Tackling NCDs

Best buys and other recommended interventions for the prevention and control of noncommunicable diseases

Second edition

World Health Organization

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Abbreviations and acronyms

ACE-I	angiotensin-converting enzyme inhibitor
COPD	chronic obstructive pulmonary disease
CVD	cardiovascular disease
HLY	healthy life years
IHT	Integrated Health Tool
NCD	noncommunicable disease
SDG	Sustainable Development Goal
WHA	World Health Assembly
WHO	World Health Organization
WHO FCTC	WHO Framework Convention on Tobacco Control
WHO-CHOICE	WHO Choosing Interventions that are Cost-Effective

Household garden in Tajikistan, 2022,
© WHO/Mukhsin Abidjanov

Introduction

This document provides an updated list of "best buys" and other recommended interventions to address noncommunicable diseases (NCDs). It is based on Appendix 3 of the *Global action plan for the prevention and control of noncommunicable diseases 2013–2020 (1)*, which was first approved in 2013 *(2)* and last updated in 2017 *(3)*. The global action plan, which was extended to 2030 by a World Health Assembly decision in 2019 *(4)* has six objectives (Box 1), the implementation of which at country level supports the attainment of the nine voluntary NCD targets *(1)*, and facilitates the realization of Sustainable Development Goal (SDG) 3 on good health and well-being *(5)*.

The current update to Appendix 3 of the Global action plan was carried out in 2022. It addresses objectives 3 and 4 by presenting a menu of policy options, cost-effective and recommended interventions for each of the four key risk factors for NCDs (tobacco, harmful use of alcohol, unhealthy diet and physical inactivity) and for four disease areas (cardiovascular disease, diabetes, chronic respiratory disease and cancer). It also provides policy options related to the four other objectives.

Box 1: The objectives of the Global action plan on the prevention and control of noncommunicable diseases 2013–2030

1. To raise the priority accorded to the prevention and control of noncommunicable diseases in global, regional and national agendas and internationally agreed development goals, through strengthened international cooperation and advocacy
2. To strengthen national capacity, leadership, governance, multisectoral action and partnerships to accelerate country response for the prevention and control of noncommunicable diseases
3. To reduce modifiable risk factors for noncommunicable disease and underlying social determinants through creation of health-promoting environments
4. To strengthen and orient health systems to address the prevention and control of noncommunicable diseases and the underlying social determinants through people-centred primary health care and universal health coverage
5. To promote and support national capacity for high-quality research and development for the prevention and control of noncommunicable diseases
6. To monitor the trends and determinants of noncommunicable diseases and evaluate progress in their prevention and control

NCDs are now responsible for almost three quarters of all deaths worldwide: 41 million in 2019 *(6)*. Of these, 17 million deaths were premature (of people younger than 70 years), with the vast majority occurring in low- and middle-income countries, and disproportionally affecting poor and vulnerable population groups. However, progress in preventing and controlling NCDs and their key risk factors has been insufficient and uneven, and few countries are on track to achieve SDG target 3.4, which aims to reduce by one third premature mortality from NCDs by 2030 *(7)*.

To guide and support Member States to accelerate progress and reorient and accelerate their domestic action plans, the Implementation road map 2023–2030 was agreed at the Seventy-fifth World Health Assembly in 2022 *(8)*.

The Implementation roadmap has three strategic directions:

- Strategic direction 1: Accelerate national response based on the understanding of noncommunicable disease epidemiology and risk factors and the identified barriers and enablers in countries;
- Strategic direction 2: Prioritize and scale up the implementation of most impactful and feasible interventions in the national context; and
- Strategic direction 3: Ensure timely, reliable and sustained national data on noncommunicable disease risk factors, diseases and mortality for data driven actions and to strengthen accountability *(9).*

The menu of policy options and cost-effective and recommended interventions in this document supports the second of these strategic directions, and is intended to aid Member States, as appropriate to their national context, in the implementation of measures to drive progress in meeting the nine voluntary NCD targets and SDG target 3.4. It was formulated in response to decisions WHA72(11) *(4)* and WHA75(11) *(8)*, and complements existing global strategies, action plans and several new technical products that support the Implementation road map 2023–2030 for the global action plan for the prevention and control of noncommunicable diseases 2013–2030 *(9)*, including the *WHO menu of cost-effective interventions for mental health (10)*, the recommended interventions to address the health impact of air pollution *(11, 12)* and the *WHO menu of cost-effective interventions for oral health (13)*.

