THE CASE FOR INVESTING IN PUBLIC HEALTH

A public health summary report for EPHO 8

Assuring sustainable organizational structures and financing
THE CASE FOR INVESTING IN PUBLIC HEALTH

The strengthening public health services and capacity
A key pillar of the European regional health policy framework Health 2020

By: Stephen Dorey, Lin Yao and Joanna Nurse

A public health summary report for EPHO 8
ABSTRACT
The economic crisis has led to increased demand and reduced resources for health sectors. This should be addressed, as the costs of inaction are significant. Public health can be part of the solution to this challenge. The evidence shows that prevention can be cost-effective and save money. This public health summary demonstrates that interventions focusing on enhancing social and environmental determinants, and interventions aimed at affecting health behaviour – such as improving mental health and preventing violence – can be cost-saving for the health and other sectors. Disease prevention interventions such as vaccinations can also be cost-saving, while screening programmes are largely cost-effective. Population-level approaches cost on average five times less than individual interventions. This public good can be financed by earmarked funding, either from governments or through health insurance companies. An estimated 3% of health sector budgets in Europe is currently spent on prevention. A recent WHO study estimates how much further investment is required. This report also investigates available tools and mechanisms to finance public health.

Keywords
DELIVERY OF HEALTH CARE – ORGANIZATION AND ADMINISTRATION – ECONOMICS
FINANCING, HEALTH
HEALTH CARE COSTS
HEALTH MANAGEMENT AND PLANNING
HEALTH POLICY
PUBLIC HEALTH – ECONOMICS

Address requests about publications of the WHO Regional Office for Europe to:
Publications
WHO Regional Office for Europe
UN City, Marmorvej 51
DK-2100 Copenhagen Ø, Denmark

Alternatively, complete an online request form for documentation, health information, or for permission to quote or translate, on the Regional Office web site (http://www.euro.who.int/pubrequest).

© World Health Organization 2013
All rights reserved. The Regional Office for Europe of the World Health Organization welcomes requests for permission to reproduce or translate its publications, in part or in full.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers’ products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either express or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use. The views expressed by authors, editors, or expert groups do not necessarily represent the decisions or the stated policy of the World Health Organization.
Acknowledgments

This public health summary report was prepared by Stephen Dorey, Lin Yao and Jo Nurse, Public Health Services, Division of Health Systems and Public Health, WHO Regional Office for Europe. The authors wish to thank Hans Kluge, Director of the Division of Health Systems and Public Health, and the Barcelona Office for Health Systems Strengthening of the WHO Regional Office for Europe for their contributions. Particular thanks are due for the valuable contributions from the United Kingdom’s Faculty of Public Health and Fiona Adshead, former Deputy Chief Medical Officer of the United Kingdom. This work builds upon a number of economic reviews, including the work of the European Observatory on Health Systems and Policies, the Organisation for Economic Co-operation and Development, the London School of Economics and Martin McKee at the London School of Hygiene and Tropical Medicine. Special thanks go to EuroHealthNet, and for case studies to Darina Sedláková from the WHO Country Office, Slovakia, and Szabolcs Szigeti, Peter Gaal and Zsófia Pusztai from the WHO Country Office, Hungary.

About this report

Target audience
The target audience includes policy-makers and public health planners.

Scope
Public health is defined as ‘the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society’ (1, 2). It acts through the three core public health services of health protection, disease prevention and health promotion in order to promote well-being and improve all health outcomes across the life course.

This summary report supports Health 2020, the new European policy framework to support action across government and society for health and well-being (3), and the European Action Plan for Strengthening Public Health Capacities and Services (4), which is based on 10 essential public health operations (EPHOs), all of which respond to the health challenges of the 21st century. The report specifically supports the strengthening and delivery of EPHO 8: Assuring sustainable organizational structures and financing.

Objectives
The objectives of the report are:

• to provide an overview of the way the economic crisis is deepening the challenges of rising health care costs and of the need to modernize public health services for the 21st century;
• to outline the health benefits of a public health approach;
• to set out the costs of not addressing a range of current public health challenges;
• to summarize the evidence of cost-effective and cost-saving approaches in public health and prevention;
• to summarize the recommendations of the WHO study on the costs of scaling up action on prevention and reducing the impact of noncommunicable diseases (NCDs) (5);
• to consider a range of options for financing public health services.
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgments</td>
<td>3</td>
</tr>
<tr>
<td>About this report</td>
<td>3</td>
</tr>
<tr>
<td>Target audience</td>
<td>3</td>
</tr>
<tr>
<td>Scope</td>
<td>3</td>
</tr>
<tr>
<td>Objectives</td>
<td>3</td>
</tr>
<tr>
<td>Key messages</td>
<td>5</td>
</tr>
<tr>
<td>Introduction</td>
<td>6</td>
</tr>
<tr>
<td>The economic case for prevention</td>
<td>7</td>
</tr>
<tr>
<td>Risks of inaction</td>
<td>8</td>
</tr>
<tr>
<td>Costs of inaction</td>
<td>8</td>
</tr>
<tr>
<td>Benefits of action</td>
<td>11</td>
</tr>
<tr>
<td>The life-course approach</td>
<td>12</td>
</tr>
<tr>
<td>A summary of the evidence</td>
<td>12</td>
</tr>
<tr>
<td>“Win win win” solutions — maximizing efficiency</td>
<td>20</td>
</tr>
<tr>
<td>Other considerations: risk and preparedness</td>
<td>21</td>
</tr>
<tr>
<td>How to finance public health</td>
<td>22</td>
</tr>
<tr>
<td>Current financing of prevention</td>
<td>22</td>
</tr>
<tr>
<td>What is included in public health and prevention spending figures</td>
<td>24</td>
</tr>
<tr>
<td>Possible funding mechanisms</td>
<td>27</td>
</tr>
<tr>
<td>Scaling up for NCDs</td>
<td>27</td>
</tr>
<tr>
<td>Governments</td>
<td>27</td>
</tr>
<tr>
<td>Health insurance</td>
<td>27</td>
</tr>
<tr>
<td>Additional financing options</td>
<td>28</td>
</tr>
<tr>
<td>References</td>
<td>30</td>
</tr>
</tbody>
</table>
Key messages

1. The economic crisis is a challenge for health.
It has led to increased demand and reduced resources for health sectors.

