider the perspectives of patients, health professionals and the public, if information is available.
- Is there any information available on the value of implementing these initiatives e.g., return on investment analyses, economic evaluations (e.g., cost-benefit or cost-effectiveness analyses)?
- What would you say are the most relevant gaps in available data on investments in this area?
- Have any changes in investment for this area been announced for the near future?

Closing

- Is there anything else we have not discussed that you would like to share?
- Do you have any questions?

Thank you for your time.

Appendix 3. Detailed results from the desk review

For all entries below, “No information identified” means that no information on NCD investment data was identified meeting the inclusion-exclusion criteria outlined in the Methodology and **Appendix 2** above. Information of interest from sources that did not meet the criteria is also included where available.

Australia

- The 2023-2024 health budget refers to AUD 513.8 million “in prevention, health promotion, early detection and management of chronic conditions.” ([page 22](#)) Detailed allocations are in the [Budget Measures Budget Paper No. 2](#):

| NCD activity/initiative | Allocation (AUD million)* |
|--|---------------------------|
| Prevention, health promotion, early detection and management of chronic conditions | 513.8 |
| Develop and implement a preventive health communication campaign, focused on early intervention and prevention of chronic disease targeted at culturally and linguistically diverse populations | 5.3 |
| Increasing the availability of testing and screening services related to bowel, breast and cervical cancer | 13.6 |
| Delivery of early-phase clinical trials to develop new treatments for motor neurone disease in australia | 2.0 |
| Support the continuation of the life checks programme for 45 to 65 years olds | 2.0 |
| To extend community driven initiatives to improve levels of physical activity | 3.2 |
| To extend the asthma management program for activities that support people with asthma and their carers to improve management of asthma, including in communities with the highest burden of disease | 2.1 |
| To undertake a feasibility study on safeguarding children from unhealthy food and drink advertising | 0.3 |
| To update physical activity guidelines for adults and older australians. | 0.1 |
| Prioritising mental health | 99.1 |
| Women’s health package - to improve education and treatment of cardiovascular disease in women. | 0.2 |
| Women’s health package - endometriosis – diagnosis and primary care support | 16.0 |
| Women’s health package - maternal health bereavement support | 6.8 |
| Women’s health package - fighting cancer and supporting recovery | 14.0 |
| Fighting cancer - to support specialist facilities and research to fight and prevent cancer | 84.7 |
| To update the medicare benefits schedule (mbs), selected applications for ncids | 22.0 |

Note: *) For consistency, multi-annual allocations were divided by the specified number of years, e.g., if an initiative was presented as “120 million over 3 years”, “40 million” was recorded.

- The governmental body Australian Institute of Health and Welfare produces the [Health system spending on disease and injury in Australia study](#), which uses modelling approaches to allocate health expenditure from all sources to specific conditions.

Argentina

- The [health budget](#) is presented by economic classification and does not include health programmes or priority areas.

Brazil

- The [health budget](#) is organised by programmes and priority areas, but no NCD-specific allocations are apparent. Both committed and executed budgets are presented.
- The data portal SIOPS of the Unified Health System (SUS) presents health expenditure data by [economic classification](#) or by [health function](#).

Canada

- Canada's [health budget](#) does not identify a distinct NCD programme, or equivalent, but mentions investments in mental health, particularly in relation to Indigenous populations, but allocations are difficult to isolate to mental health alone.
- The [National Health Expenditure database](#) produces yearly, customisable reports on health sector expenditure, but these do not allow disaggregation by condition or distinguish between public and private sources of expenditure.
- The most recent condition-specific expenditure data (by ICD chapter) are from the [Economic Burden of Illness in Canada 2010](#) study, published in 2018 by the Public Health Agency of Canada; results do not distinguish between public and private sources of expenditure.

China

- Some information on expenditure from public health insurance funds was identified from the [National Healthcare Security Administration](#), but it does not include condition-specific expenditure.
- Two academic studies attempted to estimate [health expenditure by condition](#) and [the direct economic burden of age-related conditions](#), respectively, but do not allow isolating the public expenditure component in their findings. Other studies focused on out-of-pocket expenditures on chronic conditions alone e.g., [Gao et al 2023](#), [Miao et al 2022](#).

