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Chapter 2

Improving cardiovascular disease and diabetes outcomes through lifestyles: Trends and policies

Lifestyles play an important part in predicting cardiovascular disease (CVD) and diabetes risk, although prevention services have to cope with fewer resources in some countries. Lifestyles help explain variations in CVD and diabetes across OECD countries. Chapter 2 looks at the health promotion and public health contribution to maintaining healthy lifestyles in OECD countries. It examines recent trends in obesity, tobacco and alcohol consumption, and physical exercise. This chapter outlines policies that health systems have introduced recently to combat unhealthy lifestyles such as tobacco consumption and high salt intake and to promote physical activities in adults and children in order to reduce overweight and obesity. It also benchmarks OECD countries in relation to their CVD and diabetes lifestyle rankings.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Lifestyles play an important part in predicting cardiovascular disease and diabetes risk

Cardiovascular disease (CVD) and diabetes are highly preventable diseases. The majority of CVD is caused by risk factors that can be controlled, treated or modified. These risk factors include high blood pressure, cholesterol, obesity, lack of physical activity, tobacco use and excessive alcohol consumption. CVD and diabetes share many common risk factors, including obesity and physical activity; therefore, the prevention of these two modifiable risk factors can lead to a lower prevalence of both diseases.

As noted in Chapter 1, improvements in lifestyles have made a substantial contribution towards the falling CVD mortality burden. For example, estimates suggest that around 54% of the fall in coronary heart disease (CHD) mortality can be explained by risk-factor improvements. This chapter focuses on the four risk factors that are most strongly associated with lifestyles and amenable to primary prevention activities. Chapter 3 looks at some other risk factors, such as blood pressure and cholesterol, which involve both primary and secondary prevention activities.

Unhealthy lifestyles increase the odds of suffering from CVD and diabetes. An extensive literature has shown that obesity, smoking and lack of exercise independently increase the chances of an individual suffering from these diseases. The Framingham Study, for example, followed over 8 000 participants over a 12-year period to calculate the importance of risk factors in predicting the likelihood of suffering a CVD event (D'Agostino et al., 2008). Here, a CVD event includes coronary death, heart attack, coronary insufficiency, angina, stroke and heart failure. Table 2.1 reports the chances of a person experiencing a CVD event over a ten-year period, based on estimates from the Framingham Study. The risks have been calculated on the basis of a 60-year-old person who does not suffer from hypertension and is not a diabetic.

The likelihood of a non-smoking female with a healthy body mass index (BMI) of 20 suffering a CVD event is 6.5%. These chances virtually double if that person is a smoker. In addition, BMI increases the risk profile. Holding all other risk factors constant, a person who is obese (BMI > 30) is around 20% to 30% more likely to suffer a CVD event than a person who is in a healthy weight category. Importantly, some non-modifiable risk factors also have an important bearing on CVD. As shown in Table 2.1, being a male doubles the chances of a CVD event when keeping other risk factors constant. For obese and smoking 60-year-old males, the ten-year likelihood of a CVD event is in excess of 30%. Age is another important risk factor. For example, the likelihood of a CVD event would increase from 6.5% to 9.7% for a healthy 70-year-old female, compared to her 60-year-old counterpart.

The relationship between risk factors and developing type 2 diabetes has also been studied extensively. The FINDRISC study, for example, has developed a widely used clinical tool to predict the risk of developing diabetes for patients (Lindström and Tuomilehto, 2003). This Finnish study was based on over 4 400 participants, aged 35 to 64, who were followed

Table 2.1. **Predicting the ten-year likelihood of a CVD event: Smoking and body mass index**

BMI	Females		Males	
	Non-smoker	Smoker	Non-smoker	Smoker
	%	%	%	%
20	6.5	11.8	13.2	25.0
25	7.3	13.1	15.5	29.0
30	8.0	14.3	17.7	32.7
35	8.6	15.3	19.8	36.1

Note: Predicted risk scores have been calculated on the basis of a 60-year-old person who does not suffer from hypertension and is not a diabetic.

Source: Based on estimates from D'Agostino, R.B. et al. (2008), "General Cardiovascular Risk Profile for Use in Primary Care: The Framingham Heart Study", *Circulation*, Vol. 117, No. 6, pp. 743-753.

over a ten-year period to determine whether they had developed diabetes. Table 2.2 shows the likelihood of developing diabetes for a range of risk factor values. These estimates are based on the FINDRISC results and are reported for a person who is aged 50-64, has no history of high blood glucose, does not take hypertension medication and consumes vegetables or fruits daily.

The figures in Table 2.2 indicate that a healthy 55 to 64 year-old person who is not overweight and exercises more than four hours per week has a 1% chance of developing diabetes. Without exercise this risk rises by around 40% to 1.4%. Obesity more than doubles the risk of diabetes. The distribution of body weight is also an important determinant of diabetes risk. People with a greater waist circumference have a much higher risk. Diabetes also has a number of non-modifiable risk factors, with the chance of developing diabetes rising with age. Males are more susceptible as are those who have close family members with diabetes.

Table 2.2. **Predicting the ten-year likelihood of developing diabetes: Exercise, body mass index and waist size**

BMI	> 4 hours physical exercise per week			< 4 hours physical exercise per week		
	Waist circumference			Waist circumference		
	Cat. 1	Cat. 2	Cat. 3	Cat. 1	Cat. 2	Cat. 3
	%	%	%	%	%	%
≤ 25	1.0	2.8	4.2	1.4	3.7	5.4
> 25 to 30	1.1	2.9	4.3	1.4	3.7	5.5
> 30	2.6	7.0	10.1	3.4	8.9	12.8

Waist circumference: Cat. 1= Female (male) < 80 (94) cm; Cat. 2 = 80(94) cm ≤ Female (male) < 88(102) cm; Cat. 3 = Female(male) ≥ 88(102) cm

Note: Predicted risk scores calculated on the basis of a person who is aged 50-64, has no history of high blood glucose, does not take hypertension medication and consumes vegetables or fruits daily.

Source: Based on estimates from Lindström, J. and J. Tuomilehto (2003), "The Diabetes Risk Score: A Practical Tool to Predict Type 2 Diabetes Risk", *Diabetes Care*, Vol. 26, No. 3, pp. 725-731.

Tables 2.1 and 2.2 provide a clear overview of the additional risks that individuals face of experiencing a CVD event or developing diabetes. The increased likelihood of worsening health status, associated with many of these modifiable risk factors, provides a clear motivation for individuals to alter their behaviour.

For many people, however, the additional risk of illness and death is insufficient for them to choose healthy options. Numerous other factors may influence their choice, such as the relative price of healthy and unhealthy options, the transaction costs of consumption (e.g. time and skills required to make a healthy dinner versus buying fast food on the way home from work), as well as the perceived benefits of consumption. At the same time,

people trade off the benefits and costs of immediate consumption versus the long-term (possibly negative) consequences of their consumption. All these factors can lead to sub-optimal decisions from the perspective of health outcomes. They provide reasons for governments and markets to play an active role in encouraging citizens to change their behaviour and adopt healthier lifestyle choices.

An underlying role for governments and markets is to make healthy lifestyle choices easier. In the field of prevention, government actions may take at least four types of actions aimed at (Sassi, 2010):

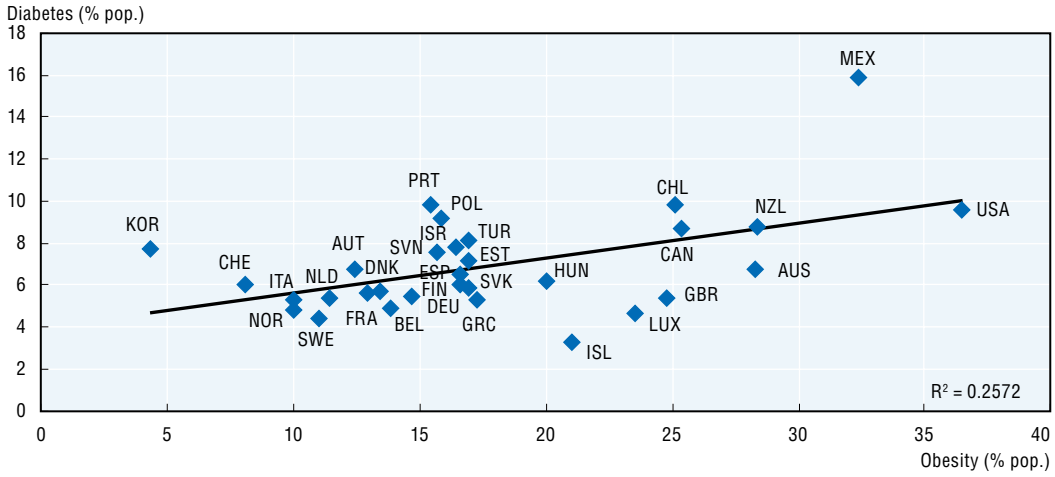
- improving the breadth or the attractiveness of healthy choices, relative to a free market situation,
- modifying preferences to encourage healthy choices,
- increasing the price of selected unhealthy choices,
- regulating and banning of selected unhealthy choices.

