

# NON-COMMUNICABLE DISEASES IN THE AMERICAS: COST-EFFECTIVE INTERVENTIONS FOR PREVENTION AND CONTROL

ISSUE BRIEF ON NON-COMMUNICABLE DISEASES

## KEY MESSAGES

- Noncommunicable diseases (NCDs) **affect the lives of millions** of people in the Americas.
- Although the magnitude of the problem is large and projected to increase, **many options exist to prevent and manage the major NCDs (cancer, cardiovascular disease, chronic respiratory disease, and diabetes)** as well as their major modifiable risk factors (**tobacco use, diet, physical inactivity, and harmful use of alcohol**).
- Many of these options are **cost-effective** and can be implemented at the policy, health services or community levels.



## NON-COMMUNICABLE DISEASES

Non-communicable diseases (NCDs) are the leading cause of premature mortality and disability in the Americas and account for two-thirds of all deaths in the Region. With an estimated 3.9 million deaths from NCDs, and an estimated 200 million people living with non-communicable diseases in the Americas, there is need for urgent action. Options are available to prevent and manage the four main NCDs affecting the population of the Americas (cancer, cardiovascular disease, chronic respiratory disease, and diabetes) as well as their major modifiable risk factors (tobacco use, diet, physical inactivity, and harmful use of alcohol). Options range from individual-level interventions to population-level interventions, including activities aimed at primary prevention, cure, acute management, chronic management, secondary prevention, rehabilitation, or palliation.<sup>2</sup>

Given the myriad options for addressing NCDs, policymakers must make choices regarding which interventions to prioritize and deliver to the population. Cost-effectiveness analysis is a tool that helps prioritize the conditions that yield the greatest health benefits for the lowest cost. Cost-effectiveness analysis offers policymakers information on the relative health gains achieved by an intervention (or set of interventions) compared to another scenario, be it the status quo or another potential intervention. This brief examines some key policy interventions and health services interventions that have been evaluated as cost-effective in research studies.<sup>a</sup>

a. Note: Cost-effectiveness analysis takes into account health benefits alone and does not account for non-health benefits. Cost-effectiveness ratios are sensitive to the price of an intervention, its effectiveness, and the underlying population prevalence of the health condition.

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## KEY INTERVENTIONS FOR POLICY CHANGES

**SALT REDUCTION:** Excess salt intake is responsible for approximately 30% of high blood pressure and 10% of cardiovascular disease. Excess dietary salt can come from consumption of prepared or packaged foods or from adding salt to food prepared in the home.<sup>3,4</sup> The recommended daily level of salt consumption is less than 5g per day per person, but in the Americas, intake can reach double this recommended level.<sup>5</sup> Regulation of salt content in foods, combined with public education has been deemed cost-effective in studies. Dietary salt reduction may even be cost-saving if the intervention is highly effective at low cost (i.e. if the reduction in systolic blood pressure amounts to 8 mm Hg and the cost of the intervention amounts to US\$ 0.50 per person).<sup>6,7</sup> Interventions aimed at food labeling may affect behavior of both consumers and producers and facilitate reaching targets for reductions in daily salt consumption. The PAHO/WHO *Initiative Cardiovascular Disease Prevention through Dietary Salt Reduction* has convened a regional expert group that has issued a policy statement to guide actions by governments, nongovernmental organizations, and the food industry to reduce dietary salt.<sup>5</sup>

**REPLACEMENT OF TRANS FAT OR SATURATED FAT WITH UNSATURATED FATS** has been shown to be cost-effective in studies.<sup>7</sup> Research has demonstrated that replacing 2% of energy from *trans* fat with polyunsaturated fat would reduce cardiovascular disease by 7–40% and would also cause reductions in type 2 diabetes. Studies have also shown that reducing saturated fat content in foods would have positive impacts on cholesterol; and benefits would be greater still if saturated fats were replaced with polyunsaturated fat. A combination of education, regulation, voluntary action by industry, and incentives can bring about these changes. Research has shown that, depending on the costs of media campaigns, these reductions in saturated and trans fat intake can be achieved for

approximately US\$ 0.50 per person.<sup>6</sup> Again, introducing labeling standards may impact consumer and producer behavior, helping achieve goals to reduce saturated and trans fat consumption in the Region.

**INTERVENTIONS TO REDUCE TOBACCO CONSUMPTION** include taxation, advertising bans, and package labeling; studies have demonstrated the effectiveness of these strategies to reduce smoking prevalence.<sup>8,9</sup> Increasing tobacco taxation has been shown to be the most cost-effective strategy, followed by advertisement campaigns and bans on smoking in public places.<sup>10</sup> Tobacco kills one million people in the Americas each year.<sup>11</sup> Tobacco taxation is a promising policy option for reducing tobacco consumption at a relatively low cost, and holds promise in the Americas. Tobacco prices actually decreased in some Latin American countries in recent years (between 2002 and 2007).<sup>12</sup> However, research has demonstrated that increasing the price of tobacco by 10% can decrease demand by 3–5% in high-income countries and 8% in low- and middle-income countries, and have rapid impact on rates of cardiovascular disease and hospitalizations from myocardial infarction.<sup>8</sup> The Framework Convention on Tobacco Control (FCTC) is a global treaty that contains core demand and supply reduction provisions and should act as a guide to nations for reducing tobacco consumption.

