

# Noncommunicable disease, tobacco control and mental health investment cases

Draft 26 April 2024

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## **1. Health impact and economic returns of investing in the prevention and control of NCDs: global level**

In order to advocate for investing in NCDs, WHO published a report in 2021 on the health and economic benefits of implementing the 16 most cost-effective and feasible interventions to prevent and control NCDs (WHO Best Buys) in 76 low- and lower-middle-income countries – covering almost 4 billion people,<sup>1</sup> in follow up to an earlier report published in 2018.<sup>2</sup> The 2021 analysis concluded that an additional US\$ 0.84 per person per year between 2020 and 2030, would result in saving over 7 million lives, including averting over 10 million cases of heart attacks and strokes, with US\$ 230 billion in economic gains. The report concluded that every US dollar invested in the 16 WHO best buys would yield a return of at least US\$ 7 by 2030. Despite this, there remains significant underuse of the best buys, especially in low- and middle-income countries.<sup>3</sup>

## **2. Estimating the cost of NCDs, tobacco use and mental health conditions and the return on investment at the country level: national NCD, tobacco control and mental health investment cases**

Countries have increasingly requested support for data on the economic returns for reducing the burden of NCDs, including tobacco, and mental health conditions at the country level,<sup>4</sup> with the overall goal of helping institutions within countries to examine and determine the policy and fiscal space for implementing priority NCD/mental health-relevant interventions, and for government and development partners to determine the specific strategies and approaches most likely to increase that space. Country investment cases, therefore, provide a detailed analysis to support countries for planning purposes, in addition to being a tool for advocacy.

Support to countries has predominantly been provided by WHO, UNDP, and the secretariats of the Framework Convention<sup>5</sup> and the United Nations Inter-Agency Task Force on the Prevention and Control of NCDs, in collaboration with academic partners. Since 2016, 30 NCD, 42 tobacco control, and 11 mental health investment cases have either been undertaken or are in progress.

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<sup>1</sup> Saving lives, spending less: the case for investing in noncommunicable diseases. Geneva: World Health Organization; 2021. <https://iris.who.int/bitstream/handle/10665/350449/9789240041059-eng.pdf?sequence=1>

<sup>2</sup> Saving lives, spending less: a strategic response to noncommunicable diseases. Geneva: World Health Organization; 2018. <https://www.who.int/publications/i/item/WHO-NMH-NVI-18.8>

<sup>3</sup> Allen LN, Pullar J, Wickramasinghe K et al. Evaluation of research on interventions aligned to WHO best buys for NCDs in low-income and lower middle-income countries: a systematic review from 1990 to 2015. *BMJ Glob Health* 2018;3:e000535.

<sup>4</sup> In line with the 2018 Political declaration of the third high-level meeting of the General Assembly on the prevention and control of NCDs. [https://uniatf.who.int/docs/librariesprovider22/default-document-library/a\\_res\\_73\\_2-en-\(1\).pdf?sfvrsn=8e383b39\\_5&download=true](https://uniatf.who.int/docs/librariesprovider22/default-document-library/a_res_73_2-en-(1).pdf?sfvrsn=8e383b39_5&download=true)

<sup>5</sup> The Convention Secretariat serves as Secretariat of both the WHO Framework Convention on Tobacco Control (WHO FCTC) and the Protocol to Eliminate Illicit Trade in Tobacco Products (the Protocol).

NCD investment cases were undertaken at the request of a Member State to WHO and/or UNDP, including through the Gulf Health Council. Countries selected for tobacco control investment cases were those in the FCTC 2030 project with others coming from requests to UNDP. Mental health investment cases included countries in the WHO Special Initiative on Mental Health.<sup>6</sup>

## **2.1 What are NCD and mental health investment cases?**

There are two components to an NCD investment case – an economic component and an institutional and context analysis (ICA). The economic component quantifies the direct and indirect costs of NCDs and/or mental health conditions, the costs of a set of interventions to prevent and treat these conditions,<sup>7</sup> and the return on investment (ROI) of these interventions.

The ICA helps assess the political and economic dimensions of NCD/mental health policy adoption, implementation and enforcement, including how the economic analysis would affect these dimensions. It aims to uncover the most promising policy pathways for countries to take (e.g. areas of general consensus, political appetite and opportunity) as well as areas where there are challenges and barriers.

Guidance on how to undertake an NCD and mental health investment cases is available.<sup>8,9</sup> In 2023, a 2-day workshop was held for UN and other partners working on investment cases. A series of updates was given, and each followed with a short discussion. A set of videos can be accessed here.

