



# ADDRESSING NONCOMMUNICABLE DISEASE RISK FACTORS AMONG YOUNG PEOPLE

Asia's Window of Opportunity to Curb a Growing Epidemic

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MAY 2016

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Young Health Programme

A global community investment initiative

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This policy report accompanies the data sheet entitled *Young People Are Asia's Key to Curbing the Rise of Noncommunicable Diseases* and its accompanying a data appendix that provides the latest available country-specific data and data sources on four key noncommunicable disease risk factors among young people in Asia since 2005. All are available at [www.prb.org/Publications/Datasheets/2016/ncd-risk-youthasia.aspx](http://www.prb.org/Publications/Datasheets/2016/ncd-risk-youthasia.aspx).

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# ADDRESSING NONCOMMUNICABLE DISEASE RISK FACTORS AMONG YOUNG PEOPLE:

Asia's Window of Opportunity  
to Curb a Growing Epidemic

BY **RESHMA NAIK** AND **TOSHIKO KANEDA**

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## Introduction

Noncommunicable diseases (NCDs) are the leading causes of death globally, and are among the top public health challenges of the 21st century. In 2012, NCDs were responsible for 68 percent of global deaths, claiming the lives of 38 million people. With no action, this figure is projected to rise to 52 million by 2030.<sup>1</sup> Asia, a region that is home to nearly half of the world's population, accounts for 54 percent of global deaths from NCDs. This region includes 28 countries and territories across East, Southeast, and South Asia (see Table, page 8). In almost half of these countries, NCDs make up three-quarters of deaths, and in most other countries in the region, NCDs account for at least half of all deaths.<sup>2</sup>

The four main NCDs are defined by the World Health Organization (WHO) as cardiovascular diseases (CVDs), cancers, diabetes, and chronic respiratory diseases. Compared to high-income countries, NCDs in low- and middle-income countries (LMIC) generally claim lives at younger ages, often at the peak of individuals' economic productivity. In Asia, the likelihood of dying prematurely (between ages 30 and 70) from the four main NCDs is 22 percent in LMIC, compared to 9 percent in high-income countries (see Figure 1).<sup>3</sup> The likelihood of premature death from NCDs in Asian LMIC, where 95 percent of the region's population resides, is projected to increase further in the coming decades. NCDs pose a significant threat to the health of populations, economic growth, and sustainable development in the region, underscoring the importance of prioritizing their prevention.

The four main NCDs that account for the majority of all NCD deaths share four risk factors:

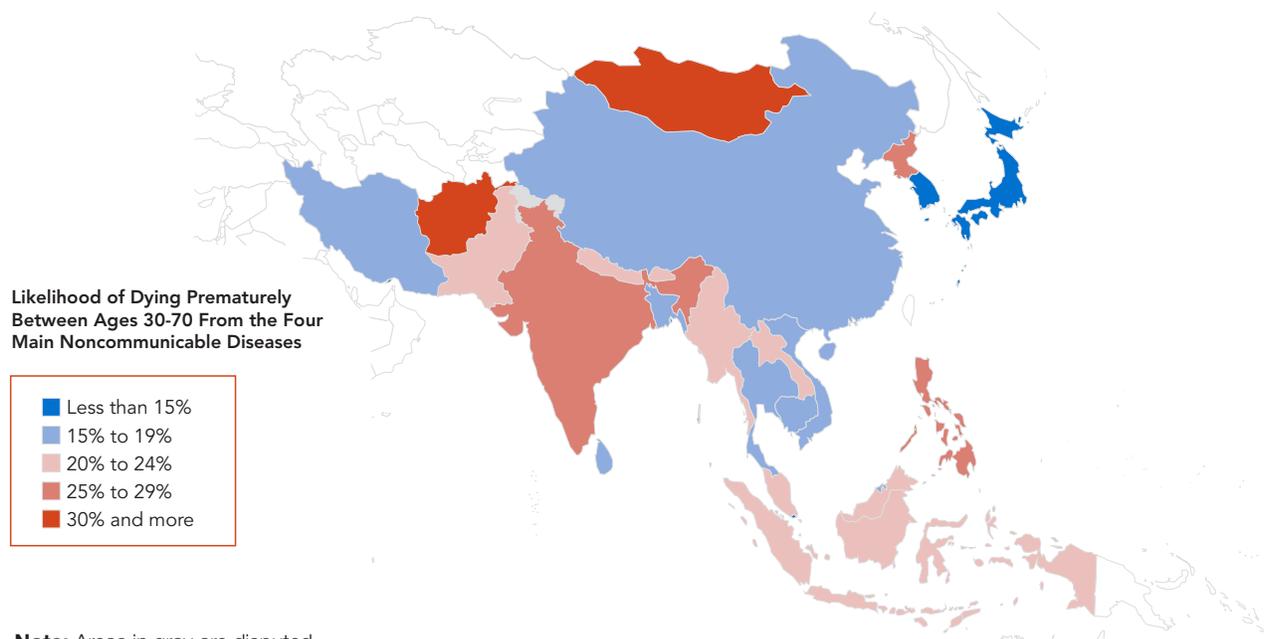
- Tobacco use.
- Harmful use of alcohol.
- Physical inactivity.
- Unhealthy diet.

These risk factors are all modifiable behaviors that are typically initiated or established during adolescence or young adulthood—defined as ages 10 to 24—and set the stage for NCDs later in life. One key approach to minimizing the burden of the growing NCD epidemic is to curb the rates of the four main risk behaviors common among young people today.

Asia comprises a broad range of countries at different demographic, epidemiologic, and developmental stages. Seven of the 28 countries and territories, including Japan and South Korea, are high-income, developed countries that have relatively small proportions of young people (14 percent and 18 percent, respectively). In these countries, NCDs account for a large majority of total deaths (79 percent in both Japan and South Korea), and the likelihood of premature death from the four main NCDs is relatively low (9 percent in both). The remaining LMIC include some of the world's least developed countries, such as Afghanistan and Timor-Leste that have sizable proportions of young people (35 percent and 32 percent, respectively). In these countries, a relatively small share of total deaths are due to NCDs (37 percent in Afghanistan and 44 percent in Timor-Leste), but the likelihood of premature death from the four main NCDs is much higher (31 percent and 24 percent, respectively) than in high-income countries.<sup>4</sup>

FIGURE 1

Premature Deaths From Noncommunicable Diseases Are More Common in Low- and Middle-Income Countries.



