World Health Organization

Technical briefing for Appendix 3 of the Global Action Plan for Non-Communicable Diseases

Physical inactivity interventions

List of interventions

Two interventions aimed at reducing physical inactivity were included in the CHOICE analyses. Below we provide a short description of each intervention.

Number	Interventions
P1	Brief counselling intervention on physical activity in primary health care Description: Implement brief intervention including assessment, counselling and behaviour change support strategies on physical inactivity as part of routine primary health care service
P2	Physical activity public education and awareness campaign Description: Implement sustained population-wide public education and awareness campaigns on physical activity using mass media communication channels and linked with community-based programmes and environmental improvements

Identification of interventions

The WHO Global Action Plan on Physical Activity 2018-2030 (GAPPA) [1] provides evidence-based recommendations on effective interventions to address physical inactivity. GAPPA recommends countries adopt a whole of system approach with multi sector engagement to implement 20 policy actions which collectively can reduce population levels of physical inactivity and thereby contribute to a reduction in morbidity and mortality due to non-communicable diseases and mental health conditions.

The recommended multi sectoral policy actions include implementing compact urban design providing highly connected and safe walking and cycling networks, whole-of-school approaches which include quality physical education, workplace physical activity programmes, and community-based sport initiatives. In addition, sustained public education communication campaigns and brief counselling interventions in primary health care contribute to a comprehensive whole of system approach to reducing physical inactivity. The health sector leads and contributes to implementation of both of these policy actions and they are assessed in this update of Appendix 3

Methodological assumptions

- The epidemiological impact of interventions was estimated using the OneHealth Tool [2].
- Epidemiology data on prevalence, incidence and mortality for Coronary Heart Disease, Stroke, Type 2 Diabetes, Hypertension, Colorectal and Breast Cancers were obtained from the Institute

for Health Metrics and Evaluation (IHME) Global Burden of Disease (GBD) 2019 study at the country-level [3].

- Disability weights for each health condition were drawn from the IHME GBD 2019 disability weight study. This information was used to estimate Healthy-Life Years (HLY) gained by each intervention [3].
- The relative risks (RRs) of major non-communicable diseases associated with levels of physical inactivity, at the population level, are shown in Table 1. The RRs were derived from meta-analysis or pooled data of systematic literature reviews [4].
- Country-specific prevalence of insufficient physical activity was obtained from the most recent globally comparable national estimates from WHO, for adults aged 18 years old and over, and by gender [5, 6].
- Physical inactivity is defined as not meeting the current World Health Organization (WHO) physical activity recommendations: for adults, namely at least 150–300 minutes of moderate-intensity aerobic physical activity or at least 75–150 minutes of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity throughout the week [1].

Table 1: Relative risks for physical inactivity and associated non-communicable diseases and mental health conditions

Disease	Relative Risk (RR)
Coronary heart diseases	1.19
Stroke	1.19
Type 2 diabetes	1.17
Hypertension	1.06
Colorectal cancer	1.11
Breast cancer	1.09
Cardiovascular disease mortality	1.30

Table 2: Modelling assumptions used in WHO-CHOICE analysis

	Population (P), effect size of interventions (E) and outcomes (O)	Comments on evidence and main changes to 2017 analysis
P1	**P**: Individuals attending primary health care for a visit with a GP at least once each year and receiving a brief counselling on physical activity. **E**: The effect size of the intervention was estimated as 14.9%. This represents the change in physical activity levels in the patient population attending primary health care and receiving brief intervention on physical activity compared with the patients not receiving brief intervention on physical activity	For the 2022 update, we assumed that those who are physically active and physically inactive would attend a GP visit whilst in 2017 it was assumed only 50% of the population would attend PHC coverage and this would equally represent the proportion of the population who are physically inactive. The population coverage from 50% to 70% reflects the Sustainable Development Goal

	O: Healthy Life Years (HLY) gained, and mortality averted.	3.8 for increasing Universal Health Coverage services. The details of the brief intervention were updated to explicitly include 3 components, namely, the assessment of patients' physical activity level, provision of brief counselling, and optional provision of referral to community-based resources and programmes where appropriate. This definition aligns with the WHO UHC menu [7]. The updated estimate of the effect used in 2022 was drawn from a recent systematic review [8]. 14.9% is the computed pooled relative risk derived from odds ratios.
P2	**P**: All population of a country would be exposed to the intervention (100% coverage). **E**: The effect size for the intervention was defined as 5.2% and represents the absolute changes in physical activity levels due to a community-wide public education campaign, comparing the before and after populational-level physical activity. **O**: Healthy Life Years (HLY) gained, and mortality averted.	No change in definition of the population or the intervention. In 2022, the intensity of implementation was updated to better align with the composition of the communication campaign of the source intervention. Full details are provided in the costing assumptions (see Table 3 below). No change in the source data for the effect size of the intervention. This was derived from a well-conducted single, before and after study of a 2-year comprehensive community-wide public education campaign on physical activity [9].

Table 3: Costing assumptions used in WHO-CHOICE analysis

	Major costing assumptions
P1	• Assumed that 70% of the population attend primary health care for a visit with a general practitioner (GP), at least once, each year, with 95% of patients receiving a brief counselling on physical activity. • The brief intervention on physical inactivity (including assessment and counselling) are assumed to last 3 minutes for all adult patients visiting a primary health care professional. • Behaviour change support to patients would comprise a 2-page health education brochure (or equivalent) on how to increase participation in physical activity
P2	• Assumed campaign coverage 100% of population • Assumed the community-wide public education campaign comprised: 5 waves of campaigns per year, with 4 weeks per wave, and each wave comprising 4 TV advertisements per day and 6 radio advertisements per day, each of 30 seconds

	• Assumed the campaign included supporting materials namely advertisement in national and regional newspapers (10 times), wall posters (1 for every 10 inhabitants), and the distribution of leaflets.

References

[1] World Health Organization (2018) Global action plan on physical activity 2018–2030: more active people for a healthier world. Geneva: World Health Organization.

[2] OneHealth Tool. Supporting integrated strategic health planning, costing and health impact analysis. Available: https://www.who.int/tools/onehealth

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[4] Katzmarzyk PT, Friedenreich C, Shiroma EJ, Lee I-M (2021) Physical inactivity and non-communicable disease burden in low-income, middle-income and high-income countries. *Br J Sports Med.* **56**(2): 101-106.

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[6] Guthold R, Stevens GA, Riley LM, Bull FC (2018) Worldwide trends in insufficient physical activity from 2001 to 2016: a pooled analysis of 358 population-based surveys with 1,9 million participants. *Lancet Glob Health* **6**: e1077–86

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[9] Leavy JE, Bull JC, Rosenberg M, Bauman A (2012) Physical activity mass media campaigns and their evaluation: a systematic review of the literature 2003–2010. *Health Educ. Res.* **26**(6): 1060-1085.