Disease Control Priorities Project

Health Priority Setting in the Southern Cone:

Action Needed on Lifestyle Risk Factors

Noncommunicable diseases (NCDs)—such as cardiovascular disease, diabetes, cancer, and mental health disorders—are a significant cause of illness, disability, and death in the Southern Cone of South America. In Argentina, the biggest killer is cardiovascular disease (CVD), and in Bolivia, Chile, Peru, and Uruguay, cancer kills more people than any other condition. In all Southern Cone countries, road traffic injuries are on the rise and represent a significant source of both death and disability.

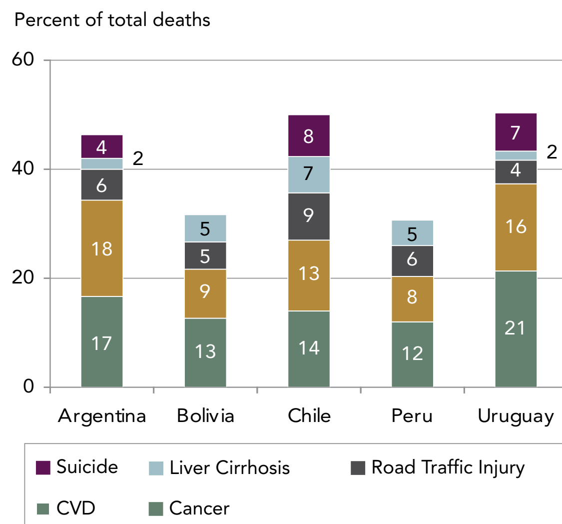
This fact sheet will focus on five conditions that are responsible for most of the death and disability in five Southern Cone countries (Argentina, Bolivia, Chile, Peru, and Uruguay). These are cardiovascular disease, cancer, overconsumption of alcohol as a risk factor in liver cirrhosis, road traffic injuries, and depression and suicide.

Leading Causes of Death in the Southern Cone

Figure 1 shows the relative proportions for five leading causes of death in the Southern Cone. Cardiovascular disease, the leading cause of death in Argentina, makes up 18 percent of total deaths in that country.[1] In the other countries, when taken together, cancers are now the biggest killer, responsible for 21 percent of all deaths in Uruguay, 14 percent in Chile, 13 percent in Bolivia, and 12 percent in Peru.[2] Another challenge in this region is the large number of preventable deaths from cirrhosis of the liver, making up 5 percent, 7 percent, and 5 percent of deaths in Bolivia, Chile, and Peru, respectively. Equally troubling is the large share of deaths from suicide, comprising 4 percent, 8 percent, and 7 percent of all deaths, in Argentina, Chile, and Uruguay, respectively.

FIGURE 1

LEADING CAUSES OF DEATH AS PERCENT OF TOTAL DEATHS, SOUTHERN CONE, 2001



Source: World Health Organization, Global Burden of Disease Project, 2001.

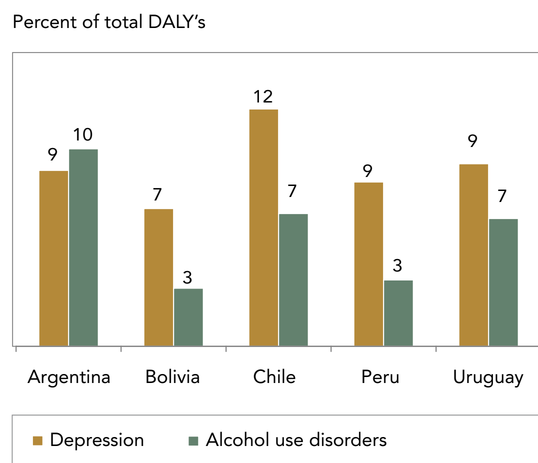
A Broader Measure: Burden of Disease

For a more complete picture of the health of these nations, we can look at the burden of disease, which is a measure of deaths, morbidity, and disability, rather than focusing on just deaths. The burden of disease is measured in units known as DALYs, or disability-adjusted life years, which reflect the number of years of healthy life lost to all causes, whether from premature death or from temporary or permanent disability.

