

# Growing up healthy

## chapter 5

If death rates are the benchmark, the young are a healthy group, and today's young are healthier than at any time in history. This presents an unprecedented opportunity for further investment and growth. Young people in developing countries have a mortality rate of less than 3 percent, down significantly over the past 20 years, and a fraction of that for infants and adults.<sup>1</sup>

Average mortality is a misleading measure, however, because it does not reflect the behavior that puts health at risk later in life. A more appropriate benchmark would reflect such behaviors as tobacco use, drug use, excessive alcohol consumption, sexual behavior that increases the likelihood of sexually transmitted diseases, and inadequate diet and physical activity. These behaviors affect youth while they are still young: for example, unprotected sex can lead to HIV infection or an unplanned pregnancy. However, most of the adverse consequences show up only when they grow older, in such noncommunicable diseases as lung cancer, diabetes, and heart disease.

Good health is not equally available to all young people. Although mortality among young people is low on average, and young people are fairly healthy, their likelihood of premature death is much higher in poor countries. The average 15-year-old boy has a 90 percent chance of surviving to the age of 60 in Western Europe or North America, but only a 50 percent chance in Sub-Saharan Africa, primarily due to the spread of communicable diseases such as AIDS. In countries hardest hit by AIDS, the probability is only 20 percent.<sup>2</sup>

Young people today have access to a much broader range of choices than previously available, in a vastly different environment, which makes it harder to choose appropriately and to avoid behavior that

puts their health at risk. Awareness of the consequences of decisions for health, and of ways to avoid ill health, is very low among young people, especially girls, and only a small percentage of those aware actually adopt safe behavior. Young people are thus likely to make uninformed decisions about behaviors that put their health at risk.

Risky behavior during youth can deplete productive human capital many years into the future. Long after tobacco smoking peaked in the United States, tobacco was the single largest cause of all lung cancer deaths, and about half of those who died were still in middle age. In some developing countries today, close to half of all young men are smokers. Similarly, HIV develops into AIDS with a lag of up to 10 years, taking its toll on people in their prime working ages. In many developing countries, new HIV infections affect young people disproportionately. The costs of treating AIDS and such chronic diseases as cancers, diabetes, and heart disease are high, and the treatments often ineffective.

The best way to avoid the future loss of productive human capital and steep increases in future health care expenditure is to modify health behavior during youth, when habits are still being learned. Policies to promote better health for young people rest on three legs. First, give them the knowledge to help them make informed choices about their behavior—and the skills to negotiate safe behavior with peers and partners. Second, create an environment for the young to practice healthful behavior, making risky behavior costly, and limiting the opportunities for it. Third, for young people harmed by poor health decisions or environments, provide health services, treatment, and rehabilitation. Broadening access to these services—whether dealing

with unwanted pregnancies, obesity, or drug addiction—will minimize the long-term consequences and lead to better health.

The health concerns facing young people differ greatly around the world. As the Global Burden of Diseases project shows, leading causes of death and disability for young people include injuries in Latin America and HIV/AIDS in Africa.<sup>3</sup> This chapter focuses on the factors that are common to all youth health issues. Rather than focusing on specific health outcomes, the chapter presents a framework to develop policies that encourage healthier behavior among youth.

### Promoting the health of young people stimulates growth and reduces poverty and health care expenditures

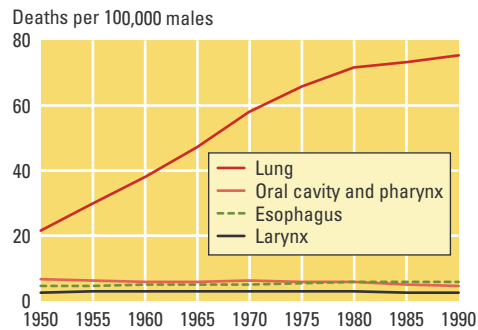
Although the death rate for young people ages 12–24 is less than 3 percent, and young people are generally healthy, their continuing health and survival into adulthood are at risk, largely because of their behavior as youth. It has been estimated that nearly two-thirds of premature deaths and one-third of the total disease burden of adults can be associated with conditions or behavior begun in youth.<sup>4</sup> Policies that encourage healthful behavior among youth, by improving their productivity and health as adults, will have ripple effects on the economy.

#### Impact on poverty reduction and growth

Risky health behavior during youth can deplete the economy of productive human capital for many years into the future. The prevalence of smoking among U.S. males peaked before 1945, but since then, with smoking rates more or less unchanged, the deaths attributed to lung cancer increased nearly fourfold, and among smokers twentyfold (figure 5.1). Some developing countries, in which half of young men are smokers, face the burden of enormous health costs in 20 or 30 years.

Heavy alcohol consumption and drug use reduce productivity and increase absenteeism and other health-related costs to firms and individuals.<sup>5</sup> Drug abuse is concentrated among 18- to 25-year-olds—

**Figure 5.1 In the United States, mortality from lung cancer among men increased dramatically for nearly 40 years after smoking peaked**



Source: Centers for Disease Control and Prevention (1993).

Note: Deaths per 100,000 population are standardized to the 1970 age distribution of the U.S. population.

just when they are entering the workforce. It can make a job search more difficult, and being unemployed can make drug abuse more attractive. Unemployment and illicit drug-taking are strongly correlated, in both developed and developing countries. In Colombia, the prevalence of cocaine use was 4.1 percent for the unemployed, 0.4 percent for the employed.<sup>6</sup> In Russia, severe alcohol consumption is associated with a higher probability of job loss.<sup>7</sup> Countries with higher rates of alcohol consumption among youth also report higher rates of motor vehicle deaths and suicides among youth. More than half of deaths due to homicide or traffic accidents in South Africa and Brazil had blood alcohol levels in excess of legal limits.<sup>8</sup> Traffic accidents are among the leading causes of death and disability in developing countries. Accidents are estimated to cost low- and middle-income countries \$65 billion per year, or between 1 and 1.5 percent of gross national product.<sup>9</sup>

Safe health behavior, by contrast, can encourage greater investment in productive human and physical capital. Longer life expectancy may lead to higher investments in secondary school, just as higher mortality due to HIV/AIDS may reduce the gains from investments in children accumulated during the past generation. HIV and AIDS reduce savings and investments in productive physical capital among the poor, thus reducing the likelihood that poor youths escape poverty.<sup>10</sup> African parents have responded to the



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higher mortality risk from HIV/AIDS by having more children and providing each of them with less education.<sup>11</sup>

### *Impact on health care expenditures*

Addictions, exercise patterns, and eating habits are hard to change, harder as people mature and become set in their ways. A longitudinal study from Indonesia finds that the proportion of men who smoked in 2000 was almost identical to the proportion who had ever smoked since 1993, suggesting that very few smokers quit.<sup>12</sup> Modifying health behavior during youth, when habits are still being learned, is a much more effective means of preventing unsustainable increases in health care expenditures. Treatment, especially for such noncommunicable diseases as cancers, diabetes, and heart disease, is expensive and often ineffective. In adulthood, when adverse health consequences become visible, both the behavior and the consequences are irreversible.

Consider the consequences. Smoking increases the risk of general health problems, the susceptibility to severe respiratory illnesses, and the risk of dying from lung cancer.<sup>13</sup> Excessive alcohol consumption leads to greater alcohol dependence, more alcohol-related injuries, and other psychological and physical problems later in life. Substance abuse can lead to addictions; to circulatory, respiratory, and digestive diseases; to accidental overdose; and to the greater risk of acquiring HIV and AIDS. Poor nutrition and a lack of exercise can lead to obesity, which causes hypertension, cardiovascular diseases, type-2 diabetes, and many other chronic diseases in youth and adulthood.<sup>14</sup> Early sex, unprotected sex, and having multiple partners can lead to HIV/AIDS and other sexually transmitted diseases. Almost all HIV infections in 2001 in Africa and parts of Latin America, and about a quarter in Eastern Europe, can be attributed to unsafe sex.<sup>15</sup>

Now consider the costs. Providing health care to a drug addict costs about 80 percent more than providing it to an average person in the same age group,<sup>16</sup> and by one estimate, tobacco use results in a global net loss of \$200 billion a year.<sup>17</sup> Individual country studies estimate the net cost of tobacco use at between

0.03 percent and 0.40 percent of GDP—costs expected to rise as young smokers age and begin to suffer the consequences.<sup>18</sup>

Caring for AIDS patients is squeezing the resources and care available to HIV-negative patients. In South Africa, patients are turned away from hospitals because of limited beds,<sup>19</sup> and Kenya has seen higher mortality among HIV-negative patients.<sup>20</sup> From 1988 to 1992, the average number of people admitted per day to a Nairobi hospital who were *not* infected with HIV fell by 18 percent while the number of HIV-infected more than doubled.<sup>21</sup> Although there is no evidence that health workers risk infection more than the general population, the fear of infection, plus the greater demand for health care and the overwhelming tide of dying patients, has accelerated their burnout.<sup>22</sup>

### **Public intervention is needed to promote youth health**

Governments around the world try to reduce risky behavior—through tobacco control; regulation of alcohol consumption; and public messages about diet, nutrition, and safe sex. Such public intervention is justified because of market failures that dominate health behavior and cause individuals to make privately and socially inferior health decisions, and these market failures are magnified for young people. Private markets do not facilitate optimal decision making by individuals for a number of reasons. One problem is that individuals have incomplete information about the consequences of their behavior over time. They do not know whether or when they might face the adverse consequences of their behavior. Unprotected sex and excess tobacco and alcohol consumption are risky, but the risks are difficult for young people to quantify (see boxes 2.7 and 2.9). They might find risky behavior attractive or convenient in the short run, or believe that experimenting with such behavior is safe, or be coerced into engaging in it.