Best buys and other recommended interventions

Appendix 3 of the Global action plan was updated in 2022 to take into consideration the emergence of new evidence from WHO normative and standard-setting products, to refine the formulation of interventions based on lessons learned from the 2017 update and reflecting WHO's new guidance, and to update and/or add interventions based on new and available scientific evidence on impact.

The 2022 update of Appendix 3 was endorsed by the Seventy-sixth World Health Assembly in 2023 *(14)*.

Interventions were assessed for cost-effectiveness using WHO-CHOICE methodology *(15),* as well as for feasibility and non-economic considerations.

Technical leads in WHO and a technical working group across the three levels of the organization suggested and reviewed the list of interventions and supporting evidence. A consultative process was followed for the update, including web-based consultations, and information sessions were subsequently held in June and September 2022 with Member States and non-State actors. Separate consultations were held with the Strategic and Technical Advisory Group on the Prevention and Control of Noncommunicable Diseases (STAG-NCD) and the Technical Expert Network on NCD and Health Promotion (TEN NCD-HPR).

The 2022 update of Appendix 3 contains 90 interventions and 22 overarching/enabling policy actions, with relevant options listed for each of the four key risk factors and four NCDs.

How were the interventions selected?

The same criteria were used for identifying interventions as for the 2017 update:

- An intervention must have a demonstrated and quantifiable effect size, established in at least one published study in a peer-reviewed journal.
- An intervention must have a clear link to one of the global NCD targets.

Using the above criteria, additional interventions were considered. The interventions included in the 2022 update of Appendix 3 therefore consist of:

- interventions that are unchanged from the 2017 update of Appendix 3;
- interventions from the 2017 update that have been revised to reflect updates in WHO policy or scientific evidence;
- interventions included in the 2017 update that had no cost-effectiveness analysis carried out at the time and for which cost-effectiveness analysis was done in the 2022 update; and
- new interventions derived from new WHO guidance and tools.

Cost-effectiveness was examined for 58 of the 90 interventions. Of the 58 interventions, 28 were considered to be the most cost-effective and feasible for implementation by countries in all settings

(the “best buys”), with an average cost-effectiveness ratio of ≤ I$100 per healthy life year (HLY) gained in low-income and lower middle-income countries.

Interventions with an average cost-effectiveness ratio > I$100 are also listed and should be considered according to a country’s context.

For 32 interventions that are mentioned in WHO guidelines and technical documents, WHO-CHOICE analysis could not be conducted. These are listed under “Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)”.

Care needs to be taken when interpreting these lists. For example, the absence of WHO-CHOICE analysis does not necessarily mean that an intervention is not cost-effective, affordable or feasible – rather, that methodological or capacity reasons meant that the WHO-CHOICE analysis could not be completed at the current time. For more information on the methodology, please see the Technical annex to the updated Appendix 3 *(16)*.

The importance of non-economic considerations

Cost-effectiveness analysis is a useful tool but it has limitations and should not be used as the sole basis for decision-making. When selecting interventions for the prevention and control of noncommunicable diseases, consideration should be given to both economic criteria, such as cost-effectiveness and affordability, and non-economic criteria, according to the country context, as both will affect the implementation and impact of interventions.

Non-economic implementation considerations, such as effectiveness and health impact, acceptability, sustainability, scalability, health equity, ethics, multisectoral actions, training needs, suitability of existing facilities, and monitoring are essential when preparing to achieve the targets of the Global action plan, and should be considered before the decision to implement any of the interventions presented below. Furthermore, consideration should be given to the need to implement a combination of population-wide policy interventions and interventions at the level of the individual.

Critical non-economic considerations that may affect the feasibility of certain interventions in some settings are given in footnotes, where appropriate.

How countries can use this information

The 28 interventions identified as best buys in this report are considered the most cost-effective and feasible for implementation. In the Technical annex all 58 interventions are listed with their average cost-effectiveness ratio by country income group *(16)*. Countries can select from this list the interventions that are relevant to their national context and represent good value for money, depending on their local cost-effectiveness threshold. For example, if the cost-effectiveness threshold is I$5000 per HLY gained in one upper middle-income country, then 86% of interventions represent good value for money.