Across the Southern Cone countries, the two biggest contributors to DALYs, are alcohol-related disorders and depression (see Figure 2). In Latin America and the Caribbean (LAC) as a whole, almost 9 percent of DALYs are attributable to alcohol, making the region second only to Europe and Central Asia, where 11 percent of DALYs can be traced to alcohol.

FIGURE 2

LEADING CONTRIBUTORS TO DISEASE BURDEN AS PERCENT OF TOTAL DISABILITY ADJUSTED LIFE YEARS (DALYS), SOUTHERN CONE, 2001



Source: World Health Organization, Global Burden of Disease Project, 2001.

Addressing Lifestyle Risk Factors is Key

Noncommunicable disease is strongly associated with lifestyle risk factors. These include smoking; a diet rich in fats, sugars, and salt; alcohol consumption; and physical inactivity. Noncommunicable disease usually appears when a person reaches middle age, after years of unhealthy behaviors. These behaviors are often linked to modernization and urbanization and often result in high blood pressure and obesity.[3]

Lifestyle changes must be made to reduce the burden of noncommunicable disease. The burden of cardiovascular disease and cancer in the Southern Cone could be reduced by adopting policies that discourage smoking and alcohol consumption, for example. Worldwide, more than 1 billion adults smoke, with about 82 percent of smokers residing in low- and middle-income countries.

Smoking is the leading contributor to CVD among men. In developing countries, almost half (49 percent) of the male population smokes, but only 8 percent of women smoke. In high-income and former socialist countries, almost one-half of the 1 million tobacco-related deaths of middle-aged men were due to CVD in 2000. In low-income countries, more than one-third of the 1.3 million tobacco-related deaths of middle-aged men were from cardioavascular disease.

Alcohol consumption poses a serious public health problem in the Southern Cone. It not only directly harms the health of those who drink excessively, but also contributes to risky behaviors that can lead drinkers to injure others. Alcohol consumption is linked to long-term health and social consequences, such as road traffic injuries, liver cirrhosis, and other alcohol-use disorders, all prevalent in the Southern Cone.

The second edition of the seminal study, *Disease Control Priorities in Developing Countries*, estimates the cost-effectiveness of several lifestyle interventions that target risk factors associated with noncommunicable disease. For example, cost-effective interventions to prevent high-risk drinking or to mitigate its effects include population-based interventions, such as legislation and taxes, improved law enforcement, restricting sales, breath testing, bans on advertising, and mass media campaigns.

In Latin America and the Caribbean, the most effective interventions to curb alcohol consumption are taxation and brief interventions (one-on-one counseling) with physicians that jointly can avert more than 1,360 DALYs per 1 million people per year, and could reduce the total disease burden from alcohol by 11 percent. Raising taxes by 50 percent costs US$184 per DALY averted. More costly approaches involve reducing access to retail outlets at US$340 per DALY averted, and enforcing advertising bans at US$380 per DALY averted. Random breath testing of drivers is the single most costly intervention at US$1,542 per DALY averted in LAC.

Cardiovascular Disease is a Leading Killer in the Region

In Argentina, the leading cause of death in 2001 was cardiovascular disease, making up over 18 percent of total deaths. Since tobacco is a strong risk factor for CVD, smoking reduction would help prevent CVD deaths and disability. Interventions for cardiovascular diseases, although largely proven in developed countries only, offer lessons for the Southern Cone countries. Better management of high blood pressure, for example, can save lives.

The Disease Control Priorities Project (DCPP) provides information on how CVD interventions might be used in developing countries. The most common heart disease—ischemic heart disease—can be successfully treated with a combination of aspirin and beta blockers, for only US$22 per DALY averted in Latin America and the Caribbean.

Congestive heart failure, often the end stage of heart disease, can be caused by ischemic or hypertensive heart disease and is characterized by fatigue, fluid retention, and eventual death. In addition to aspirin and beta blockers, congestive heart failure can be treated with ACE inhibitors, which enlarge the blood vessels and reduce blood pressure, and diuretic treatment. Adding the ACE inhibitor to the drug combination, plus the diuretic treatment, costs US$31 per DALY in LAC, even where hospital access is limited.