**Note:** Areas in gray are disputed.

**Source:** World Health Organization (WHO), *Noncommunicable Diseases Country Profiles 2014* (Geneva, WHO, 2014).

Regardless of the level of economic development, the size of young populations, or the stage of the NCD epidemic, addressing NCD risk factors among youth is critical, as young people play an important role in maintaining the social fabric of society and promoting economic stability and growth, innovation, and sustainable development. Investments to preserve their health are a clear and urgent priority in developed and developing countries alike. By monitoring trends and scaling up feasible, effective interventions to curb NCD risk behaviors among youth, Asian nations can start their young people on a path toward a healthy adulthood and set the stage for a thriving future.<sup>5</sup>

NCD prevention among young people also aligns with the targets of the WHO “Global Action Plan for the Prevention and Control of NCDs 2013-2020” and the United Nation (UN)’s Sustainable Development Goals (SDGs), which, for the first time include NCDs in the UN’s official development agenda. Both initiatives aim to reduce premature NCD deaths by one-third by 2030 and to strengthen tobacco control and alcohol prevention. The Global Monitoring Framework accompanying the WHO Action Plan sets targets for specific risk factors: Reducing by 30 percent both tobacco use and the average sodium/salt intake by 2030 and reducing both the harmful use of alcohol and the rate of physical inactivity by 10 percent.<sup>6</sup> Across Asia, countries’ progress in addressing NCD risk behaviors among youth varies considerably, presenting a valuable opportunity for some countries to learn from their more advanced neighbors.

## NCDs Have Wide-Reaching Socioeconomic Impact

**Impact on individuals and families.** NCDs affect individuals and families in a variety of ways. Typically the poor are the most disproportionately burdened since they not only face greater exposure to risk factors but also contend with more challenges accessing health care. Chronic illnesses often cause people to miss work and sometimes also lose jobs, leading to substantial cuts in earnings. Further, medical expenses for ongoing treatment can be exorbitant, quickly draining household resources and making it difficult for many families to cope. One study in China found that among 4,739 stroke survivors, 71 percent had faced catastrophic health care costs disproportionate to their incomes, driving some into poverty. Those without insurance were seven times more likely than those with insurance to incur these burdensome expenses.<sup>7</sup> Because NCDs can result in a lengthy period of illness and disability, caregiving responsibilities may also hinder family members’ pursuit of vocational or educational activities. A 2008 study in Thailand found that informal caregivers of diabetes patients spent about 112 hours per month on health care activities—the equivalent of 14 eight-hour work days.<sup>8</sup>

**Impact on health systems.** Many developing nations in Asia are now facing a multiple burden of disease with NCDs adding to already debilitating and costly infectious diseases, maternal and child health issues, and nutritional deficiencies. The additional burden of NCDs, including mental health conditions, threatens to reverse past progress and exact a substantial toll on health systems (see Box 1).

### BOX 1

## Mental Health Issues Are Also Important for Youth

Beyond the four main NCDs identified by WHO, other NCDs are also important to address for young people, including mental health conditions. Often emerging during adolescence, mental health disorders severely affect individuals’ quality of life, as well as their academic and professional achievement, robbing society of their valuable social and economic contributions. Some mental health disorders, such as depression and anxiety, peak between ages 10 and 29. Depression is the largest contributor to the global burden of disease for young people ages 15 to 19, and suicide is among the top three leading causes of death among 15-to-35-year-olds.<sup>1</sup> In Thailand, 16 percent of boys and 13 percent of girls ages 13 to 15 in secondary school report having attempted suicide one or more times in the past year.<sup>2</sup>

Mental health conditions can be linked to key NCD risk behaviors, such as excessive alcohol use, lack of physical activity, and unhealthy diet, and can affect adherence to medication for NCDs and other diseases. Although attention and funding for mental health programs and policies are typically a low priority throughout much of Asia, some mental health disorders such as depression are treatable with feasible, cost-effective interventions, such as generic antidepressant medications and brief psychotherapy provided in primary care.<sup>3</sup> Community- or school-based prevention programs for youth can also be effective, targeting cognitive, problem-solving, and social skills that can strengthen protective factors and reduce risk factors.

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- 3 Marina Marcus et al., “Depression: A Global Public Health Concern,” WHO Department of Mental Health and Substance Abuse, accessed at [www.who.int/mental\\_health/management/depression/who\\_paper\\_depression\\_wfmh\\_2012.pdf](http://www.who.int/mental_health/management/depression/who_paper_depression_wfmh_2012.pdf), on Feb. 29, 2016.

Effective management of NCDs requires screening and monitoring, advanced diagnostics and drugs, intensive disability management, and prolonged care. Thus, the resources and health systems adaptations needed to deliver such services can drive up operating costs and strain already overstretched personnel and facilities. In India, NCDs already account for about 40 percent of all hospital stays and 35 percent of outpatient visits.<sup>9</sup> The International Diabetes Federation estimated that in 2010, diabetes accounted for 13 percent—US\$25 billion—of China's health expenditures.<sup>10</sup> Underscoring the broader impact of such high costs, Asia is currently home to more than 60 percent of the world's diabetic population and is projected to account for an even greater share of this burden in the near future.<sup>11</sup>

**Impact on economies.** NCDs impose a significant economic burden on countries by increasing health care expenditures and undermining productivity. It is estimated that the four main NCDs together with mental health conditions will result an economic loss of US\$47 trillion over the next two decades—or 60 percent of global gross domestic product (GDP). And although high-income countries currently bear the biggest economic burden of NCDs, the developing world will incur a much larger share of these costs as their economies and populations continue to grow.<sup>12</sup> Between 2012 and 2030, China and Indonesia are projected to face cumulative economic losses related to NCDs that are 3.6 and 5.1 times their 2012 GDPs, respectively.<sup>13</sup>