**INTERVENTIONS TO REDUCE ALCOHOL CONSUMPTION** have been estimated as cost-effective in Latin America and the Caribbean.<sup>13</sup> The main strategies to reduce alcohol consumption are tax increases and advertising bans. Tax increases have been shown to have an impact on consumption levels in regions with prevalent high-risk alcohol use. Advertising bans have been shown to have similar effects. The Global Strategy to Reduce the Harmful Use of Alcohol was endorsed by the 63<sup>rd</sup> World Health Assembly in May

2010 and offers countries a guiding framework to implement strategies to reduce harmful alcohol consumption in ten target areas including availability of alcohol, marketing of alcoholic beverages through media outlets and sporting events, and pricing policies.

**TAX AND PRICE INTERVENTIONS FOR FOOD AND DRINK PRODUCTS:** Given the success with tobacco taxation in certain countries, taxing high-sugar, high-salt, high-fat food and drink products has been a policy option explored by stakeholders. Available evidence points to the fact that this is a promising strategy; for example, soft drink consumption has been reduced in some low-income countries by raising the price.<sup>8</sup> More research is needed to determine the impact and cost-effectiveness of this approach for a wider set of countries.<sup>10</sup> Another approach to affecting the price of products, and thus consumer demand, is to subsidize healthy products. This has been a recommended strategy to accompany taxation and preliminary evidence has suggested that this strategy can influence risks of cardiovascular disease.<sup>10</sup> Again, more research is needed to determine the feasibility and adequacy of this policy option in particular country contexts, however these strategies hold promise for affecting the supply and demand of healthy products in the marketplace.

**PHYSICAL ACTIVITY:** With the high rates of urban living in the Americas, and alarming rates of sedentary lifestyle, a focus on increasing physical activity within the limits of urban living is essential. This is exactly the approach taken by *Agita São Paulo* (“Move São Paulo”), a world-renowned cost-effective program to promote physical activity.<sup>8, 14, 15</sup> *Agita São Paulo* sets a goal of thirty minutes of moderate physical activity per day that can be accomplished all at once or in increments of at least ten minutes each, allowing individuals to fit physical activity into their daily schedules. *Agita* has demonstrated success in increasing knowledge and levels of physical activity in the population at a very low cost. *Agita’s* success rests on several pillars: its solid basis in scientific recommendations for physical activity; its community-based platform, which involves many partners, such as community organizations, schools, worksites, and mass media; its low-cost to the individual and project partners; and its use of mass media to mobilize interest and support. The *Agita* model has been taken up on the national level in Brazil, and in other countries throughout Latin America and Europe. Policies can create an enabling environment for such community-based interventions to take place and scale-up.





## KEY HEALTH SERVICES INTERVENTIONS

**PHARMACOLOGICAL TREATMENT FOR CARDIOVASCULAR DISEASE:** Combination drug therapy as primary prevention for people at risk of cardiovascular disease or as secondary prevention for people with high-risk disease have been shown to be cost-effective strategies across world regions, including Latin America and the Caribbean.<sup>6,16</sup> Some combination therapies are even cost-saving; for example, in a setting where hospitals are available, a combination of aspirin and the beta blocker atenolol (to treat high blood pressure) was estimated to be cost-saving in all world regions.<sup>16</sup> Given the low price for some of these products, scale-up is seen as feasible in low- and middle-income countries. Additional research suggests that medications to lower cholesterol are also promising in terms of cost-effectiveness. Future research needs to examine this approach in the context of the Americas.<sup>15</sup>

**CANCER PREVENTION:** In general, cancer prevention is more cost-effective than treatment. Prevention of cervical cancer through vaccination and screening strategies has been examined in the context of the Americas. Available evidence indicates that in Latin America, human papillomavirus (HPV) vaccination coupled with cervical cancer screening is a cost effective strategy. Screening and early detection interventions are available also for breast cancer, colorectal cancer and prostate cancer.

**DIABETES MANAGEMENT:** Several interventions to manage diabetes have been studied and deemed cost-saving or cost-effective in the Americas. The three interventions that emerged as cost-saving are glycemic control in people with hemoglobin A1C (an indicator of metabolic control) greater than 9 percent, blood pressure control in people with pressure higher than 160/95 mmHG, and foot care in people with a high risk of ulcers.<sup>17</sup> The strategies to achieve glycemic control involve diet, physical activity, and pharmacological treatment (insulin or oral glucose-lowering medication). Blood pressure control is largely achieved through taking medications such as ACE inhibitors or beta blockers, which can be offered generically. Finally, adequate foot care for people with diabetes includes patient and provider education on how to recognize and treat minor foot injuries, use of appropriate footwear, and access to health personnel with training in foot care. These strategies are low effort in terms of investment, but high impact in terms of reductions in ill health and increases in years of healthy life. Underscoring these strategies is education: available evidence from the Region suggests that diabetes education is a cost-effective intervention strategy, as it facilitates self-management of the disease by people living with diabetes, and prevents the onset of serious, costly complications.<sup>15, 17</sup>



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