2. Public health can be part of the solution to this challenge.
Investment in preventing ill health and promoting well-being reduces demand and costs for health care services, while ensuring and improving health outcomes.

A healthier population reduces demands on society through lower welfare costs, improved outcomes in education, a more productive workforce and lower crime rates.

Public health services include health protection, disease prevention and health promotion. Some of these services can be provided within the context of health care services – for example, screening, vaccination and health behaviour advice from health professionals. These approaches keep people well and support financial protection, universal access to care and a reduction in inequalities. It is not possible to prevent all ill health: thus, a balance needs to be struck between funding provided for prevention and for treatment.

3. The current costs of inaction are significant.
For example, road traffic costs the countries of the European Union (EU) €25bn through air pollution and €153bn through collisions each year; physical inactivity costs up to €300 per European inhabitant annually; cardiovascular disease (CVD) and cancer cost the EU €169bn and €124bn respectively each year.

4. The evidence shows that prevention is cost-effective and can save money.
The WHO “best buy” interventions for NCDs (5) include several that are highly cost-effective, including tobacco and alcohol legislation; reducing salt; and increasing physical activity. This report adds to the existing evidence, showing the following.

- Interventions aimed at affecting health behaviours – such as improving mental health and preventing violence – are cost-saving for the health and other sectors.
- Interventions that focus on enhancing social and environmental determinants – such as reducing the harms of transport and environmental hazards, and improving housing, employment and green spaces – are cost-saving mostly for other sectors.
- Disease prevention interventions, such as vaccinations, can be cost-saving; screening programmes are generally cost-effective.

5. How to finance public health services.
The health of the population is a public good best financed by earmarked funding, either from governments or through health insurance companies.

6. Small investments promise large gains.
An estimated average of 3% of health sector budgets in Europe is currently spent on public health and prevention. The WHO report on scaling up action against NCDs (5) estimates that a further investment of 1–4% of current health spending is needed to reduce escalating health care costs, with population-level approaches costing on average five times less than individual interventions.
The current global economic climate has forced national governments to tighten budgets across all sectors of public spending. Health is the second largest public expenditure area for most countries: as a consequence, it is in the financial spotlight (6). Costs are forecast to increase with the ageing population and rising NCDs; more immediately, demand is likely to increase through rising unemployment levels. Many of these health costs could be avoided by shifting investment upstream to prevent harm and increase activity in health promotion, disease prevention and health protection. Prevention funding remains a small proportion of overall health spending, but represents excellent value for money, as evidence shows that it leads to gains in both the short and the long term, as well as savings in areas beyond the remit of the health sector.

The economic impact of NCDs – many of which are avoidable – amounts to many billions of Euros per year. Nevertheless, European governments currently spend an estimated average of 3% of their health sector budgets on prevention. Across the WHO European Region, the balance of expenditure on preventive versus curative care is estimated to vary widely from less than 1% to over 8% of total health budgets (7). In the context of the financial crisis, already vulnerable public health budgets have been further cut in many countries (8). Prevention delivered in primary health care was relatively protected, but population-level programmes were not. The duration of funding plans is also an issue, with many countries setting short-term or even annual health budgets; these are particularly poorly suited to preventive health strategies, which may take longer to plan and implement.

Set against this picture of low and poorly designed provision of expenditure is a simultaneous rising demand for health care due to long-term trends including the rising burden of NCDs, increasing inequality and large-scale demographic changes, the most important of which is population ageing. More recent trends such as rising unemployment, combined with more profound threats such as climate change, are likely to add further challenges to the system.

Many of the greatest advances of the last century in health in Europe came through addressing the causes of disease rather than treating the consequences. One example of this is tuberculosis, which fell from 13% of all-cause mortality in the United Kingdom in 1855 to 0.1% by 1990: much of this decline took place through improvements in housing well before interventions such as the Bacillus Calmette–Guerin (BCG) vaccination became available (9). More recently, the results of the Finnish North Karelia Project (Fig. 1) show that preventive approaches can have major impacts on lifestyles and risk factors: the decline in heart disease mortality in Finland was one of the most rapid in the world (10). Reductions of 85% across a 35-year period were seen from mortality rates of around 650 to 150 per 100,000.

Evidence from multiple studies suggests that the greatest proportion of the observed decline in many countries coronary heart disease mortality (one of the largest NCDs in terms of burden of disease) is due to changes related to preventable risk factors. Figure 2 shows that between 50-74% of the decline in CHD mortality in a range of high income countries, is attributable to observed trends in coronary risk factors, (such as declining cholesterol, blood pressure, smoking and physical inactivity) alongside medical treatments to which 23–47% of reduced cardiovascular mortality can be attributed (such as...
The case for investing in public health

revascularisation and interventions following CVD, and improved treatments for heart failure). The pale blue bars represent observed risk factors trends, and did not consider specific preventive interventions. However this does demonstrate the significant opportunity which exists for interventions focused on modifying these risk factors.

The economic justification is clear. There is good evidence to support an increased role for health promotion and disease prevention both to reduce health care costs and promote an increase in economic productivity. Additional benefits can also occur, with improved educational and employment outcomes, reduced crime and antisocial behaviour, and environmental benefits for some interventions. Many cost-saving interventions also help to reduce inequalities – particularly those addressing mental health and violence prevention, issues disproportionately affecting population groups already suffering from adverse effects of health inequality.