## Curbing Risk Behaviors Among Asian Youth Offers a Window of Opportunity

WHO estimates that behaviors begun in adolescence account for 70 percent of premature deaths in adults worldwide.<sup>14</sup> Adolescence and young adulthood typically mark a period

of experimentation and identity formation. This life phase represents a unique window of opportunity to encourage positive behaviors at a time when young people have increasing autonomy and control over their lives. Adolescence and young adulthood are when alcohol and tobacco use are usually initiated, and also when developmental changes can increase vulnerability to substance use and addiction.<sup>15</sup> Although dietary and physical activity patterns may start to form during childhood, adolescence is typically the time when they are more firmly established. When started or supported during this phase of life, healthy behaviors like eating well and exercising regularly are likely to carry through to adulthood. Meanwhile, unhealthy habits started young can persist and be difficult to change. Worse, when negative health behaviors—such as alcohol, tobacco, and drug use—begin at an early age, this early initiation can set the stage for abuse and dependence later in life.

The importance of focusing on youth is underscored by the fact that Asia is home to 981 million young people ages 10 to 24—more than half of the world's young population.<sup>16</sup> One in three young people live in either India or China. Globalization, urbanization, and socioeconomic development are driving a rise in NCD risk behaviors among this large cohort of young Asians, setting them up for poorer health in adulthood compared to today's adults. Given that this young cohort is also much larger than the older cohorts they will replace, a window of opportunity exists to curb their risk behaviors now to shift the projected trajectory of NCDs in Asia. In 2050 when today's young people have all reached ages 45 and older—the time when NCDs typically hit hardest—the over-45 population is projected to be 2.3 times the size it is today in South Asia, 2 times larger in Southeast Asia, and 1.4 times larger in East Asia. Left unchecked, NCD risk factors among young people today could translate into large NCD epidemics in the future.



Boys during Myanmar's Water Festival.

## The Four Main NCDs Share Four Key Risk Factors



### TOBACCO USE

As the foremost cause of preventable death, tobacco use claims the lives of 6 million people globally each year through illnesses such as cancers, chronic respiratory diseases, and heart diseases. In the absence of urgent action, these deaths are projected to increase to 8 million by 2030.<sup>17</sup> LMICs are home to the vast majority—nearly 80 percent—of smokers.<sup>18</sup> In India and China alone, 575 million people use tobacco.<sup>19</sup> Historically, smoking in Asia has typically been most common among older males; however, social norms are changing fast. The tobacco industry has begun to target women and youth more actively, and at the same time, income growth has made tobacco products more affordable in a large number of countries. Consequently, sizeable proportions of Asian youth are smoking, with many having started at a young age. Among 13-to-15-year-old boys in secondary school, 36 percent in Indonesia, 30 percent in Myanmar, and 25 percent in Nepal currently use tobacco (defined as any use in the last 30 days; see Figure 2).<sup>20</sup> While the rates among girls are substantially lower, they too are rising in some countries.

WHO reports that one-third of tobacco experimentation among youth globally is due to tobacco advertising, promotion, and sponsorship (TAPS).<sup>21</sup> In recent surveys, more than half of secondary school students ages 13 to 15 in Bangladesh, Indonesia, and Timor-Leste reported noticing tobacco advertisements or promotions at points of sale in the past 30 days.<sup>22</sup> TAPS usually begins to reach youth during childhood, piquing their curiosity, making tobacco seem less harmful than it is, and appealing to concerns about popularity, peer acceptance, and self-image. In Nepal, about half of 13-to-15-year-old secondary school students think that boys who smoke have more friends or are more attractive, and a quarter of them think the same about girls who smoke.<sup>23</sup>

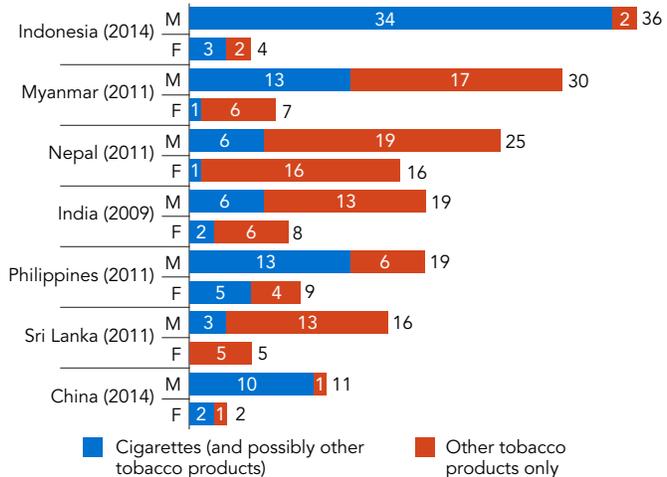
Even when advertising bans are in place, tobacco companies sometimes use a technique called “brand extension” or “brand stretching” to skirt them. Brand extension is when tobacco companies use brand names on nontobacco products or services. For example, tobacco companies may sell commonly used household products like stationery or rice, or run other businesses, such as luxury hotels or trendy cafes, using the same name and branding. Such strategies can desensitize youth to tobacco branding and marketing, and moreover, create positive associations with tobacco.

In Asia, much of the tobacco use among youth and adults extends well beyond internationally or commercially produced cigarettes. Locally produced or hand-rolled cigarettes

FIGURE 2

### Tobacco Use Is High Among Boys in Much of Asia.

Percent of Boys and Girls 13-15 Years Old in Secondary Schools Who Used Tobacco Products in the Past 30 Days, Select Countries



Note: Totals may not add up due to rounding.