France

- The [health budget](#) is organised by programmes, with details in separate documents as annexes. Both committed and executed budgets are presented.
- The [Healthcare Expenditures and Conditions Mapping \(HECM\) study](#) estimated expenditures reimbursed by national health insurance for the care of 58 distinct conditions, using 2019 data.

Germany

- Health expenditure by ICD chapter is available in [government official statistics](#); the detailed [methodology](#) is also available.

India

- Government of India's [Budget for the Ministry of Health and Family Welfare](#) does not include appropriations for a distinct "NCD programme", or equivalent. The National Health Mission (NHM) has a [distinct NCD programme](#), which appears to have [small allocations](#) relative to the total NHM budget.
- An [academic study](#) analysed state-level budgets between 2012 and 2016 to approximate public spending on NCDs and injuries (NCDI) jointly, without disaggregation by condition. Briefly, total annual public NCDI spending was estimated to be about USD 229 million (PPP-adjusted), or 29% of total public health expenditure. 80% of this would be spent at state-level.

Indonesia

- The [work plan and budget](#) document makes the programmes and priorities clear, but does not specify explicit sum allocations to them. The public insurer BPJS, which administers the JKN national health insurance scheme, publishes its [work plan and budget](#), which doesn't contain NCD-specific priorities and allocations. However, BPJS publish a summary of the audited accounts; these include total JKN spending for the top 10 most expensive conditions (these include cardiovascular disease, cancer and chronic kidney disease), without further details (BPJS 2023).

Italy

- The [health budget](#) is organized by programme areas and activities with specific allocations, some of which are NCD-specific:

| NCD activity/initiative | Allocation (EUR) |
|--|------------------|
| Expenses for the promotion of health information regarding organ and tissue samples and transplantations | 95 770 |
| Amounts required for information and prevention activities related to alcohol abuse and alcohol-related problems to be carried out in schools, universities, military academies, barracks, penitentiary institutions and youth gathering places. | 95 000 |
| Genomic testing fund for early hormone-responsive breast cancer | 20 000 000 |
| Fund for the implementation of the national oncology plan 2023-2027 | 10 000 000 |
| Amount to be allocated to the activities of the Italian national register of bone marrow donors | 900 000 |
| National network of cancer registers and surveillance systems | 1 000 000 |
| Fund for alzheimer and dementia | 4 900 000 |
| Fund to combat pathological gambling | 44 000 000 |
| Amounts required for monitoring data relating to alcohol abuse and alcohol-related problems | 93 128 |
| Fund for the treatment of subjects with autism spectrum disorder | 5 000 000 |
| Fund for the national screening programme for type 1 diabetes and celiac disease | 4 000 000 |
| Amounts to be distributed to public, school and hospital structures which provide gluten-free meals in the canteens upon the request of the interested parties | 167 161 |
| Amounts to be distributed to public, school and hospital structures which provide gluten-free meals in the canteens upon the request of the interested parties | 167 160 |

Japan

- The health budget includes [NCD-specific activities and allocations](#).
- [Official government statistics](#) for the financial year 2020 provide medical care expenditure data by ICD chapter (Table 5-29 in weblink) as part of the "*Estimates of National Medical Care Expenditure*". Based on the [methodology](#) for the previously available exercise (2017), it appears to include out-of-pocket payments and other benefits e.g., sick pay.

Korea

- The [health budget](#) is organized by programme areas and activities with specific allocations, some of which are NCD-specific.

Mexico

- The [health budget](#) is organized by programme areas and activities with specific allocations, some of which are NCD-specific. A large number of allocations to public entities, some of which appear to have NCD-specific roles e.g., oncology institute.

Russia

- No information identified.

Saudi Arabia

- The [health budget](#) makes clear the priorities and programme areas, which include NCDs, but does not include specific allocations to them.

South Africa

- The WHO Global Health Expenditure Database reports that in 2019 approximately 115.2 billion Rand were spent on NCDs from domestic funds, representing about 43% of the 270 billion Rand total domestic health spending.
- Information is also available from the [health budget](#) on allocations to the Ministry of Health non-communicable disease programme ~ 83.9 million Rand.