The following section provides economic evidence for intervention in different areas of health. It illustrates the cost of inaction (business as usual), outlines the costs of example interventions. It examines health economic evaluations, highlighting which interventions are cost effective or cost saving and where available the length of time to get a return on investment. This demonstrates that prevention and public health can be part of the solution.

**Fig. 2. Contribution of treatment and risk factor reduction to the decline in global coronary heart disease mortality**

Source: Ford et al. (11).

In most instances, prevention is the cheapest and most effective way to maintain the health and well-being of the population. Concerns about upfront costs and the intangibility of outcomes, however, too frequently lead to a lack of action and continued investment in increasingly expensive curative approaches. Health economic evaluations are complex: they aim to take into account both direct health costs and indirect social costs. There is now a growing body of evidence supporting the economics of prevention. This report sets out the case that
prevention is not only cost-effective in the long term, but can be cost-saving in the short term, while the alternative of treating the consequences is likely to be unnecessarily costly.

**Risks of inaction**

Health spending has risen steadily over the past three decades, and has accelerated since the turn of the century to reach an average of approximately 7% of GDP for Organisation for Economic Co-operation and Development (OECD) countries in 2005 (with private spending adding another 2%) (12). If no specific policies are put in place to break with past trends, health sector spending is projected to almost double, reaching nearly 13% of GDP by 2050 (Fig. 3), and leading to what OECD calls the “cost pressure scenario”.

The OECD has identified a number of policies mainly through efficiencies in core services that could curb health expenditure: the “cost containment” scenario. Average spending would still increase, however, to around 10% of GDP by 2050.

**Fig. 3. OECD projections for public spending on health care 2005–2050**

![Graph showing OECD projections for public spending on health care 2005–2050.](source: OECD (12)).

**Costs of inaction**

The tables below summarize examples of some of the typical costs of the major health threats within Europe. They show disability-adjusted life-years (DALYs) lost – a time-based measure that combines years of life lost due to premature mortality and years of life lost due to time lived in states of less-than-ideal health, which was developed to assess the global burden of disease (GBD) (13). They also demonstrate where costs will be experienced, showing that the costs of the current approach will not only be borne by individuals and the health sector; the wider society will also suffer a heavy burden. The examples are drawn from a wide range of sources, both within Europe and further afield. Table 1a looks at the costs of inaction on downstream health outcomes, while Table 1b looks further upstream to show the costs of failure to address risk factors that adversely affect health and well-being.
### Table 1a. Costs of inaction: health outcomes

<table>
<thead>
<tr>
<th>Health topic</th>
<th>DALYs lost in Europe (millions)*</th>
<th>Costs at the individual level</th>
<th>Costs to health care sectors</th>
<th>Costs to governments/wider society</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVD</td>
<td>36.4</td>
<td>Annual cost to society of mental illness in childhood: £11–59 000 per child (United Kingdom) (15)</td>
<td>10.8% of 2008/9 National Health Service (NHS) budget spent on mental health services (United Kingdom) (17)</td>
<td>€169 billion per year in the EU (14)</td>
</tr>
<tr>
<td>Mental health</td>
<td>28.9</td>
<td>Costs for children with severe and complex mental health problems: over £1000 per week (United Kingdom) (16)</td>
<td>Cost of depression: £1.7 billion in 2007 (United Kingdom) (18)</td>
<td>£110 billion per year in the United Kingdom (18, 19)</td>
</tr>
<tr>
<td>Cancer</td>
<td>17.0</td>
<td>6.5% of health care expenditure in the EU (20)</td>
<td>€110 billion per year in the United Kingdom (18, 19)</td>
<td>£117 billion per year in the EU (21)</td>
</tr>
<tr>
<td>Communicable disease</td>
<td>15.9</td>
<td>Each unplanned influenza admission costs the NHS £347–774 (United Kingdom) (22)</td>
<td>Influenza cost the economy £6.75 billion in 1999 (United Kingdom) (24)</td>
<td>Up to 2% of GDP in middle- and high-income countries in the EU (25)</td>
</tr>
<tr>
<td>Road traffic injuries</td>
<td>3.6</td>
<td>Outbreak of 614 cases of measles in Germany cost €229k (23)</td>
<td>Road traffic collisions cost €153 billion per year in the EU (25)</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>2.6</td>
<td>Cost to the NHS: £1.3 billion per year (United Kingdom) (26)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violence</td>
<td>1.9</td>
<td>Cost to the NHS: £1.3 billion per year (United Kingdom) (26)</td>
<td>Violence costs the economy in England and Wales over £40.1 billion per year (United Kingdom) (27)</td>
<td>Violence against women costs Danish society approximately DKK 500 million (about €70 million) per year (Denmark) (28)</td>
</tr>
</tbody>
</table>

*a DALYs include 3% discounting and age weights.
Table 1b. Costs of inaction: risk factors