Sources: WHO and CDC, Global Youth Tobacco Survey.

distributed by multiple, fragmented industries have a strong foothold and are widely available. In India for example, *bidis*, inexpensive handrolled cigarettes made of unprocessed tobacco wrapped in leaves, are quite popular. Accessibility among youth is bolstered by the fact that products like these are relatively affordable, poorly regulated, and easily obtained from street vendors or kiosks. Other inexpensive smokeless tobacco products, such as chewing tobacco and snuff, are also commonly used, and in some places, their use supersedes cigarettes.<sup>24</sup> Among 13-to-15-year-old boys in secondary school in Sri Lanka, 16 percent currently use tobacco and 83 percent of these users use smokeless tobacco products.<sup>25</sup>

The rising popularity of electronic or e-cigarettes is another concern, as e-cigarettes may normalize smoking and serve as a gateway to the use of traditional cigarettes, especially among youth. Although these devices do not produce tobacco smoke, they may still contain nicotine and other harmful substances. A 2014 review of promotions and availability of e-cigarettes in Asia reported that the marketing and sale of these devices specifically target youth. E-cigarettes are widely sold and easily accessible online, and come in attractive packaging and flavors. Marketing strategies also target youth via social media on sites such as Facebook and YouTube, and celebrity endorsements and sponsorships of sporting events are also common.<sup>26</sup>



An Indian girls' soccer team cheer after a goal.



## HARMFUL USE OF ALCOHOL

In 2012, an estimated 3.3 million deaths worldwide were attributable to alcohol—more than half were related to NCDs, primarily CVDs, diabetes, cancers, and gastrointestinal diseases.<sup>27</sup> Although Asia currently has relatively low levels of alcohol consumption compared to Europe and the Americas, alcohol use is increasing as social trends shift and marketing efforts target countries with rising economies and sizeable populations of young people with disposable income. While in many Asian countries, less than 10 percent of secondary school students ages 13 to 15 are current alcohol users (defined as any use in the last 30 days), in a handful of countries such as the Philippines, Thailand, Vietnam, and Taiwan, the rates among boys are 20 percent or higher. The difference between genders is generally smaller than for tobacco use. Across the region, alcohol use is expected to rise among both young men and women in the coming years.

Heavy drinking increases many other health risks, including road traffic accidents, unprotected sex, violence, and poor mental health conditions. Early initiation is particularly problematic. Studies show that people who begin drinking in early adolescence are substantially more likely to become dependent on alcohol within 10 years than those who begin drinking in their late adolescence or early 20s, even after considering family history of alcohol abuse.<sup>28</sup> Further, binge and heavy drinking to the point of drunkenness are more common among youth than adults. In the Philippines and Taiwan, about 15 percent of adolescents ages 13 to 15 report that on one or more occasions they drank so much alcohol that they were really drunk. As with tobacco,

alcohol marketing to youth often comes in the form of advertisements, promotions, or sponsorships with messages that portray alcohol as an integral part of a fun, positive lifestyle. In a large study in the Philippines of students 13 to 16 years old, 10 percent of students reported having received free drinks from an alcohol company. Evidence shows that exposure to these types of marketing strategies increases drinking among youth.<sup>29</sup>

Alcohol is becoming more commonplace at social gatherings across Asia, driving significant increases in alcohol sales. Since 2010, beer sales in Vietnam have been rising at double the pace of GDP growth.<sup>30</sup> Even beyond the more expensive national and international brands, legal and illicit brews that are locally produced, potent, and inexpensive (and potentially unsafe due to contaminants) are widely available throughout Asia. In Southeast Asia, local brews comprise nearly 70 percent of the alcohol consumed per person.<sup>31</sup> Limited enforcement of age restrictions and relatively low costs (partly due to difficulty imposing taxes) increase their accessibility to youth.



## UNHEALTHY DIET AND PHYSICAL INACTIVITY

Globally, unhealthy diets and insufficient physical activity contribute to about 12 million NCD deaths each year.<sup>32</sup> Together, these diet and exercise patterns contribute to overweight and obesity, and consequently, to NCDs such as type 2 diabetes, CVDs, strokes, and certain cancers. Between 2000 and 2010, the number of overweight and obese young people ages 7 to 18 in China nearly doubled from about 16 million to more than 30 million.<sup>33</sup> At nearly 12 percent, China already has the world's highest rate of type 2 diabetes among adults, and trends among young people are also worrisome.<sup>34</sup> A 2013 study in China showed that about 15 percent of 7-to-17-year-olds are prediabetic, which is alarming given that the condition increases the likelihood of type 2 diabetes later in life.<sup>35</sup>

Many low- and middle-income Asian countries are also undergoing a nutrition transition, with the double burden of an emerging epidemic of overweight and obesity adding to persistent undernutrition, which can occur in the same communities or even households. In Malaysia, nearly one-quarter of girls and boys ages 13 to 15 are either overweight or obese, and at the same time about 9 percent are underweight.<sup>36</sup>

A healthy diet should include adequate consumption of fruits, vegetables, whole grains, and various sources of protein. In Asia, the combined effects of rapid economic and social change, urbanization, and globalization are leading to shifts away from healthier, traditional diets to those high in empty calories, sugar, salt, and saturated fat—the primary causes of overweight, obesity, and diet-related NCDs.<sup>37</sup> These changes

are due in large part to increased availability of and access to commercially prepared and highly processed foods, including high-calorie fast food.

While the consumption of unhealthy foods is already elevated in high-income Asian countries, research shows that it is rising rapidly in middle income countries. In India, home to 253 million adolescents, the food processing industry is one of the fastest-growing sectors and accounts for about 50 percent to 60 percent of the consumption of edible sugar, salt, and fats.<sup>38</sup> About 85 percent of food products consumed in India are processed.<sup>39</sup> Soda consumption in Asia is also a particular challenge, especially among youth. In both Thailand and Laos, 58 percent of secondary school students reported drinking carbonated soft drinks one or more times per day in the previous 30 days.<sup>40</sup> Children are an important target for the food industry, as companies can influence their current dietary preferences, and can also lay the foundation for taste preferences and brand loyalty that can last into adulthood.<sup>41</sup>

Aside from poor diets, lack of sufficient exercise is also increasing NCD risks. Asia is urbanizing quickly, reducing physical activity previously necessary for work or transportation, and also giving rise to environmental factors such as heavy traffic, crime, and poor air quality that can make it difficult to be active outside. Air quality in Beijing, for example, was categorized as unhealthy or worse for more than 200 days in 2014, and a red alert status was declared for the first time in 2015 when schools had to close and traffic was restricted.<sup>42</sup> The built environment—the manmade surroundings where we live, work, and spend our leisure time—can also affect people’s levels of physical activity. For example, a scarcity of safe, well-lit sidewalks or running paths, parks, and other recreational spaces, can make it challenging to get enough exercise.