Turkey

- The [health budget](#) is structured using the economic classification. Programs and priorities are presented elsewhere ([budget justifications](#)) and include NCDs, but without specific allocations.

United Kingdom

- The [business plan](#) for the National Health Service outlines priority areas, including NCD-related, but without specific allocations to them.

United States

- The [Federal Budget](#) and its [Appendix](#) make clear the priority areas and programmes, which include NCDs, as well as specific budgetary allocations to them:

| NCD activity/initiative | Allocation (US\$ million) |
|--|---------------------------|
| CDC-wide activities and program support - chronic disease prevention and health promotion (0948) | 1175 |
| Substance use and mental health services administration | 7987 |
| Centers for medicare and medicaid services - demonstration programs to improve mental health services | 40 |
| \$215 Million within the va medical care programme, for precision oncology to provide access to the best possible cancer care for veterans. | 215 |
| Cancer moonshot | 716 |
| Discretionary funding to address specific commitments made as part of the white house conference on hunger, nutrition, and health and corresponding national strategy. | 137 |

- [Dieleman et al 2020](#) estimated health care spending for 154 conditions based on 2016 data from a wide range of sources, with findings disaggregated by sources of funding (Table 2 in weblink).
- [National Health Expenditure Data](#) maintained by the Centers for Medicare & Medicaid Services do not disaggregate by disease.

Appendix Table 1. NCD spending data as reported in identified sources (original currencies)

| | Wales (StatsWales 2024) | France (Rachas, et al. 2022) | United States (Dieleman, J; Cao, J; Chapin, A; et al. 2020) | Australia (Australian Government - Australian Institute of Health and Welfare 2023) | Argentina (Rao, et al. 2022) | Brazil (Rao, et al. 2022) | Canada (Public Health Agency of Canada 2018) | Germany (DESTATIS Statistisches Bundesamt 2022) | Japan (Ministry of Health, Labour and Welfare of Japan 2022) | Mexico (Rao, et al. 2022) |
|--|---|------------------------------------|--|---|------------------------------------|---------------------------------|---|---|---|---------------------------------|
| Expenditure source | Public spending only, different methodologies | | | Public and private spending, different methodologies | | | | | | |
| Year | 2022-2023 | 2015-2019 | 2016 | 2020-2021 | 2018 | 2019 | 2010 | 2020 | 2020 | 2018 |
| Original currency | GBP million | EUR billion | US\$ billion | AUD billion | US\$ billion | US\$ billion | CAD million | EUR billion | JPY hundred million | US\$ billion |
| Total spending across all conditions, of which: | 9,227.2 | 166.7 | 1,152.3 | 150.1 | 47.7 | 180.0 | 127590.7 | 431.8 | 307,813 | 65.6 |
| Cancer | 718.9 | 20.1 | 47.0 | 14.6 | 3.4 | 60.4 | 5359.5 | 43.8 | 46,880 | 4.2 |
| Endocrine diseases, of which: | 399.1 | | | 4.3 | 1.9 | 5.2 | 5466.6 | 17.4 | 20,852 | 5.2 |
| Diabetes | 166.8 | 8.6 | 55.0 | 2.7 | | | | 7.4 | 11,833 | |
| Mental health | 1,015.9 | 22.7 | 104.0 | 10.8 | 3.4 | 6.7 | 10440 | 56.4 | 18,982 | 0.9 |
| Neurological | 396.9 | 7.7 | 85.0 | 4.7 | 0.4 | 5.7 | 2730 | 23.5 | 15,530 | 1.1 |
| Circulatory | 705.5 | 23.5 | 144.0 | 14.3 | 5.5 | 8.9 | 13000 | 56.7 | 60,021 | 7.3 |
| Chronic respiratory | 518.3 | 3.5 | 52.0 | 1.7 | 4.3 | 7.1 | 6514 | 7.2 | 1,389 | 10.0 |
| Musculoskeletal | 427 | 3.4 | 142.0 | 14.7 | 1.9 | 6.8 | 6716.3 | 41.7 | 24,800 | 2.2 |
| Sub-total for chronic conditions above only | 4,181.6 | 89.5 | 629.0 | 65.1 | 20.7 | 100.8 | 50,226.4 | 246.7 | 188,454 | 31.0 |
| Share of chronic conditions above in total spending across all conditions | 45.3% | 53.7% | 54.6% | 43.4% | 43.5% | 56.1% | 39.4% | 57.1% | 61.2% | 47.2% |