<table>
<thead>
<tr>
<th>Health topic</th>
<th>DALYs lost in Europe (millions)*</th>
<th>Costs at the individual level</th>
<th>Costs to health care sectors</th>
<th>Costs to governments/wider society</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tobacco</strong></td>
<td>17.7</td>
<td>The average smoker spends 2 months’ wages per year on cigarettes (Albania) (29)</td>
<td>Smoking-related conditions cost the NHS £9.5 billion per year (4.6% of total health care costs) (United Kingdom) (31)</td>
<td>US$500 billion per year to the global economy (32)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private mortality costs per packet: US$222 (men) and US$94 (women) (United States) (29)</td>
<td></td>
<td>Tobacco use reduces overall national incomes by up to 3.6% (32)</td>
</tr>
<tr>
<td><strong>Harmful alcohol use</strong></td>
<td>17.3</td>
<td>Heavy drinking increases the risk of unemployment, absenteeism, and presenteeism (attending work while sick) (33)</td>
<td>Alcohol-use disorders cost the NHS £2.9 billion per year (United Kingdom) (34)</td>
<td>Effects on health, well-being and productivity reach US$300–400 purchasing power parity per capita per year (33)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Alcohol-related harm £20 billion to £55 billion per year (United Kingdom) (36)</td>
<td>Alcohol cost the EU €125 billion in 2003 (1.3% of GDP) (37)</td>
</tr>
<tr>
<td><strong>Unhealthy diet (overweight and obesity; low fruit and vegetable intake)</strong></td>
<td>15.3</td>
<td>Obese individuals incur health expenditure at least 25% higher than those of normal weight (31)</td>
<td>Obesity accounts for 1–3% of total health expenditure in most countries (31)</td>
<td>Obesity accounts for a fraction of a percentage point of GDP in most countries, and over 1% in the United States (31)</td>
</tr>
<tr>
<td><strong>Physical inactivity</strong></td>
<td>8.2</td>
<td>Inactive Danish men lose three days of work compared to moderately active men (38)</td>
<td>Globally physical inactivity accounts for 1.5–3% of national health care budgets (39)</td>
<td>Physical inactivity is estimated to cost €150–300 per inhabitant per year in Europe (41)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack of physical activity could account for 8% of all social disability pensions in Denmark (38)</td>
<td>Physical inactivity accounted for 2.9% of total health expenditure in 2000 (Denmark) (38)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direct medical costs to the NHS: £1.06 billion (United Kingdom) (40)</td>
<td>Direct medical costs to the NHS: £1.06 billion (United Kingdom) (40)</td>
<td></td>
</tr>
<tr>
<td><strong>Environmental risks</strong></td>
<td>2.5 (includes occupational risks, urban outdoor air pollution, unsafe water, sanitation, hygiene, indoor smoke from solid fuels, lead exposure and global climate change)</td>
<td>An estimated total of 1087 potential years of life lost ... due to noise pollution ... in 2005 (Switzerland) (42)</td>
<td>Lead paint in homes in the United States, estimated US$11–53 billion of annual health care costs in children under 6yrs (43)</td>
<td>Air pollution caused by road traffic costs the EU €25 billion per year (44)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Calculated lost lifetime earnings over US$165 billion among children estimated to have raised lead levels (43)</td>
<td>Air pollution from industrial facilities costs the European Environment Agency €102–169 billion per year(45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Noise pollution from road traffic costs the EU €7 billion per year (44)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The cost of road traffic noise pollution in England is estimated to be £7–10 billion per year (United Kingdom) (46)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mercury emissions from coal burning in the United States reduce IQ with a resultant US$1.3 billion loss in economic productivity (47)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Global costs from loss of productivity due to mercury pollution are expected to rise to US$29.4 billion by 2020 (48)</td>
</tr>
</tbody>
</table>

*a* DALYs include 3% discounting and age weights.
The case for investing in public health

These tables demonstrate the importance of preventing disease and maintaining well-being for the functioning of the wider economy. Simply reducing health sector spending will inevitably reduce its effectiveness, thereby shifting these unavoidable costs onto the wider society. Not only does this fail to solve the current problem, it may even lead to widening inequalities that will become increasingly more difficult and expensive problems. It is not just the amount of money spent but how it is spent that matters. A shift in spending from treatment to prevention and health promotion can help to reduce health care costs as well as contributing to the economy.

Benefits of action

Containing, and in many cases necessarily reducing, the costs of health care without negative effects on health outcomes will require cost-saving and cost-effective policies to play a much more substantial role. If health spending is to be reduced or even stabilised, further measures are needed. A useful approach is to identify a hierarchy of effective interventions (Fig. 4), looking first at those which save overall costs either to society or to the health sector. Cost-effective interventions should next be considered; these reduce costs either below an ideal level (usually defined as a cost per quality-adjusted life-year (QALY)) or below current practice (business as usual). They offer a cheaper method of providing the same or better health outcomes.

This concept is further explained in Fig. 5. The coloured areas represent the domains described in Fig. 4; black lines represent examples of interventions. Intervention C shows current practice, illustrating increasing costs with increasing health gain over time. Intervention B also leads to increased costs, but is cheaper in relative terms than business as usual (C). The grey area between interventions C and B shows a zone in which the cost-effectiveness of an intervention is marginal; thus, the particular circumstances in which the intervention is being implemented will often be important. The preferred ‘cost-saving’ option, intervention A, also requires initial investment, however a return on this investment is achieved over time.
The life-course approach

It is important to address the causes of ill health and poor well-being at all ages. A life-course approach, however, shows that the earlier in life interventions are made, the greater the benefits and rate of return on investment. Fig. 6 shows how the rates of return on investment reduce through childhood, illustrating the value of investment in preschool programmes.

A summary of the evidence

This report provides a number of summary tables to illustrate the concepts outlined above. These set out known “best buys” and list examples of other cost-saving and cost-effective interventions. The information was collected by the public health services team at the WHO Regional Office for Europe and was sourced primarily from a number of key documents, listed below. The aim was to pick out examples to illustrate what can be achieved by upstream prevention. This was not a systematic literature review and the examples are not intended to be representative of the full body of available evidence or experience in this field.

Key documents and sources used to provide evidence for this document include the following.

- The economic case for public health action (31)
- From burden to “best buys” (50)
- Mental health promotion and prevention: the economic case (51)
- No health without mental health: a cross-government mental health outcomes strategy for people of all ages: supporting document – the economic case for improving efficiency and quality in mental health (52)
- The true costs of automobility: external costs of cars (44)
- Economics of immunization (53)
- The National Institute for Health and Clinical Excellence (NICE), United Kingdom
- The UK National Screening Committee, United Kingdom

The following pages summarize the best examples found for a range of cost-saving and cost-effective public health interventions. Fig. 7 shows how the findings are presented.