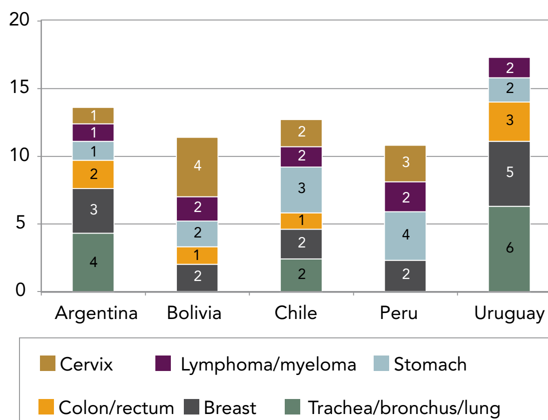
Cancer Responsible for Many Deaths

Cancer imposes a major disease burden worldwide but with considerable variation among countries and regions. In Latin American and the Caribbean, cancers associated with bacterial or viral infections, such as cervical, liver, and stomach cancer make up a large share of total cases. Cancers such as lung, colorectal, breast and prostate, usually appear at higher rates in industrialized countries because they are related to tobacco use, diet, and modern carcinogens. However, as people increasingly adopt the habits of wealthier nations, especially smoking, these cancers are becoming more common in developing countries. In LAC, the cancers associated with industrialized countries are more prominent in Uruguay and Argentina (see Figure 3).

FIGURE 3

SELECTED CANCERS AS PERCENT OF TOTAL DEATHS, SOUTHERN CONE, 2001

Selected Cancers as Percent of Total Deaths, Southern Cone, 2001



Source: World Health Organization, Global Burden of Disease Project, 2001.

The higher incidence of stomach, liver, and cervical cancers in developing countries is mainly due to public health systems' failure to control contaminants, bacterial and viral infections, and the lack of effective prevention and treatment for these cancers. High incidence of esophageal cancer may reflect in part the consumption of traditional beverages at extremely high temperatures. Cancers that are becoming increasingly common in developing countries—lung, breast, and colorectal cancers—reflect longer life spans, the adoption of western diets, and the globalization of tobacco markets.

Effective prevention and screening measures include the following:

- **Immunize against or treat infectious agents that are associated with cancer.** Examples include human papilloma virus (HPV) vaccine to prevent certain types of viral infection that can lead to cervical cancer and Hepatitis B vaccine to prevent liver cancer.
- **Institute national tobacco and alcohol control programs.** Tobacco is the most important cause of cancer of the lung, respiratory system, and esophagus. It also contributes to several other cancers. Excessive

alcohol consumption accounts for 20 to 30 percent of liver and esophageal cancers.

- **Make cancer screening widely available to detect cancer cases early enough to make curative treatment possible.** Screening is available for liver, stomach, lung, colorectal, cervical, and breast cancers.

Road Traffic Injuries Add to Death and Disability

Road traffic injuries are a growing cause of death in the Southern Cone, especially for men and young people ages 15 to 29. Such injuries comprise from 5 percent to 8 percent of all deaths in all Southern Cone countries except Uruguay, and cause between 3 percent and 4 percent of years of life lost to death and disability across the region. Road traffic injuries have increased as the volume of traffic has expanded. Rising incomes have allowed more people to acquire vehicles, but roads have not improved at the same rate, exacerbating traffic problems and leading to an increase in crashes.

Alcohol is a leading contributor to road traffic injuries. One survey found that one-third to more than two-thirds of fatally injured drivers in developing countries had alcohol in their blood.[4] In some countries, deaths are often caused by motorized two-wheeled vehicles. Pedestrians are especially vulnerable to deaths from two-wheelers. When people on two-wheelers fail to wear motorcycle helmets, they significantly raise their risk of injury. Other factors, including fatigue, use of hand-held mobile phones, and poor driver vision, also contribute to road traffic injuries.

Successful interventions to reduce the death and disability due to road traffic injuries include safer roads, safer vehicles, and changing the behavior of drivers and pedestrians. However, almost all of the research on what works to reduce traffic injuries is from developed countries, and must be applied to LAC countries with caution. Safe-road strategies include safety awareness in planning road networks, safety features in road design, and remedial action for high-risk crash sites. Traffic-calming measures, such as speed bumps, are promising. Safe-vehicle strategies include improving the drivers' vision with lights, incorporating crash-protective design into vehicles, and promoting the use of seat belts. Interventions aimed at changing user behavior generally focus on setting and enforcing speed limits and promoting helmet use.