Abbreviations: AUD – Australian Dollar; CAD – Canadian Dollar; EUR – Euro; GBP – British Pound; JPY – Japanese Yen; US\$ - United States dollar.

Works cited

- Akselrod, S, TE Collins, D Berlina, A Collins, and LN Allen. 2023. "The impact of UN high-level meetings on non-communicable disease funding and policy implementation." *BMJ Global Health* 8 (10): e012186, <https://doi.org/10.1136/bmjgh-2023-012186>.
- Australian Government - Australian Institute of Health and Welfare. 2023. "Health system spending on disease and injury in Australia, 2020-21." 29 November. Accessed May 23, 2024. <https://www.aihw.gov.au/reports/health-welfare-expenditure/health-system-spending-on-disease-and-injury-in-au/contents/about>.
- Australian Government - Department of Health. 2021. "National Preventive Health Strategy 2021-2030." December. Accessed May 26, 2024. https://www.health.gov.au/sites/default/files/documents/2021/12/national-preventive-health-strategy-2021-2030_1.pdf.
- Australian Government - Productivity Commission. 2024. "Report on Government Services 2024, Part E, Section 13: Services for mental health." 31 January. Accessed May 23, 2024. <https://www.pc.gov.au/ongoing/report-on-government-services/2024/health/services-for-mental-health>.
- Bertram, MY, K Sweeny, JA Lauer, D Chisholm, P Sheehan, B Rasmussen, SR Upreti, LP Dixit, K George, and S Deane. 2018. "Investing in non-communicable diseases: an estimation of the return on investment for prevention and treatment services." *The Lancet* 391 (10134): 2071-2078, doi: 10.1016/S0140-6736(18)30665-2.
- Bloom, D.E., E.T. Cafiero, E. Jané-Llopis, S. Abrahams-Gessel, L.R. Bloom, S. Fathima, A.B. Feigl, et al. 2011. *The Global Economic Burden of Noncommunicable Diseases*. Geneva: World Economic Forum.
- BPJS. 2023. "2022 Program Management Report and Financial Audit Report." June. Accessed May 23, 2024. <https://web.bpjs-kesehatan.go.id/uploads/information/27072023114426-4f131b52-f725-4d9e-bc41-3ab9d344ee08.pdf>.
- Bronsolero, A, J Gruber, and E Seira. 2021. "The Impact of a Private Supplement to Public Health Care: The Mexico Diabetes Experiment." 1 April. Accessed May 23, 2024. https://harris.uchicago.edu/sites/default/files/gruber_ppe_seminar_paper_4-14-21.pdf.
- Canadian Institute for Health Information. 2023. "National health expenditure trends." 02 November. Accessed May 23, 2024. <https://www.cihi.ca/en/national-health-expenditure-trends#data-tables>.
- Centers for Medicare & Medicaid Services. 2023. "National Health Expenditure Accounts." 13 December. Accessed May 23, 2024. <https://www.cms.gov/data-research/statistics-trends-and-reports/national-health-expenditure-data/historical>.
- CIPFA and The Health Foundation. n.d. "Exploring preventative investment in local government." Accessed May 23, 2024. <https://www.cipfa.org/cipfa-thinks/articles/exploring-preventative-investment-in-local-government>.
- Cowling, T, R Nayakathna, AL Wills, D Tankala, N Paul Roc, and S Barakat. 2023. "Early access for innovative oncology medicines: a different story in each nation." *Journal of Medical Economics* 26 (1): 944-953, <https://doi.org/10.1080/13696998.2023.2237336>.
- DESTATIS Statistisches Bundesamt. 2022. "Cost-of-illness accounts. 23631-0003 Cost of illness: Germany, years, disease diagnoses (ICD-10), sex, age groups." 27 July. Accessed May 23, 2024. <https://www-genesis.destatis.de/genesis/online?language=en&sequenz=statistikTabellen&selectionname=23631#abreadcrumb>.
- Dieleman, J; Cao, J; Chapin, A; et al. 2020. "US Health Care Spending by Payer and Health Condition, 1996-2016." *JAMA* 323 (9): 863-884, doi:10.1001/jama.2020.0734. PMID: 32125402; PMCID: PMC7054840.
- Direction de la recherche, des études, de l'évaluation et des statistiques (DREES). 2023. "Les dépenses de santé en 2022 - Résultats des comptes de la santé - Édition 2023." 20 September. Accessed May 23, 2024. <https://drees.solidarites-sante.gouv.fr/publications-communique-de-presse-documents-de-reference/panoramas-de-la-drees/les-depenses-de>.
- European Commission. 2023. "ANNEX to the Commission Implementing Decision on the financing of the Programme for the Union's action in the field of health ('EU4Health Programme') and the adoption of the work programme for 2024." 05 December. Accessed May 23, 2024. https://health.ec.europa.eu/document/download/c60cda6b-ad32-4909-9118-8a1f69c3cd32_en?filename=funding_c_2023_8524_annex1_en.pdf.