Tables 2a and 2b show the WHO “best buy” interventions for NCDs. These are “not only highly cost-effective but also feasible and appropriate to implement within the constraints of low- and middle-income countries’ health systems” (54).

The final four tables provide examples of cost-saving or cost-effective interventions, illustrating what can be

Fig. 6. Changes in rates of return on investment through childhood

Source: Cunha et al. (49).
achieved through investment in upstream preventive interventions. Table 3a shows key factors affecting health behaviours. Poor mental health (55) and violence (56, 57) are known to be associated with other more proximal health behaviours and are recognized as complex issues manifesting as both determinants and outcomes of poor health and well-being. Table 3b and 3c looks further upstream to the social and environmental determinants that have strong influences on health behaviours and, in turn, on outcomes. Table 3d outlines measures within the traditional remit of the health sector that save money by directly preventing disease.
### Table 2a. “Best buy” interventions for NCDs: risk factors

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Interventions/actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco use (&gt;50; 3.7)</td>
<td>Protect people from tobacco smoke, Warn about the dangers of tobacco, Enforce bans on tobacco advertising, Raise taxes on tobacco, Offer counselling to smokers</td>
</tr>
<tr>
<td>Harmful use of alcohol (&gt; 50; 4.5)</td>
<td>Restrict access to retailed alcohol, Enforce bans on alcohol advertising, Raise taxes on alcohol, Enforce drink–driving laws (breath-testing), Offer brief advice for hazardous drinking</td>
</tr>
<tr>
<td>Unhealthy diet (15–30; 1–2)</td>
<td>Reduce salt intake, Replace trans fat with polyunsaturated fat, Promote public awareness about diet, Restrict marketing of food and beverages to children, Replace saturated fat with unsaturated fat, Manage food taxes and subsidies, Offer counselling in primary care, Provide health education in worksites, Promote healthy eating in schools</td>
</tr>
<tr>
<td>Physical inactivity (&gt;30; 2.1)</td>
<td>Promote physical activity (mass media), Promote physical activity (communities), Support active transport strategies, Offer counselling in primary care, Promote physical activity in worksites, Promote physical activity in schools</td>
</tr>
<tr>
<td>Infection</td>
<td>Prevent liver cancer via hepatitis B vaccination</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Avoidable burden (DALYs averted)</th>
<th>Cost–effectiveness (Very: &lt; GDP per person; Quite: &lt; 3 × GDP per person; Less: &gt;3 × GDP per person)</th>
<th>Implementation cost (Very low: &lt; US$0.50; Quite low: &lt; US$1.50; Higher: &gt; US$1.50)</th>
<th>Feasibility (Health system constraints)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco use (25–30 million DALYs averted (&gt;50% tobacco burden))</td>
<td>Very cost-effective</td>
<td>Very low</td>
<td>Highly feasible (strong framework)</td>
</tr>
<tr>
<td>Harmful use of alcohol (5–10 million DALYs averted (10–20% alcohol burden))</td>
<td>Very cost-effective</td>
<td>Very low</td>
<td>Highly feasible</td>
</tr>
<tr>
<td>Unhealthy diet (5 million DALYs averted)</td>
<td>Very cost-effective</td>
<td>Very low</td>
<td>Highly feasible</td>
</tr>
<tr>
<td>Physical inactivity</td>
<td>Not yet assessed globally</td>
<td>Very cost-effective</td>
<td>Very low</td>
</tr>
<tr>
<td>Infection</td>
<td>Not yet assessed</td>
<td>Very cost-effective</td>
<td>Very low</td>
</tr>
<tr>
<td>Disease</td>
<td>Interventions/actions</td>
<td>Avoidable burden</td>
<td>Cost-effectiveness</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>------------------</td>
<td>--------------------</td>
</tr>
</tbody>
</table>
| CVD and diabetes (170; 11.3) | Counselling and multidrug therapy (including glycemic control for diabetes mellitus) for people (≥30 years) with 10-year risk of fatal or nonfatal cardiovascular events ≥30%  
Aspirin therapy for acute myocardial infarction | 60 million DALYs averted (35% CVD burden)  
4 million DALYs averted (2% CVD burden)  
70 million DALYs averted (40% CVD burden) | Very cost-effective  
Very cost-effective  
Quite cost-effective | Quite low  
Quite low  
Higher | Feasible (primary care)  
Feasible (primary care)  
Not feasible in primary care (diagnosis and treatment requires secondary or tertiary care) |
| Cancer (78; 5.1)       | Cervical cancer – screening through visual inspection with acetic acid (VIA) and treatment of pre-cancerous lesions to prevent cervical cancer  
Breast cancer – treatment of stage I  
Breast cancer – early case finding through mammographic screening (50–70 years) and treatment of all stages  
Colorectal cancer – screening at age 50 and treatment  
Oral cancer – early detection and treatment | 5 million DALYs averted (6% cancer burden)  
3 million DALYs averted (4% cancer burden)  
15 million DALYs averted (19% cancer burden)  
7 million DALYs averted (9% cancer burden)  
Not assessed globally | Very cost-effective  
Quite cost-effective  
Quite cost-effective  
Quite low | Very low  
Higher  
Higher  
Quite low | Feasible (primary care)  
Not feasible in primary care (diagnosis and treatment requires secondary or tertiary care)  
Not assessed |
### Table 3a. Factors affecting health behaviours (violence and mental health)

