34 Best buys and other recommended interventions for NCD prevention and control

Nick Banatvala, Pascal Bovet, Wanrudee Isaranuwatchai, Melanie Y Bertram

When the WHO Global NCD Action Plan was first published in 2013, it included a menu of policy options and cost-effective and recommended interventions for cardiovascular disease (CVD), diabetes, cancer and chronic respiratory disease, and for reducing tobacco use, harmful use of alcohol, unhealthy diet and physical inactivity.

In 2017, these were updated to form a suite of WHO best buys and other recommended interventions (Table 34.1).[1] They consist of 88 interventions divided into:

- *Best buys*, which are considered highly cost-effective and feasible for implementation in most settings. These are interventions where a WHO CHOICE analysis [2,3,4] found an average cost-effectiveness ratio (ACER) of ≤100 international dollars per disability-adjusted life year (DALY) averted in low- and lower-middle-income countries. The CHOICE (CHOosing Interventions that are Cost-Effective) initiative was developed in 1998 to provide policymakers with evidence for deciding on interventions and programmes that maximize health for the available resources.
- *Other effective interventions* for which WHO CHOICE analysis produced an ACER >100 international dollars per DALY averted.
- *Other recommended interventions* that have been shown to be effective but for which no cost-effective analysis (CEA) was conducted.

The need for best buys

WHO best buys and recommended interventions have been selected for their feasibility for implementation in almost all settings as well as their cost-effectiveness. They promote action across the life-course. The interventions span from prevention at the population and individual level to treatment and care, with the recognition that early intervention reduces the costs of treatment in the long term. The best buys help policymakers focus investment and action on those interventions that have a high impact at an affordable cost rather than being overwhelmed with a myriad of policy options and interventions.

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Table 34.1 WHO best buys (interventions with ACER ≤100 international dollars per DALY averted), recommended interventions (those with CEA estimates available but ACER >100), and other recommended interventions (those without CEA estimates)

Reducing tobacco use

Best buys
- Increase excise taxes and prices on tobacco products.
- Implement plain/standardized packaging and/or large graphic health warnings on all tobacco packages.
- Enact and enforce comprehensive bans on tobacco advertising, promotion and sponsorship.
- Eliminate exposure to second-hand tobacco smoke in all indoor workplaces, public places, public transport.
- Implement effective mass media campaigns that educate the public about the harms of smoking/tobacco use and second-hand smoke.

Effective interventions
- Provide cost-covered, effective and population-wide support (including brief advice, national toll-free quit line services) for tobacco cessation to all those who want to quit.

Other recommended interventions
- Implement measures to minimize illicit trade in tobacco products.
- Ban cross-border advertising, including using modern means of communication.
- Provide mobile phone-based tobacco cessation services for all those who want to quit.

Reducing the harm from alcohol

Best buys
- Increase excise taxes on alcoholic beverages.
- Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising (across multiple types of media).
- Enact and enforce restrictions on the physical availability of retailed alcohol (via reduced hours of sale).

Effective interventions
- Enact and enforce drink-driving laws and blood alcohol concentration limits via sobriety checkpoints.
- Provide brief psychosocial intervention for persons with hazardous and harmful alcohol use.

Other recommended interventions
- Carry out regular reviews of prices in relation to the level of inflation and income.
- Establish minimum prices for alcohol where applicable.
- Enact and enforce an appropriate minimum age for the purchase or consumption of alcoholic beverages and reduce the density of retail outlets.
- Restrict or ban promotion 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 consumer information about, and label, alcoholic beverages to indicate, the harm related to alcohol.

(*Continued*)

Table 34.1 (Continued)

Reducing unhealthy diet

Best buys

- Reduce salt intake through the reformulation of food products to contain less salt and the setting of target levels for the amount of salt in foods and meals.
- Reduce salt intake through the establishment of a supportive environment in public institutions such as hospitals, schools, workplaces and nursing homes, to enable lower sodium options to be provided.
- Reduce salt intake through a behaviour change communication and mass media campaign.
- Reduce salt intake through the implementation of front-of-pack labelling.

Effective interventions

- Eliminate industrial trans-fats through the development of legislation to ban their use in the food chain.
- Reduce sugar consumption through effective taxation on sugar-sweetened beverages.

Other recommended interventions

- Promote and support exclusive breastfeeding for the first six months of life.
- Implement subsidies to increase the intake of fruits and vegetables.
- Replace trans-fats and saturated fats with unsaturated fats through reformulation, labelling, fiscal policies or agricultural policies.
- Limiting portion and package size to reduce energy intake and the risk from being overweight/obese.
- Implement nutrition education and counselling in different settings (e.g. in preschools, schools, workplaces and hospitals) to increase the intake of fruits and vegetables.
- Implement nutrition labelling to reduce total energy intake (kcal), sugars, sodium and fats and vegetables.
- Implement mass media campaigns on healthy diets, including social marketing to reduce the intake of total fat, saturated fats, sugars and salt, and promote the intake of fruits.