DCPP undertook cost-effectiveness analysis for two interventions—increased penalties for speeding and installing speed bumps. In LAC, speed bumps are a good investment, at US$299 per year for a population of one million, just US$3.23 per DALY averted, especially compared to speeding penalty enforcement which costs US$268 per DALY averted, or over US$225,000 per year for the same size population.

Depression a Big Contributor to the Disease Burden

Depression represents a growing burden of disease in the Southern Cone and is currently the leading cause of disability. Depression often begins early in life and runs a chronic course with episodes that occur periodically throughout a person's lifetime. Depression is characterized by mood disturbances such as sadness, anger, irritability, and loss of interest in usual pursuits. Symptoms usually include sleep or appetite disturbance and decreased energy. Depression, which affects more women than men, is not a major cause of death, but it seriously reduces the quality of life and income potential for affected individuals and their families. Depression is also a risk factor for suicide and often worsens the effects of other physical health problems.

Challenges to addressing depression at a clinical and community level in less developed countries are numerous and vast—ranging from inadequate funding and personnel for diagnosis and treatment to the lack of understanding that mental illness is a medical condition. The stigma of mental illness is perhaps the biggest challenge in developing countries. As a result, many people delay seeking care and treatment.[5]

DCPP argues that the most cost-effective intervention for depression in primary care settings is the scaled-up use of older antidepressants (tricyclic antidepressants), which cost less but are as just as effective as newer antidepressants (serotonin reuptake inhibitors or SSRIs) that have fewer side effects. However, treatment even with these older drugs plus maintenance psychosocial therapy (group therapy) in a primary care setting is not very cost-effective. It would cost US$1,760 per DALY averted in LAC, assuming that 50 percent of afflicted people receive this treatment.

Best Buys for the Southern Cone

Noncommunicable diseases and traffic fatalities are a growing cause for concern in Southern Cone countries. They urgently need prevention programs to curb lifestyle risk factors. DCPP showcases ten "Best Buys" that offer proven cost-effective interventions and tackle the major causes of death and disability in developing countries. Three of these "Best Buys" are pertinent for the Southern Cone:

- **Tax tobacco products** to increase consumers' costs by at least one-third. Higher taxes can curb smoking and reduce the prevalence of cardiovascular disease, cancer, and respiratory disease.
- **Promote use of aspirin** and other inexpensive drugs to prevent and treat heart attacks and strokes.
- **Install speed bumps** at dangerous intersections to reduce traffic-related injuries.

For more information, see the following chapters in Jamison, D. T., J. G. Breman, A. R. Measham, G. Alleyne, M. Claeson, D. B. Evans, P. Jha, A. Mills, and P. Musgrove. 2006. *Disease Control Priorities in Developing Countries,* 2d ed. New York: Oxford University Press.

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1 The cardiovascular (CVD) category in this graph includes: ischaemic heart disease, cerebrovascular disease, hypertensive heart disease, and inflammatory heart disease.

2 In the graph, cancer includes: breast; trachea, bronchus and lung; colon and rectum; stomach; lymphomas and myelomas; cervical; uteran; leukemia; pancreatic; and oesophageal cancers.

3 Krisela Steyn and Albertino Damasceno, "Lifestyle and Related Risk Factors for Chronic Diseases," in *Disease and Mortality in Sub-Saharan Africa,* 2d ed., ed. D. T. Jamison, R. G. Feachem, M. W. Makgoba, E. R. Bos, F. K. Baingana, K. J. Hofman, and K. O. Rogo (Washington, DC: World Bank, 2006): 247-65.

4 Wilson O. Odero and Anthony B. Zwi, "Alcohol-Related Traffic Injuries and Fatalities in LMICs: A Critical Review of Literature," in *Proceedings of the 13th International Conference on Alcohol, Drugs, and Traffic Safety,* ed. C. N. Kloeden and A. J. McLean, (Adelaide, Australia: University of Adelaide, 1995): 713-20.

5 Vikram Patel, "Cultural Factors and International Epidemiology," *British Medical Bulletin* 57, no. 1 (2001): 33-45.