Works cited

- . 2022. "Healthier Together EU Non-Communicable Diseases Initiative." June. Accessed May 23, 2024. https://health.ec.europa.eu/document/download/d843d53e-c1c1-4664-b31e-febf618d011a_en?filename=eu-ncd-initiative_publication_en_0.pdf.
- European Parliament. 2023. "European Parliament resolution of 13 December 2023 on non-communicable diseases (NCDs)." 13 December. Accessed May 23, 2024. https://www.europarl.europa.eu/doceo/document/TA-9-2023-0467_EN.html#def_1_19.
- Eurostat. 2022. "Healthcare expenditure statistics." November. Accessed May 23, 2024. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Healthcare_expenditure_statistics#Healthcare_expenditure_by_function.
- . March. "Preventive health care expenditure statistics." 2024. Accessed May 23, 2024. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Preventive_health_care_expenditure_statistics.
- Gassner, L, I Zechmeister-Koss, and I Reinsperger. 2022. "National Strategies for Preventing and Managing Non-communicable Diseases in Selected Countries." *Frontiers in Public Health* 10 (838051): doi: 10.3389/fpubh.2022.838051.
- Gobierno de Mexico - Secretaria de Salud. 2024. "SICUENTAS Datos Abiertos." 17 May. Accessed May 23, 2024. http://www.dgis.salud.gob.mx/contenidos/basesdedatos/da_sicuentas_gobmx.html.
- Grafton, D., Elmusharaf K., Jung J., et al. 2021. *Prevention and Control of Non-Communicable Diseases in Saudi Arabia: The Case for Investment*. Geneva: UNDP, WHO, UNIATF, GHC. Grafton, D., Elmusharaf, K., & Jung, J. (2021). *The Case for Investment in Prevention and Control of Non-communicable Diseases in the Kingdom of Saudi Arabia*. UNDP, WHO, UNIATF, GHC. <https://applications.emro.who.int/docs/KSA-NCD-IC-v15-eng.pdf?ua=1&ua=1>. SAME???
- Hanson, K; Brikci, N; Erlangga, D; et al. 2022. "The Lancet Global Health Commission on financing primary health care: putting people at the centre." *The Lancet Global Health* 10: e715-722, [https://doi.org/10.1016/S2214-109X\(22\)00005-5](https://doi.org/10.1016/S2214-109X(22)00005-5).
- Hofmarcher, T, P Lindgren, N Wilking, and B Jönsson. 2020. "The cost of cancer in Europe 2018." *European Journal of Cancer* 129: 41-49, <https://doi.org/10.1016/j.ejca.2020.01.011>.
- Institute for Health Metrics and Evaluation. 2024. *Financing Global Health 2023: Non-communicable diseases*. 14 May. Accessed May 23, 2024. <https://www.healthdata.org/research-analysis/library/fgh-2023-non-communicable-diseases>.