In addition to economic criteria and the non-economic considerations highlighted in the previous section, other considerations for selection of interventions could include (i) which interventions will bring the highest return on investment in national responses to the overall implementation of the 2030 Agenda for Sustainable Development; (ii) priority government sectors that need to be engaged (in particular health, trade, commerce and finance, transport, sport and education) and (iii) concrete coordinated sectoral commitments based on co-benefits for inclusion in national SDG responses.

The Technical annex includes information on cost-effectiveness ratios, the health impact and the economic cost of implementation for each intervention. These global analyses should be accompanied by analyses in the local context. The Integrated Health Tool for planning and costing (IHT) is a forthcoming online version of the OneHealth Tool, which is a joint UN tool developed to assist individual countries to estimate cost and impact for health interventions, including for NCDs *(17)*.

Further details on the countries included in the analysis, as well as the description of the WHO-CHOICE methods used for these analyses is available in the Technical annex *(16)*. Detailed information on methods, the evidence and assumptions underlying the interventions, by disease and risk factor area, are provided in separate technical briefs available on the WHO Noncommunicable diseases webpage *(18)*.

Way forward

Alongside the dedicated webpage on which the main and technical documentation can be found *(18)*, in order to support Member States WHO is also developing an interactive online tool to enable users to compare and rank the interventions. This will also provide links to relevant WHO technical packages supporting the implementation of the interventions.

Following Decision 76(9) of the Seventy-sixth World Health Assembly in 2023 *(14)*, revisions will be made on a continuous basis, when data are available, and revised interventions incorporated into Appendix 3. An updated menu of policy options and cost-effective interventions will be submitted for consideration by the Eightieth World Health Assembly (May 2027), through the Executive Board at its 160th session.

Guide to interpreting the information presented

Each of the following sections begins with the overarching/enabling actions relevant to the specific risk factor or disease. It is followed by the best buys and other recommended interventions.

The basis on which the interventions are classified is as follows:

Best buys: Effective interventions with cost-effectiveness analysis ≤ I$100 per HLY gained in low-income and lower middle-income countries

Of the 90 interventions, 28 are best buys – those considered the most cost-effective and feasible for implementation for countries at any level of income. These are interventions where a WHO-CHOICE analysis found an average cost-effectiveness ratio of ≤ I$100 per HLY gained in low-income and lower middle-income countries.

Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries

Effective interventions for which the WHO-CHOICE analysis produced a cost-effectiveness of > I$100 per HLY gained are shown in the second category. These interventions represent good value for money, depending on the country's cost-effectiveness threshold. See the Technical annex for detailed information on cost-effectiveness results.

Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)

This third category includes recommended interventions that have been shown to be effective but for which no cost-effective analysis was conducted.

Objective 3 of the Global action plan

To reduce modifiable risk factors for noncommunicable disease and underlying social determinants through creation of health-promoting environments

Free yoga classes by NGO Harmony House, India, 2012, © WHO/Vismita Gupta-Smith

Reduce tobacco use

Overarching/enabling actions

For the Parties to the WHO Framework Convention on Tobacco Control (WHO FCTC) *(19)*:

- Strengthen the effective implementation of the WHO FCTC and its protocols.
- Establish and operationalize national coordinating mechanisms for the implementation of the WHO FCTC as part of a national tobacco control strategy with specific mandates, responsibilities and resources.

For the Member States that are not Parties to the WHO FCTC:

- Consider implementing the measures set out in the WHO FCTC and its guidelines for implementation, as well as the Protocol to Eliminate Illicit Trade in Tobacco Products *(20)*, if applicable, as the foundational instruments in global tobacco control.