Young people in Asia are caught in the changing world around them and growing up in an environment where they face major challenges eating a healthy diet and getting enough physical activity. According to WHO, nearly three-quarters of adolescents in Southeast Asia have insufficient levels of physical activity—meaning they do not engage in at least 60 minutes of moderate-to-vigorous-intensity physical activity every day.<sup>43</sup> Sedentary activities are increasingly common. Among Thai secondary school students ages 13 to 15, more than half of both boys and girls report spending three or more hours per day sitting and watching television, playing computer games, or talking with friends, when not in school or doing homework.<sup>44</sup> Aside from physical benefits such as helping maintain a healthy body weight and developing healthy bones, muscles, and organs, exercise can also ward off mental health conditions such as anxiety and depression that are common among young people. Physical activity among youth is also typically associated with lower levels of other NCD risk behaviors such as tobacco and alcohol use.

## Strategies Exist to Address NCD Risk Factors Among Youth

A clear focus on interventions to reduce NCD risk factors among young people in Asia is an important part of the overall strategy to address a future NCD epidemic. Recognizing the importance of both personal choice and environment, interventions should target young people and those who influence them, and ensure that a range of supportive, reinforcing policies and programs are in place. By implementing a smart combination of effective, sustainable interventions that focus on creating long-lasting healthy behaviors, it is possible to make changes and see progress within a generation.

Successful implementation requires strong public and political commitment, multisectoral collaboration, strengthening of regulatory capacity, and coordination among responsible entities. More intervention studies and rigorous evaluations of existing policies and programs in Asia are necessary to understand what works in what contexts as well as which approaches are most cost-effective and sustainable. For example, many evaluations of diet or physical activity programs among young people have been unable to assess whether changes in behaviors were sustained, or whether they led to physiological outcomes such as reductions in weight. With improvements in the evidence base, we can continue to expand and strengthen the roster of best practices for addressing NCD risk behaviors among young people in the region.



Female students running on a track in China.

TABLE

## Risk Levels for Noncommunicable Disease Risk Factors Among Young People in Asia

	NCD Risk Factors Among Youth											
	Current Tobacco Use						Year	Current Alcohol Use			Male	
	Cigarettes		Other Products		Any Products			Male	Female	Year		
	Male	Female	Male	Female	Male	Female	Male					
<b>EAST ASIA</b>												
China	10	2	-	-	11	2	2014	18	14	2013	<sup>4</sup>	77
China, Hong Kong SAR <sup>1</sup>	8	8	3	2	10	9	2009	18		2014/15	<sup>5</sup>	
China, Macau SAR <sup>1</sup>	4	7	4	4	-	-	2010	-	-			-
Japan	2	1	-	-	-	-	2012	7	8	2012		
Korea, North	-	-	-	-	-	-		-	-			-
Korea, South	7	2	-	-	-	-	2014	10	7	2014		78
Mongolia	8	4	-	-	-	-	2013	5	4	2013		59
Taiwan	11	5	-	-	-	-	2012	21	17	2012		63
<b>SOUTHEAST ASIA</b>												
Brunei	14	4	-	-	15	5	2014	4	3	2014		81
Cambodia	0	0	8	5	8	5	2010	8	3	2013		89
Indonesia	34	3	-	-	36	4	2014	4	1	2007		84
Laos	14	1	8	5	19	6	2011	19	21	2015		76
Malaysia	31	5	13	6	35	9	2009	9	6	2012		72
Myanmar	13	1	28	7	30	7	2011	1	1	2007		81
Philippines	13	5	10	5	19	9	2011	23	15	2011		85
Singapore	9	4	10	8	-	-	2012			2010		80
Thailand	15	5	-	-	20	8	2015	21	17	2015		82
Timor-Leste	54	11	-	-	66	24	2013	-	-			-
Vietnam	4	1	-	-	-	-	2013	22	10	2013		76
<b>SOUTH ASIA</b>												
Afghanistan	7	4	-	-	10	6	2014	-	-			91
Bangladesh	3	0	7	3	9	3	2013	2	0	2014		58
Bhutan	23	7	29	20	39	23	2013			2011	<sup>5,6</sup>	-
India	6	2	16	7	19	8	2009			2005/06		69
Iran	5	1	32	20	33	20	2007	-	-			
Maldives	6	2	13	6	15	7	2011	-	-			-
Nepal	6	1	22	16	25	16	2011			2012/13		
Pakistan	10	1	-	-	-	-	2009	-	-			83
Sri Lanka	3	0	15	5	16	5	2011	-	-			83

Physical Inactivity			Overweight or Obese <sup>9</sup>		
Female	Year		Male	Female	Year
82	2010	<sup>7</sup>			2010
	2011/12				2011/12
-			-	-	
	2014	<sup>7</sup>			2014
-			-	-	
90	2014	<sup>7</sup>			2014
66	2013		11	12	2013
80	2012		32	16	2012
95	2014	<sup>7</sup>	37	35	2014
92	2013		3	4	2013
83	2007	<sup>7</sup>	14	6	2007
91	2015	<sup>7</sup>	11	12	2015
85	2012		25	22	2012
87	2007	<sup>7</sup>	4	6	2007
87	2011		11	9	2011
88	2012				2010
93	2015	<sup>7</sup>	24	13	2015
-			-		2009/10
87	2013		8	4	2013
90	2014	<sup>7</sup>	18	13	2014
59	2014	<sup>7</sup>	10	7	2014
-			-	-	
71	2007	<sup>7</sup>	12	10	2007
	(2013)	<sup>7, 8</sup>			2011/12
-	2014		19	16	2014
	2012/13				2012/13
87	2009		5	9	2009
89	2008	<sup>7</sup>	5	4	2008

## Definition of Risk Levels

● High Risk      ● Medium Risk      ● Low Risk

### Current Tobacco Use

Percent using cigarettes/other tobacco products/any products in the past 30 days among 13-15-year-old secondary school students<sup>2</sup>