<table>
<thead>
<tr>
<th>Health category</th>
<th>Most cost-saving example</th>
<th>Most cost-effective example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Violence</td>
<td>School-based interventions to reduce bullying <em>(United Kingdom)</em> (51)</td>
<td>Violence Against Women Act of 1994 <em>(United States)</em> (59)</td>
</tr>
<tr>
<td></td>
<td>• Cost: £15.50 per pupil</td>
<td>At the government level</td>
</tr>
<tr>
<td></td>
<td>• Saving: £1080 per pupil</td>
<td>• Cost: US$1.6 billion for programmes over 5 years</td>
</tr>
<tr>
<td></td>
<td>At the individual level</td>
<td>At the individual level</td>
</tr>
<tr>
<td></td>
<td>• Cost: US$15.50 per woman</td>
<td>• Cost: US$159 per woman in averted costs of criminal victimization</td>
</tr>
<tr>
<td></td>
<td>• Saving: US$159 per woman in averted costs of criminal victimization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perry preschool program in Ypsilanti, Michigan <em>(United States)</em> (60)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Net benefit of the programme in 1997 was US$108 516 for males and US$110 333 for females</td>
<td></td>
</tr>
<tr>
<td>Mental health</td>
<td>Early identification of postnatal depression with intervention (health visitor) <em>(United Kingdom)</em> (61)</td>
<td>Intervention for prevention of childhood conduct disorder for a one-year childhood CD cohort <em>(United Kingdom)</em> (19)</td>
</tr>
<tr>
<td></td>
<td>• Preventive intervention group cost £119 more than standard treatment (£2396 per intervention)</td>
<td>• Total cost: £210 million, or £6000 per individual programme</td>
</tr>
<tr>
<td></td>
<td>• However estimated, mean net societal benefits of £383 per mother-infant pair per month</td>
<td>• Total savings: £5.2 billion, or £150 000 per case</td>
</tr>
<tr>
<td></td>
<td>Antisocial behaviour family support projects <em>(United Kingdom)</em> (62)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cost: £8 000–15 000 per family per year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Saving: £17–44 for every £1 spent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reducing conduct problems through school-based social and emotional learning <em>(United Kingdom)</em> (51)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cost: £132 per pupil per annum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Savings of £39 to health sector in first year rising to £751 by year 5</td>
<td>• Also net societal savings of £6,369 for whole of society by year 5. Mostly through reduced crime.</td>
</tr>
<tr>
<td></td>
<td>Mental health promotion and prevention of depression in the workplace: early diagnosis and intervention for employees with depressive symptoms <em>(United States)</em> (63)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cost: US$100–400 per person per year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Saving: US$1800 per employee</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Work-based mental health promotion: economic modelling for a multicomponent health promotion programme <em>(United Kingdom)</em> (51)</td>
<td>Psychosocial group therapy for older people identified as lonely <em>(Finland)</em> (64)</td>
</tr>
<tr>
<td></td>
<td>• Initial investment of £40 000</td>
<td>• Mean net reduction in health care costs per participant of €943 per year</td>
</tr>
<tr>
<td></td>
<td>• Would potentially save £340 000 within 1 year</td>
<td>E-health intervention to prevent depression: internet-based intervention in depressive symptoms <em>(United Kingdom)</em> (65)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cost: £397</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Net benefit: £367 over usual care with the effectiveness of £1250/QALY gained</td>
</tr>
</tbody>
</table>
### Table 3b. Social determinants

<table>
<thead>
<tr>
<th>Health category</th>
<th>Most cost-saving example</th>
<th>Most cost-effective example</th>
</tr>
</thead>
</table>
| **Housing**     | Affordable warm housing: insulation and heating *(United Kingdom)* (66)  
  - Investment of £252 million to reduce domestic impacts of excess cold  
  - Return on investment within 0.3 years | Affordable warm housing: insulation and heating in Northern Ireland’s Warm Homes Scheme *(United Kingdom)* (66)  
  - Savings to NHS of £0.42 for every £1 invested in preventing fuel poverty  
  - Supported housing for families with complex emotional needs and chaotic lives *(United Kingdom)* (67)  
  - Estimated to save local authorities approximately £12 000 per client  
  - A stepdown project specifically addressing delayed discharge lives *(United Kingdom)* (67)  
  - Diverts people away from (or delays their progression to) residential and nursing care  
  - Estimated to save local authorities around £388 000 each year |
| **Debt**        | Face-to-face debt advice *(United Kingdom)* (52)  
  - Cost: £250 million  
  - Saving: estimated at 300 million (£30 million to health sector; £50 million on legal costs, £220 million from productivity gains)  
  - Net saving: £50 million over 5 years |  |
| **Employment**  | Multicomponent health promotion programmes in the workplace *(United Kingdom)* (51)  
  - Initial investment of £40 000 could potentially result in net savings of over £340 000 over 1 year  
  - More than eightfold return on investment  
  - Mental health promotion and prevention of depression in the workplace: a preventive intervention to reduce absenteeism and presenteeism *(United Kingdom)* (51)  
  - Initial cost of £20.6k in first year (per 500 employees)  
  - Net savings of £19.7k in first year and £63.5k by year two |  |
### Table 3c. Environmental determinants