Best buys and other recommended interventions

Category	Interventions
Best buys: Effective interventions with cost-effectiveness analysis ≤ I$100 per HLY gained in low-income and lower middle-income countries	Increase excise taxes and prices on tobacco products Implement large graphic health warnings on all tobacco packages, accompanied by plain/standardized packaging[1] Enact and enforce comprehensive bans on tobacco advertising, promotion and sponsorship[1] Eliminate exposure to second-hand tobacco smoke in all indoor workplaces, public places, public transport[1] Implement effective mass media campaigns that educate the public about the harms of smoking/tobacco use and second-hand smoke, and encourage behaviour change[1] Provision of cost-covered effective population-wide support (including brief advice, national toll-free quit line services and mCessation) for tobacco cessation to all tobacco users[2]
Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries	Provision of cost-covered effective pharmacological interventions to all tobacco users who want to quit, through the use of nicotine replacement therapy (NRT), bupropion and varenicline[2]
Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)	Establish a tracking and tracing system to support the elimination of illicit trade in tobacco products that is in line with Article 8 of the Protocol to Eliminate Illicit Trade in Tobacco Products Ban cross-border tobacco advertising, promotion and sponsorship, including those through modern means of communication

[1] Requires capacity for implementing and enforcing regulations and legislation.

[2] Requires trained providers in sufficient numbers and an effective health system.

Reduce the harmful use of alcohol

Overarching/enabling actions

- Implement applicable recommendations in the WHO *Global strategy to reduce the harmful use of alcohol* through multisectoral actions in the recommended target areas *(21).*
- Implement WHO's *Global action plan on alcohol 2022–2030* to support and complement policy measures and interventions implemented at the national level in accordance with the 10 areas recommended in the global strategy *(22)*.
- Strengthen leadership and increase commitment and capacity to address the harmful use of alcohol.
- Increase awareness and strengthen the knowledge base on the magnitude and nature of problems caused by harmful use of alcohol by awareness programmes, operational research, improved monitoring and surveillance systems.

Best buys and other recommended interventions

Category	Interventions
Best buys: Effective interventions with cost-effectiveness analysis ≤ I$100 per HLY gained in low-income and lower middle-income countries	Increase excise taxes on alcoholic beverages[1] Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising (across multiple types of media)[2] Enact and enforce restrictions on the physical availability of retailed alcohol (via reduced hours of sale)[2]
Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries	Enact and enforce drink-driving laws and blood alcohol concentration limits via sobriety checkpoints[2] Provide brief psychosocial intervention for persons with hazardous and harmful alcohol use[3]
Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)	Carry out regular reviews of prices in relation to level of inflation and income Establish minimum prices for alcohol where applicable Enact and enforce an appropriate minimum age for purchase or consumption of alcoholic beverages and reduce density of retail outlets Restrict or ban promotions of alcoholic beverages in connection with sponsorships and activities targeting young people Provide prevention, treatment and care for alcohol use disorders and comorbid conditions in health and social services Provide consumers with information, including labels and health warnings, about content of alcoholic beverages and the harms associated with alcohol consumption

[1] Levying taxes should be combined with other price measures, such as bans on discounts or promotions.
[2] Requires capacity and infrastructure for implementing and enforcing regulations and legislation.
[3] Requires trained providers at all levels of health care.

Reduce unhealthy diet

Overarching/enabling actions

- Implement WHO's *Global strategy on diet, physical activity and health (23)*, the *Global strategy for infant and young child feeding* jointly developed by WHO and UNICEF *(24)* and the WHO *Comprehensive implementation plan on maternal, infant and young child nutrition (25).*
- Develop and implement national nutrient- and food-based dietary guidelines, as well as nutrient profile models *(26, 27, 28, 29, 30, 31)* for different applications as appropriate.

Best buys and other recommended interventions

Best buys: Effective interventions with cost-effectiveness analysis ≤ I$100 per HLY gained in low-income and lower middle-income countries	Reformulation of policies for healthier food and beverage products (e.g. elimination of *trans*-fatty acids and/or reduction of saturated fats, free sugars and/or sodium)[1,2] Front-of-pack labelling as part of comprehensive nutrition labelling policies for facilitating consumers' understanding and choice of food for healthy diets [1,2] Public food procurement and service policies for healthy diets (e.g. to reduce the intake of free sugars, sodium and unhealthy fats, and to increase the consumption of legumes, wholegrains, fruits and vegetables)[1,2] Behaviour change communication and mass media campaign for healthy diets (e.g. to reduce the intake of energy, free sugars, sodium and unhealthy fats, and to increase the consumption of legumes, wholegrains, fruits and vegetables)[1,2] Policies to protect children from the harmful impact of food marketing [1,2] Protection, promotion and support of optimal breastfeeding practices [1,2]
Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries	Taxation on sugar-sweetened beverages as part of fiscal policies for healthy diets [1,2]
Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)	Subsidies on healthy foods and beverages (e.g. fruit and vegetables) as part of fiscal policies for healthy diets Menu labelling in food service for healthy diets (e.g. to reduce the intake of energy, free sugars, sodium and/or unhealthy fats) Limiting portion and package size for healthy diet (e.g. to reduce the intake of energy, free sugars, sodium and/or unhealthy fats) Nutrition education and counselling for healthy diets in different settings (e.g. in preschools, schools, workplaces and hospitals)