This chapter will examine the overall trends that OECD countries have experienced in lifestyle choices. In particular, it will focus on smoking rates, alcohol consumption, and obesity levels that are reported in OECD Health Statistics. For each of the main lifestyle indicators, it will show how countries are positioned in relation to their OECD peers, as well as indicate whether the trend over time for a country is substantially different from the OECD average. This chapter will also describe some of the main policy initiatives in this field and analyse the role that these have had in altering lifestyle behaviours.

Lifestyles help explain variation in diabetes and CVD across OECD countries

Figure 2.1 shows the percentage of the population who are obese as well as the percentage with diabetes. The percentage of the population who are obese ranges from less than 5% in Korea to over 35% in the United States. The diabetes prevalence ranges from less than 4% in Iceland to around 16% in Mexico. There is a strong positive association between the two measures. Obesity can account for around 25% of the variation in diabetes prevalence across countries. These figures indicate that the variation in unhealthy lifestyles is strongly associated with differences in the prevalence of diseases such as diabetes across countries.

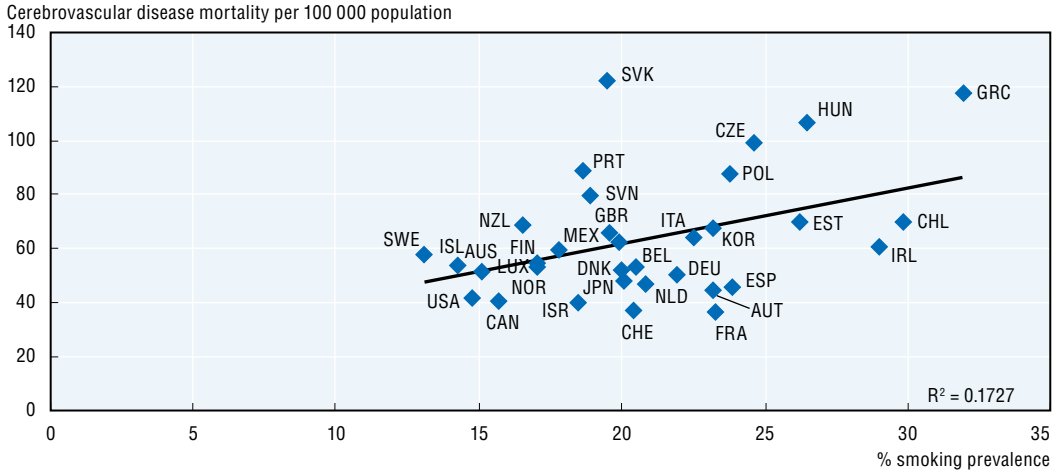
Figure 2.1. **Obesity is a strong predictor of diabetes**



Source: IDF (2013), *IDF Diabetes Atlas, 6th Edition*, International Diabetes Federation, Brussels, *www.idf.org/diabetesatlas/previouseditions* for diabetes prevalence data and OECD Health Statistics 2013 for obesity prevalence data.

Similarly, smoking prevalence can account for a substantial amount of CVD mortality across countries. Figure 2.2 shows the relationship between smoking prevalence among those aged 15 and up and the cerebrovascular disease mortality rate per 100 000 population. The lowest smoking rates for men and women combined are found in Sweden, where only 13.1% of the population aged 15 and over smoke. On the opposite end of the smoking scale is Greece, where over 30% smoke. In terms of cerebrovascular mortality, the lowest rates can be found in France and the highest rates in the Slovak Republic. The relationship between these two variables indicates that around 17% of the cross-country variation in cerebrovascular mortality can be explained by smoking prevalence. Higher smoking rates are also associated with increased CVD mortality, although this relationship is not quite as strong as with cerebrovascular disease.

Figure 2.2. **Smoking is a strong predictor of cerebrovascular disease mortality**



Source: OECD Health Statistics 2013, http://dx.doi.org/10.1787/health-data-en.

OECD countries have had mixed success in improving lifestyles and reducing risky behaviours

The lifestyle factors discussed in this chapter are to a considerable degree associated with risky behaviours on the part of individuals. The decision to pursue such behaviours is determined by a complex set of factors, including the perceived costs and benefits, prices, income and information (Lundberg and Shapira, 2014). Risky behaviours are based on a subjective decision that trades off the value of current consumption against the long-term consequences of that consumption. For example, a person who chooses to smoke is trading off the short-term impulse to consume tobacco against the longer-term risk of adverse health. The value that an individual places on their future health and well-being can depend on their education, wealth, and competing health risks. Furthermore, social norms can influence the perceived benefit of such behaviours.

OECD countries have had mixed success in improving risky behaviours. On the one hand, smoking rates have declined substantially, but the percentage of the population who are obese continues to climb. Figure 2.3 shows the trends reported in OECD Health Statistics. The period over which trends were observed was chosen on the basis of the largest and most consistent number of countries able to report these data.

The figure shows declining trends in the percentage of the population who smoke for males and females, and younger smokers aged between 15 and 24. Overall, the percentage of the population who smoked daily fell from 28% in 1997 to 20% in 2009. Men are more likely to smoke than females, but the rate of decline was similar in both sexes. While there has also been a decline in the percentage of younger smokers, this trend is only evident in the latter years. Between 1997 and 2004, the percentage of younger smokers was fairly stable, but then started to decline among males and, more recently, among females as well. The gender gap in smoking varies enormously between countries. In 2010, smoking rates were, on average, over 90% higher among males than females. In the United Kingdom, though, the gap between males and females was only 5%. In Korea, only 5% of females smoke, but smoking rates among males is over 40%. These gender gaps have an important bearing on the differential CVD risks faced by men and women in some countries.

Obesity levels have been rising in all OECD countries. Figure 2.3 shows the trends for males and females as well as for two different obesity measurement techniques. Some countries report obesity levels on the basis of survey respondents' self-reported height and weight, whereas other countries use height and weight information obtained through measurement. Over the 2000 to 2009 period, the percentage of the population who were measured obese rose from 17% to 22%. For self-reported indicators, obesity rose from 12% to 16% over the corresponding period. In terms of self-reported obesity, there is virtually no gender gap, with males and females not only reporting similar obesity levels but also very similar trends. For those countries that provide measured data there is a small gender gap, with females having higher levels of obesity than males. However, this gender gap has been narrowing over time.

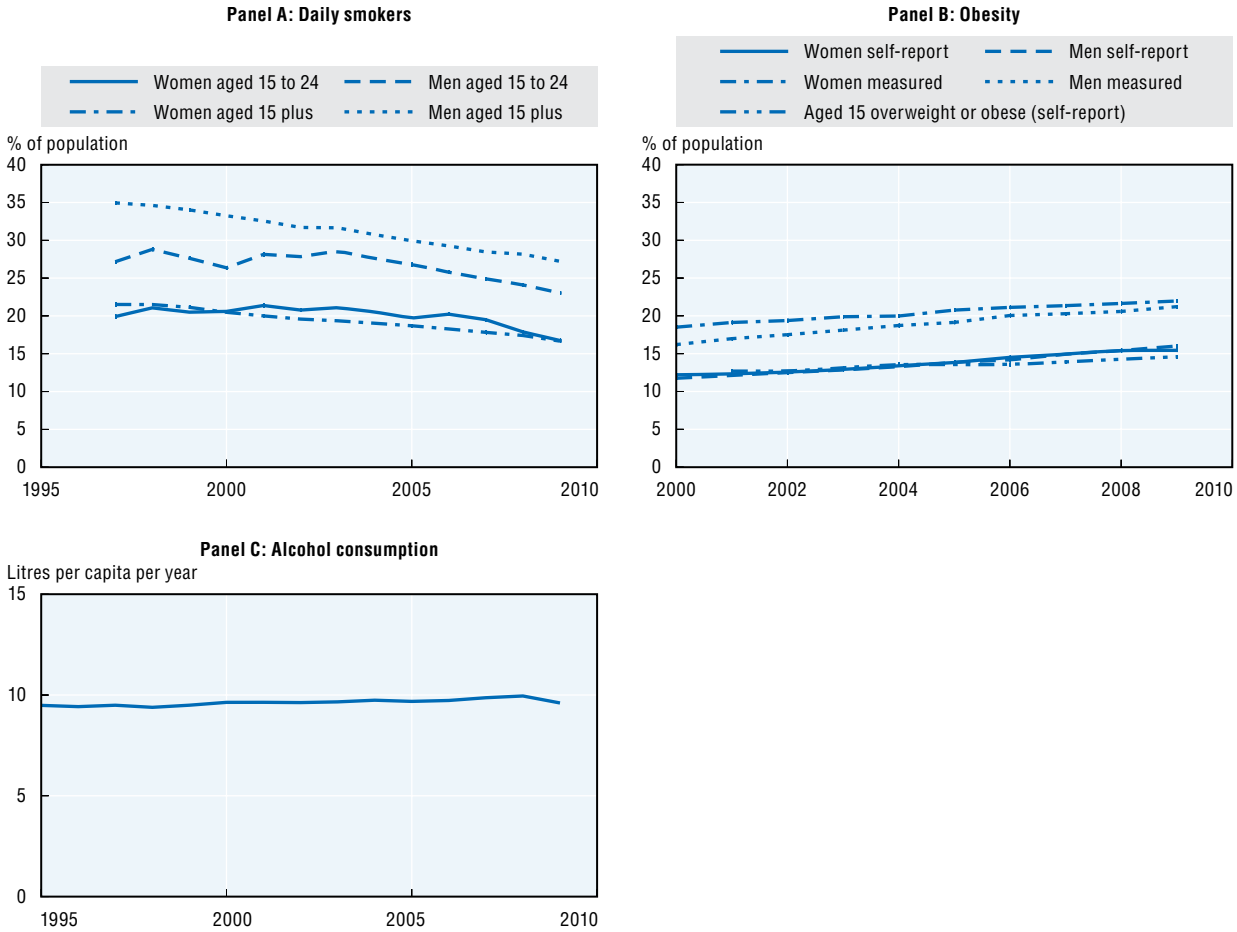
The more recent data indicate that obesity rates have increased by less than projections in a large number of OECD countries, providing some positive signs that the rates of increase are falling (OECD, 2012). The most recent observations provide some tentative signs that the prevalence of obesity has stabilised or the rate of increase has slowed in some countries. Nevertheless, rates continue to increase in other countries and remain high in many OECD countries.