<table>
<thead>
<tr>
<th>Health category</th>
<th>Most cost-saving example</th>
<th>Most cost-effective example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Road traffic injuries</strong></td>
<td>Alcohol-impaired driving: “The Australian campaign” (Australia) (68)</td>
<td>Area wide schemes traffic calming measures (United Kingdom) (71)</td>
</tr>
<tr>
<td></td>
<td>• Monthly costs for media campaign: AU$403 174</td>
<td>• Average net returns of 30% to 40% of investment within first year of intervention</td>
</tr>
<tr>
<td></td>
<td>• Saving: AU$8 324 532 per month, including AU$3 214,096 in averted medical costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Safety camera enforced speed limits</strong> (United Kingdom) (69)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Total annual cost: £96 million</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Annual estimated economic benefit: £258 million</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Photo radar speed enforcement programme on an inner city motorway</strong> (Spain) (70)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Net saving: €66.8 million over 2 years</td>
<td></td>
</tr>
<tr>
<td><strong>Green space</strong></td>
<td>The US study for Philadelphia city parks (United States) (72)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Estimated yearly savings of US$69.4 million through avoided health care costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Conservation volunteering projects</strong> (United Kingdom) (73)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Estimated investment yields £7.36 for every £1 invested</td>
<td></td>
</tr>
<tr>
<td><strong>Active transport</strong></td>
<td>Switching from car to active transport (United Kingdom) (74)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Benefits of moving from car to walking: £1120 per year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Benefits of moving from car to cycling: £1121 per year</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Greatest benefits are in urban environments due to reduction in air pollution exposure for general population</td>
<td></td>
</tr>
<tr>
<td><strong>Environmental hazards</strong></td>
<td>Regulation of registration, evaluation, authorization and restriction of chemicals (REACH) (EU) (75, 76)</td>
<td>Reducing childhood exposure to mercury through mercury and air toxics standards (MATS) (United States) (77)</td>
</tr>
<tr>
<td></td>
<td>• Cost: €2.8–5.2 billion</td>
<td>• Predicted health benefits exceed US$37 billion per year</td>
</tr>
<tr>
<td></td>
<td>• Saving: €27–54 billion</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Removal of lead from domestic paint and plumbing in at-risk neighbourhoods</strong> (France) (78)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cost: €3600–9200 per home</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• €8800–51 400 reduction in cost of illness per de-leaded home</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Net saving: €5200–42 200</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3d. Disease prevention

<table>
<thead>
<tr>
<th>Health category</th>
<th>Most cost-saving example</th>
<th>Most cost-effective example</th>
</tr>
</thead>
</table>
| **Vaccination** | Diptheria, tetanus and pertussis (DTaP) vaccination (United States) (79)  
  • Saving: US$26.6 billion | Hepatitis B vaccination (United States) (82)  
  • Cost: US$164 per life-year saved for perinatal immunization |
|  | Flu vaccine (United Kingdom) (80, 81)  
  • Every £1 spent on targeted flu vaccination provides £1.35 of health savings  
  • Savings rise to £12 per vaccination when health care workers are vaccinated | Meningitis C vaccination (United Kingdom) (83)  
  • Cost per case: £8400; national cost: over £8 million per year  
  • Costs have fallen to just over £100 000 in 10 years following vaccine introduction |
|  | Measles, mumps and rubella (MMR) vaccination – national programme (United Kingdom) (23)  
  • Vaccination costs £0.17–0.97 per person  
  • Measles treatment costs £180–£414 per case  
  • Vaccination savings over treatment: £240 730–£544 490 over 10 years | Rotavirus vaccination (United Kingdom) (84)  
  • Implementation cost: £45 per child  
  • Saving: 5–25% to health sector  
  • At least 70% of the costs of purchasing and administering the vaccine would be recouped within 3 years of a vaccination programme |
| **Screening** | Cost-effective options for diagnosis of hypertension in primary care (United Kingdom) (83)  
  • Ambulatory blood pressure monitoring as a confirmatory diagnostic strategy reduces misdiagnosis with savings higher than costs | Screening for diabetes and impaired glucose tolerance (United Kingdom) (86)  
  • Cost: £6242 per QALY  
  • Screening for type 2 diabetes cost-effective provided impaired glucose tolerance is included and followed up with appropriate interventions |
Efficiencies can also be made in the areas focused on by public health services – for example, with interventions that cluster together to achieve significant overlap, producing a wide range of multiple health and social outcomes. This multiplier effect can result in combined health and social benefits and savings. The approach can also have environmental benefits, focusing on creating “win win wins” for health, society, the economy and the environment.

For example, working to a common vision of safe urban design, a cluster of cost-saving interventions and approaches – such as safe green spaces, safer driving and encouraging walking and cycling – can be identified (Fig. 8). These can be delivered as part of a service package that can potentially contribute to cost–effectiveness, with multiple efficiencies in service delivery and many health, social and environmental gains.

A cluster of example interventions and approaches that are cost-saving can also be identified in the promotion of mental health and well-being, including violence reduction, early identification and treatment of postnatal depression, and mental health promotion in the workplace (Fig. 9). Addressing mental health problems is particularly relevant in times of economic crisis, as suicide and mental illness are particularly sensitive to the multiple stresses caused. Again, as illustrated, there can be many health and social benefits as well as efficiencies in service delivery that can result in a multiplier effect.
Other considerations: risk and preparedness

High-impact high-risk events – including communicable disease pandemics such as avian flu and natural disasters such as flooding or heat-waves – are particularly difficult to plan for financially, but can be extremely costly. For example, flooding led to £40 billion of damage in 2007 in the United Kingdom (88). There may be long gaps between such events, making them a challenge to predict. Setting such large sums of money aside when there is no guarantee that they will be used could be seen as wasteful.

It is important to be able to make accurate predictions of these events. This can be done by measuring the frequency and cost of past events and extrapolating these into the future, but the accuracy of this approach is reduced when the factors affecting costs and probabilities change over time. Climate change vastly complicates things here by increasing the probability and severity while reducing the predictability of extreme events. It is therefore essential to invest in and modernize health protection services – including control of communicable diseases, environmental health and emergency preparedness – in order to address current and future public health challenges.
The case for investing in public health

Having set out the case for investing in prevention and public health, this report will now examine how public health can best be financed. Financing public health services is best done in the wider context of health system reform, including, for example, the modernization of public health laws and national plans. This section outlines the current prevention financing situation and provides an overview of some suggested financing mechanisms. When modernizing public health services, consideration needs to be given to ensuring more efficient and effective service delivery with population- and individual-centred approaches. Other public health summaries will explore and illustrate these principles.