[1] Requires multisectoral actions with relevant ministries and support by civil society.

[2] Regulatory capacity along with multisectoral action is needed.

Reduce physical inactivity

Overarching/enabling actions

- *Global action plan on physical activity 2018–2030: more active people for a healthier world (32)*
- *ACTIVE: a technical package for increasing physical activity (33)*
- *WHO guidelines on physical activity and sedentary behaviour (34)*
- *Global status report on physical activity 2022 (35)*
- Leadership and whole of government commitment to address physical inactivity using a life-course approach *(36).*
- Strong advocacy to increase awareness and knowledge on the cross-cutting benefits of increasing physical activity, operational research and knowledge translation and improved monitoring and surveillance systems *(36).*

Best buys and other recommended interventions

 Best buys: Effective interventions with cost-effectiveness analysis ≤ I$100 per HLY gained in low-income and lower middle-income countries	Implement sustained, population wide, best practice communication campaigns to promote physical activity, with links to community-based programmes and environmental improvements to enable and support behaviour change[1]
 Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries	Provide physical activity assessment, counselling, and support for behaviour change as part of routine primary health care services through the use of a brief intervention[2]
 Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)	Implement urban and transport planning and urban design, at all levels of government, to provide compact neighbourhoods providing mixed land-use and connected networks for walking and cycling and equitable access to safe, quality public open spaces that enable and promote physical activity and active mobility Implement whole-of-school programmes that include quality physical education, and adequate facilities, equipment and programmes supporting active travel to/from school and support physical activity for all children of all abilities during and after school Improve walking and cycling infrastructure, ensuring universal and equitable access to enable and promote safe walking, cycling, other forms of micro-mobility (e.g. wheelchairs, scooters and skates) by people of all ages and abilities Implement multi-component workplace physical activity programmes Provide and promote physical activity through provision of community-based (grassroots) sport and recreation programmes, and conduct free mass-participation events to encourage engagement by people of all ages and abilities

[1] Requires multisectoral actions with relevant ministries and support by civil society.

[2] Requires sufficient capacity, and staff with sufficient training in primary care.

Objective 4 of the Global action plan

To strengthen and orient health systems to address the prevention and control of noncommunicable diseases and the underlying social determinants through people-centred primary health care and universal health coverage

Blood pressure check, Russia, © WHO/State autonomy healthcare institution of the Yak

Overarching/enabling actions

- Integrate very cost-effective noncommunicable disease interventions into the basic primary health care package with referral systems to all levels of care to advance the universal health coverage agenda.
- Explore viable health financing mechanisms and innovative economic tools supported by evidence.
- Scale up early detection and coverage, prioritizing very cost-effective high-impact interventions, including cost-effective interventions to address behavioural risk factors.
- Train the health workforce and strengthen capacity of health systems, particularly at primary care level, to address the prevention and control of noncommunicable diseases.
- Improve the availability of the affordable basic technologies and essential medicines, including generics, required to treat major noncommunicable diseases, in both public and private facilities.
- Implement other cost-effective interventions and policy options in objective 4 to strengthen and orient health systems to address noncommunicable diseases and risk factors through people-centred health care and universal health coverage.
- Develop and implement a palliative-care policy, including access to opioids analgesics for pain relief, together with training for health workers.
- Expand the use of digital technologies to increase health service access and efficacy for NCD prevention, and to reduce the costs in health care delivery.