The percentage of children who are reportedly either overweight or obese has also been rising. Figure 2.3 indicates that the percentage of overweight or obese 15-year-olds rose from 13% to 15% between 2001 and 2009. Alcohol consumption, on the other hand, has been stable across OECD countries, with evidence of a small reduction after 2008.

The Global Burden of Disease (GBD) study has estimated the years of life lost (YLL) that can be attributed to 67 risk factors, including risky behaviours. The GBD study approach is to calculate the proportion of deaths caused by specific risk factors, holding other independent factors unchanged. Calculations were made for 187 countries and for 1990, 2005 and 2010 (Lim et al., 2013).

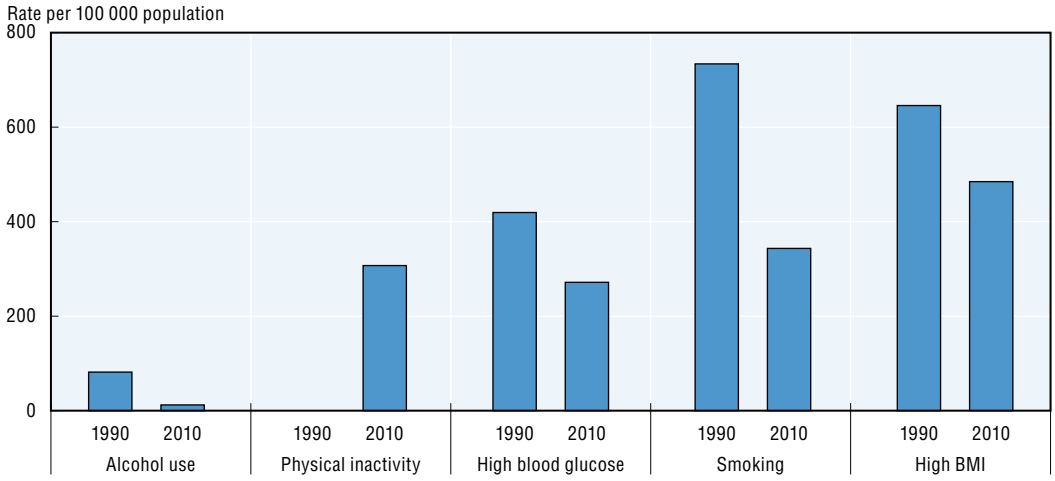
Figure 2.4 presents the YLL due to cardiovascular disease in 1990 and 2010 that can be attributed to a number of lifestyle choices. The figures shown are for all OECD countries as well as Singapore and Latvia. As shown in Chapter 1, cardiovascular disease mortality fell considerably over the 1990 to 2010 period, and this is reflected in the overall drop in YLL (note: physical inactivity was not part of the 1990 study). The number of cardiovascular-related YLL due to smoking more than halved over the 20-year period, whereas those due to high body mass index (obese or overweight) fell by around 25%. It should be noted that the addition of the physical inactivity risk factor in 2010 may have influenced the

Figure 2.3. **Trends in OECD lifestyles: Tobacco, obesity and alcohol**



Source: OECD Health Statistics 2013, http://dx.doi.org/10.1787/health-data-en.

Figure 2.4. **Years of life lost in cardiovascular disease due to risky behaviours**



Source: IHME (2013), "The Global Burden of Disease: Generating Evidence, Guiding Policy", Institute for Health Metrics and Evaluation, Seattle.

risk attributed to high body mass. Nevertheless, the fact of being obese or overweight has overtaken smoking as the number one lifestyle risk factor in cardiovascular disease. According to the GBD results, alcohol consumption is a relatively small contributor to the number of CVD-related YLL. This is in concordance with the evidence that alcohol can provide protective CVD effects.

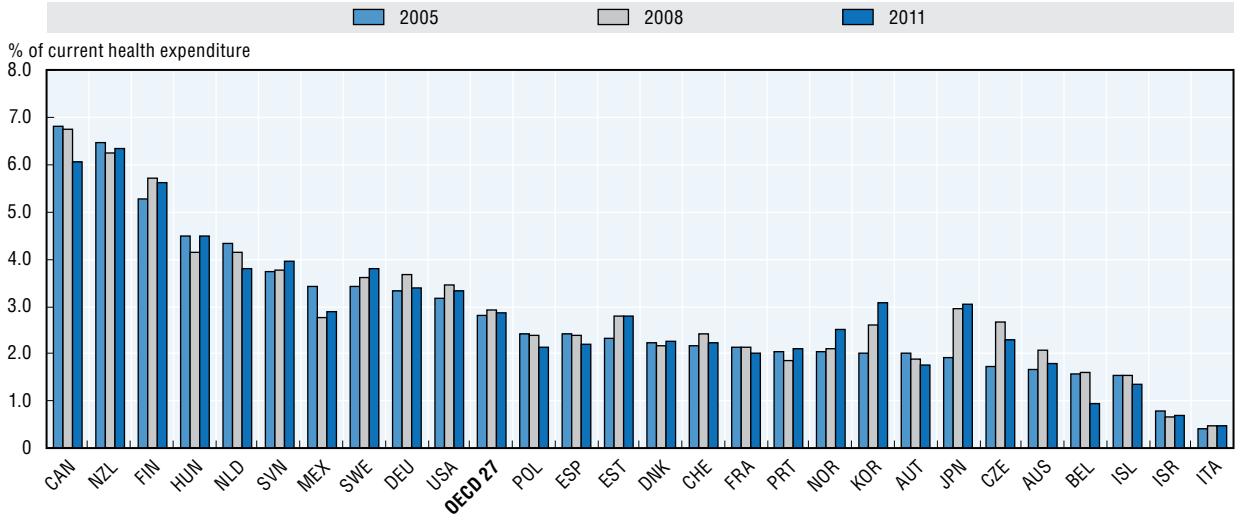
To improve lifestyle choices, governments require multi-faceted policy responses that take into account the heterogeneous reasons why individuals engage in risky behaviours. The next section of this chapter will examine experiences from recent policy initiatives and describe the resources available for prevention programmes and services.

Prevention services are having to cope with fewer resources in some countries

The resources for prevention and public health services represent a small part of the overall health care budget. In 2011, less than 3% of total current health expenditure was devoted to the prevention and public health sector in OECD countries overall. However, this percentage ranged from less than 1% in Italy and Israel to over 6% in Canada and New Zealand (Figure 2.5).

Following the start of the financial crisis in 2008, total health expenditure has been the target of many governments' austerity measures. After a steady period of growth, health care expenditure was constrained to zero real growth between 2009 and 2011. The biggest target for health savings has been pharmaceutical expenditures. However, preventive care services and public health programmes have also witnessed small reductions in their share of health expenditure. In 15 of the 27 countries shown in Figure 2.5, the share devoted to prevention and public health programmes went backwards between 2008 and 2011. In eight of those countries, the drop was bigger than 0.2%. It should be noted that, due to data limitations, these figures are representative of the overall prevention and public health sector, not just those devoted to the prevention of cardiovascular disease and diabetes.

Figure 2.5. **Spending on prevention and public health services**



Source: OECD Health Statistics 2013, *http://dx.doi.org/10.1787/health-data-en*.

Improving lifestyles to reduce CVD and diabetes risk: Recent experiences in OECD countries

OECD countries have introduced strong anti-tobacco legislation and programmes

The World Health Organization (WHO) has recently undertaken national surveys to help characterise the type of policies that have been implemented to reduce smoking rates and cut tobacco consumption. All OECD countries have implemented anti-tobacco programmes and policies, including mass media campaigns to warn about the dangers of smoking, services and products to help smokers quit, advertising bans and taxes. However, the types of policies and intensity of those policies varies considerably by country. Box 2.1 describes these eight different types of policies in more detail, as well as the categories that describe the intensity by which countries have implemented the policy.

Stronger tobacco control policies are having an effect

To estimate the relationship between tobacco control policies and smoking rates, a fixed effects econometric model is employed. The first analysis examines whether countries that have adopted more comprehensive tobacco control programmes have been able to reduce their smoking rates at a faster rate compared to countries with less comprehensive strategies. This analysis takes into account the different smoking rates across countries at the start of the observation period, which is 1996. Separate models were estimated for the population aged 15 and above and for the population aged between 15 and 24, as well as for females and males.