Reducing physical inactivity

Best buys

- Implement community-wide public education and awareness campaign for physical activity which includes a mass media campaign combined with other community-based education, motivational and environmental programmes aimed at supporting behavioural change of physical activity levels.

Effectivess interventions

- Provide physical activity counselling and referral as part of routine primary health care services through the use of a brief intervention.

Other recommended interventions

- Ensure that macro-level urban design incorporates the core elements of residential density, connected street networks that include pavements/sidewalks, easy access to a diversity of destinations and access to public transport.
- Implement a whole-of-school programme that includes quality physical education, availability of adequate facilities and programmes to support physical activity for all children.
- Provide convenient and safe access to quality public open space and adequate infrastructure to support walking and cycling.
- Implement multi-component workplace physical activity programmes.
- Promotion of physical activity through organized sports groups and clubs, programmes and events.

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Table 34.1 (Continued)

Managing cardiovascular disease and diabetes

Best buys

- Drug therapy (including glycaemic control for diabetes and control of hypertension using a total risk approach) and counselling to individuals who have had a heart attack or stroke and to persons with high risk (≥ 30 percent) of a fatal and non-fatal cardiovascular event in the next ten years.
- Drug therapy (including glycaemic control for diabetes and control of hypertension using a total risk approach) and counselling to individuals who have had a heart attack or stroke and to persons with moderate to high risk (≥ 20 percent) of a fatal and non-fatal cardiovascular event in the next ten years.

Effective interventions

- Treatment of new cases of acute myocardial infarction with either: acetylsalicylic acid, or acetylsalicylic acid and clopidogrel, or thrombolysis, or primary percutaneous coronary interventions (PCI).
- Treatment of new cases of acute myocardial infarction with aspirin, initially treated in a hospital setting with follow-up carried out through primary health care facilities at a 95 percent coverage rate.
- Treatment of new cases of acute myocardial infarction with aspirin and thrombolysis, initially treated in a hospital setting with follow-up carried out through primary health care facilities at a 95 percent coverage rate.
- Treatment of new cases of myocardial infarction with primary percutaneous coronary interventions (PCI), aspirin and clopidogrel, initially treated in a hospital setting with follow-up carried out through primary health care facilities at a 95 percent coverage rate.
- Treatment of acute ischaemic stroke with intravenous thrombolytic therapy.
- Primary prevention of rheumatic fever and rheumatic heart diseases by increasing appropriate treatment of streptococcal pharyngitis at the primary care level.
- Secondary prevention of rheumatic fever and rheumatic heart disease by developing a register of patients who receive regular prophylactic penicillin.

Other recommended interventions

- Treatment of congestive cardiac failure with angiotensin-converting-enzyme inhibitor, beta blocker and diuretic.
- Cardiac rehabilitation post myocardial infarction.
- Anticoagulation for medium-and high-risk non-valvular atrial fibrillation and mitral stenosis with atrial fibrillation.
- Low-dose acetylsalicylic acid for ischaemic stroke.
- Care of acute stroke and rehabilitation in stroke units.

Managing diabetes

Best buys

- None

Effective interventions

- Preventive foot care for people with diabetes (including educational programmes, access to appropriate footwear, multidisciplinary clinics).
- Diabetic retinopathy screening for all diabetes patients and laser photocoagulation for the prevention of blindness.
- Effective glycaemic control for people with diabetes, along with standard home glucose monitoring for people treated with insulin to reduce diabetes complications.

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Table 34.1 (Continued)

Other recommended interventions
- Lifestyle interventions to prevent diabetes.
- Influenza vaccination for patients with diabetes.
- Preconception care among women of reproductive age who have diabetes including patient education and intensive glucose management.
- Screening of people with diabetes for proteinuria and treatment with angiotensin-converting enzyme inhibitors for the prevention and delay of renal disease.

Managing cancer

Best buys
- Vaccination against human papillomavirus (two doses) of 9–13-year-old girls.
- Prevention of cervical cancer by screening women aged 30–49 years, either through:
  - Visual inspection with acetic acid linked with timely treatment of pre-cancerous lesions.
  - Pap smear (cervical cytology) every 3–5 years linked with timely treatment of pre-cancerous lesions.
  - Human papillomavirus testing every five years linked with timely treatment of pre-cancerous lesions.

Effective interventions
- Screening with mammography (once every two years for women aged 50–69 years) linked with timely diagnosis and treatment of breast cancer.
- Treatment of colorectal cancer stages I and II with surgery +/- chemotherapy and radiotherapy.
- Basic palliative care for cancer: home-based and hospital care with a multidisciplinary team and access to opiates and essential supportive medicines.