Even if the consequences of poor environments or decisions are purely private, public action can still be justified—on the grounds of merit or concern for equality. Good health is often accepted as a *merit good*: something socially accepted as beneficial for people, regardless of their feelings in

the matter. Equity also matters, because the poor are likely to be less healthy than the nonpoor. This is most obviously manifest in differences in life expectancy. In Brazil, the life expectancy for young men between the ages of 10 and 19 from the poorest quintile is 38.0 years, and for young women 35.8 years. For young men from the wealthiest quintile, it rises to 49.7 and for young women to 53.1. Poverty cuts 12 years from the expected life of a young man, and more than 17 years from the life of a young woman.<sup>23</sup>

The rest of the section describes only some of the risky health behaviors—unprotected sex, tobacco use, drug use, excessive alcohol consumption, physical inactivity, and unhealthy diet—that arise from the market failures described above. While governments intervene in these areas in many ways, these measures must be better designed to address the unique market failures young people face when making choices about their behavior.

### Health behavior, imperfect information, and inequality

Individuals may not have good information about the risks they face today, even if they understand the risks over time. Some information, such as HIV status, is easily withheld from partners, and during the early and more virulent stages of many infections, infected persons may be unaware of their true status. These external risks are also present where individuals suffer from the behavior of others over which they have no control. The most obvious case is second-hand tobacco smoke, but other ostensibly private behaviors can have consequences for others, especially if the costs of later treatment are passed on to the wider community.

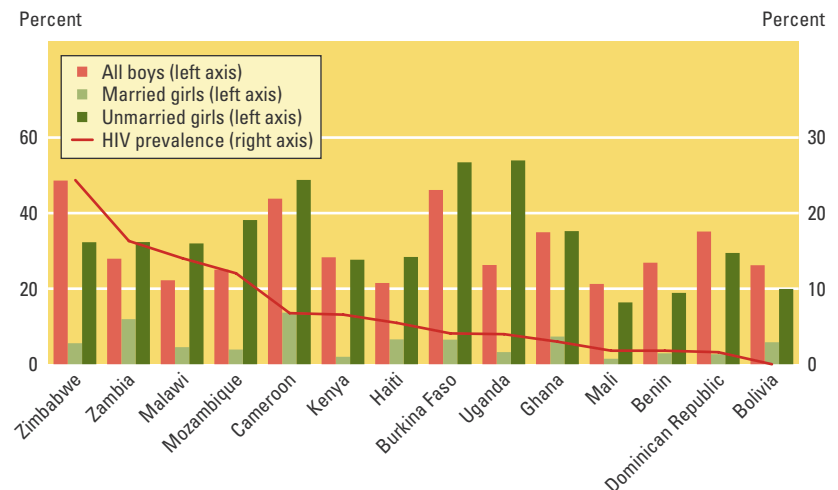
**Imperfect information and risky sex.** More than half the young in many countries are sexually active, and data from surveys conducted between the late 1990s and 2004 show that the proportion who initiated sexual activity before the age of 15 is increasing.<sup>24</sup> A significant proportion of youth in developing countries—especially girls—are sexually active within marriage or informal unions, but many unmarried youth are also sexually active. Evidence indicates that the

age at menarche (first menstruation) has declined for girls, and the average age at marriage is increasing.<sup>25</sup> A study based on 27 Sub-Saharan African countries shows that this rise in age at marriage is linked to the increase in the percentage of young people who engage in premarital sex.<sup>26</sup>

Imperfect knowledge about consequences can lead people to engage in unprotected sex. Fewer than half of sexually active young people use condoms, even though unprotected sex is the greatest risk factor for HIV transmission in most areas of the world (figure 5.2). Even in countries where HIV prevalence is high, a large proportion of young people engage in unprotected sex. These young people are at greater risk of HIV infection. In Mozambique, a country with moderately high HIV prevalence, sexual activity among youth is common, but condom use is low. The share of sexually active boys using condoms ranges from 20 percent in Mali to about 50 percent in Zambia. Condom use is higher among unmarried sexually active girls than among married girls. In Uganda, slightly more than 50 percent of all unmarried girls used condoms the last time they had sex, compared with only 3 percent of married girls.

Condom use may be lower among young married women than unmarried women because they are planning to bear children. But in Burkina Faso, Kenya, and

**Figure 5.2 Sexually active youth are unlikely to use condoms, even where HIV prevalence is high**



Source: Demographic and Health Surveys for surveys conducted between 1997 and 2004. Note: Left axis of figure refers to 15- to 24-year-olds who reported using a condom at most recent sexual intercourse.

Zambia fewer than a third of married girls who did not use condoms were planning a pregnancy within two years—the rest were trying to avoid pregnancy.<sup>27</sup> Unprotected sex increases the risk that married young girls will become infected, and recent data from Sub-Saharan Africa show that HIV incidence is growing fastest among young married women. This is primarily because younger women are married to older men, who have a higher chance of being infected (through risky sex with partners outside marriage).<sup>28</sup> One study in rural Uganda found that the HIV infection rate among married women under 20 was nearly three times that of unmarried women under 20 (17 percent compared with 6 percent).<sup>29</sup>

***Unequal power and risky sex.*** Risky sexual behavior is more likely to occur among poor youth, who are in a weaker position to negotiate safe sex, and are more likely to experience coerced sex and sex for exchange.<sup>30</sup> Forced sex exposes young women to the risks of HIV and other sexually transmitted diseases, risks heightened by injuries from physical violence.<sup>31</sup> More than 20 percent of women attending antenatal clinics in Soweto, South Africa, reported having had sex with a “non-primary” male partner in exchange for goods or money.<sup>32</sup> Data from DHS surveys around the world indicate that 13 percent of unmarried women between the ages of 15 and 19 received money or gifts in exchange for sex in the four weeks preceding the survey.<sup>33</sup>

The “sugar daddy” phenomenon is widely observed in Africa and other settings. A survey of 45 studies in Sub-Saharan Africa reports that sex with older unmarried partners is widely accepted among adolescent girls in many countries.<sup>34</sup> There is some evidence that the HIV epidemic has increased the incidence of sex between older men and younger women, as men seek to avoid infection.<sup>35</sup> Women who report transactional sex, controlling for age and number of partners, were 50 percent more likely to be HIV-positive.

### ***Health behavior, habit formation, and irreversibility***

Young people lack information partly because they lack experience. Youth is a time

of experimentation; this experimentation is partly intended to acquire information about behavior, choices, and consequences, as well as to form a sense of identity and belonging. People, young and old, choose behaviors because of the pleasure and benefits they yield. The pleasure from some of these behaviors is fleeting, while the costs can persist. Experimentation can lead to habits and addictions, which can be destructive and extremely difficult to break.

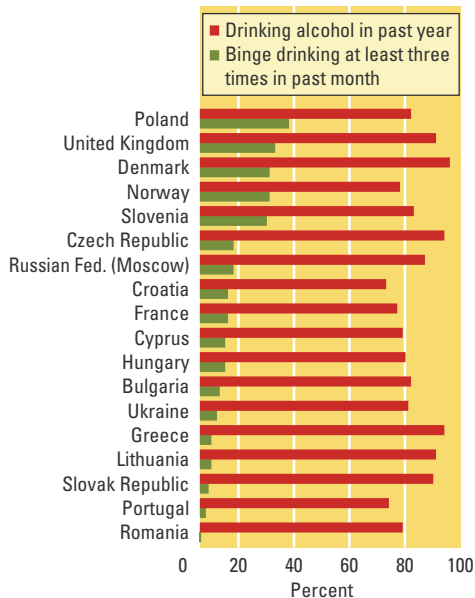
Preferences may be time-inconsistent, and behaviors can have irreversible consequences. In the future, today’s youth will most likely wish they had made different decisions when they were young, especially if they begin to suffer the consequences. For many of these adverse consequences, it is not possible in later life to undo the damage caused by earlier behavior. Treatment, especially for such noncommunicable diseases as cancer, diabetes, and heart disease, is expensive and often ineffective.

***Alcohol, tobacco, and drugs.*** Alcohol is the most widely consumed drug in the world: about half those 15 and older have consumed alcohol in the past year.<sup>36</sup> Patterns are difficult to interpret, because moderate drinking—even by youth—is accepted in many countries. The proportion of young people who report drinking generally exceeds 60 percent, of whom 10 to 30 percent engage in binge drinking (figure 5.3).<sup>37</sup> In the United Kingdom, young people between 16 and 24 are the heaviest drinkers in the population, and the least likely to abstain from drinking.<sup>38</sup> Limited data from developing countries suggest that young people are beginning to drink alcohol at earlier ages. Boys are more likely than girls to drink alcohol, and to drink heavily, though consumption among girls in some countries (especially in Latin America) has begun to approach or even surpass that of young men.