In general, each country establishes a team of local experts to collect and review data, agree on which conditions and interventions to focus on; and to discuss analytical choices, assumptions and preliminary results. National teams are supported by an international team made up of health economists, mental health specialists and health and social development experts from the UN system and academia.

Details on the methods used for the tobacco investment cases have been described. Importantly, while country tailoring allows for different interventions and methodological adjustments, the model and process are largely comparable across most countries.<sup>10</sup>

A brief summary of the methods is included in the Annex.

## **2.2 What are the results of NCD investment cases?**

An analysis of a subset of 26 national NCD investment cases conducted between 2015 and 2022 was undertaken in 2023.<sup>11</sup> The aggregate results from the economic analyses show that, on average, NCDs

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<sup>6</sup> See: <https://www.who.int/initiatives/who-special-initiative-for-mental-health>

<sup>7</sup> Interventions modelled are based on the WHO best buys and other recommended interventions, the latest version of which is available in EB152/6 Political declaration of the third high-level meeting of the General Assembly on the prevention and control of non-communicable diseases and mental health. Draft updated menu of policy options and cost-effective interventions for the prevention and control of noncommunicable diseases [https://apps.who.int/gb/ebwha/pdf\\_files/EB152/B152\\_6-en.pdf](https://apps.who.int/gb/ebwha/pdf_files/EB152/B152_6-en.pdf)

<sup>8</sup> Non-communicable disease prevention and control: a guidance note for investment cases. Geneva: WHO and UNDP, 2019. <https://iris.who.int/bitstream/handle/10665/311180/WHO-NMH-NMA-19.95-eng.pdf?sequence=1>

<sup>9</sup> Mental health investment case: a guidance note. Geneva: WHO and UNDP, 2021. <https://iris.who.int/bitstream/handle/10665/340246/9789240019386-eng.pdf?sequence=1>

<sup>10</sup> Nugent R, Hutchinson B, Mann N, et al. Evolving methodology of national tobacco control investment cases. *Tobacco control*. 2024. In press.

<sup>11</sup> E/2023/86. Report of the Director General of the World Health Organization on the United Nations Inter-Agency Task Force on the Prevention and Control of Non-communicable Diseases, 2023. [https://uniatf.who.int/docs/librariesprovider22/default-document-library/n2314061.pdf?sfvrsn=52a6e71b\\_5&download=true](https://uniatf.who.int/docs/librariesprovider22/default-document-library/n2314061.pdf?sfvrsn=52a6e71b_5&download=true). Countries included in the analysis were: Armenia,

cause 4.3 per cent of gross domestic product to be lost every year as a result of direct (i.e. health care) and indirect (i.e. productivity loss) costs. Investment cases found that scaled-up action against NCDs can propel economic growth and progress towards the Sustainable Development Goals. In the 26 countries, investment in the WHO best buy policies and clinical measures would save more than 13.5 million lives and yield major health care savings and productivity gains that amount, on average, to 5 per cent of national gross domestic product per country (ranging from 0.4 per cent to 18.7 per cent) over a period of 15 years.

The results of the investment cases indicate that the best buys have a significant return on investment, with the average estimate across all recommended intervention packages, and across all countries, totaling US\$ 10 for every US\$ 1 invested over 15 years.

More detailed analyses have been published elsewhere.<sup>12,13</sup>

### **2.3 What are the results of tobacco control investment cases?**

An analysis of 21 tobacco control investment cases found that tobacco use results in average annual socio-economic losses of US\$ 95 million, US\$ 610 million, and US\$ 1.6 billion among low-, lower-middle-, and upper-middle-income countries, respectively.<sup>14</sup> These losses are equivalent to 1.1%, 1.8%, and 2.9% of average annual national gross domestic product for each income category. Full implementation and enforcement of WHO FCTC tobacco control demand reduction measures modeled in the investment cases, would enable countries to avert an average of US\$ 319 million, US\$ 1.8 billion, and US\$ 5.5 billion in low-, lower-middle, and upper-middle income countries, respectively. The ROI for the tobacco control intervention and policy package is positive for every one of the 21 countries, ranging from US\$ 4 to US\$ 364 per every US\$ 1 invested, over 15 years.