- 16% or Above
- 7% to 15%
- Below 7%

### Physical Inactivity

Percent not engaging in physical activity for at least 60 min/day on five out of the last seven days among 13-15-year-old secondary school students<sup>3</sup>

- 70% or Above
- 50% to 69%
- Below 50%

### Current Alcohol Use

Percent having any drinks with alcohol in the past 30 days among 13-15-year-old secondary school students<sup>3</sup>

- 40% or Above
- 20% to 39%
- Below 20%

### Overweight or Obese

Percent who are overweight or obese among 13-15-year-old secondary school students<sup>3</sup>

- 20% or Above
- 10% to 19%
- Below 10%

**Notes:** Data points for the risk factors appear for countries with comparable data available from the following surveys: Global Youth Tobacco Survey and Global School-Based Student Health Survey (GSHS) for tobacco use, and GSHS for alcohol use, physical inactivity, and overweight status. For the countries without data from these surveys, data from other sources were used whenever possible to assess risk levels.

Data points from these other surveys appear only when they are comparable with the data from the above sources. Only the colors representing risk levels are displayed for the countries without comparable data.

Technical notes, data points underlying all risk levels, and data sources are provided in the accompanying data sheet and the data appendix at [www.prb.org/Publications/Datasheets/2016/ncd-risk-youth-asia.aspx](http://www.prb.org/Publications/Datasheets/2016/ncd-risk-youth-asia.aspx).

(-) Indicates data unavailable or inapplicable.

A date range indicates the most recent data point during that time period.

- 1 Special Administrative Region.
- 2 Based on the Global Youth Tobacco Survey and the Global School-Based Student Health Survey.
- 3 Based on the Global School-Based Student Health Survey.
- 4 Data are from Beijing, Shanghai, and Guangzhou.
- 5 Data are not disaggregated by sex when the columns are not divided.
- 6 Data are from Thimphu.
- 7 Underlying measure pertains to physical inactivity level in seven (not five) out of the last seven days in this country.
- 8 Data are from Khoramabad, and year in brackets is publication year for the survey results (data year unknown).
- 9 Proxy for unhealthy diet.

## Policy and Structural Measures

Policy and structural interventions are broad-based government laws, regulations, policies, or programs designed to create an environment that facilitates healthy behaviors and discourages harmful ones among all citizens, including young people. Some of these approaches, such as taxation and advertising bans for tobacco products, and regulations for the food industry on salt content, are considered to be highly cost-effective. Recommended measures include:

- Taxes on harmful substances such as alcohol, tobacco, and soda to make them less affordable and accessible. The revenue generated from taxes can be used for interventions targeting substance use or for other health initiatives.
- Bans or restrictions on the advertisement, promotion, sponsorship, and sale of harmful substances to children or adolescents including alcohol, tobacco, and unhealthy food.
- Health warnings on tobacco and alcohol products, especially large graphic warnings on packaging.
- Enforcement of minimum age requirements for the purchase of tobacco products and alcohol, and restrictions on their sale in close proximity of schools.
- Mandates for schools and other public places where young people congregate to be 100 percent tobacco and alcohol free.
- Regulation on the types of meals, snacks, and beverages that are offered in schools.
- Creation of safe public spaces and infrastructure for sports, leisure, active transport, and other forms of physical activity.
- Regulations governing the food industry such as directives on maximum salt, sugar, or saturated fat content in food products, and front-of-package food labeling.

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### COUNTRY EXAMPLES

Some countries in Asia have already begun to implement successful policy and structural interventions to curb harmful NCD risk behaviors:

- **Tobacco Control:** Nearly all Asian countries are party to the **WHO Framework Convention on Tobacco Control**, a legally binding treaty that requires countries to implement a number of evidence-based measures to reduce tobacco use and exposure to tobacco smoke. Examples are highlighted below:
  - **Taxes** are one of the most effective measures for reducing the demand for tobacco products. Taxes are highly effective when they account for more than 75 percent of the total price of the product, and most importantly, when they drive prices of tobacco products to levels that are unaffordable relative to other goods and services given average income levels. Young people are particularly sensitive to price increases. For a given price increase, reductions in tobacco use among young people are two to three times greater than for adults.<sup>45</sup>
  - Nine Asian countries have warnings that cover at least 50 percent of the front and back of packaging, including **graphic pictorial warnings** which are known to be particularly effective for youth.
  - **Nepal** and **Iran** have enforced complete **bans on TAPS**.
- **Bhutan, Iran, Mongolia, Nepal, Pakistan, and Thailand** have strong **smoke-free legislation**, with bans on smoking in a large number of indoor environments as well as some outdoor spaces, such as stadiums and bus stops. Even in the absence of national laws, progress is possible at the subnational level. For example, Beijing has implemented a 100 percent smoke-free law that bans smoking in all indoor public places, workplaces, and public transport, reducing smoking and exposure to tobacco smoke for more than 20 million residents.<sup>46</sup>
- **Physical Activity:** Some Asian cities and communities have incorporated designs in the built environment that influence the level of physical activity in residents' daily lives. In many areas of **Beijing, Taiwan, and Singapore**, streets have dedicated bicycle lanes.<sup>47</sup> In **South Korea** and **Japan**, some local playgrounds have adult-sized exercise equipment that can be used by young people and adults. Other community design elements that encourage physical activity include well-lit, safe, publicly accessible spaces for recreation, sports, or walking and running.
- **Alcohol Control:** In 2008, **Thailand** implemented the **Alcoholic Beverage Control Act** that addressed a number of issues including requirements for advertising and warning labels, restrictions on where alcohol can be sold and consumed, and a minimum age for purchases. This national policy is credited for a two-thirds reduction in the number of Thais who drink alcohol.<sup>48</sup> In 2015, Thailand

amended the act to restrict bars, clubs, and retailers from selling alcoholic beverages within a 300 meter radius of higher-educational institutions. Establishments that sell alcohol in these areas to minors under the age of 20 or beyond licensed hours risk being shut down or having their licenses revoked.<sup>49</sup>