Early initiation of alcohol use is correlated with a greater likelihood of both alcohol dependence and alcohol-related injury. A study of hospitals in three cities in South Africa found that 61 percent of patients admitted to trauma units in these cities were alcohol-positive, including 74 per-



**Figure 5.3 Alcohol consumption is common among 15- to 19-year-olds in some countries**

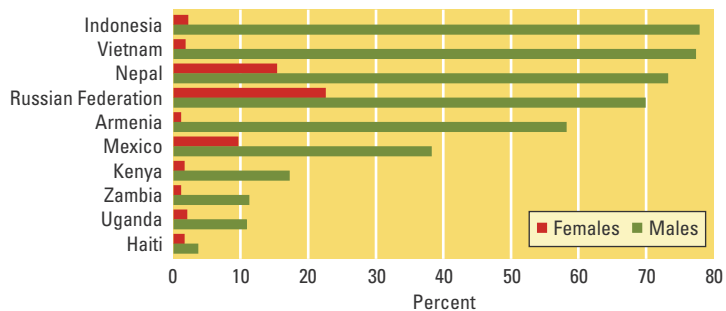


Sources: Computed using data from Hibbell and others (2000) and Bloomfield and others (2003).  
 Note: "Binge drinking" is defined as consuming five or more drinks in a row.

cent of violence cases, 54 percent of traffic collisions, and 30 percent of trauma from other accidents.<sup>39</sup> Young people who abuse alcohol and drugs are more likely to commit crimes, and substance abuse is a major risk factor in violence.<sup>40</sup> Examination of 960 people arrested in nine police stations in three cities in South Africa found that 22 percent were under the influence of alcohol when the alleged crime took place.<sup>41</sup>

Per capita consumption of tobacco is declining in developed countries, but rising in many developing countries, for both men and women. Between 1970 and 1990, tobacco consumption is estimated to have increased by about 3.4 percent a year in low- and middle-income countries,<sup>42</sup> and people are beginning to smoke at younger ages.<sup>43</sup> Reported use of cigarettes, pipes, and chewing tobacco varies widely (figure 5.4). Most smokers in Indonesia consume clove cigarettes, which contain twice the tar, nicotine, and carbon monoxide of American cigarettes, and smoking among 15- to 19-year-olds rose from 32 percent in 1993 to 43 percent in 2000.<sup>44</sup> Fewer girls than boys report tobacco use, though it may be increasing among girls in developing countries.<sup>45</sup>

**Figure 5.4 Many young people, especially young men, consume tobacco**



Sources: Indonesia Adolescent and Youth Survey (2002–03) of 15- to 24-year-olds; Mexico current smoking prevalence is based on survey of urban 14- to 22-year olds; Vietnam Ministry of Health and General Statistics Office, UNICEF, and WHO (2005) surveys of 14- to 25-year-olds; Russia Longitudinal Monitoring Survey (Round 6) (15- to 24-year-olds). Remaining data was obtained from MEASURE Demographic and Health Surveys conducted between 2000 and 2004 (15- to 24-year-olds).  
 Note: Figure refers to youth who report currently smoking cigarettes or pipes or using other tobacco products.

Few young people experiment with illegal drugs, and an even smaller number go on to develop long-term chronic problems. Even so, measures to prevent experimental use are worthwhile to avoid addiction and the acute and possibly fatal reactions with even limited experimental use. Young people in developed and developing countries experiment with cannabis, amphetamines, cocaine, heroin, and inhaling solvents, glue, and gasoline. Inhaling volatile chemicals, relatively neglected by policy makers, is extremely dangerous, and acute intoxication can be fatal. Young people are more likely to abuse solvents because they are easily available in homes and shops, and street children are especially vulnerable (box 5.1).

**BOX 5.1 Street children abusing drugs**

The World Health Organization's Substance Abuse Department identifies inhalation of volatile substances as a particular problem of street children. It recommends that prevention and interventions are urgently needed to deal with the almost universal use of organic inhalants among street children in developing countries.

Cairo has a large and rapidly growing population of street children (150,000 in 2001). Nearly two-thirds of those surveyed regularly abuse drugs or solvents. Of those who consumed illicit substances, 97 percent reported sniffing glue. Other substances include cannabis, hashish, solvents, and prescription medication. They take drugs because of peer pressure, to relieve the pressures of the street, to help them sleep, and to help them endure pain, violence, and

hunger. There are no direct comparisons among non-street youth; but a recent study of Egyptian university students found that 7 percent had ever tried cannabis, and 18 percent had ever used solvents.

A study of street children (ages 15–16) in Karachi, Lahore, Peshawar, and Quetta in Pakistan found that of those who had used drugs, 90 percent inhaled glue, gasoline, or paint thinner, all easily available from the local market. Nearly two-thirds of them reported having used these substances for more than two years. Roughly three-quarters had never been to school. They beg, clean cars, and scavenge through garbage, spending half what they earn on drugs.

Sources: Refaat (2004); United Nations Office on Drugs and Crime (2004); UNODCCP (2002); and WHO (1999).



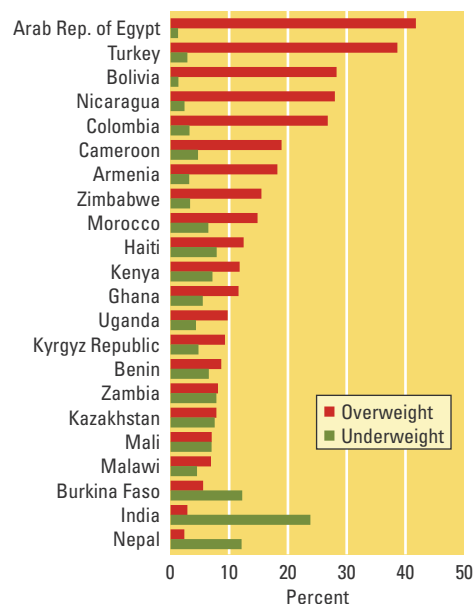
The prevalence of illegal drug use is highest in developed countries but increasing in developing countries. In many regions, especially Central Asia, prevalence now approaches developed country levels.<sup>46</sup> (Estimates of drug abuse by young people are available only from a few small studies, mainly for school students.) There are an estimated 13 million injecting drug users worldwide, 78 percent of them in developing and transition countries, the majority young.<sup>47</sup> Potentially deadly in itself, injecting drug use increases the risk of acquiring HIV through the sharing of infected needles and the exchange of body fluids.

**Diet and exercise.** More sedentary lifestyles, along with high intakes of salt and saturated fats and low intakes of vegetables and fruits, can lead to obesity, high blood pressure, high blood cholesterol, and such noncommunicable diseases as heart disease and diabetes. The consequences of poor diets can be passed from generation to generation: babies born to malnourished mothers are at significantly higher risk of being overweight or obese in adulthood.<sup>48</sup>

The health consequences of poor diets and physical inactivity have generally been considered diseases of the affluent. However, these noncommunicable diseases, far from being affluent-country lifestyle diseases, appear with greater frequency in populations undergoing rapid socioeconomic improvement with better access to food and shifts in diets.<sup>49</sup> Data from China, the Arab Republic of Egypt, India, Mexico, the Philippines, and South Africa reveal a marked shift over the last 20 years toward diets high in saturated fat, sugar, and refined foods, while the share of cereals, legumes, pulses, and nuts remained stable or declined.<sup>50</sup>

Being overweight is rapidly becoming more prevalent in low- and middle-income countries, where incidence is increasing especially rapidly among poor households.<sup>51</sup> A recent survey from rural Mexico of low-income households found that 60 percent of adult women and more than 50 percent of adult men were overweight.<sup>52</sup> In many countries young people are more likely to be overweight than underweight, with girls especially at risk (figure 5.5). This partly reflects signifi-

**Figure 5.5 Many young women in developing countries are overweight**



Source: Demographic and Health Surveys conducted between 2000 and 2003.

Note: Anthropometric measurements were taken for all married and unmarried women interviewed. BMI-for-age cutoffs from a reference population were used to classify 15- to 24-year-old women as overweight (above the 85th percentile cutoff) and underweight (below the 5th percentile cutoff).

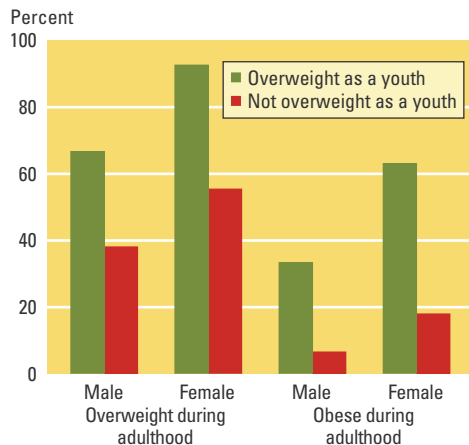
cant sex-based differences in patterns of diet and exercise. In urban Mexico, only a third of young girls report exercising, compared with more than half of all boys.<sup>53</sup>

The health consequences of poor diets and lack of exercise are becoming more prevalent in many developing countries. In large cities in China, the prevalence of hypertension among those 18 years and older increased from less than 12 percent in 1991 to 19 percent in 2002, and the prevalence of type-2 diabetes increased from 4.6 percent to 6.1 percent. In Egypt and Mexico, the prevalence of diabetes has been estimated at 10 percent.<sup>54</sup>

Nutritional habits and outcomes are stable over time, so there are great benefits to intervening during youth when habits are being formed. Longitudinal data in Guatemala show that being overweight or obese as a youth significantly raises the chance of becoming obese in adulthood (figure 5.6).

In many ways the risks facing young people today are greater, and consequences poten-

**Figure 5.6 Being overweight as a youth increases the chances of being overweight as an adult**



Source: Personal communication with Alexis Murphy, International Food Policy Research Institute, 2005 (using INCAP Longitudinal Study, Guatemala, 1987–2004, IFPRI).