An assessment on the equity impacts of tobacco control confirms that taxation of tobacco products is pro-poor, with the poorest 20% of the population paying the least (12%) of additional money spent on tobacco while reducing their consumption the most among all income-segments.<sup>15</sup>

### **2.4 What are the results of mental health investment cases?**

An analysis of 7 national mental health undertaken between 2020 and 2023 was published in 2023.<sup>16</sup> Across seven countries, the economic burden of mental health conditions was estimated at between 0.5%–1.0% of GDP. Delivery of an evidence-based package of mental health interventions was estimated to cost US\$ 0.40–2.40 per capita per year, depending on the country and its scale-up period. For most conditions and country contexts there was a return of >1 for each dollar or unit of local currency invested (range: 0.0–10.6 to 1) when productivity gains alone are included, and >2 (range: 0.4–30.3 to 1) when the

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Bahrain, Barbados, Belarus, Bosnia and Herzegovina, Botswana, Cambodia, Ethiopia, Georgia, Jamaica, Kazakhstan, Kuwait, Malaysia, Mongolia, Nigeria, Oman, the Philippines, Qatar, the Russian Federation, Saudi Arabia, Thailand, Türkiye, Uganda, the United Arab Emirates, Uzbekistan and Zambia.

<sup>12</sup> Hutchinson B, Small R, Acquah et al. The investment case as a mechanism for addressing the NCD burden: Evaluating the NCD institutional context in Jamaica, and the return on investment of select interventions. [PLoS ONE 2019. 14 \(10\): e0223412](https://doi.org/10.1371/journal.pone.0223412).

<sup>13</sup> Elmusharaf K, Grafton D, Jung JS et al. The case for investing in the prevention and control of non-communicable diseases in the six countries of the Gulf Cooperation Council: an economic evaluation. [BMJ Glob Health 2022;7:e008670](https://doi.org/10.1186/s13075-022-02670-7)

<sup>14</sup> Mann N, Spencer G, Hutchinson B et al. Interpreting results, impacts, and implications from WHO FCTC Tobacco Control investment cases in 21 low and middle-income countries. *Tobacco Control*. In Press

<sup>15</sup> Spencer G, Nugent R, Mann N, et al. Equity implications of tobacco taxation: results from WHO FCTC investment cases. *Tobacco control*. 2024. In press.

<sup>16</sup> Chisholm D, Lee YY, Baral PP et al. Cross-country analysis of national mental health investment case studies in sub-Saharan Africa and Central, South and South-East Asia. *Front. Health Serv*. 2023. 3:1214885. <https://doi.org/10.3389/frhs.2023.1214885>

intrinsic economic value of health is also considered. There was considerable variation in benefit-cost ratios between intervention areas; population-based preventive measures (including school-based social and emotional learning programmes and bans on highly hazardous pesticides) as well as treatment of anxiety, depression and epilepsy in primary care showed the most attractive returns; by comparison, the management of bipolar disorder was found to offer only very modest return on investment.

Overall, the investment cases indicates that the economic burden of mental health conditions is high, the investment costs are low, and the potential returns are substantial.

### **3. The impact of NCD and tobacco investment cases**

#### **3.1 What is the impact of NCD investment cases?**

An analysis of the impact of 13 NCD investment cases was published in 2024.<sup>17</sup> While no country had implemented all or indeed most of the recommendations set out in their investment case reports, actions and policy changes attributable to the investment cases were identified, across (i) governance; (ii) financing; and (iii) health service access and delivery.

Across the 13 countries, 47 actions and/or policy changes were identified as being attributable in whole or in part to the NCD investment cases. These are summarized in Table 1. Each country identified at least one action that had resulted from the investment case. Governance was the area most frequently identified, followed by financing and then health service access and delivery.

The pathways for these changes included: (i) stronger collaboration across government ministries and partners; (ii) advocacy for NCD prevention and control; (iii) grounding efforts in nationally owned data and evidence; (iv) developing mutually embraced 'language' across health and finance; and (v) elevating the priority accorded to NCDs, by framing action as an investment rather than a cost.

The analysis also identified barriers to progress on the investment case implementation, including the influence of some private sector entities on sectors other than health, the impact of the COVID-19 pandemic, and changes in senior political and technical governments officials.

The results suggest that national NCD investment cases can significantly contribute to catalyzing the prevention and control of NCDs through strengthening governance, financing, and health service access and delivery.

#### **3.2 What is the impact of tobacco control investment cases?**

An analysis of the impact of 21 tobacco investment cases is currently in press.<sup>18</sup> 30 actions to advance tobacco control were identified in line with investment case findings and recommendations in 17 of the 21 countries, and many have improved collaboration and policy coherence between health and economic stakeholders. Some of these actions occurred after initiation of the investment case process and before its completion. The advancements include stronger implementation of the demand-reduction measures.