- International Public Sector Accounting Standards Board. 2022. *Handbook of International Public Sector Accounting Pronouncements - Volume 1*. New York, United States: International Federation of Accountants.
- Jenei, K, AJN Raymekrs, A Bayle, K Berger-Thürmel, A Cherla, K Honda, CGA Jackson, et al. 2023. "Health technology assessment for cancer medicines across the G7 countries and Oceania: an international, cross-sectional study." *The Lancet Oncology* 24 (6): 624-635, [https://doi.org/10.1016/S1470-2045\(23\)00175-4](https://doi.org/10.1016/S1470-2045(23)00175-4).
- Luengo-Fernandez, R; Walli-Attaei, M; Gray, A; et al. 2023. "Economic burden of cardiovascular diseases in the European Union: a population-based cost study." *European Heart Journal* 44 (45): 4752-4767, <https://doi.org/10.1093/eurheartj/ehad583>.
- Martin, S, J Lomas, and K Claxton. 2020. "Is an ounce of prevention worth a pound of cure? A cross-sectional study of the impact of English public health grant on mortality and morbidity." *BMJ Open* 10 (10): e036411, doi: 10.1136/bmjopen-2019-036411.
- Martinez, R, P Lloyd-Sherlock, P Soliz, S Ebrahim, E Vega, P Ordunez, and M McKee. 2020. "Trends in premature avertable mortality from non-communicable diseases for 195 countries and territories, 1990-2017: a population-based study." *The Lancet Global Health* 8 (4): E511-E523, [https://doi.org/10.1016/S2214-109X\(20\)30035-8](https://doi.org/10.1016/S2214-109X(20)30035-8).
- Ministry of Health, Labour and Welfare of Japan. 2022. "Handbook of Health and Welfare Statistics 2022. Table 5-29 Medical care expenditure of medical care by inpatient - outpatient, age group and category of disease ." Accessed May 23, 2024. <https://www.mhlw.go.jp/english/database/db-hh/5-1.html>.
- NCD Alliance and Global Alliance for Tobacco Control. 2024. "Tracking NCD Funding Flows - Urgent Calls and Global Solutions." Accessed June 12, 2024. <https://ncdalliance.org/resources/tracking-ncd-funding-flows-urgent-calls-and-global-solutions>.
- NCD Alliance. 2024. "Financing Solutions for NCDs and Mental Health." March. Accessed May 23, 2024. https://ncdalliance.org/sites/default/files/resource_files/Financing-Solutions-for-NCDs-and-MH%20brief_final_0.pdf.