For the purpose of this analysis, countries were classified into two groups: comprehensive or less comprehensive tobacco policy regimes. This classification was based on actual scores given to countries by the WHO Global Health Observatory based on the survey of policies described in Box 2.1 above. The actual scores are presented in Annex 2.A1.[1] In 2010, almost all countries indicated that they routinely monitored smoking rates for their populations. However, only eight countries indicated that they had implemented mass media campaigns that were in accordance with all the WHO desirable characteristics. The survey results show that countries such as Australia, New Zealand, Ireland, the United Kingdom and Turkey were amongst the set of countries with the most stringent and comprehensive set of anti-tobacco policies (WHO, 2010). Countries that belonged to the most stringent policy category (as outlined in Annex 2.A1) on more than three occasions were grouped in the comprehensive category, and countries with scores of three or below were grouped in the less comprehensive category. The dependent variable was transformed into log units.

The results of the regression results are shown in Table 2.3. For the population aged 15 and over, countries with less comprehensive tobacco policies were able to reduce their smoking rates by an average of 2.4% per year. Countries with more stringent policy were able to reduce their smoking rate by an additional 0.3% per year. This represents a 15% additional reduction in the percentage of smokers in the more stringent countries. The result was the same for males and females aged 15 and over and for males aged 15 to 24. For younger females, the estimate is similar to other population groups but not statistically significant at conventional levels.

Box 2.1. **Anti-tobacco policies**

WHO description of seven anti-tobacco policies:

Protection from tobacco smoke: Describes the extent to which smoke-free environments have been created. Countries are grouped into one of five groups: 1) data not reported/not categorised; 2) up to two public places completely smoke-free; 3) 3-5 public places completely smoke-free; 4) 6-7 public places completely smoke-free; and 5) all public places completely smoke-free.

Offering help to quit: Classifies countries on the extent to which they provide and cover the cost of products and services to help smokers quit. Countries were categorised into one of five groups: The groupings for this indicator are: 1) data not reported; 2) none; 3) nicotine replacement therapy (NRT) and/or some cessation services (but neither cost-covered); 4) NRT and/or some cessation services (at least one of which is cost-covered); and 5) national quit line, and both NRT and some cessation services are cost-covered.

Health warnings: Measures the extent to which tobacco products carry health warnings about the dangers of smoking. Countries were classified into five groups: 1) data not reported; 2) warnings cover < 30% of pack surface; 3) warnings cover ≥ 30% but no pictures or pictograms; 4) warnings cover 31%-49% including pictures or pictograms; and 5) warnings cover = ≥ 50% including pictures or pictograms.

Bans on advertising: Measures the implementation status and describes the extent to which countries have regulated advertising of tobacco products. Countries were categorised into one of five groups: 1) data not reported; 2) complete or almost complete absence of ban; 3) ban on national TV, radio and print media only; 4) ban on national TV, radio and print media as well as on some but not all other forms of direct and/or indirect advertising; and 5) ban on all forms of direct and indirect advertising.

Tax: describes the amount of tax levied on the most commonly sold tobacco product as a percentage of the final retail price. Taxes assessed include excise tax, value added tax, import duty and any other taxes levied. Countries were categorised into one of five groups: 1) data not reported; 2) ≤ 25% of retail price is tax; 3) between 26–50% of retail price is tax; 4) between 51-75% of retail price is tax; and 5) > 75% of retail price is tax.

Mass media campaign: Assesses the intensiveness, effectiveness and recent nature of mass media campaigns. Countries were classified into five groups: 1) data not reported; 2) no campaign conducted recently with a duration of at least three weeks; 3) campaign conducted with 1-4 appropriate characteristics; 4) campaign conducted with 5-6 appropriate characteristics; and 5) campaign conducted with all appropriate characteristics. Characteristics of a high-quality campaign are 1) part of a tobacco control programme; 2) research was undertaken to understand the target audience; 3) materials were pre-tested and refined in line with campaign objectives; 4) advertising was purchased using either the organisation's own internal resources or an external media planner or agency; 5) journalists were informed to gain publicity or news coverage; 6) process evaluation was undertaken; and 7) outcome evaluation was implemented to assess the campaign impact.

National tobacco control programmes (NTCP): Determines whether a country has established a national agency for tobacco control as well as its functions and resources. Countries were categorised into one of four groups: 1) data not reported; 2) no national agency on tobacco control; 3) national agency with responsibility for tobacco control objectives with less than five staff; and 4) national agency with responsibility for tobacco control objectives and at least five staff.

Monitoring: Determines whether countries actively monitor smoking patterns amongst its population. Countries were grouped into one of four categories: 1) no known, recent or representative data; 2) recent representative data for either adults or youth; 3) recent representative data for both adults and youth; and 4) recent, representative and periodic data for both adults and youth.

Source: Global Health Observatory of the World Health Organization.

Table 2.3. **The relationship between tobacco policies and smoking rates**

	Age greater than 15			Age between 15 and 24		
	Population	Females	Males	Population	Males	Females
Change in smoking rates per year in less comprehensive countries	-0.024***	-0.02***	-0.025***	-0.03***	-0.024***	-0.032***
(SE)	(.001)	(.002)	(.001)	(.003)	(.004)	(.004)
Additional change in smoking rates in more comprehensive tobacco control countries	-0.003**	-0.005**	-0.002**	-0.005**	-0.006***	-0.002
(SE)	(.001)	(.002)	(.001)	(.002)	(.002)	(.002)
Observations	468	468	468	288	283	283

Note: Regression controls for country fixed and country-specific time trend effects. *** = p < 0.01; ** = p < 0.05; * = p < 0.1.

Source: OECD Health Statistics 2013 and Global Health Observatory of the World Health Organization, 2010.

The figures presented in Table 2.3 should only be interpreted as associations because it is not possible to determine exactly when these policies were introduced prior to 2008. Unfortunately, there is no further information on when countries introduced these various anti-tobacco policies. If such information existed, it would be feasible to produce estimates of the impact of individual policies (rather than the impact of overall policy), and be more definitive about the direct impact of policy on smoking rates.

In addition to the tobacco control policy information, WHO also collected information on the prices of the most commonly sold tobacco products. These data are used to examine the empirical relationship between tobacco pricing and smoking in OECD countries. In particular, the analysis focuses on the effect of price changes and smoking rates observed in 2008 and 2010 within countries.

Similar to the tobacco control policy models shown above, a fixed effects model was employed to estimate the effect of price-level changes on smoking rates for males and females, for those aged 15 and above, and for those aged 15 to 24. To present the results in percentage terms, the models were estimated in a log-log form. Prices were only observed in 2008 and 2010, which implies that there are a maximum of two observations per country. The model accounts for general changes in smoking trends by including a time effect.

Despite the short time span between the two price observation, tobacco price increased substantially between 2008 and 2010. When measured in USD PPP, the average price in OECD countries of the most commonly sold tobacco product was USD 5.46 in 2010 compared to USD 4.70 in 2008, representing a 16% increase. However, price level changes varied considerably across countries. In countries such as Finland, Mexico, Estonia and Italy, prices increased by less than 1.5% over the two-year period, whereas in countries such as Spain, Turkey, the United States and Australia, prices increased by more than 20%.

Table 2.4 presents the regression results for the price models. Across all population groups there is a negative relationship between price changes and tobacco smoking, indicating that higher prices can lead to a reduction in smoking rates. The coefficients for the price (log) variable can be interpreted as price elasticities, reflecting the percentage change relationship between prices and smoking rates. For example, for females aged 15 to 24, a 1% increase in the price of cigarettes is associated with a (approximately) 1.3% reduction in smoking rates. The results are significant for the younger smoking group,

particularly for younger females, suggesting that they are more sensitive to price changes. These results may also indicate that price rises have a more immediate impact on people taking up smoking.

Table 2.4. **The relationship between tobacco policies and smoking rates**

	Age greater than 15			Age between 15 and 24		
Dependent variable: % smoke daily	Population	Females	Males	Population	Females	Males
Price (log)	-0.178	-0.098	-0.194	-0.866**	-1.287**	-0.544
	(0.1336)	(0.2087)	(0.1489)	(.3647)	(0.473)	(0.3378)
Observations	48	48	48	34	34	34

Note: Regression controls for country fixed effects and time effects. *** = p<0.01; ** = p< 0.05; * = p<0.1.

Source: OECD Health Statistics 2013 and Global Health Observatory of the World Health Organization.2010.

The analysis above examines the impact of the strong anti-tobacco policy on the percentage of the population who smoke, however this is likely to underestimate the full effect of such initiatives. Policies will also have an impact on passive smoking. For example, the ban to smoke in public places is likely to reduce the exposure of non-smokers to harmful tobacco smoke. In fact, numerous evaluations have linked the ban to smoke in public places with a reduction in heart-attack admissions among non-smokers and smokers alike (Pell et al., 2008).

It should be noted that the period over which this analysis took place coincided with the arrival of the 2008 global financial crisis, which may impact on the generalisability of the results. It is not straight forward to predict how individuals respond in terms of their risky behaviours when faced with loss of income or greater financial stress. Increased stress may arise due to greater employment uncertainty which, in turn, induces depression or anxiety which, in turn, may invoke some people to engage in more risky behaviours. For others, the loss of income may induce them to look for ways to reduce household expenditures, including reducing the consumption of risky goods such as tobacco. Empirically, a systematic review has found that the effect of unemployment on smoking is still not clear (Henkel, 2011). However, unemployment is linked to decreasing levels of tobacco consumption among smokers (Ruhm, 2005). In Iceland, smoking prevalence fell significantly after the financial crisis, with evidence that income falls and price changes were among the most important reasons for the fall (McClure et al., 2012; Ásgeirsdóttir et al., 2013).