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<sup>17</sup> Troisi G, Small R, Chestnov R, et al. The reported impact of non-communicable disease investment cases in 13 countries. *BMJ Global Health* 2024;9:e014784. <https://gh.bmj.com/content/9/4/e014784>

<sup>18</sup> Small R, Nugent R, Webb D, et al. Advancing progress on tobacco control in low-income and middle-income countries through economic analysis. *Tobacco control*. 2024. In press

Specifically, four countries strengthened their tobacco tax regime; five countries instituted stronger smoke-free policies; two countries made changes to raise awareness of the harms of tobacco use; four countries instituted greater limits on tobacco advertising, promotion and sponsorship; one country legislated for plain packaging for tobacco and two countries established tobacco cessation programmes.

The observed tobacco control advancements also include strategy, coordination and multistakeholder engagement in line with WHO FCTC Article 5. Eight countries formed institutions and activities to coordinate and strengthen tobacco control planning and engage stakeholders. Two countries took legislative action to prevent tobacco industry interference in policymaking.

Such core governance improvements not only make tobacco control policy progress more likely but also more likely to be sustained and resourced into the future. This includes the importance of evidence-based multisectoral planning and coordination to tackling tobacco industry interference in policy-making.

#### **4. Observations, discussion points and recommendations from investment case work to date**

##### **4.1 From the work conducted to date the following observations and discussion points emerge:**

- i. Economic analyses are crucial in exploring how to use resources most effectively and advocating for investment in under-resourced areas. It is important that issue-specific cases do not inadvertently encourage siloed approaches to policymaking and programming, instead advancing universal health coverage. For this reason, and due to often incomparable methodologies, economic analyses of different diseases should not be pitted against one another; rather, where possible, synergies should be shown and promoted.
- ii. The return-on-investment analysis must be interpreted with nuance. Many important interventions are not always able to be included in the analysis and it would be inappropriate to focus attention too narrowly on a few interventions simply because they have a slightly higher economic return on investment.
- iii. Non-financial considerations are equally important when assessing the impact of NCDs and their risk factors or mental health conditions and when identifying the most effective, feasible and rights-based interventions. These considerations are often influenced by national circumstances, such as social justice and equal opportunities for all, implementation capacity, feasibility (including political opportunity, cultural acceptability, sustainability and scalability), the need to promote health equity, and the importance of combining a balance of prevention and treatment as well as population-wide and individual interventions.
- iv. There must be buy-in from relevant stakeholders with clear approaches for ensuring that the results are heard, understood and implemented. It is also important to recognize that investment cases depend on the assumptions being made in the model as well as the data available and their quality and acceptability.
- v. Despite the significant interest and increase in country-level investment case studies for NCDs, tobacco control and mental health, and the documented impact of these on national policies, health

systems and health financing, many investment case study findings are yet to translate into policy or service changes. This suggests the need for complementary and sustained support.

**4.2 The following considerations can help guide when to undertake and to make best use of an investment case in order to better identify where such studies are merited and can be expected to lead to substantive impacts.**

Key considerations for undertaking an investment case: (a) sustainable political commitment from ministries of health and other local stakeholders; (b) clear rationale and objectives for the study; (c) upfront specification of the strategic planning or resource allocation process or mechanism to which the study will contribute; and (d) identification of national focal point(s) for study oversight and follow-up.

Key considerations for making use of an investment case: (a) dissemination of study findings to all relevant national stakeholder groups; (b) specified follow-up steps with key stakeholders (e.g. ministries of health and finance and/or planning); (c) dedication of human and financial resources to follow-up and implementation; and (d) specification of indicators of follow-up and implementation, including in strategic planning or resource allocation.

## **Annex 1: General approaches used for the economic component of investment cases**

*(Note: this is an overview and does not provide details on all steps involved. In additional, not every investment case will have been conducted in exactly the same way. More details on the methods used are available from the sources referenced in the footnotes of the main body of the paper)*

### **Noncommunicable Diseases**

National data were complemented by relevant regional and international proxy data where no national data were available. Population figures were obtained from local reports and the World Bank database. Morbidity and mortality data were obtained from local literature, STEP-wise Approach to NCD Risk factor Surveillance Survey and estimates from the Institute for Health Metrics and Evaluation. Health expenditure data were collected from local reports published by Ministries of Health, the WHO Global Health Expenditure database and the World Bank database. Labour force data were collected from the World Bank database and local literature.