Works cited

- NCD Countdown 2030 Collaborators. 2022. "NCD Countdown 2030: efficient pathways and strategic investments to accelerate progress towards the Sustainable Development Goal target 3.4 in low-income and middle-income countries." *The Lancet* 399 (10331): P1266-1278, [https://doi.org/10.1016/S0140-6736\(21\)02347-3](https://doi.org/10.1016/S0140-6736(21)02347-3).
- NCD Countdown 2030 collaborators. 2020. "NCD Countdown 2030: pathways to achieving Sustainable Development Goal target 3.4." *The Lancet* 396: 918-934 [https://doi.org/10.1016/S0140-6736\(20\)31761-X](https://doi.org/10.1016/S0140-6736(20)31761-X).
- NHS Business Services Authority. n.d. "Catalyst Public insight portal." Accessed May 23, 2024. <https://www.nhsbsa.nhs.uk/access-our-data-products/catalyst>.
- . n.d. "Programme Budget Categories (PBC)." Accessed May 23, 2024. <https://www.nhsbsa.nhs.uk/access-our-data-products/epact2/report-information/programme-budget-categories-pbc>.
- OECD. 2020. *Addressing Challenges in Access to Oncology Medicines Analytical Report*. Paris: OECD Publishing. Chapman, S., V. Paris and R. Lopert (2020), "Challenges in access to oncology medicines: Policies and practices across the OECD and the EU", *OECD Health Working Papers*, No. 123, OECD Publishing, Paris, <https://doi.org/10.1787/4b2e9cb9-en>. SAME???
- . 2016. "Expenditure by disease, age and gender." April. Accessed May 23, 2024. <https://www.oecd.org/els/health-systems/Expenditure-by-disease-age-and-gender-FOCUS-April2016.pdf>.
- OECD, Eurostat and World Health Organization. 2017. *A System of Health Accounts 2011: Revised Edition*. Paris: OECD Publishing. Accessed May 23, 2024. <https://www.oecd.org/els/health-systems/a-system-of-health-accounts-2011-9789264270985-en.htm>.
- Office for National Statistics. 2021. "Expenditure on healthcare: UK Health Accounts." 16 July. Accessed May 23, 2024. <https://www.ons.gov.uk/datasets/health-accounts/editions/time-series/versions/2>.
- Organization for Economic Cooperation and Development. 2016. "Health at a Glance: Europe 2016 State of Health in the EU Cycle." 23 November. Accessed May 23, 2024. https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-europe-2016_9789264265592-en.
- Public Health Agency of Canada. 2018. "Economic Burden of Illness in Canada." 17 July. Accessed May 23, 2024. <https://www.canada.ca/en/public-health/services/chronic-diseases/chronic-disease-knowledge-development-exchange/economic-burden-illness-canada.html>.
- . 2024. "Healthy Canadians and Communities Fund." 10 May. Accessed May 23, 2024. <https://www.canada.ca/en/public-health/programs/healthy-canadians-communities-fund.html>.
- Rachas, A, C Gastaldi-Menager, P Denis, P Barthelemy, P Constantinou, J Drouin, D Lastier, et al. 2022. "The Economic Burden of Disease in France From the National Health Insurance Perspective." *Medical Care* 60 (9): 655-664, doi: 10.1097/MLR.0000000000001745. Epub 2022 Jul 26. PMID: 35880776; PMCID: PMC9365254.
- Rao, KD, AI Vecino Ortiz, T Robertson, A Lopez Hernandez, and C Noonan. 2022. "Future Health Spending in Latin America and the Caribbean: Health Expenditure Projections & Scenario Analysis." April. Accessed May 23, 2024. <https://publications.iadb.org/en/future-health-spending-latin-america-and-caribbean-health-expenditure-projections-scenario-analysis>.
- Scottish Government. 2015. "Programme Budgeting in NHSScotland." 04 August. Accessed May 23, 2024. <https://www.gov.scot/publications/programme-budgeting-nhsscotland/pages/5/>.
- StatsWales. 2024. "NHS expenditure by budget category and year." 16 April. Accessed May 23, 2024. <https://statswales.gov.wales/Catalogue/Health-and-Social-Care/Health-Finance/NHS-Programme-Budget/nhsexpenditure-by-budgetcategory-year>.
- The Health Foundation. 2023. "Revenue, capital, prevention: a new public spending framework for the future." October. Accessed May 23, 2024. <https://www.health.org.uk/publications/revenue-capital-prevention-a-new-public-spending-framework-for-the-future>.
- Troisi, G; Small, R; Chestnov, R; et al. 2024. "The reported impact of non-communicable disease investment cases in 13 countries." *BMJ Global Health* 9 (4): e014784, <https://doi.org/10.1136/bmjgh-2023-014784>.
- Turner, H, J Lauer, BX Tran, Y Teerawattananon, and M Jit. 2019. "Adjusting for Inflation and Currency Changes Within Health Economic Studies." *Value in Health* 22 (9): 1026-1032, <https://doi.org/10.1016/j.jval.2019.03.021>.