Manage cardiovascular diseases

Best buys and other recommended interventions

Best buys: Effective interventions with cost-effectiveness analysis ≤ I$100 per HLY gained in low-income and lower middle-income countries	Secondary prevention of rheumatic fever and rheumatic heart disease by developing a register of patients who receive regular prophylactic penicillin
Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries	Pharmacological treatment of hypertension in adults using either of the following: thiazide and thiazide-like agents; angiotensin-converting enzyme inhibitors (ACE-Is)/angiotensin-receptor blocker (ARBs); calcium channel blockers (CCBs)[1]
	Primary prevention of rheumatic fever and rheumatic heart diseases by increasing appropriate treatment of streptococcal pharyngitis at the primary care level
	Drug therapy (treatment with an antihypertensive and statin) to control CVD risk using a total risk approach and counselling to individuals who have had a heart attack or stroke and to persons with high risk (≥ 20%) of a fatal and non-fatal cardiovascular event in the next 10 years, using the updated WHO CVD risk charts[2]

[1] This is feasible to implement in all settings and aligned to the WHO *Guideline for the pharmacological treatment of hypertension in adults* (2021). Simple protocols can be followed by non-physician workers, depending on the country context.

[2] Feasibility and practicality of implementation needs to be assessed and determined. Glucose control is not included in this intervention, but in the diabetes intervention “Control of blood pressure in people with diabetes”.

Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries	Drug therapy (treatment with an antihypertensive) to control CVD risk using a total risk approach and counselling to individuals who have had a heart attack or stroke and to persons with high risk (≥ 10%) of a fatal and non-fatal cardiovascular event in the next 10 years, using the updated WHO CVD risk charts[1]
	Treatment of new cases of acute myocardial infarction with acetylsalicylic acid, initially treated in a hospital setting, with follow up carried out through primary health care facilities at a 95% coverage rate[2]
	Treatment of new cases of acute myocardial infarction with acetylsalicylic acid and thrombolysis, with patients initially treated in a hospital setting with follow up carried out through primary health care facilities at a 95% coverage rate[2]
	Treatment of new cases of acute myocardial infarction with acetylsalicylic acid, thrombolysis and clopidogrel, with patients initially treated in a hospital setting with follow up carried out through primary health care facilities at a 95% coverage rate[2]
	Treatment of acute ischaemic stroke with intravenous thrombolytic therapy[3]
	Low-dose acetylsalicylic acid within 24 to 48 hours for secondary prevention of ischaemic stroke
	Treatment of acute ischaemic stroke with mechanical thrombectomy within an experienced facility[4]
	Treatment of new cases of myocardial infarction with primary percutaneous coronary interventions (PCI), acetylsalicylic acid and clopidogrel, with patients initially treated in a hospital setting with follow up carried out through primary health care facilities at a 95% coverage rate[2]
	Comprehensive care[5] of acute stroke patients in stroke units[6]
Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)	Treatment of congestive cardiac failure with ACE-I, beta-blocker and diuretic
	Cardiac rehabilitation post myocardial infarction
	Anticoagulation for medium-and high-risk non-valvular atrial fibrillation and for mitral stenosis with atrial fibrillation
	Treatment of hypertension using single-pill combination antihypertensives
	Secondary prevention of coronary heart disease with a statin, ACE-I, beta-blocker and acetylsalicylic acid (low dose)
	Seasonal influenza vaccination for people with cardiovascular diseases
	COVID-19 vaccination for people with cardiovascular diseases

[1] Feasibility and practicality of implementation needs to be assessed and determined. Glucose control is not included in this intervention, but in the diabetes intervention “Control of blood pressure in people with diabetes”.

[2] The selection of option depends on health system capacity.

[3] Feasibility and practicality of implementation needs to be assessed and determined according to health systems capacity.

[4] Feasibility and practicality of implementation needs to be assessed and determined according to health systems capacity. Requires a surgical facility with appropriately trained workforce.

[5] Comprehensive care includes strategies such as staffing by a specialist stroke multidisciplinary team, access to equipment for monitoring and rehabilitation.

[6] Early multidisciplinary approach to be determined, depending on country context. Composition of rehabilitation workforce as an integral part of multidisciplinary team depends on health system capacity.