Since the 2010 WHO survey, a number of countries have further strengthened their anti-tobacco policies through a variety of means. Australia, for example, has set a target to cut smoking rates from around 15% of the population to 10% by 2018. As part of its comprehensive anti-tobacco plan, Australia has introduced a number of innovative programmes and regulations, including its plain-packaging laws. Under this law, logos and branding on cigarette packages have been banned. All cigarettes and tobacco products must be sold in plain olive green packets without branding. The packets carry graphic health warnings and the laws took effect as of December 2012 (see Figure 2.6 for examples). Plain packaging aims to remove a key remaining means for industry to promote its products to current and potential consumers (Freeman et al., 2008). The legislation withstood serious industry opposition and was upheld in the High Court of Australia. While it is still early days for measuring the impact of the legislation, studies are showing some positive signs. The implementation of the legislation coincided with a 78% rise in the number of calls to

the national "quit line", which was equivalent to the increase in calls when graphic health warnings were introduced in 2006 (Young et al., 2014). Public support for the Australia's anti-tobacco policies is also high, with 75% of survey respondents supporting or feeling neutral about plain packaging and only one in three smokers opposing the measure (Rosenberg et al., 2012). Furthermore, the decline in the proportion of daily smokers appears to have accelerated in period during which plain packaging was introduced in Australia (AIHW, 2014). While further evidence about the effectiveness of plain packaging is still being gathered, these initiatives may provide the next set of policy instruments for governments to help further reduce the harmful impact of smoking in society.

Figure 2.6. **Examples of plain cigarette packaging in Australia**

Source: © Commonwealth of Australia.

Comprehensive programmes to reduce obesity represent good investments

As part of its Economics of Prevention programme of work, the OECD undertook a major study on obesity. The results of this study were reported in the 2010 OECD publication *Obesity and the Economics of Prevention: Fit not Fat*. This section draws on this work, the OECD's Obesity Update published 2012, as well as the most recent data.

On the basis of its analysis, the OECD has consistently called for strong government action in obesity prevention. Its research shows that programmes and supportive regulations to improve diets and increase physical activity provide affordable and cost-effective solutions to the ever-increasing burden of obesity. The results from a micro-simulation model suggest that investments in a range of population-based programmes have the potential to save hundreds of thousands of deaths from chronic diseases every year in OECD countries. The cost and effect of a comprehensive obesity prevention strategy was modelled as part of the micro-simulation exercise. This strategy includes fiscal measures, food advertising restrictions to children, and food labelling, as well as a mass media campaign, worksite and school-based interventions and intensive counselling of high-risk individuals in the primary care setting.

According to the analysis, primary care can play an important role in tackling obesity. An intervention which targets high-risk individuals and is delivered by primary care physicians and dieticians has been shown to be effective. Through intensive counselling

and provision of information to patients, a primary care intervention has been shown to modify a number of risk factors; for example, it has led to a reduction in total energy intake from fats, a fall in BMI, and lower blood cholesterol and systolic blood pressure. While the primary care intervention was the mostly costly intervention, it was also the most effective (when compared to the other interventions) in the countries for which the analysis was undertaken. The analysis for the primary care intervention is sensitive to assumptions made about programme participation (by both doctors and patients) and it is likely that the best results will be obtained in countries with strong primary care systems, or where participation could be encouraged through incentives.

The results of the OECD micro-simulation exercise show that, on average, over 1 000 life years per million population could be saved in countries such as Japan, Italy, England and Canada, and around 500 life years in Mexico. The cost of delivering the comprehensive strategy ranges from USD 12 (Japan) to USD 24 (Canada) per capita per year. However, over the longer term, the strategy actually becomes cost saving as the impact takes effect and reduces downstream costs through fewer hospitalisations and other expensive medical care needs.

While such comprehensive strategies have the potential to improve health outcomes and reduce costs, they are not easily implemented. There is a complex array of agents that have a stake in these policies. Industry may perceive some regulations as threatening the bottom line, if the regulations lead to increased cost or falls in market shares. As noted previously, there are a number of examples of policies that have caused considerable conflict between stakeholders; and as a result strategies have become lost in claims and counter claims as well as judgements on individual rights and freedoms. The OECD has therefore called for co-operation among multiple stakeholders, including government and industry. The most promising policies are those that align the aims of government with the objectives of industry.

Obesity and physical activity in adults and kids: Recent policies and evidence

Government policy can play an active role in encouraging healthy behaviours. Policy actions vary in the degree of interference, ranging from fairly light-touch actions that provide individuals with more choice, to more heavy handed approaches which involve banning products or enforcing certain types of behaviours. The type of role that governments chose to take will, to some degree, depend on the level of interference in individual choices that will be tolerated by the public and can be justified. In the context of obesity prevention, governments can direct their actions through at least four different types of interventions (Sassi, 2010):

- *Increasing choices for healthy lifestyles*. Policy can play a role in expanding the range of choices considered beneficial for healthy lifestyles. This could include actions to expand the range of choices available, or to reduce the prices of products and services that encourage healthy choices. Direct investments in active transportation services such as bicycle rental schemes, or subsidies to make public transportation more convenient and less expensive, are examples of these types of interventions.
- *Inform and educate population about the benefits of healthy lifestyles*. This type of intervention aims to influence personal preferences and thereby influence un/healthy choices through education (especially among children) and provision of information to persuade adults to adopt virtuous behaviours.

- *Raising prices on unhealthy choices*. Governments can also influence choice through fiscal measures that aim to create financial disincentives for unhealthy behaviours. It can involve the use of indirect taxes and other levies charged on the consumption of unhealthy foods or drinks.
- *Banning unhealthy behaviours*. These actions result in the complete ban of one or more choices. A ban can selectively hinder certain choices, with the aim of limiting the overall consumption of a commodity or incidence of a given behaviour.

A 2007/08 OECD/EU survey sought information from national governments on the type of policies and initiatives being used across countries to tackle unhealthy diets and sedentary lifestyles. The results of the survey revealed that governments have focused more of their actions on diets rather than on active lifestyles; although action relating to the latter is the responsibility of regional or municipal levels of government in many countries. The survey also revealed that most actions were focused on increasing choice and delivering information and education programmes to influence preference. At the time the survey was conducted in 2007 and 2008, no country stated that they used fiscal measures to raise the prices of unhealthy products. Since that time, a considerable number of countries have implemented a range of taxation measures designed to raise the prices of foods that are high in fat, sugar or salt (OECD, 2012).

Since 2010, several OECD countries introduced taxes on foods and non-alcoholic beverages deemed potentially unhealthy (Sassi et al., 2013). These taxes have been part of national public health efforts to reduce obesity; but in a time of budgetary pressures, these taxes can also generate important revenues. Examples of countries that have introduced fiscal measures include:

- *Denmark* introduced a "fat tax" in 2011. Foods containing more than 2.3% saturated fats were taxed, adding around 16 kroner (EUR 2.15) per kilogram of saturated fat. Tax revenues were expected to be over EUR 200 million per year.
- *Hungary* introduced a tax on selected manufactured foods in 2011 with high sugar, salt or caffeine content. This only affects products that have healthier alternatives. The Hungarian Government is reportedly expecting to raise in excess of EUR 70 million per year from the tax.
- *Finland* introduced a tax on confectionery products in 2011 which is set at EUR 0.75 per kilogram of product. Existing excise taxes on soft drinks were raised from 4.5 cents to 7.5 cents per litre.
- *France* introduced a tax on soft drinks in 2012, including drinks with added sugars and drinks with artificial sweeteners. The tax is set at EUR 0.072 per litre. The tax is payable by manufacturers established in France and importers and is expected to generate revenues in the region of EUR 280 million per year.
- *Mexico*, in 2014, implemented a new tax set at 10% on sugar-sweetened beverages (SSB) and 8% on processed food that contains more than 275 calories per 100 g. The effect of the tax will put one peso (EUR 0.05) on a litre of sugary drinks. The tax is expected to raise 15 billion peso (EUR 0.82 billion) and is earmarked for health programmes and increased access to drinking water in schools.

The introduction of these taxes has not been without controversy. In fact, the "fat tax" was rescinded in Denmark at the start 2013 following widespread critique. In particular, there was public concern over 1) the increase in prices, which in some instances was higher than the amount of the new tax; 2) the impact on lower socio-economic groups who incur

a higher burden of the tax; and 3) the much publicised cross-border shopping in order to evade the tax.

Other attempts at fiscal measures and regulating food and beverages have been contested. The introduction of the Mexican tax was met with an extensive public campaign both in favour of and opposed to the tax, and was eventually set at 10% rather than the 20% rate advocated by public health groups. In New York, the Health Board's attempt to limit the size of beverages that could be sold by restaurants and many other types of food outlets have been caught up in legal challenges and appeals. Nevertheless, fiscal measures can have an important role in the policy armoury against obesity. But they can also have clear effects on consumer choice as well as impact some aspects of the wider economy. This is why countries that are considering such fiscal measures need to consider these wider impacts and carefully design tax measures that can minimise any potential negative impacts (Sassi, 2013).