Works cited

- United Nations Department of Economic and Social Affairs. n.d. *SDG Indicators Database*. Accessed May 24, 2024. <https://unstats.un.org/sdgs/dataportal/analytics/GlobalRegionalTrends>.
- United Nations General Assembly. 2021. "Political Declaration on HIV and AIDS: Ending Inequalities and Getting on Track to End AIDS by 2030." 8 June. Accessed May 23, 2024. https://www.unaids.org/sites/default/files/media_asset/2021_political-declaration-on-hiv-and-aids_en.pdf.
- United Nations. September. "Political Declaration on the High-Level Meeting on the Fight Against Tuberculosis." 01 2023. Accessed May 23, 2024. <https://www.un.org/pga/77/wp-content/uploads/sites/105/2023/09/TB-Final-Text.pdf>.
- University College London - Evidence for Policy & Practice Information Centre. 2024. *CCEMG - EPPI-Centre Cost Converter*. Campbell & Cochrane Economics Methods Group (CCEMG) and the EPPI Centre, University College London. January. Accessed May 23, 2024. <https://eppi.ioe.ac.uk/costconversion/>.
- Vammalle, C, C Penn, L Cordoba Reyes, and James C. 2024. "Chapter 4. Budgeting practices for health in OECD countries." In *Fiscal Sustainability of Health Systems: How to Finance More Resilient Health Systems When Money Is Tight?* Paris: OECD Publishing. <https://doi.org/10.1787/880f3195-en>.
- Ward, ZJ, and SJ Goldie. 2024. "Global Burden of Disease Study 2021 estimates: implications for health policy and research." *The Lancet* 403 (10440): P1958-1959, [https://doi.org/10.1016/S0140-6736\(24\)00812-2](https://doi.org/10.1016/S0140-6736(24)00812-2).
- World Health Organization and the Organisation for Economic Co-operation and Development. 2023. *Purchasing for quality chronic care: summary report*. Geneva. OECD/WHO (2023), *Purchasing for Quality Chronic Care: Summary Report*, WHO, Geneva/OECD Publishing, Paris, <https://doi.org/10.1787/66dfc7e1-en>
- World Health Organization. 2018. "Final report. WHO GCM/NCD Working Group on the Alignment of International Cooperation with National NCD Plans (Working Group 3.2, 2016–2017)." Accessed May 23, 2024. <https://iris.who.int/bitstream/handle/10665/312273/WHO-NMH-NMA-GCM-18.12-eng.pdf?sequence=1&isAllowed=y>.
- . 2013. *Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020*. Geneva: World Health Organization. <https://www.who.int/publications/i/item/9789241506236>
- . 2020. *Global spending on health: weathering the storm*. Geneva: World Health Organization. <https://www.who.int/publications/i/item/9789240017788>
- . n.d. "NCD Global Monitoring Framework: Indicator Definitions and Specifications - NCD Mortality." Accessed May 23, 2024. https://ais.paho.org/hip/indicators/Premature_mortality_ncd_definition.pdf?ua=1.
- . 2023. "Noncommunicable diseases key facts." 16 September. Accessed June 17, 2024. [https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases#:~:text=Noncommunicable%20diseases%20\(NCDs\)%20kill%2041,%2D%20and%20middle%2Dincome%20countries](https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases#:~:text=Noncommunicable%20diseases%20(NCDs)%20kill%2041,%2D%20and%20middle%2Dincome%20countries).
- . 2021. *Saving lives, spending less A strategic response to noncommunicable diseases*. Geneva: World Health Organization. <https://www.who.int/publications/i/item/WHO-NMH-NVI-18.8>
- . n.d. *The Global Health Observatory - Noncommunicable diseases: Mortality*. Accessed May 24, 2024. <https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/ncd-mortality>.
- . 2020. "WHO methods and data sources for global burden of disease estimates 2000-2019. Global Health Estimates Technical Paper WHO/ DDI/DNA/GHE/2020.3." December. Accessed June 17, 2024. https://www.who.int/docs/default-source/gho-documents/global-health-estimates/ghe2019_daly-methods.pdf.
- . n.d. "WHO NCD Accountability Framework, including Global Monitoring Framework for NCD prevention and control (2021 update) in alignment with the extension of the NCD Global Action Plan to 2030." Accessed May 23, 2024. https://cdn.who.int/media/docs/default-source/ncds/ncd-surveillance/who-ncd-accountability-framework-for-ncd-implementation-roadmap.pdf?sfvrsn=346fb61b_1&download=true.



#NCDs @ncdalliance