Manage diabetes

Recommended interventions

 Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries	Screening of people with diabetes for albuminuria and treatment with ACE-I for the prevention and delay of renal disease Control of blood pressure in people with diabetes Statin use in people with diabetes > 40 years old Foot care to reduce the incidence of amputation in people with diabetes (including educational programmes, access to appropriate footwear, multidisciplinary clinics) Diabetic retinopathy screening for all diabetes patients and laser photocoagulation for prevention of blindness[1] Glycaemic control for people with diabetes, along with standard home glucose monitoring for people treated with insulin to reduce diabetes complications
 Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)	Seasonal influenza vaccination for people with diabetes COVID-19 vaccination for people with diabetes

Eye examination, Nguyen Thi Dau, Vietnam, 2016, © WHO/Quinn Mattingly

[1] Requires health staff capacity for retinal assessment and photocoagulation.

Manage chronic respiratory diseases

Best buys and other recommended interventions

 Best buys: Effective interventions with cost-effectiveness analysis ≤ I$100 per HLY gained in low-income and lower middle-income countries	Acute treatment of asthma exacerbations with inhaled bronchodilators and oral steroids[1] Acute treatment of chronic obstructive pulmonary disease (COPD) exacerbations with inhaled bronchodilators and oral steroids[1] Long-term management of COPD with inhaled bronchodilator[1]
 Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries	Long-term management of asthma with inhaled bronchodilator and low-dose beclomethasone[1]
 Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)	Seasonal influenza vaccination for people with chronic respiratory diseases Access to improved stoves and cleaner fuels to reduce indoor air pollution Cost-effective interventions to prevent occupational lung diseases, for example from exposure to silica and asbestos COVID-19 vaccination for people with chronic respiratory diseases

COPD care, 2023, China, © WHO Collaborating Center: China-Japan Friendship Hospital.

[1] Requires trained providers at all levels of health care.

Manage cancer

Best buys and other recommended interventions

Category	Interventions
Best buys: Effective interventions with cost-effectiveness analysis ≤ I$100 per HLY gained in low-income and lower middle-income countries	Vaccination against human papillomavirus (1or 2 doses) of girls aged 9–14 years Cervical cancer: HPV DNA screening, starting at the age of 30 years, with regular screening every 5 to 10 years (using a screen-and-treat approach or screen, triage and treat approach) Cervical cancer: early diagnosis programmes linked with timely diagnostic work-up and comprehensive cancer treatment Breast cancer: early diagnosis programmes linked with timely diagnostic work-up and comprehensive cancer treatment Colorectal cancer: early diagnosis programmes linked with timely diagnostic work-up and comprehensive cancer treatment Prevention of liver cancer through hepatitis B immunization[1] Childhood cancer: early diagnosis programmes linked with timely diagnostic work-up and comprehensive cancer treatment, focusing on six index cancers of WHO Global Initiative for Childhood Cancer Early detection and comprehensive treatment of cancer for those living with HIV
Effective interventions with cost-effectiveness analysis > I$100 per HLY gained in low-income and lower middle-income countries	Breast cancer: Screening with mammography (once every two years for women aged 50–69 years) linked with timely diagnostic work-up and comprehensive breast cancer treatment in setting where mammographic screening programme is recommended[2] Oral cancer: early detection programme of oral cancer, including, as appropriate, targeted screening programme for high-risk groups in selected settings, according to disease burden and health system capacities, linked with comprehensive cancer management[3] Prostate cancer: early diagnosis programmes linked with timely diagnostic work-up and comprehensive cancer treatment Colorectal cancer screening: population-based programme, including through stool-based tests, as appropriate, at age > 50 years, linked with timely treatment in settings where screening programme is recommended[2] Head and neck cancers, including oral cancers: early diagnosis programmes linked with timely diagnostic work-up and comprehensive cancer treatment Basic palliative care for cancer: home-based and hospital care with multidisciplinary team and access to opiates and essential supportive medicines[4]
Other recommended interventions from WHO guidance (cost-effectiveness analysis not available)	Seasonal influenza vaccination for people with cancer COVID-19 vaccination for people with cancer

[1] Cost-effectiveness in prevention of liver cancer is optimal in countries with high hepatitis B prevalence and especially with vaccination in early childhood and at birth, taking into account the feasibility and cost of vaccination.
[2] Requires systems for organized, population-based screening.
[3] Requires systems for organized screening of a targeted, high-risk population.
[4] Requires access to controlled medicines for pain relief.