- **Tobacco Control:** Over the past few years, all states in **India** have banned the sale, production, and distribution of *gutka*—a popular smokeless tobacco product consisting of a highly addictive mix of tobacco flavored with spices and sweeteners. This action has come in the absence of national legislation, which is now being considered by the Indian Supreme Court. The move to ban *gutka* is notable as India has the world’s highest incidence of oral cancer, largely due to the use of smokeless tobacco. *Gutka* attracted many young users in part because it is inexpensive, sold in colorful, individual sachets, and, because its use is easy to hide. In 2008, about 5 million children under age 15 were addicted to *gutka*.<sup>50</sup> Although all of the state-level bans indicate an important success, stronger implementation and more consistent enforcement of punishments are still critically needed.
- **Healthy Diet:** In 2015, **Singapore**, through a public-private partnership, developed guidelines for food advertising to children to be incorporated into the **Singapore Code of Advertising Practice**. The guidelines require that a common set of nutritional criteria be used to determine which type of food and beverages can be marketed via any type of media platform to children ages 12 and younger.<sup>51</sup> Regulations on advertising of unhealthy food products and beverages to children and youth are important approaches for reducing their consumption of these items.
- **Tobacco Control: India**, a country with a large and widely popular film industry, has implemented legislation to reduce tobacco imagery on screen. Strong evidence shows that depictions of tobacco use in movies and television programs promote smoking among young people. Some of the requirements in India, enforced by the Central Board of Film Certification, include:
  - Bans on tobacco product placement or showing of brand names.
  - Strong editorial justification to show tobacco or its use in films and television programs, and when this occurs, airing of 30-second **anti-tobacco spots** and at least 20-second disclaimers prepared by the Ministry of Health and Family Welfare on the negative effects of tobacco use at the beginning and middle of film and television programs.
  - For old films and television programs, a **health warning** must scroll on screen during periods when tobacco products are displayed or used.<sup>52</sup>



Japanese no-smoking sign on the road.

## Social and Behavior Change Interventions

Beyond policy and structural measures, strategic interventions can be used to improve awareness about NCD risks and encourage positive behaviors among young people. School is a logical entry point for intervention since young people spend much of their time there, and school-based interventions are typically highly cost-effective. But given the broad influences in young people's lives, interventions must also be implemented strategically in other spheres. For example, at home, parents and caregivers likely influence what foods young people eat, as well as their exposure to and attitudes toward alcohol and tobacco. Similarly, all of the four key risk factors can be influenced when youth spend time in their communities, engage in religious or volunteer activities, buy goods and services, work, or socialize with friends.

Successful interventions to address each of the four risk factors should be comprehensive and include multiple components. For example, effective, school-based interventions on diet and physical activity should include lessons on healthy eating and physical activity led by trained teachers, exercise programs, healthy foods available on site, parental or family engagement, and supportive policies.

Given the range of influences on young people's behaviors, a diverse set of approaches can be implemented. Some examples include:

- School-based nutrition, exercise, or harmful substance education and intervention programs.
- Media-based education and messaging via television, movies, and radio, as well as social media platforms, such as Facebook, Twitter, and YouTube.
- Risk-factor screening, counseling, and tobacco and alcohol cessation programs, provided within a range of settings (see Box 2, page 13).
- Community-based education and behavior change programs.
- Workplace programs to encourage regular physical activity and other healthy habits.
- Local business initiatives to encourage responsible purchasing among youth.

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### COUNTRY EXAMPLES

Evidence of effective social and behavior change interventions from Asian countries is limited, as there is a dearth of programs as well as few comprehensive evaluations of those that do exist in the region. However, there are some programs that show promise and which could be further tested.

- **Physical Activity:** Some schools in **China** have implemented **Happy 10**, which is based on a U.S. program designed by teachers to promote physical activity, healthy eating, and learning in a fun and creative way. The program involves two daily 10-minute moderate-to-vigorous physical activity sessions. Among 8-to-11-year-olds, this intervention significantly decreased weight and body mass index over the course of a year, particularly among obese children.<sup>53</sup> The intervention was subsequently scaled up to 30 provinces and 1,600 elementary schools in China. It has also been incorporated into the government-led multisectoral, comprehensive, national "Healthy Lifestyle for All" initiative, which was launched in 2007 and developed to raise awareness about a range of public health issues. More rigorous evaluations of programs like this and others are essential for understanding how obesity can be addressed in China.
- **Tobacco Control:** In **Hong Kong**, the **Youth Quitline** targeted at smokers ages 25 and younger has been operating since 2005. This multisectoral initiative has demonstrated measurable success. More than 7,000 young people have called the Quitline and counseling has been provided for an estimated 1,591 youth smokers. The organizers have also conducted seven programs to train more than 300 youth to become peer counselors. As of the end of January 2015, nearly one-quarter of those who joined the program for 6 months quit smoking.<sup>54</sup>
- **Alcohol Control:** Since 2007, Asia Pacific Breweries, as part of its corporate responsibility activities, has been supporting an initiative in **Singapore** to discourage binge drinking among young people. The campaign, **Get Your Sexy Back** (GYSB), was initially conceived by four university students and casts responsible, moderate drinking and staying sober as the new "sexy." The youth-led program uses a variety of activities and platforms to encourage youth to live active, healthy, social lives without binge drinking. Key themes and events are centered on music, fashion, sports, and friends. The campaign has also included interactive Facebook activities, pledges of support by young people, and partnering with retailers to give discounts to GYSB members to encourage participation.<sup>55</sup>
- **Tobacco Control:** In 2012 **Thailand** launched a low-cost, social media campaign on YouTube using what became an award-winning two-minute video. This simple video, **"Smoking Kid,"** subtly yet powerfully made real smokers

unwittingly act as anti-smoking messengers as they responded to kids' requests for a light. The video went viral in over 30 countries. Within 10 days, it had over 5 million views. It also achieved results: In Thailand, the video is credited with increasing the number of monthly calls to the national Quitline by 62 percent in the first month and by 32 percent in the months following—well beyond the intended target of increasing calls by 10 percent within 3 months. The campaign has also been hailed for its cost-effectiveness—with production costs of only about US\$5,000 and no media spending, it generated results that otherwise could have cost millions.<sup>56</sup> While the campaign did not specifically target young people, the use of social media platforms are typically popular among youth and the successful elements of this approach could be replicated in youth-oriented campaigns.