Aside from developments on fiscal measures, a number of countries have implemented programmes aimed at improving lifestyles, including increasing physical activity. A number of governments have taken further actions to fight obesity through health promotion efforts. Nationally co-ordinated programmes have been launched in countries such as the United States (Let's Move), United Kingdom (Change4Life), Switzerland (Actionsanté), and others (OECD, 2012). There is a trend in these programmes to include multi-stakeholder frameworks, involving business and civil society actors in the development of public health policies. These comprehensive programmes target obesity through an extensive variety of measures that include mass education campaigns as well as more targeted interventions aimed at high-risk individuals. Improving the level of physical activity, especially among children, has also been a key feature of these programmes. For example, since 2010 when the Let's Move campaign was launched by First Lady Michelle Obama the programme has worked Sports associations to build or refurbish sporting facilities across the country and provide beginner athletic programmes for free or low costs to actively participate in a range of sports. Institutions such as museums and gardens have pledged to offer active exhibits and healthy food choices. New resources have been devoted by local and national associations to assist local elected officials advance the goals of "Let's Move!" in their communities and street-closings are taking place to increase safe places kids and families to run, walk, bike, or play outside freely without traffic (see: *www.letsmove.gov*). Evaluations of the effectiveness of such multi-stakeholder initiatives are only beginning to emerge and should be monitored closely for their potential effect on physical activity levels and obesity.

Lowering salt consumption is achievable

There is a clear link between increased levels of sodium (salt) consumption and high blood pressure. Studies have also shown an association between salt and cardiovascular disease, although the evidence is somewhat more ambiguous (WHO, 2012). The World Health Organization recommends that adults consume less than five grams of salt a day. In most countries, average salt consumption is considerably higher than the recommended level (Brown et al., 2009), and well above the minimum physiological levels required. In the United States, for example, average salt intake has been estimated to be in excess of 10 grams a day in males and 7 grams for females (Bibbins-Domingo et al., 2010).

Reducing salt consumption can have clear benefits on cardiovascular outcomes. Modelling studies have shown that, in the United States alone, a modest reduction of three grams in daily salt can reduce the annual number strokes by 32 000 to 66 000, and myocardial infarction by 54 000 to 99 000 (Bibbins-Domingo et al., 2010). A controlled trial in Japan showed that a moderate-intensity dietary counselling intervention achieved significant dietary changes, including salt consumption, amongst subjects, which resulted in a significant decrease in systolic blood pressure (Takahashi et al., 2006).

Many countries have used a variety of policy instruments to reduce salt intake amongst their citizens. These include public information, food labelling, taxation, regulation and marketing controls and food reformulation. Many countries have successfully worked with food industries to set new salt targets for reformulating existing processed food (Cappuccio et al., 2011). In Canada, a multi-pronged approach is used which includes a multi-media campaign to enable consumers to make informed food choices; setting guidance for industry to reduce salt in processed foods; mandatory labelling; and restrictions on nutritional claims. In addition, Canada's Heart and Stroke Foundation certifies foods with a tick of approval if they can meet strict nutrient (including salt) criteria. It has been estimated that between 2004 and 2008, 150 products saw a reduction in salt content, resulting in a total drop in salt consumption of 800 000 kg.

As part its programme to reduce obesity and improve diets, the UK Government has implemented the "The Responsibility Deal" to encourage businesses and organisations to make it easier for consumers and staff members to make healthier choices. Organisations can sign up and pledge to take actions to 1) reduce ingredients that can be harmful, such as salt and fat; 2) encourage people to eat more fruit and vegetables; 3) put calorie information on menus; 4) help people to eat fewer calories by, for example, reducing portion size or changing the recipe of a product (UK DOH, 2014). The "Responsibility Deal" is part of the government's programme "Healthy Lives, Healthy People" which was developed following the release of the Foresight Report. This report recognises the wider role and responsibilities of civil society in reducing obesity. By 2012, a number of organisations had signed a pledge to achieve a number of programme goals. For example, over 80 organisations have committed to the salt targets, which aim to collectively reduce salt consumption by an additional 15% compared to 2010 targets. Such voluntary initiatives provide a more co-operative framework for achieving objectives, but it is not yet clear if they are effective in terms of improving diets in populations (DOH, 2014).

There have been clear wins in the battle to reduce salt. In Finland, salt intake has fallen from over 14 to less than 9 grams per day over a 30-year period (Karppanen et al., 2006)). In the United Kingdom, daily average salt intake fell by around 14% between 2003 and 2007 (Millett, 2012). A cost-effectiveness analysis of the UK salt reduction campaigns revealed that, by 2008, the campaigns had cost GBP 15 million and achieved a 0.9 g/day reduction in salt intake, which led to about 6 000 fewer deaths from cardiovascular disease a year. This resulted in savings to the UK economy of around GBP 1.5 billion a year (NICE, 2010). These measures provide confidence that multifaceted and reinforcing approaches can have a real impact on consumption levels and health outcomes, as well as have positive economic impact (He et al., 2013).

Lifestyle patterns across OECD countries vary considerably

Smoking in OECD countries: Most are doing well but some could do better

Despite the substantial improvements in the percentage of people who smoke, there are significant differences in overall smoking rates across countries and in trends over time. Table 2.5 presents information on smoking rates and trends by country and gender. Countries with smoking rates in the highest third of OECD countries are marked dark grey, those in the middle are marked grey, and those countries in the bottom third are marked light grey. On average, 16% of females and 26% of males smoked in OECD countries in 2011 (or latest year). To be in the top third of countries (dark grey), the percentage of females and males who smoked had to be higher than 18% and 29%, respectively. To be among the lowest third (light grey), the percentage of female and male smokers had to be less than 14% and 21%, respectively.

In terms of trends, the average annual decrease in the percentage of male smokers was 2.7%. Over the last ten years, male smoking rates have fallen in almost all countries, with the exception of Korea, where the percentage of smokers has been increasing by 1% per year. Countries where the decline in smoking rates among males was more than -2.2% belonged to the top third (dark grey) of OECD country trends, whereas countries that exhibited falls of less than -3% were in the bottom third (light grey) of trends.

Females exhibited more varied results across countries. Here, the average annual decrease in the percentage of smokers was 1.7%. Over the last ten years, female smoking rates fell in 24 countries but increased in the Czech Republic, Greece, Korea and Portugal, although no recent Portuguese data are available in OECD Health Statistics. Countries that showed a fall of less than -0.75% per year belonged to the worst third (dark grey) of OECD country trends, whereas countries with reductions in excess of -2.9% per year were in the best performing third (light grey) of country trends.

The various experiences suggest that further declines in smoking rates are feasible. Countries such as Australia, Canada, Sweden, the United Kingdom, and the United States provide evidence that those with more comprehensive and stricter tobacco control policies tend to not only have lower smoking rates overall, but to also build on that success over time. These experiences should encourage other countries that such successes can be replicated by introducing further tobacco control policies, as well as tightening and enforcing existing policies.

Overweight and obesity patterns: Worrying overall trends but some positive signs in more recent years

Despite the overall rising trends in the percentage of people who are either overweight or obese, there are considerable differences between countries and genders. To be ranked in the worst third of countries (dark grey), the percentage who were overweight or obese had to be higher than 48% for females and for 61.5% for males. To belong to the best third, the percentage had to be less than 41% and 55% for females and males, respectively.

In terms of trends, countries with annual rates of growth higher than 0.9% for females and 1.3% for males were in the worst third (dark grey) of OECD peers. To belong to the best third, countries had to exhibit growth rates of less than 0.5% and 0.7% for females and males, respectively. Over the ten-year observation period, only Ireland and Japan have managed to make a small reduction in the percentage of women who are overweight or

Table 2.5. **Smoking among males and females: Country rankings and trends**

	Female smoking daily		Male smoking daily	
	Rank	Trend	Rank	Trend
Australia	2010	2001-2010	2010	2001-2010
Austria	2006	-	2006	-
Belgium	2008	2001-2008	2008	2001-2008
Canada	2011	2001-2012	2011	2001-2012
Chile	2009	-	2009	-
Czech Republic	2011	2003-2012	2011	2003-2012
Denmark	2010	2000-2010	2010	2000-2010
Estonia	2011	2000-2010	2011	2000-2010
Finland	2011	2000-2012	2011	2000-2012
France	2010	2002-2010	2010	2002-2010
Germany	2009	1999-2009	2009	1999-2009
Greece	2010	2006-2010	2010	2006-2010
Hungary	2009	2000-2009	2009	2000-2009
Iceland	2011	2000-2013	2011	2000-2013
Ireland	2007	-	2007	-
Israel	2010	2002-2013	2010	2002-2013
Italy	2011	2000-2013	2011	2000-2013
Japan	2011	2000-2012	2011	2000-2012
Korea	2011	2001-2012	2011	2001-2012
Luxembourg	2011	2001-2013	2011	2001-2013
Mexico	2012	2000-2012	2012	2000-2012
Netherlands	2011	2000-2012	2011	2000-2012
New Zealand	2012	2007-2012	2012	2007-2012
Norway	2011	2000-2012	2011	2000-2012
Poland	2009	2004-2009	2009	2004-2009
Portugal	2006	1999-2006	2006	1999-2006
Slovak Republic	2009	-	2009	-
Slovenia	2007	-	2007	-
Spain	2011	2001-2011	2011	2001-2011
Sweden	2011	2002-2011	2011	2002-2011
Switzerland	2012	2002-2012	2012	2002-2012
Turkey	2012	2008-2012	2012	2008-2012
United Kingdom	2011	2000-2011	2011	2000-2011
United States	2011	2000-2012	2011	2000-2012

Best third	Middle third	Worst third

Rank females: Dark grey = smoking rates > 18%; Grey = between 18% and 14%; Light grey = less than 14%. **Trend females**: Dark grey = average annual percentage decline > -0.75%; Grey = average annual percentage between -0.75% and -2.9%; Light grey = average annual percentage < -2.9%; **Rank males**: Dark grey = smoking rates > 29%; Grey = between 29% and 21%; Light grey = less than 21%. **Trend males**: Dark grey = average annual percentage decline > -2.2%; Grey = average annual percentage between -2.2% and -3.0%; Light grey = average annual percentage < -3.0%.