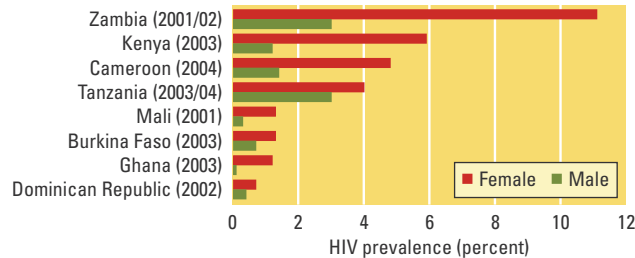
Note: Overweight is body mass index (BMI) greater than 25 and obese is BMI greater than 30, such that individuals who are obese are also considered overweight.

tially more deadly, than for previous generations. This is most obvious in the spread of HIV and AIDS, increasingly prevalent among young people (figure 5.7), and dramatically increasing the risks of unprotected sex. Today's young people also have access to more calorie-dense foods, which, combined with more sedentary lifestyles, are making young people obese and leading to hypertension, heart disease, and diabetes. Adding to this is the aggressive marketing of tobacco products and the increase in smoking around the world. So the broader opportunities open to young people make it harder to choose appropriately and to avoid risky behavior.

### Strengthening young people's capability to practice healthy behavior

A central element of health promotion is providing health education to change youth behavior and encourage adoption of healthy behaviors. However, behavior change is one of the most difficult goals to achieve in health promotion. In recent years, experience with health education, particularly in the context of HIV prevention, shows changing knowledge alone may not change behavior.<sup>55</sup> But evidence from Uganda and Eastern Zimbabwe suggests that behavior change is possible. Young people there

**Figure 5.7 The proportion of 15- to 24-year-olds infected with HIV is high, especially among girls**



Sources: Demographic and Health Surveys and Tanzania HIV/AIDS Indicator Survey.

are delaying sex, and this has resulted in a drop in HIV incidence.<sup>56</sup> A few evaluated programs suggest that providing culturally appropriate teaching about health risks and increasing the capability of young people to practice healthy behavior (including negotiating safe sex with partners) are more likely to change behavior.

Providing young people with schooling can be an effective way to change their behavior. Evidence shows that there is a strong relationship between education and health. Healthy decisions are promoted by education and economic growth, which raises the prospect of higher lifetime earnings and a better life in the future. A stronger sense of an attainable and prosperous future can encourage individuals to make good health and survival more likely. Education, often called a “social vaccine,” is considered by many to protect young people from engaging in risky behaviors (box 5.2).<sup>57</sup> Policies that improve young people's access to education and labor market opportunities can be improved. In this chapter, we focus on investments in improving health behavior, of which formal health education is only one—albeit important—determining factor.<sup>58</sup>

*“We are aware that we drink alcohol and that we consume drugs and we have sexual relations with different girls. We want to change but we do not have a great deal of will to do that.”*

Young male gang member,  
Comas, Peru  
January 2006

### Information is necessary to change behavior

Many countries have health education programs, especially for school-going youth. However, evidence of the efficacy of school-based health education programs is mixed, with variations in effectiveness depending



## BOX 5.2

*The role of education in behavior change*

Studies from developing and developed countries show that more education is associated with healthier lifestyle choices, be it smoking, drinking, sex, or use of seat-belts when driving. In Indonesia, poor and uneducated youth are more likely to smoke cigarettes, and higher education is associated with reduced smoking. In urban Mexico, youth who expected to complete secondary school were less likely to smoke, engage in risky sex, or drink alcohol. In rural Kenya, where many students do not expect to complete their education because of high costs, free uniforms (and sex education) significantly reduced risky sex, evidenced by a drop in pregnancies among schoolgirls. In the United States, those who attend and are more engaged in school are less likely to engage in risky behavior. Better prospects for current and lifetime employment, earnings, and wages also reduce the chance that they engage in risky behavior. In South African communities where youth wages and employment are high, young people are also more likely to use condoms. HIV prevalence in Uganda, thought to be higher among the educated in the early stages of the epidemic in Sub-Saharan Africa, is negatively related to education.

Why does education lead to the adoption of healthy behaviors? The observed relationship between schooling and less risky behavior is partly explained by the fact that education raises the private returns to remaining healthy. Education gives young people a sense of the future and the ability to imagine themselves in the future in a way that has some value today. It also improves their earning prospects and other life opportunities. This gives educated young people a stronger incentive to engage in safe behavior. Finally, education also gives people the ability to better process health information. All of these reasons might explain why educated people are more likely to adopt healthy behaviors. But these observed associations could also be partly explained by a “selection effect”—those youth who value their future also attend school.

Sources: Blum and Nelson-Mmari (2004); De Walque (2004); Dupas (2006); Gertler and others (2006); Gruber (2001); Kaufman and Stavrou (2004); Kenkel (2000); Strauss and Thomas (1995); Witoelar, Rukumnuaykit, and Strauss (2005); and World Bank (1999b).

partly on the outcome evaluated. Health education can include information about clean water and sanitation, nutrition, substance abuse, infectious diseases, violence, and sexual and reproductive health. A school-based program of the Partnership for Child Development in Tanzania’s Lushoto district provided education for helminth (worm) infection and personal hygiene. At the outset of the project, no schools provided drinking water or water for hand washing after using the latrine. By the end of the first year, all schools in the intervention area were doing both. Knowledge and practices improved in the intervention schools but not in the comparison schools. A follow-up survey 15 months later found that many of the healthy behaviors were maintained in the intervention schools.<sup>59</sup>

*School-based health education programs.* Most evaluations of school-based programs have focused on sex education, which can increase knowledge and encourage adop-

tion of safe sexual behavior.<sup>60</sup> School programs can reach a large number of young people in countries where enrollment rates are high; and enrollments—especially in primary school—have grown significantly, increasing the potential audience for school-based health information campaigns. The structured school environment is conducive to teaching young people about their bodies and about safe health behavior. The programs offer a chance to reach large numbers of young people and their teachers, as well as an opportunity to institutionalize sex education and broaden its impact when ministries of education make it official policy. No evidence indicates that sex education increases sexual activity among youth.<sup>61</sup>

A randomized evaluation in Namibia showed that health education given to children promoted safe sex behavior (box 5.3). A summary of 21 school-based sex education programs in developing countries found that nearly all had a positive influence on reproductive health knowledge and attitudes.<sup>62</sup> However, not all of those studies assessed behavior. Of the few that did, one found an increase in condom use in the short term among sexually active youth ages 11–14 in Jamaica, but the effect disappeared in the long term. Programs in Chile, Mexico, and Uganda also included younger teenagers and found less sexual activity and greater use of contraceptives among those sexually active.

*Using mass media and social marketing to reach all youth.* School-based programs exclude those youth not in school. And these programs are mostly provided in secondary school, after many young people have left school (chapter 3) and after many young people have already begun having sex. Broadly based information, education, and communication programs aim to change the health of young people through social marketing and community-wide public information campaigns. In addition to curriculum-based health education and sex education programs in schools, such efforts include youth development programs through youth centers, and the use

*“I know how to prevent risks.*

*However, many times we do not put our knowledge into practice because [of] our rhythm of life.”*

Young male gang member,  
Comas, Peru  
January 2006



THE WORLD BANK

of mass media, to influence the knowledge, attitudes, and behavior of young people.

Mass media can inform youth and the community about health issues and, in principle, shape attitudes, beliefs, and behaviors. Mass media campaigns raise knowledge significantly, but their impact on behavior is limited. Social Marketing for Adolescent Sexual Health (SMASH) in Botswana, Cameroon, Guinea, and South Africa changed knowledge but not behavior.<sup>63</sup> The *Arte y Parte* program (Paraguay) and the Promotion of Youth Responsibility project (Zimbabwe) reached similar conclusions.

Broadcast media, with their wide reach, can increase awareness, though there is little evidence that they change behavior. The television drama *Sexto Sentido* in Nicaragua attracts 70 percent of the entire TV-viewing audience, and 80 percent of 13- to 17-year-olds.<sup>64</sup> Even more impressive, the wildly popular dramas *Soul City* and *Soul Buddyz* in South Africa are watched by 13 million people each week, and the entire campaign (radio, television, and print) reaches an estimated 16 million people each week. Evaluations of *Soul City* consistently show that viewers and readers are more aware of health risks and healthy choices. However, the studies have not controlled for preexisting differences between viewers and non-viewers. Nor have they examined changes in behavior or such objectively measured outcomes as pregnancy and incidence of sexually transmitted infection (STI).<sup>65</sup>

Youth development programs and peer education programs vary widely in design and goals. Youth development programs focus on life options and skills, educational aspirations, vocational opportunities, and psychosocial development needs. They may or may not address reproductive health, but the many program components can act together to promote a healthy lifestyle. One group of young people consulted during the preparation of this Report suggested both cultural and content-specific ways in which information on HIV/AIDS and reproductive health could be made more effective and attractive to youth. These included making the content short and specific, keeping the message “real, close to daily life,” integrating

### BOX 5.3

### Reducing HIV risk in Namibia

The Namibia Ministry of Youth and Sport developed *My Future is My Choice*, a curriculum-based program derived from the Focus on Kids curriculum for African-American youth ages 9–15 in public housing in the United States. It included basic information about reproductive biology, HIV/AIDS, substance abuse, and violence, as well as communication and decision-making skills, over 14 sessions. The intervention was randomly assigned to young people in grades 9 to 11 (15- to 18-years-old) in 10 secondary schools.

Participants displayed improved knowledge of HIV/AIDS, reproduction, and the use of condoms relative to the control group. A few indicators of attitudes toward sexual intercourse also improved for participants. They were more likely than controls to have used a condom in the immediate follow-up period and more likely to report that they intended to use condoms in the next six months.