Other recommended interventions
- Prevention of liver cancer through hepatitis B immunization.
- Oral cancer screening in high-risk groups (for example, tobacco users, betel-nut chewers) linked with timely treatment.
- Population-based colorectal cancer screening, including through a faecal occult blood test, as appropriate, at age >50 years, linked with timely treatment.

Managing chronic respiratory diseases

Effective interventions
- Symptom relief for patients with asthma with inhaled salbutamol.
- Symptom relief for patients with chronic obstructive pulmonary disease with inhaled salbutamol.
- Treatment of asthma using low-dose inhaled beclometasone and short-acting beta agonist.

Other recommended interventions
- 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, asbestos.
- Influenza vaccination for patients with chronic obstructive pulmonary disease.

The importance of non-financial considerations

While cost-effectiveness analysis is an important tool, it has limitations and should not be used as the sole basis for decision-making. When selecting interventions, consideration should also be given to other criteria through a transparent and fair decision-making process. Other criteria often included are effectiveness, affordability, implementation capacity and feasibility. In addition, national health priorities, impact on health equity and other local considerations should be made. Finally, cost-effectiveness estimates for individual interventions should be considered within the context of the need to implement a combination of population-wide policy interventions and individual interventions.

The importance of context

Much of the evidence base for the development of WHO best buys relies on effectiveness data from high-income countries,[5] and it is assumed that this level of effectiveness can be achieved elsewhere. However, it is important to recognize that cost-effectiveness ratios may be different in countries from other regions with their different disease profiles, population characteristics, economic structures, health systems platforms and other distinctive local characteristics.[6,7] WHO best buys were developed by taking global evidence on their effectiveness and developing country-specific models to estimate cost-effectiveness in a representative sample of countries, allowing the drawing of general conclusions. However, simply taking cost-effectiveness estimates from the literature and assuming they apply in other settings is not possible. Cost-effectiveness will vary across countries due to various factors such as disease profiles, population characteristics, health systems and local characteristics. However, the ranking in cost-effectiveness between the three types of interventions (e.g. best buys being more cost-effective than recommended interventions) could potentially be similar in all regions, which emphasizes the need to prioritize interventions with the highest cost-effectiveness ratio in all regions.

The importance of supporting enabling actions

The implementation of the WHO best buys and recommended interventions need to be supported by 'enabling actions', for example:

- Leadership (e.g. strengthening leadership and commitment to address the harmful use of alcohol).
- Strengthening of the capacity of government to develop, implement and monitor regulatory and legislative actions to address behavioural risk factors.
- Broader strategic approaches (e.g. training health workers, strengthening health system capacity and expanding the use of digital technologies to increase health service access).

- Other relevant guidance that provides details on selected processes for implementation (e.g. WHO recommendations on the marketing of foods and non-alcoholic beverages to children).

How to use the WHO best buys and other recommended interventions

Countries should select from the list of best buys and other recommended interventions based on their national context, taking into account: (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); and (iii) concrete coordinated sectoral commitments based on co-benefits for inclusion in national SDG responses.

When considering the different interventions, emphasis should be given to both economic and non-economic criteria, as both will affect the implementation and impact of interventions. Among other recommended interventions, a lack of a cost-effectiveness analysis (based on data in some countries and/or in a particular setting) should not necessarily be a sufficient reason not to implement an intervention, and vice versa, as there may be many explanations why such an analysis cannot be carried out (e.g. concerns around equity and feasibility). In addition, the implementation of interventions depends upon epidemiological, cultural and/or political factors in the setting concerned.

Updating the WHO best buys

An updated set of best buys and recommended interventions is currently being developed for consideration by the World Health Assembly in 2023.

Notes

1 Tackling NCDs: best buys and other recommended interventions for the prevention and control of noncommunicable diseases. WHO, 2017.
2 New cost-effectiveness updates from WHO-CHOICE. WHO, 2021 (web site).
3 Bertram MY et al. Methods for the economic evaluation of health care interventions for priority setting in the health system: an update from WHO CHOICE. *Int J Health Policy Manag* 2021;10:673–77.
4 Bertram MY. Cost-effectiveness of population level and individual level interventions to combat non-communicable disease in Eastern Sub-Saharan Africa and South East Asia: a WHO-CHOICE analysis. *Int J Health Policy Manag* 2021;10:724–33.
5 Allen LN 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 Global Health* 2018;3:e000535.
6 Isaranuwatchai W et al. Prevention of NCDs: best buys, wasted buys, and contestable buys. *BMJ* 2020;368:m141.
7 *Non-communicable disease prevention: best buys, wasted buys and contestable buys*. Eds. Isaranuwatchai W et al. Cambridge: Open Book Publishers, 2019.