Source: OECD Health Statistics 2013, http://dx.doi.org/10.1787/health-data-en.

obese (Table 2.6). It should be noted that the Irish data for this calculation date back to 2007. No country has been able to cut the number of males who are overweight or obese over the ten-year period. That said, there are some tentative signs that some countries have been able to stabilise or reduce the rate of increase for the most recent observations. The percentage of females who are overweight or obese has fallen in the most recent years in Estonia, Japan and Luxembourg. For males, the most recent data reveal a slight decline in countries such as Finland, Japan, Luxembourg, New Zealand and the United States.

Worrying patterns of smoking and obesity rates in some countries

Combining the information about smoking with information about overweight and obesity rates reveals that some countries are performing poorly for both indicators.

Table 2.6. **Overweight and obesity rates among males and females: Country rankings and trends**

	Females		Males	
	Rank	Trend	Rank	Trend
Australia	2011	2007-2011	2011	2007-2011
Austria	2006	-	2006	-
Belgium	2008	2001-2008	2008	2001-2008
Canada	2011	2001-2012	2011	2001-2012
Chile	2009	2003-2009	2009	2003-2009
Czech Republic	2010	2000-2010	2010	2000-2010
Denmark	2010	2000-2010	2010	2000-2010
Estonia	2012	2000-2012	2012	2000-2012
Finland	2011	2000-2012	2011	2000-2012
France	2012	2000-2012	2012	2000-2012
Germany	2009	1999-2009	2009	1999-2009
Greece	2008	2006-2008	2008	2006-2008
Hungary	2009	2000-2009	2009	2000-2009
Iceland	2010	-	2010	-
Ireland	2007	2002-2007	2007	2002-2007
Israel	2010	2002-2013	2010	2002-2013
Italy	2011	2001-2012	2011	2001-2012
Japan	2011	2000-2012	2011	2000-2012
Korea	2011	2001-2012	2011	2001-2012
Luxembourg	2011	2000-2013	2011	2000-2013
Mexico	2012	2000-2012	2012	2000-2012
Netherlands	2011	2000-2012	2011	2000-2012
New Zealand	2012	2003-2012	2012	2003-2012
Norway	2008	2002-2008	2008	2002-2008
Poland	2009	2004-2009	2009	2004-2009
Portugal	2006	1999-2006	2006	1999-2006
Slovak Republic	2008	-	2008	-
Slovenia	2012	2007-2012	2012	2007-2012
Spain	2011	2001-2011	2011	2001-2011
Sweden	2011	2000-2011	2011	2000-2011
Switzerland	2012	2002-2012	2012	2002-2012
Turkey	2012	2008-2012	2012	2008-2012
United Kingdom	2011	2000-2012	2011	2000-2012
United States	2012	2000-2012	2012	2000-2012

Best third	Middle third	Worst third

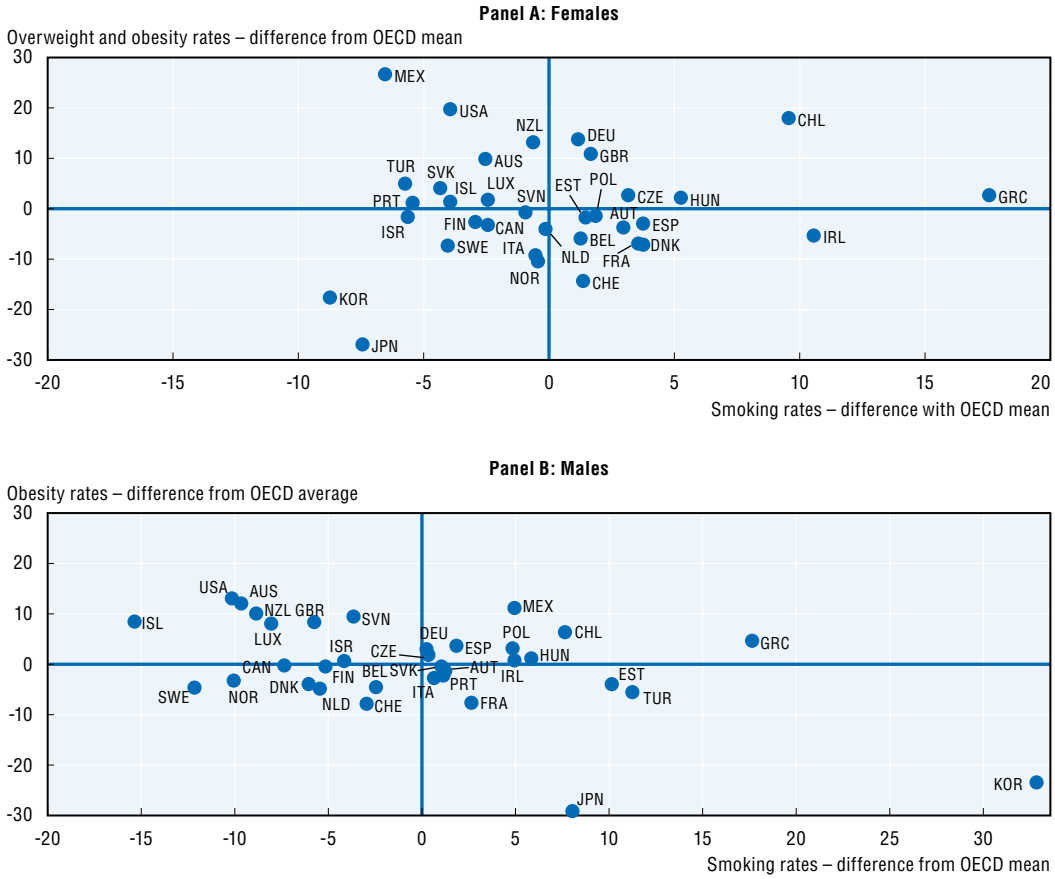
Rank females: Dark grey= overweight and obesity rates > 48%; Grey = between 48% and 41%; Light grey = less than 41%. **Trend females**: Dark grey = average annual percentage > 0.9%; Grey = average annual percentage between 0.5% and 0.9%; Light grey = average annual percentage < 0.5%; **Rank males**: Dark grey = overweight and obesity rates > 61.5%; Grey = between 61.5% and 55%; Light grey = less than 55%. **Trend males**: Dark grey = average annual percentage > 1.3%; Grey = average annual percentage between 0.7% and 1.3%; Light grey = average annual percentage < 0.7%.

Source: OECD Health Statistics 2013, http://dx.doi.org/10.1787/health-data-en.

Figure 2.7 compares each country's data with the OECD average for 2011 (or latest year). The intercept of the horizontal and vertical axes marks the OECD average for both smoking and weight. Countries to the right of the vertical axis record higher than OECD average smoking rates and those to the left have lower than average rates. Countries above the horizontal line have a higher percentage of people being overweight or obese compared to the OECD average, whereas countries below the line have lower than average rates. The figure illustrates that some countries have higher than average smoking rates and a higher than average percentage of people being overweight or obese (north-east quadrant). Countries that find themselves in the south-west quadrant have better than average lifestyles.

There are five countries that are consistently placed in in the north-east (higher than average) quadrant for both females and males (Chile, the Czech Republic, Germany, Greece and Hungary) and there are five countries that are consistently in the south-west quadrant (Canada, Finland, the Netherlands, Norway and Sweden). The figure also reveals substantial gender gaps in lifestyle behaviours, particularly in smoking. Female smoking rates in countries like Mexico, Japan and Korea are more than 5 percentage points below the OECD average, but for men, smoking rates are well above the OECD average in these countries.

Figure 2.7. **Countries compared to the OECD average in smoking and overweight and obesity rates**



Source: OECD Health Statistics 2013, http://dx.doi.org/10.1787/health-data-en.

Summary

Unhealthy lifestyles are an important determinant of the burden of cardiovascular disease and diabetes across OECD countries. Smoking doubles the ten-year risk of a person experiencing a CVD event and obesity doubles the chances of diabetes and raises the likelihood of CVD by 30 to 40%. Unhealthy lifestyles also remain an important driver of cross-country variation in CVD and diabetes outcomes.