After 12 months, participants who entered the program as virgins were more likely to have remained virgins than those in the control group (especially among girls), though the percentage who reported remaining virgins fell dramatically among both groups. Condom knowledge and competence remained strong after 12 months: participants were more likely to report that they knew where to find condoms and how to use them, and were more likely to report that they could successfully negotiate condom use with their unwilling partners.

The results were based on self-reported behavior, which the authors acknowledge is subject to bias. They note that it would be useful if future studies could also examine the effect on biological outcomes (such as pregnancy and HIV and sexually transmitted infections rates).

Sources: Fitzgerald and others (1999) and Stanton and others (1999).

the messages into television programs and advertisements, and asking pop stars to perform specific HIV/AIDS songs.<sup>66</sup>

Peer programs recruit and train a core group of youth to serve as role models and to provide information, referrals to services, and contraceptives to their peers. They typically include several elements important to health promotion and development: strong identification with the social and cultural environment of the target group, promotion of social norms and values supportive of positive attitudes and health behavior, and involvement of young people in programs designed for them. They take advantage of the fact that many young people prefer to interact with others similar to themselves and commonly identify peers as one of their primary sources for reproductive health information.

There are few well-controlled evaluations of peer education programs. One in Peru improved knowledge and attitudes, reduced the proportion of sexually active males, and increased contraceptive use. The West African Youth Initiative in Ghana and Nigeria reduced risky sexual behaviors in the intervention area, and the *Entre Nous Jeunes* Program in Cameroon increased condom use.<sup>67</sup>

*“We don’t know how to get knowledge about sex. It has always been a topic that can’t be talked about in public.”*

Male university freshman, 18,  
China  
December 2005



### *Information is not always enough—preferences matter too*

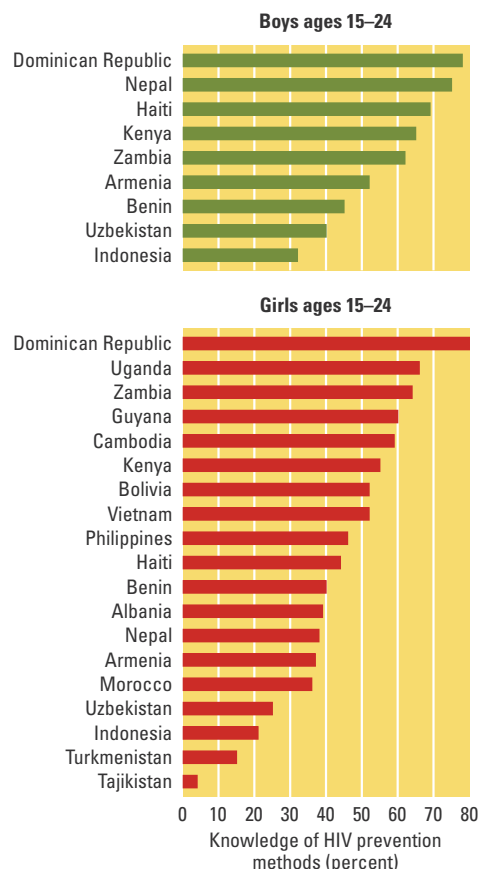
Interventions to change behavior—such as the Abstain, Be faithful, use Condoms (ABC) campaign—have been the mainstays of HIV prevention since the 1990s. These programs rely on informing people about behaviors that can protect them from becoming infected. Uganda's success in halting the rise of HIV infections has been attributed to a combination of these interventions.<sup>68</sup> In many other countries, knowledge of these approaches is low despite the promotion of ABC messages (figure 5.8).

Even among those who know the ABC messages of the HIV/AIDS campaigns, few put their knowledge into practice. Among youth who report that condoms protect against HIV, few actually use them (figure 5.9). Low rates of condom use are found even among those who know how to obtain them.

Young people with more education are more aware than those with less education that condoms can prevent HIV transmission, and they are more likely to use condoms. Among all young people, however, the wide gap between knowledge and behavior is not eliminated by education. In fact, knowledge of condoms is more responsive to education than is condom use (figure 5.10), so that the gap between knowledge and behavior increases with education.

People engage in risky behavior because it yields benefits. Unprotected sex, smoking, and drinking alcohol can be perceived as providing short-term goods for the person engaging in these activities. There is also a significant time lag between the activity (which provides a benefit) and the manifestation of harmful consequences, and the risk that the individual faces is uncertain. The symptoms of AIDS, for example, are apparent only some years after exposure to the virus, and the risk of being infected with each act of sexual intercourse is on the order of 0.1 percent, with the probability varying enormously across individuals.<sup>69</sup> Low values on the future relative to the present, and perceptions of invulnerability can affect the willingness of young people to translate better knowledge about safe health practices into safer behavior. This is clearly evident in sex, but it applies to any other risky behavior.

**Figure 5.8 Knowledge of the ABCs (Abstain—Be faithful—use Condoms) to avoid HIV prevention is low among young people**



Sources: HIV/AIDS Indicator Database (MEASURE DHS) and surveys conducted 2000–04.

Note: Knowledge of HIV-prevention methods is the composite of two components (prompted). The figure represents the percentage of respondents who, in response to a prompted question, say that people can protect themselves from contracting HIV by using condoms or having sex only with one faithful, uninfected partner.

The influence of peers, as well as cultural and historical norms, may influence individual behavior, and peers may encourage risk-taking or discourage risk aversion. For example, it may be unseemly for young women to argue about sex with a partner, or to insist on condoms, or even to discuss sex at all. And even occasional behavior can quickly become habitual.<sup>70</sup> That is why it is essential to intervene when people are young and in the process of forming habits and identities.

### *Changing preferences to narrow the knowledge-behavior gap*

Even when young people receive information on healthy behavior, they may make choices that put their health at risk. Inter-

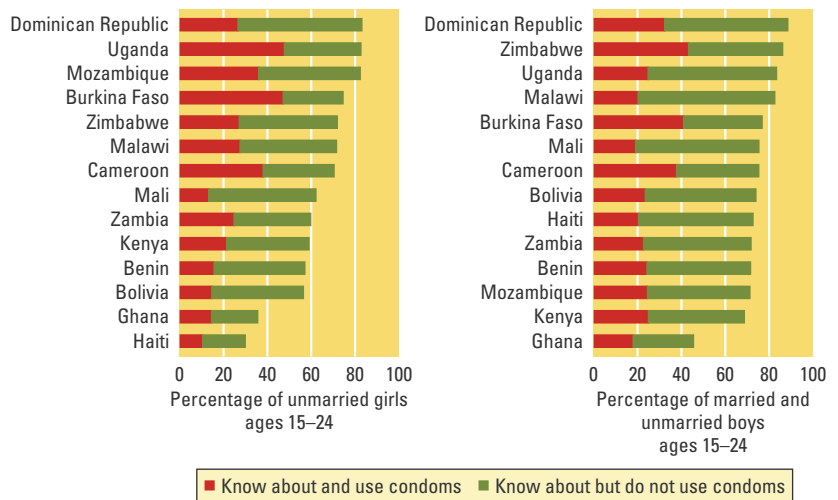
ventions to change behavior have traditionally focused on the design and content of information campaigns, on the assumption that with the right information young people will make better choices. But as this chapter has shown, it is also necessary to address the formation of preferences and decision-making capabilities.

**The design and content of health information campaigns.** Many issues relating to health education, particularly sex education, still need to be resolved. Programs vary widely in what is taught, at what age, in what setting, by whom, and in what manner. Often, funding is low, and teachers are not trained to deliver the information effectively. In many cases programs are offered only in high school after many youth are already sexually active. Despite the fact that no evidence suggests that sex education increases sexual activity among youth, not all countries include sex education as a part of their school health program.<sup>71</sup> Most countries provide information to secondary students, fewer to primary students (table 5.1). Many provide information on nutrition, but in only a very few does this include information on obesity.

Providing accurate and specific information is more effective than providing vague or general information. School-based HIV/STI programs were more likely to have an impact on behavior than general reproductive health programs.<sup>72</sup> A school-based sex education intervention in Kenya that provided young girls with information about the higher prevalence of HIV infection among older men reduced the incidence of intergenerational sex and significantly reduced pregnancies among girls—in a setting where age-mixing is quite common.<sup>73</sup> Messages must provide a range of options: programs providing only one message—say, on abstinence—will not reduce STIs. The information must be reinforced by repeated exposure, too. Those that include multiple sessions, over a number of years, are more effective than those that merely provide information once or a few times.<sup>74</sup>

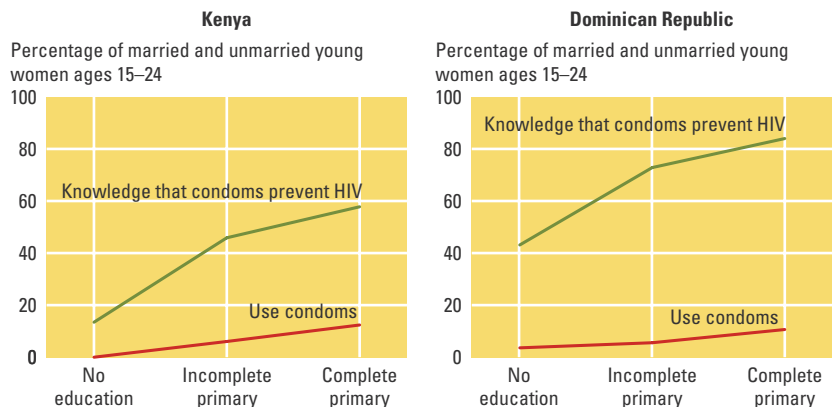
Health information campaigns must take into account the ability of the target audience to absorb the messages. Many

**Figure 5.9** Knowing that condoms prevent HIV does not always lead to condom use



Source: Demographic and Health Surveys conducted between 1997 and 2003.  
 Note: The total length of each bar represents the percentage of sexually active young people who know that condoms can prevent HIV transmission.