The economic burden of NCDs was estimated by combining direct and indirect costs. Direct costs are considered as costs incurred by individuals and the health system to treat the four main NCDs. Indirect costs are considered as the economic loss in the labour market from premature death for the four NCDs, as well as time off from work (absenteeism), and work at reduced capacity (presenteeism). Direct costs include medical staff salaries, procedures and treatment.

The loss of GDP due to premature death of workers was estimated using the human capital approach. Productivity losses due to premature deaths were calculated as the product of the total working years lost in all age groups multiplied by the labour force participation rate, age-specific employment rate and GDP per worker. Based on the WHO 'best buys' and recommended interventions for the prevention and control of NCDs, a set of policy and clinical intervention packages were included in most casdes (tobacco control, physical activity awareness, salt reduction, primary care-level clinical interventions to screen and treat cardiovascular diseases and diabetes. The time frame for implementing these interventions was 15 years.

Costs of intervention packages were calculated using the WHO Costing Tool for NCD prevention and control. The WHO OneHealth Tool was used to assess the health benefits of implementing and scaling up policy and clinical interventions by modelling the number of disease cases averted, lives saved and healthy life-years gained over the 15 years under study.<sup>19</sup> The ROI for each intervention package was reached by comparing the productivity and social benefits with the total costs of setting up and implementing the interventions, with a discount rate applied to arrive at the net present value of all costs and economic benefits. The ROI analysis was based on a spreadsheet model developed by WHO

### **Tobacco control**

The economic modelling was based on a modified societal perspective that captured broad socioeconomic impacts attributable to tobacco use, including health-related losses, and social (i.e. the value of lives lost due to tobacco use) and productivity losses (i.e. absenteeism, presenteeism). The model is described as modified because it did not capture all external impacts of tobacco use (e.g. pollution, deforestation).

Broadly, the economic analyses consisted of two components. In the tradition of cost-of-illness studies, the burden of tobacco use was assessed for the country concerned. Next, the cases assessed the extent

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<sup>19</sup> See: <https://avenirhealth.org/software-onehealth.php>

to which tobacco control measures could reduce the burden. In a return-on-investment analysis, over 15 years, two scenarios were compared: a base case in which the 1-year socioeconomic losses are assumed to extend, year over year, with no advances in tobacco control (sometimes called the ‘status quo’ or ‘no action’ scenario), and an intervention scenario showing the outcomes that could be achieved by fully implementing and enforcing evidence-based tobacco control demand reduction measures.

The aim was to produce modelling and contextual assessment that would be credible and consistent—yet flexible in order to be generalizable enough to be usable across countries and directly by country stakeholders, and that could evolve with each country’s experience and advances in the academic literature.

### **Mental health**

All of the national studies reported here used and followed the methodological guidance note developed and issued by WHO and UNDP to provide a consistent and structured approach for making national cases for investment in mental health.

Age- and sex-specific incidence, prevalence, remission and mortality rates—as well as levels of disability or functioning—for each included condition were based on local survey data or from country-specific estimates obtained from the Global Burden of Disease study.<sup>20</sup> Intervention effect sizes were based on estimates available from WHO's cost-effectiveness work programme. To estimate the population-level health impact of these interventions, a strategic costing and planning tool developed by WHO and other UN agencies called the OneHealth tool was used.<sup>19</sup>

Economic costs were therefore established, both in terms of direct mental health expenditure and in terms of productivity losses due to absenteeism, presenteeism and premature mortality. Mental health expenditure was based on available national health accounts data, and as reported through periodic international surveys such as the WHO Mental Health Atlas. For productivity losses, which includes estimates of both absenteeism and presenteeism, data were taken from the World Health Surveys.

Both the intrinsic value of improved mental health and well-being, as well as its instrumental value (e.g., being able to form and maintain relationships, study, work or pursue leisure interests and to make decisions in everyday life) were estimated. In addition to calculating the productivity gains attributable to each mental health intervention, separate estimates were calculated for the intrinsic value of improving health as an end in itself. The return for each intervention was calculated by comparing the instrumental and intrinsic economic benefits produced by the intervention with the total costs of setting up, implementing and scaling-up the interventions over time. The time horizon selected by the country teams for the analysis ranged from 10 to 20 years.

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<sup>20</sup> See: <https://ghdx.healthdata.org/gbd-2019>