Policy options for objectives 1, 2, 5 and 6 of the Global action plan

Objective 1

To raise the priority accorded to the prevention and control of noncommunicable diseases in global, regional and national agendas and internationally agreed development goals, through strengthened international cooperation and advocacy

Menu of policy options

- Raise public and political awareness, understanding and practice about prevention and control of NCDs.
- Integrate NCDs into the social and development agenda and poverty alleviation strategies.
- Strengthen international cooperation for resource mobilization, capacity-building, health workforce training and exchange of information on lessons learnt and best practices.
- Engage and mobilize civil society and the private sector as appropriate and strengthen international cooperation to support implementation of the action plan at global, regional and national levels.
- Implement other policy options in objective 1.

Objective 2

To strengthen national capacity, leadership, governance, multisectoral action and partnerships to accelerate country response for the prevention and control of noncommunicable diseases

Menu of policy options

- Prioritize and increase, as needed, budgetary allocations for prevention and control of NCDs without prejudice to the sovereign right of nations to determine taxation and other policies.
- Assess national capacity for prevention and control of NCDs.
- Develop and implement a national multisectoral policy and plan for the prevention of control of NCDs through multi-stakeholder engagement.
- Implement other policy options in objective 2 to strengthen national capacity, including human and institutional capacity, leadership, governance, multisectoral action and partnerships for prevention and control of noncommunicable diseases.

Objective 5

To promote and support national capacity for high-quality research and development for the prevention and control of noncommunicable diseases

Menu of policy options

- Develop and implement a prioritized national research agenda for noncommunicable diseases.
- Prioritize budgetary allocation for research on noncommunicable disease prevention and control.
- Strengthen human resources and institutional capacity for research.
- Strengthen research capacity through cooperation with foreign and domestic research institutes.
- Implement other policy options in objective 5 to promote and support national capacity for high-quality research, development and innovation.

Objective 6

To monitor the trends and determinants of noncommunicable diseases and evaluate progress in their prevention and control

Menu of policy options

- Develop national targets and indicators based on global monitoring framework and linked with a multisectoral policy and plan.
- Strengthen human resources and institutional capacity for surveillance and monitoring and evaluation.
- Establish and or strengthen a comprehensive noncommunicable disease surveillance system, including reliable registration of deaths by cause, cancer registration, periodic data collection on risk factors and monitoring of national response.
- Integrate noncommunicable disease surveillance and monitoring into national health information systems.
- Implement other policy options in objective 6 to monitor trends and determinants of noncommunicable diseases and evaluate progress in their prevention and control.

Resources

Additional technical materials

The expanded list of best buys and other recommended interventions is accompanied by a Technical annex and Technical briefs. The Technical annex provides information on the methodology used to identify and analyse interventions, and the assumptions used in the WHO-CHOICE economic modelling. It also contains more detailed economic analyses for each intervention, with summary tables of costs, health impacts and cost-effectiveness ratios in bands for all interventions, separately for low-income, lower middle-income and upper middle-income countries.

Technical briefs for each risk factor and disease area provide detailed information on the methodology, evidence and assumptions underlying the interventions included in this update.

All materials related to the 2022 update of Appendix 3 are available here: https://www.who.int/teams/noncommunicable-diseases/updating-appendix-3-of-the-who-global-ncd-action-plan-2013-2030

Tools

A list of all WHO tools to support Member States in implementing the policy options included in the Global action plan for the prevention and control of noncommunicable diseases 2013–2030 is available here: https://www.who.int/health-topics/noncommunicable-diseases

Weblinks for specific programmes are listed below:

Noncommunicable diseases	https://www.who.int/health-topics/noncommunicable-diseases
Tobacco use	https://www.who.int/health-topics/tobacco
Harmful use of alcohol	https://www.who.int/health-topics/alcohol
Unhealthy diet	https://www.who.int/health-topics/healthy-diet
Physical inactivity	https://www.who.int/health-topics/physical-activity
Cardiovascular diseases	https://www.who.int/health-topics/cardiovascular-diseases
Diabetes	https://www.who.int/health-topics/diabetes
Chronic respiratory diseases	https://www.who.int/health-topics/chronic-respiratory-diseases
Cancer	https://www.who.int/health-topics/cancer

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