**Figure 5.10** Knowing that condoms prevent HIV increases with education, but so does the gap between knowledge and behavior



Sources: Demographic and Health Surveys: Kenya (2003) and Dominican Republic (2002).  
 Note: "Know that condoms prevent HIV" includes those who know condoms can prevent HIV transmission. "Use condoms" is based on the sample of those surveyed who know condoms can prevent HIV transmission.

young people in schools do not learn basic literacy and numeracy skills, raising questions about the effectiveness of the health education curriculum (chapter 3). An HIV information campaign in Uganda benefited better-educated participants more than it did those with less education.<sup>75</sup> If all young people are to be reached, the content of the program and the way it is delivered must be tailored to reach them.

**Changing attitudes and preferences directly.** In recent years, evidence that information is

**Table 5.1 Proportion of countries that include specific health topics in the school curriculum (percent)**

Region	HIV/AIDS in primary school	HIV/AIDS in secondary school	Substance abuse (including alcohol)	Tobacco	Nutrition	Specifically obesity	Number of countries
Sub-Saharan Africa	93	86	46	54	79	7	28
South Asia (except India)	0	100	75	75	75	25	4
Indian states	13	100	13	13	100	13	8
East Asia and Pacific	83	100	100	83	100	50	6
Latin America and the Caribbean	0	100	85	62	85	46	13
Middle East and North Africa	33	67	0	0	67	33	3

Source: Partnership for Child Development (2006).

Note: **Sub-Saharan Africa** includes Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Chad, the Democratic Republic of Congo, Eritrea, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Kenya, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Togo, Uganda, and Zambia. **South Asia** includes Bangladesh, Bhutan, Nepal, and Sri Lanka. **Indian states** include Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Manipur, Nagaland, Tamil Nadu, and Uttar Pradesh. **East Asia and Pacific** includes Cambodia, Indonesia, the Lao People's Democratic Republic, the Philippines, Thailand, and Vietnam. **Latin America and Caribbean** includes Argentina, The Bahamas, Barbados, Belize, Brazil, Chile, Guyana, Jamaica, Mexico, Panama, St. Vincent and the Grenadines, Trinidad and Tobago, and Uruguay. **Middle East and North Africa** includes Egypt, Islamic Republic of Iran, and Israel.

*“Many in Vietnam think that sex education is giving youth the ‘key’ to certain behaviors/activities, but it is better to give [them] the key rather than let [them] get lost in difficult situations.”*

Young notetaker at the youth consultation in Ho Chi Minh City, Vietnam  
April 2006

necessary but not sufficient to change health behavior has led to interventions designed to change preferences, either by fiat or by persuasion. The experience to date suggests that dictating behavior change, that is, forcing people to make certain choices, is not likely to be successful. Virginity pledges and abstinence-until-marriage programs have garnered much popular attention, complicating evaluation and interpretation. A survey of published research from developed countries in 2001 found no evidence that they had any lasting impact on sexual activity or risks.<sup>76</sup> Other research has found that virginity pledges may delay first sex, but have no impact on STI incidence or pregnancy, because those who pledged were much less likely to use contraception than nonpledging youth once they engaged in sex.<sup>77</sup>

Mental health services can change the incentives for youth to make healthy decisions, because depression and low self-esteem can lead to excessive risk-taking. Similarly, many studies, primarily from developed countries, suggest that regular physical activity and sports can lower the risk of many chronic diseases of adulthood, reduce stress and depression, and improve self-esteem.<sup>78</sup> Sports programs also disseminate information, empower the young, and keep idle youths occupied and away from crime.<sup>79</sup> The Mathare Youth Sports Association in Kenya, in addition to organizing sports, engages thousands of young slum residents in community-development activities and provides them with information on HIV and other issues (chapter 7).<sup>80</sup>

As box 5.2 shows, education has at least two beneficial consequences for health behavior, in addition to simply providing a conduit for information. First, it can enhance the ability of individuals to absorb the information, and second, it can change expectations and attitudes about the future. For example, people with more education are more likely to value the future more highly and discount the future more slowly (see box 2.7); and those with higher discount rates—or a higher relative value of the present—are more likely to be obese.<sup>81</sup>

Enhancing a young person's sense of the future is one of the prime objectives of health interventions that focus on “life skills.” These include the ability to think critically, to be assertive, and to understand the influence of community, family, and gender in decision making. One life-skills program among youth in Kenya found that male participants were more likely to report condom use, and female participants were more likely to report fewer sexual partners, than among the control group.<sup>82</sup> Many life-skills programs involve young people as peer educators to provide information (box 5.4). Preliminary anecdotal results from the ongoing Regai Dzive Shiri project in Zimbabwe include the observation that “girls walk with their heads high” and that boys complain that “they are more difficult to seduce these days”!<sup>83</sup>

*The need for well-designed evaluations.* Behavior that is private, hard to verify, and that is the subject of strong cultural norms is diffi-



cult to change. For these reasons, the impact of health education programs designed to affect this behavior has proven extremely difficult to evaluate. For example, sex education may affect both knowledge and some self-reported behavior,<sup>84</sup> but there is little evidence that these programs have a beneficial impact on objectively measured outcomes. Most studies tend to evaluate changes in knowledge, rather than changes in behavior.

Alford, Cheetham, and Hauser (2005) reviewed nearly 200 studies of youth-oriented health interventions, of which 10 met their criteria for success in both intervention and evaluation. Of those 10, only two showed any positive impact on objectively measured health status. A series of reviews conducted by Kirby, Lepore, and Ryan (2005) and Kirby, Laris, and Rollerer (2005) found strong evidence of program impact on knowledge, values, and self-reported behavior. Of the 83 studies reviewed in Kirby, Laris, and Rollerer (2005), two-thirds found a significant positive impact on self-reported sexual behaviors or outcomes. However, only 9 of those 83 include biomarkers, and of those 9, only 3 report a positive impact on health outcomes.

Studies that do look at behavior tend to rely on self-reported behavior, which can be subject to reporting bias. A three-year evaluation of a school-based, family-life education program in Jamaica found that young people in the schools that received the intervention were more likely than those in a comparison group to report their sexual activity inconsistently.<sup>85</sup> For the effects of health education programs to be reliably estimated, objective outcomes, such as pregnancies or prevalence of STIs, must be used. Those outcomes will be evident only with a lag, and studies must be prepared to assess behavior over a suitable length of time.

### Enhancing opportunities to make healthy choices

Having better access to health services can encourage young people to practice safe behavior. Conversely, restricting opportunities to make poor choices may also be beneficial. The set of available opportunities can be altered by changing their availability directly, or by changing prices. For tobacco use and

alcohol consumption, taxes, advertising bans, and sales restrictions can reduce demand.

### Improving access to health services

Informing youth about practicing safe sex can increase condom use, if they have access to pharmacies or clinics that distribute condoms.<sup>86</sup> Social marketing of condoms can improve young people's uptake of condoms through pharmacies and retail outlets. The Horizon Jeunes program in Cameroon combines health education efforts with condom distribution by peer educators. As part of a countrywide social marketing campaign, the program increased condom use by young women (box 5.4).<sup>87</sup> Condoms can also be distributed to young people where they get together, such as at youth centers. The goal of this approach is to reach young people in a comfortable environment where they also have access to recreational activities. However, experience from interventions in Latin America and Africa have shown that such centers are not effective at changing the behavior of sexually active youth.<sup>88</sup>

The coordination of multiple condom promotion strategies is needed to reach all youth—married and unmarried, in and out of school. Often, however, reproductive health programs are separate from programs to prevent STIs. Funding as well as interventions are often separate for condoms intended for contraceptive use (distributed by family planning services) and those to prevent STIs and HIV transmission (distributed through STI services, HIV testing and counseling services, and condom social marketing campaigns).

#### BOX 5.4

#### *Social marketing can change behavior— Horizon Jeunes in Cameroon*

Horizon Jeunes, a reproductive health program targeted to urban youth ages 12 to 22 both in and out of school, was framed within the national social marketing campaign. It sent out two main messages to youth through various channels: to delay the initiation of sex, and if they chose to have sex to use condoms to prevent HIV and STIs. Youth-friendly, the program had peer educators distribute the Prudence Plus condoms promoted in the national campaign. It also encouraged providers to

serve unmarried young women, often denied services by reproductive health providers.

Horizon Jeunes added to young people's knowledge of reproductive health and changed behavior. The proportion of females who ever used condoms rose from 58 percent to 76 percent in the treatment group, compared with a decline from 53 percent to 50 percent in the control group.

Source: Alford, Cheetham, and Hauser (2005).