Countries have taken strong actions to reduce smoking rates, and these actions have born success, with smoking rates coming down in almost all countries over the last ten years. Nevertheless, there remains considerable variation in smoking patterns across OECD countries, and the potential is there to make even further gains in some countries. More comprehensive policies and stricter enforcement can deliver better outcomes.

The success achieved in reducing the percentage of people who smoke has not been replicated in obesity. The percentage of people who are either overweight or obese has continued to climb over the last ten years. OECD analysis indicates that a comprehensive strategy to reduce obesity can not only be effective but also highly cost-effective. However, strong policy action has been missing in many countries or has met substantial opposition from various stakeholders. That said, many countries have introduced (or have considered introducing) so-called "fat taxes". These fiscal policy instruments show some promise in terms of reducing the overall consumption of unhealthy foods, but their introduction has met widespread critique in some countries.

Governments must continue to play an active role in delivering policies that encourage individuals to make healthier choices. Governments have a range of policy instruments available to them which include the direct investment in preventive services, regulation and information, as well as policies that make it easier for individuals to choose healthy options instead of unhealthy ones. However, evidence suggests that such policies may deliver better outcomes if they are part of a comprehensive strategy that includes both population-wide measures and measures for high-risk individuals.

Note

1. Please note, that since 2010 many countries have made substantial modifications to their anti-tobacco policies but for the purposes of this analysis, the 2010 results are most appropriate as it covers the relevant observation period.

References

AIHW – Australia Institute of Health and Welfare (2014), "National Drug Strategy Household Survey Detailed Report: 2013", *Drug Statistics Series No. 28*, Cat. No. PHE 183, Canberra.

Ásgeirsdóttir, T.L. et al. (2013), "Was the Economic Crisis of 2008 Good for Icelanders? Impact on Health Behaviors", *Economics & Human Biology*.

Bibbins-Domingo, K. et al. (2010), "Projected Effect of Dietary Salt Reductions on Future Cardiovascular Disease", *New England Journal of Medicine*, Vol. 362, No. 7, pp. 590-599.

Brown, I.J. et al. (2009), "Salt Intakes Around the World: Implications for Public Health", *International Journal of Epidemiology*, Vol. 38, No. 3, pp. 791-813.

Cappuccio, F.P. et al. (2011), "Policy Options to Reduce Population Salt Intake", *British Medical Journal*, Vol. 343, London, p. 4995.

D'Agostino, R.B. et al. (2008), "General Cardiovascular Risk Profile for Use in Primary Care: The Framingham Heart Study", *Circulation*, Vol. 117, No. 6, pp. 743-753.

Freeman, B., S. Chapman and M. Rimmer (2008), "The Case for the Plain Packaging of Tobacco Products", *Addiction*, Vol. 103, No. 4, pp. 580-590.

He, F.J., J. Li and G.A. MacGregor (2013), "Effect of Longer Term Modest Salt Reduction on Blood Pressure: Cochrane Systematic Review and Meta-analysis of Randomised Trials", *British Medical Journal*, Vol. 346, London.

Henkel, D. (2011), "Unemployment and Substance Use: A Review of the Literature (1990-2010)", *Current Drug Abuse Reviews*, Vol. 4, No. 1, p. 4.

IHME – Institute for Health Metrics and Evaluation (2013), "The Global Burden of Disease: Generating Evidence, Guiding Policy", Institute for Health Metrics and Evaluation, Seattle.

Karppanen, H. and E. Mervaala (2006), "Sodium Intake and Hypertension", *Progress in Cardiovascular Diseases*, Vol. 49, No. 2, pp. 59-75.

Lim, S.S. et al. (2013), "A Comparative Risk Assessment of Burden of Disease and Injury Attributable to 67 Risk Factors and Risk Factor Clusters in 21 Regions, 1990-2010: A Systematic Analysis for the Global Burden of Disease Study 2010", *The Lancet*, Vol. 380, No. 9859, pp. 2224-2260.

Lindström, J. and J. Tuomilehto (2003), "The Diabetes Risk Score: A Practical Tool to Predict Type 2 Diabetes Risk", *Diabetes Care*, Vol. 26, No. 3, pp. 725-731.

Lundberg, M. and G. Shapirade (2014), "Determinants of Risky Behavior", *Risking Your Health: Causes, Consequences, and Interventions to Prevent Risky Behaviors*, World Bank, Washington, DC.

McClure, C.B. et al. (2012), "Economic Crisis and Smoking Behaviour: Prospective Cohort Study in Iceland", *British Medical Journal*, open, Vol. 2, No. 5.

Millett, C. et al. (2012), "Impacts of a National Strategy to Reduce Population Salt Intake in England: Serial Cross-sectional Study", *PloS one*, Vol. 7, No. 1, Cambridge, e29836.

NICE – National Institute for Health and Clinical Excellence (2010), "Prevention of Cardiovascular Disease at Population Level", *NICE Public Health Guidance*, Vol. 25, England.

OECD (2014a), "Obesity Update", OECD Publishing, Paris, *www.oecd.org/els/health-systems/Obesity-Update-2014.pdf*.

OECD (2012), "Obesity Update", OECD Publishing, Paris, *www.oecd.org/health/49716427.pdf*.

Pell, J.P. et al. (2008), "Smoke-free Legislation and Hospitalizations for Acute Coronary Syndrome", *New England Journal of Medicine*, Vol. 359, No. 5, pp. 482-491.

Rosenberg, M. et al. (2012), "Public Support for Tobacco Control Policy Extensions in Western Australia: A Cross-sectional Study", *British Medical Journal*, open, Vol. 2, No. 2.

Ruhm, C.J. (2005), "Healthy Living in Hard Times", *Journal of Health Economics*, Vol. 24, No. 2, pp. 341-363.

Sassi, F. (2010), *Obesity and the Economics of Prevention: Fit Not Fat*, OECD Publishing, Paris, *http://dx.doi.org/10.1787/9789264084865-en*.

Sassi, F., A. Belloni and C. Capobianco (2013), "The role of fiscal policies in health promotion", OECD Health Working Papers No. 66, OECD Publishing, Paris.

Takahashi, Y. et al. (2006), "Blood Pressure Change in a Free-living Population Based Dietary Modification Study in Japan", *Journal of Hypertension*, Vol. 24, pp. 451-458.

UK DOH – UK Department of Health (2014), *https://responsibilitydeal.dh.gov.uk/*.

WHO – World Health Organization (2012), *Guideline: Sodium Intake for Adults and Children*, World Health Organization, Geneva.

WHO (2011), "Global Atlas on Cardiovascular Disease Prevention and Control", S. Mendis, P. Puska and B. Norrving (eds.), World Health Organization, Geneva.

WHO (2010), "Global Health Observatory of the WHO", *www.who.int/gho/en/*.

Young, J.M. et al. (2014), "Association Between Tobacco Plain Packaging and Quitline Calls: A Population-based, Interrupted Time-series Analysis", *Medical Journal of Australia*, Vol. 200, No. 1, pp. 29-32.

ANNEX 2.A1

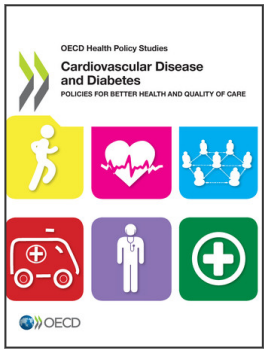
Tobacco control policies

Table 2.A1.1. **Tobacco policy categories by country: Higher scores indicate stricter policy**

	Protect	Help quit	Warn	Tax	Media campaigns	NTCP	Monitor
Australia	5	5	5	4	4	4	4
Austria	2	4	3	4	2	2	4
Belgium	1	5	4	5	2	3	4
Canada	5	5	4	4	2	4	4
Chile	3	3	5	5	2	3	2
Czech Republic	3	4	3	5	4	2	4
Denmark	2	4	3	4	5	3	4
Estonia	2	3	3	5	1	3	4
Finland	2	4	3	5	4	3	4
France	1	5	4	5	3	3	4
Germany	2	4	3	4	4	3	4
Greece	5	3	3	5	5	2	2
Hungary	2	4	3	5	3	3	2
Iceland	3	3	3	4	2	3	4
Ireland	5	5	3	5	5	4	4
Israel	2	5	3	5	4	1	4
Italy	1	4	3	5	4	2	4
Japan	2	4	3	4	2	4	4
Korea	2	5	3	4	1	3	4
Latvia	3	4	4	5	2	4	4
Luxembourg	3	4	3	4	1	1	4
Mexico	1	4	5	4	2	4	2
Netherlands	3	4	3	4	5	3	4
New Zealand	5	5	5	4	3	4	4
Norway	3	4	4	4	2	4	4
Poland	2	4	3	5	4	2	4
Portugal	3	4	3	5	2	3	4
Singapore	3	5	5	4	5	4	2
Slovak Republic	4	4	3	5	2	3	2
Slovenia	3	4	3	5	2	3	4
Spain	5	4	4	5	2	3	4
Sweden	2	4	3	4	5	3	4
Switzerland	2	4	3	4	4	4	4
Turkey	5	5	4	5	5	4	4
United Kingdom	5	5	4	5	5	3	4
United States	2	5	5	3	2	3	4

Note: See Box 2.1 for definitions.

Source: Global Health Observatory of the World Health Organization, 2010.



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