- **Healthy Diet:** Home, school, and community gardens offer an important way to address the double burden of malnutrition. They offer an opportunity for young people and others to learn about proper nutrition and to improve access to fresh, vitamin-rich fruits and vegetables needed to combat malnutrition and reduce the risk of overweight and obesity. An initiative called **Vegetables Go to School** is establishing comprehensive school vegetable gardens in selected countries, including **Bhutan, Indonesia, Nepal, and the Philippines**. The latter has seen the greatest success thus far: Fifty-eight percent of 46,000 elementary and secondary schools nationwide have functioning school gardens.<sup>57</sup>



Girls riding to school in Thailand.

## BOX 2

### NCD and Sexual and Reproductive Health Services Can Be Coordinated

Finding diverse opportunities to reach youth with relevant NCD-related health information and services is important. The health care community in particular has a critical role to play. One way they can help reduce NCD risk factors among youth is to integrate NCD preventive services into other existing youth services. The sexual and reproductive health (SRH) community, in particular, has a head start on designing and offering services targeting youth. A youth-friendly SRH infrastructure, including for HIV/AIDS, has been built or is underway in some Asian countries, such as Thailand and India. The longstanding SRH community has refined its strategies to attract young people and provide them with appropriate messages and services, including through successful social media campaigns. Nascent NCD programming can draw lessons from these experiences and adapt successful approaches to increase their effectiveness.

Since SRH services are often the primary point of interaction between young people and the health sector, and since comprehensive services may be more appealing to parents and communities, they may offer a good window of opportunity for integrated or coordinated approaches. For example, screening and counseling for NCD risk behaviors could be done during the same visit as human papillomavirus vaccination, testing for HIV or other sexually transmitted infections (STIs), or delivery of family planning information or services. Two pilot clinics in Cambodia that offered integrated services for HIV and NCDs (diabetes and hypertension) demonstrated program effectiveness and high retention rates.<sup>1</sup> Integrated approaches that reach youth with NCD and SRH messages and services at the same time can be cost-effective and efficient since many of the risk factors overlap. Alcohol use, for example, is a risk factor for high blood pressure, diabetes, and some cancers and has also been linked to unsafe sex leading to unintended pregnancies and STIs.

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## Strengthening Data Collection Can Help Move the NCD Agenda Forward

One important starting point for Asian nations to address NCDs is collecting up-to-date statistics on young people's risk behaviors and associated factors, as well as documenting trends. Understanding the current situation and changes over time is critical to identifying needs and developing effective interventions. Throughout the region, however, data availability varies substantially. In some cases, governments and researchers have implemented country-specific surveys. In others, WHO and the Centers for Disease Control and Prevention (CDC), along with other partners, have led cross-national school-based surveys. Since 2010, 16 of 28 Asian countries have conducted the Global School-Based Student Health Survey (GSHS) and 12 have conducted the Global Youth Tobacco Survey (GYTS). The former typically includes questions about all four risk factors, and both surveys have results tabulated for 13-to-15-year-olds and increasingly also for 16-to-17-year-olds. Eight Asian countries have also conducted the Global Adult Tobacco Survey (GATS), also from WHO and the CDC, which collects information about the adult population, including young people ages 15 to 24. Data from these surveys are valuable and are often the only information available on the young for decisionmaking.

Many critical data collection challenges do, however, remain:

- For the GSHS and GYTS, 10 surveys that were conducted prior to 2010 have not been repeated since, so the latest information could be out of date.
- School-based surveys cannot capture information about out-of-school youth, a sizeable group in some countries and one that may face different risk levels for certain behaviors.
- Surveys targeting the general population such as GATS, may not have sample sizes for younger ages large enough to produce reliable estimates.
- While country-specific surveys, available in some countries, allow collection of detailed, context-specific data, the indicators are not always comparable across countries, hindering direct comparisons and cross-learning.

As countries continue to implement surveys and collect data, consensus is needed on selecting, defining, and measuring a core set of cross-culturally valid, comparable, and appropriate indicators for each NCD risk factor among young people. Although timely and comprehensive data collection can be resource intensive, one potentially cost-effective approach is to piggyback onto other ongoing data collection efforts. Young people could be included in NCD surveys that conventionally only include adults. Alternatively, NCD risk factor questions could be added to existing health surveys that already include youth respondents. For example,

Demographic and Health Surveys (DHS), implemented by ICF International in a number of developing countries, collect a range of data on health and population. Some of the surveys already include data on one or more of the NCD risk factors. Making an option available for countries to include an NCD module covering all of the relevant risk factors would help provide a more comprehensive picture of the current status and future risks in those countries.

Equally important to ensuring frequent and harmonized data collection is timely and widespread dissemination of the latest available data to key decisionmakers.<sup>58</sup> Findings should be made accessible promptly in easy-to-understand, nontechnical formats to ensure that appropriate decisions can be made about the best policies and programs to address NCD risk behaviors among young people.



Indian students.

## Curbing the Rise of NCDs in Asia Is Achievable

NCDs are having a profound effect on the public health landscape in Asia, where many countries are already experiencing large NCD epidemics and others face similar prospects in the near future. Curbing NCD risk behaviors among young people is one critical way to change the expected trajectory of NCDs. Investing in the health of the young and averting the premature onset of NCDs enables them to reach their full potential, increasing productivity, decreasing health care costs, and contributing to national growth and vitality. Strategies to address the four main

NCD risk behaviors among young people can be adapted and scaled up across countries and different sectors. Their successful implementation will require collaboration, coordination, creative thinking, and the involvement of young people. It will also be important to ensure that critical information gaps are filled by regular data collection efforts, as well as policy and program evaluations that can help identify the most effective interventions for the countries in the region. With a cohort of healthy young people who limit harmful behaviors like drinking alcohol and using tobacco, and who eat healthily and stay physically active, Asian nations can take a step toward a bright future, be it achieving sustainable development or building on current prosperity.

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