This separation is a problem because young married women are less likely to use condoms, which are widely regarded as less effective at preventing unwanted pregnancies than other contraceptives. This leaves young married couples vulnerable to STIs. However, young people who perceive the risk of acquiring STIs to be low may not use condoms and therefore leave themselves vulnerable to unwanted pregnancies. Promoting condoms as “dual protection” rather than only as “safe sex” may increase the uptake of condoms and protect both married and unmarried young people from STIs and unintended pregnancies.<sup>89</sup>

### *Changing prices and incentives*

Young people’s choices respond to changes in prices and incomes, as well as to the existence of health services. In rural Kenya, a randomized controlled experiment providing free uniforms (along with sex education) significantly reduced risky sex, as evinced by a drop in pregnancy incidence among schoolgirls.<sup>90</sup> General poverty alleviation programs targeted at youth or families with youth can increase the opportunities available to young people, and conditional cash transfers can provide additional incentives for healthy choices. The Oportunidades program in Mexico provided incentives for young people to remain in school, where they received health information and periodic health services (see chapter 3). In addition to the beneficial effects on schooling, the program led to reduced smoking and alcohol consumption for all youth, and an increase in the age of sexual debut among girls.<sup>91</sup>

Most governments levy taxes on tobacco and alcohol, which increases prices. In general, young people are more price-sensitive than adults.<sup>92</sup> If the price of cigarettes rises, they are less likely to take up smoking, and those who have begun smoking are more likely to quit. In Indonesia, where the prevalence of smoking among men is high, 15- to 24-year-old males were more responsive to cigarette prices than older males.<sup>93</sup> Alcohol consumption also declines with increases in price. Among high school students in the United States, a 10 percent increase in the price of alcohol will reduce alcohol con-

sumption by 4–5 percent, and binge drinking by 20 percent. There is similar evidence on the consumption of illicit drugs: a 10 percent increase in the price of marijuana will reduce marijuana use by 5 percent; and price increases in marijuana, cocaine, and heroin reduce both arrests and hospital admissions associated with drug consumption. Changes in prices can explain most of the observed changes in binge drinking and marijuana use by high school seniors between 1975 and 2003.<sup>94</sup>

Cigarette smoking tends to be more sensitive to price in low-income countries than in high-income countries. For example, it is estimated that a price rise of 10 percent for a pack of cigarettes reduces demand for cigarettes by 6–10 percent in China, and only 4 percent in the United States.<sup>95</sup> One reason for the difference could be that low-income countries have a larger share of young people than high-income countries, and young people are more price-sensitive than adults. Poorer people are also more price-sensitive than wealthier.<sup>96</sup>

In addition to raising prices through taxation, comprehensive bans on advertising and product promotions, age restrictions on sales, and prominent health warning labels can reduce the consumption of tobacco and alcohol. Comprehensive bans on cigarette advertising and promotion reduced smoking in some high-income countries, although partial bans had little or no effect.<sup>97</sup> Studies based on cross-country analysis find no link between advertising and sales restrictions and reduced smoking.<sup>98</sup> However, a study of 100 countries comparing consumption trends over time found that consumption fell much more steeply in countries that had nearly complete bans on advertising, compared with countries with no such bans. Health warning labels on cigarette packs, though effective in reducing tobacco consumption among adults, may not discourage youth from smoking, because they are more likely to buy single cigarettes than packs.<sup>99</sup>

Young people are exposed to a wide variety of tobacco control policies, including advertising restrictions, health warnings, and prohibitions on the sale of tobacco to minors. There is little consistency in policies: some countries ban advertising without restricting

sales to minors; others ban sales to minors but do not restrict advertising. The independent effect of each policy is difficult to identify. Interventions to reduce the consumption of these potentially harmful substances are more effective if implemented jointly: for example, tobacco control is more effective if it includes both advertising bans and higher taxes.<sup>100</sup>

Policies to reduce consumption of harmful substances can have unintended consequences. In 1985, Russia restricted alcohol sales and raised the legal age for alcohol consumption. This dramatically improved life expectancy among men, but it also increased the use of harmful alcohol substitutes (box 5.5).

### What if prevention fails? Helping young people deal with the adverse consequences of poor health behavior or misfortune

Despite good information and the freedom to make independent decisions, we are all susceptible to poor health outcomes. Occasionally we make poor choices: in spite of the overwhelming evidence of the harmful effects of tobacco, more than a billion people smoke worldwide.<sup>101</sup> Occasionally we fall victim to the external effects of the private decisions of others, or to the failure of government to provide services, or we are coerced into making risky choices. A vital function of youth health services is to help young people overcome the adverse consequences of risky health behavior. They may be addicted to tobacco or drugs, or infected with sexually transmitted diseases, or have an unintended pregnancy. They need support to recover to a healthy life: abortion services, sexual health services, maternal and child health services, drug rehabilitation services. They also need cessation and rehabilitation programs to help them stop the behavior that is causing the harm.

#### Programs to help youth overcome addiction

A supportive environment is needed to encourage tobacco consumers in their attempts to quit. Treating tobacco depen-

#### BOX 5.5

### Russia limited the sale of alcohol, and deaths and illnesses fell

In 1985, President Gorbachev implemented anti-alcohol legislation to limit alcohol sales and raise the legal purchasing age to 21. Alcohol consumption fell, but only by 26 percent, despite a 63 percent decrease in sales. The consumption of unregistered alcohol, including moonshine, nearly doubled, and increases were also seen in substance abuse and related poisoning, especially among youth.

Overall, life expectancy among males improved. Even so, the law was repealed after three years. With the liberalization of alcohol sales and relaxation of administrative controls, alcohol psychosis increased. Surveys show a substantial increase in alcohol consumption between 1992 and 1994, consistent with a sharp price reduction.

Source: World Bank (2005d).

dence should be part of a comprehensive tobacco-control policy. Many people are able to quit smoking successfully on their own and with some guidance (box 5.6).<sup>102</sup> However, some young smokers might have developed a strong dependence on nicotine and could benefit from nicotine replacement interventions to address the physiological aspects, such as tobacco dependence and tobacco withdrawal.<sup>103</sup>

Strong evidence from controlled trials indicate the benefits of treatment for drug abuse, including significantly fewer drug-related health and social problems. Those improvements translate into substantial reductions in social problems and societal costs, including reduced crime, violence, and incarceration.<sup>104</sup> Many countries—primarily in Asia and the former Soviet Union—are introducing methadone maintenance therapy and needle and syringe exchange

#### BOX 5.6

### Technology can help change young people's behavior: Using text messages in New Zealand to reduce smoking

In New Zealand, as in many countries around the world, mobile phone ownership is high and text messaging very popular. An intervention in New Zealand used text messaging to help youth quit smoking. Information on individual participants was used to create personalized text messages providing advice, support, and distraction. Participants could also communicate with others with similar characteristics ("quit buddies").

Participants randomly assigned to a treatment group received five personalized messages per day, those in a control group

received general information only once in two weeks. All participants were between 19 and 30, half of them female.

After six weeks, 28 percent in the treatment group had quit smoking, more than twice the percentage in the control group. Given the widespread use of mobile telephone technology, this type of intervention might be easily replicated in different regions.

Sources: Rodgers and others (2005) and Internet Safety Group (2005).



programs. There is similarly strong evidence that these programs reduce the risk of HIV infection.<sup>105</sup> Two international studies found that average seroprevalence decreased in cities with exchange programs, and increased in cities without them.<sup>106</sup>

### *Improving access to health services for treatment of sexually transmitted infections*

More than 100 million STIs other than HIV occur every year around the world among people under 25 (figure 5.11).<sup>107</sup> Most are easily treated, without severe or lasting consequences, if diagnosed and treated early. Treating STIs prevents HIV/AIDS transmission, because STIs facilitate the sexual transmission of HIV, particularly syphilis, chancroid, and genital herpes, which produce genital ulcers.<sup>108</sup> Many infections, however, go unnoticed, especially among women and girls, who may show no symptoms or signs so mild that they are unrecognizable. In Nigeria, providing school students with STI health education and training providers (pharmacists and private doctors) to treat

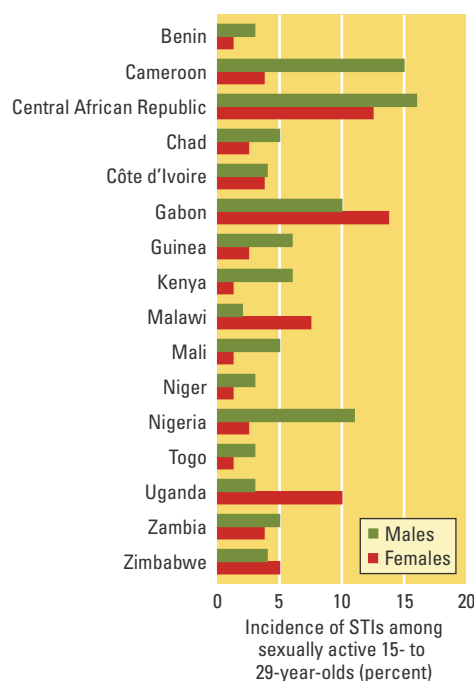
STI in adolescents increased the uptake of STI services among sexually experienced students and significantly reduced the incidence of STIs.<sup>109</sup>

Unmarried adolescents are often denied services in countries where premarital sex is frowned upon. In Ghana, services were denied to young or unmarried clients, and to married women who could not demonstrate the consent of their spouses.<sup>110</sup> Even where young people are legally protected, reproductive health services may be out of reach. In South Africa, many reproductive health services are not easily accessible by youth, and young people feel that facility staff are judgmental and hostile.<sup>111</sup> In Nigeria, adolescents who contracted an STI would go to a traditional healer rather than use formal reproductive health services because of the high cost and low quality.<sup>112</sup>

For these reasons, making clinics youth-friendly—training doctors and nurses to deal with young clients, having clinic hours that are convenient for youth, and offering space where young people can consult with providers in privacy—may encourage young people to use health services for treatment. Evaluations of youth-friendly health services have so far not shown any evidence that they increase the use of health services by young people.<sup>113</sup> The interventions that do seem to increase their use of treatment services are health information that teaches them to recognize symptoms of STIs and referrals to trained providers, as in the Nigeria program.

Antiretroviral therapy (ART) can turn AIDS from a certain death sentence to a manageable (though severely unpleasant) chronic condition. Treatment remains prohibitively expensive, and current international efforts to provide ART are already overwhelming the capacity of many hard-hit developing countries, even though only a small percentage of those clinically eligible for treatment actually receive it. Public provision of ART may be feasible and affordable in cases where the epidemic is limited.<sup>114</sup> There have been no well-controlled studies of the impact of treatment on prevention, but some simulation models show that treatment can enhance the effectiveness of

**Figure 5.11** Reported STI incidence varies among youths in Sub-Saharan Africa



Source: Bankole and others (2004).



prevention.<sup>115</sup> Other simulations caution that an exclusive focus on treatment will increase incidence, partly due to the neglect of other, more conventional interventions, and partly due to the incentive effects of treatment.<sup>116</sup>

Simulations in South Africa show that full coverage of ART could avert up to 1.7 million deaths and 860,000 orphans by 2010.<sup>117</sup> Some empirical evidence suggests that ART will reduce the costs associated with hospital care and treatment of opportunistic infections due to AIDS. One study from Brazil estimated that ART averted 358,000 hospital admissions between 1996 and 2002, saving US\$2.2 billion.<sup>118</sup> HIV-positive injecting drug users, predominantly young, also benefit from ART treatment,<sup>119</sup> but little attention goes to treatment and care for injecting drug users living with HIV/AIDS.<sup>120</sup> Among those who do receive treatment, allocations do not favor youth.<sup>121</sup>

### ***Providing access to emergency contraception and safe abortion services***

One potential outcome of unprotected sex is unplanned pregnancy. For unmarried young women, such pregnancies can bring immense social costs, especially in countries where family networks do not support out-of-wedlock births. It is not surprising, then, that each year millions of young women undergo unsafe and illegal abortions. Women opting to terminate pregnancies using unsafe methods are predominantly young and unmarried, particularly in Sub-Saharan Africa and Latin America and the Caribbean. In Sub-Saharan Africa, about 60 percent of women who have unsafe abortions are 15–24 years old. In Latin America and the Caribbean, young women make up about 43 percent of those who undergo unsafe abortions.<sup>122</sup> In Kenya, Nigeria, and Tanzania, adolescent girls make up more than half of the women admitted to the hospital for complications following illicit abortions, adding to the costs of already under-resourced health systems.<sup>123</sup> Access to safe abortion services is thus critical for young women to avoid further damage to their health.

Not all unprotected sex has to result in an unwanted pregnancy (where young women are forced to consider abortion as an option). Access to emergency contraception can effectively prevent unwanted pregnancy in such cases, but it is typically not provided as part of reproductive health services in developing countries.<sup>124</sup> Even when young people know about emergency contraception, few are well informed about its use.<sup>125</sup>

Safe abortion services and emergency contraception are, however, highly controversial in many countries. Where abortions are illegal or restricted, the percentage of unsafe abortions and maternal deaths arising from them tends to be very high. This is evident in Romania, where maternal death dropped dramatically when abortion was legalized.<sup>126</sup> Where legalizing abortion is not feasible, the access for young people to modern contraceptive methods must be strengthened.

Ensuring that girls have access to safe abortion services and postabortion care will greatly reduce the associated health risks of unplanned pregnancy. One possible approach is to link contraceptive services (including emergency contraception), abortion, and postabortion care, making them part of maternal health service delivery.<sup>127</sup> Access to postabortion care can be strengthened through outreach by trained midwives. Where the public sector cannot provide abortion or postabortion care, private clinics are viable alternatives, if they are regulated to ensure safe procedures.

### ***Feedback effects of treatment programs***

Do programs to cope with or mitigate the consequences of bad choices affect the decision to engage in risky behavior in the first place? Can treatment programs have positive feedback for prevention? Or might there be negative feedback, or moral hazards? If so, can we design “incentive-compatible” interventions to minimize poor choices and still protect those with poor outcomes?

There is some legitimate concern that providing second chances will encourage moral hazard—that is, if the costs of some





risky actions are not borne by individuals, they will behave more carelessly, or in a way that increases risks to themselves or others. For instance, health insurance may cause people to take greater risks with their health, or consume more health services than they would in the absence of insurance.<sup>128</sup>

No evidence suggests that the availability of emergency contraception will increase the incidence of unprotected sex. Of the women attending a family planning clinic in Pune, India, those who received pills and information were not significantly more likely to have unprotected sex—and not one of these women used emergency contraception more than once over the course of the year.<sup>129</sup> In the United Kingdom, only 4 percent of those using emergency contraception reported using it more than twice in a year, so they presumably were not using it as a substitute for regular contraception.<sup>130</sup>

It has been suggested that ART will discourage risk aversion and increase risky sexual behavior.<sup>131</sup> Studies of men who have sex with men in Europe and the United States have shown that potent ART may induce both HIV-positive and HIV-negative men to engage in riskier behavior than they would in the absence of such therapies.<sup>132</sup> A long-term study of condom use in Kenya—during a period when two reported “cures” for AIDS were announced and widely touted by government leaders—found that after each announcement, sex workers reported a substantial drop in condom use. Eventually the ineffectiveness of these drugs against AIDS became apparent, and condom use increased.<sup>133</sup>

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The interventions affecting the health of young people can be loosely distinguished as those that affect the *opportunities* and *capabilities* for healthy choices and those that offer *second-chance* services for those who require assistance to cope or recover. Table 5.2 summarizes the evidence of interventions known to work in promoting youth health and those that are promising, but for which claims of effectiveness have yet to be verified.

Evidence indicates that young people do respond to policies that alter the set of available opportunities. This is most clearly seen in the impact on young people of changes in prices and incomes, such as the imposition of cigarette taxes and the distribution of conditional cash transfers. This chapter has argued, however, that the most significant determinant of healthy behavior in youth—and of health in adulthood—is the capability of young people to make the right decisions.

Some health promotion interventions have changed behavior, such as sanitation and hand-washing—as has information provided to parents to improve the health of young children, such as breastfeeding. Behavioral interventions have emphasized health education, on the assumption that individuals lack information and that more information will allow them to make healthier choices. A key policy recommendation in countries where information is missing, or misinformation rife, is to establish standards and provide information about behavior and consequences. As table 5.2 shows, school health education varies greatly around the world. In some regions, information on HIV is provided only in secondary schools, after many young people have become sexually active.

As this chapter has shown, information is essential to healthy decision making; but it may not be sufficient, especially for decisions about such private issues as food and sex. Behavior in these areas is extremely difficult to influence. More evidence will improve understanding and the design of policies. In these difficult areas, experience provides three clear directions about health information campaigns. First, target younger people rather than older youths: information about safe sex has a stronger and more lasting impact if delivered prior to the initiation of sexual activity. Second, repeated exposure to health messages is more effective than one single exposure. Third, provide specific information that addresses the real problems facing young people. This is best seen in the program in Kenya that provided specific information



**Table 5.2 Summary of policies to improve young people's health and health behavior**

	Proven successful	Promising but unproven	Unlikely to be successful
<b>Opportunities</b>			
<i>Opportunities to make healthy choices</i>			
<i>Providing services to change behavior</i>		Treatment for depression and mental health Sports programs and programs promoting physical fitness	Youth centers (more likely to attract boys, older youth)
<i>Using taxes, advertising bans, and sales restrictions</i>	Price controls and taxes (for tobacco and alcohol) Total advertising bans, restrictions on sales to minors (tobacco and alcohol)		Partial advertising bans on tobacco and alcohol
<b>Capabilities</b>			
<i>Strengthening ability to practice healthy behavior</i>			
<i>School-based health education</i>	Curriculum-based sex education combining basic reproductive health information with communication and decision-making skills (Namibia's My Future is My Choice) Curriculum-based programs providing culturally relevant information about risky sex and specific information about health risks (rural Kenya, randomized evaluation)	Health education on tobacco, alcohol, and drug abuse Health education promoting healthy diet, physical activity Abstinence-only programs (to delay initiation of sexual activity)	Abstinence-only programs (to delay transmission of STIs, HIV, and pregnancy)
<i>Mass media and social marketing</i>	Mass media campaigns combined with peer education and trained providers in Cameroon (Horizon Jeunes)	Social Marketing for Adolescent Sexual Health (SMASH) program in four African countries—program effective in increasing condom use only in Cameroon (no evidence of behavior change in Botswana, Guinea, and South Africa) Radio, television plus telephone hotline and peer education—Sexto Sentido (Nicaragua), LoveLife (South Africa)	Program promoting only abstinence (to delay transmission of STIs, HIV, and pregnancy)
<b>Second chances</b>			
<i>Minimizing consequences of risky behavior</i>			
<i>HIV/AIDS and sexual and reproductive health services</i>	STI treatment and counseling—increased use of private physicians to treat STIs in two cities in Nigeria (Benin City and Ekpoma) Providing emergency contraception and abortion services ART (to minimize consequences of HIV infection) Providing postabortion care	ART (to prevent HIV transmission) "Youth-friendly" sexual health and family planning health services	
<i>Treatment of addictions and cessation programs</i>	"Harm reduction"—needle exchange, methadone substitution		

to young women on the higher HIV prevalence in older partners.<sup>134</sup>

Second-chance health services—especially legalized abortion, harm reduction for injecting drug users, and STI treatment—are essential to minimize the adverse consequences of poor decisions and poor

environments. The benefits of these second-chance services accrue both to the young people served and to the broader society, in terms of reduced expenditure on curative care, lower infectious disease prevalence, and spillover effects on welfare, security, and economic growth.