Health is the second largest public expenditure area among OECD countries after welfare. Indeed, when considering health from the angle of prevention and taking into consideration the wider social determinants, a significant proportion of welfare spending could reasonably be included in health expenditure. Health spending is therefore a central part of government budgets; as a result, it is also central to the spending cuts most governments are making in light of the global economic crisis. A recent OECD study on health spending found that within health cuts the largest reductions have been seen in public health and prevention (Fig. 10).

Current financing of prevention

Across the WHO European Region an estimated 3% of government health funding is spent on prevention. If this figure is unpicked it reveals the landscape of prevention spending.

Fig. 10. Average growth in public expenditure by main health care function, selected OECD countries, 2008–2010

Source: OECD health data 2012 (6).
The case for investing in public health funding across the Region. This can help to showcase examples of more progressive approaches to health financing that could be replicated in other situations.

Differences can be seen in the proportion of health expenditure classified as prevention and public health (code HC.6 in the OECD International Classification for Health Accounts (ICHA)) at the subregional level, revealing an apparently lower relative spend in the more affluent countries of the EU (Fig. 11). Absolute spend on prevention and public health will, of course, be higher per capita in the EU than in the newly independent states (NIS) or south-eastern Europe (SEE).

Narrowing the scope to look at variations between individual OECD countries, while the proportion of expenditure on prevention and public health in most countries is between 1.4% and 3.7% of the total health budget, it seems to be considerably higher in a few countries (Fig. 12).

Slovakia is of particular interest here: over the last eight years Slovakia has increased the proportion of its total health budget spent on prevention and public health from one of the lowest in the European Region (1.6%) to one of the highest (5.5%). Details of this are further explored in the case study below (Box 1).
What is included in public health and prevention spending figures

Given the extent of the variation between countries’ expenditure on prevention and public health it is important to understand what is included in these figures. The OECD defines prevention and public health services as comprising “services designed to enhance the health status of the population as distinct from the curative services which repair health dysfunction” (89). This is often taken to refer only to interventions such as vaccination campaigns; hence, broader public health functions such as addressing the wider determinants of health, often funded by other sectors, may not be included.

Countries were asked by OECD to complete information on the following categories according to ICHA codes at the two-digit level:

**HC.6  Prevention and public health services**
- **HC.6.1  Maternal and child health; family planning and counselling**
- **HC.6.2  School health services**
- **HC.6.3  Prevention of communicable diseases**
- **HC.6.4  Prevention of noncommunicable diseases**
- **HC.6.5  Occupational health care**
- **HC.6.9  All other miscellaneous public health services.**

Not all countries reported fully on all these areas, however. As a result, further analysis of the estimated figure of 3% of health budgets spent on prevention and public health is required, in order to understand fully what was included in the data provided.

The core public health services of health protection, disease prevention and health promotion include several elements (fig. 13). Evidence from the Netherlands found the greatest proportion of spending on public health and prevention services (82%) was in health protection, with 16% spent on disease prevention and 2% on health promotion. Wider cross-sector activity that supports health-promoting environments was not captured by this analysis. Much of the expenditure that would be included in a broader definition of public health can be seen to fall on activities outside the OECD definition. This is therefore unlikely to be captured in the reported public health and prevention spending figures, which frequently even exclude services under the umbrella of health protection activities (90).

The degree to which different health and well-being issues fall under the health and non-health sectors varies greatly (Fig. 14). It is important to note these differences, since funding can be expected to mirror this division.

Understanding how much money is spent in different areas of the health sector can help to identify which areas will benefit most from cost-effective or cost-saving interventions and to target areas to review for modernization and improving efficiency of service delivery. For example, Fig. 15 shows the main prevention and treatment expenditures in the Netherlands, demonstrating the high costs of mental health.
Fig. 13. Core public health services

- Health Promotion services
  - Promoting wellbeing and healthy behaviours
  - Social determinants and inequalities
  - Environmental determinants

- Environmental Determinants of NCDs

- Health Protection services
  - Control of communicable disease
  - Environmental health
  - Emergency Preparedness

- Primary Prevention

- Reducing inequality
  - Improving health

- Disease Prevention services
  - Primary Prevention: Vaccination
  - Secondary Prevention: Screening
  - Tertiary prevention: Evidence based integrated treatment and rehabilitation

Fig. 14. Approximate contribution of financing for a range of public health services: a schematic diagram
A lack of effective financing has been identified as often the most significant barrier to public health programmes and interventions. A shortage of stable, sustainable and long-term financing is another challenge in many countries, and as a result of the current economic crisis, the financing of public health has been shown to be in danger in several areas. Many structures for delivering public health services in the WHO European Region are already facing substantial cutbacks, and public health programmes and interventions in several countries have been reorganized or scaled down (8).
The health of the population is a public good best financed by earmarked funding, either from governments or through health insurance companies, depending on the individual national funding mechanisms in place. Whichever system is followed, it is important for public health to be free at the point of use to avoid widening of health inequalities.

The following sections set out current financial tools and mechanisms and outline a number of additional options that could be considered.

**Scaling up for NCDs**

WHO has developed a financial planning tool to assist countries in scaling up a core set of interventions to tackle NCDs (5). This provides a valuable indication of the likely costs of such actions. The per capita cost is low, representing an annual investment of under US$1 in low-income countries, US$1.50 in lower middle-income countries and US$3 in upper middle-income countries. These figures represent just 1–4% of current health spending.

Interventions examined were categorised as being either population-based or individual-level approaches. It is recognized that a comprehensive strategy needs to include a combination of these preventive approaches, but it should be noted that on average individual-level approaches were found to cost five times more than interventions at the population level (5).

**Governments**

Government funding for public health and prevention can come primarily through ministries of health, but earmarked budgets can be set aside for other ministries to encourage cross-governmental working.

**Health ministries**

In many countries preventive services are covered by the main public financing body. There is often, however, a marked lack of incentives to practice preventive medicine among health care workers. The challenge of putting health promotion activities on a sustainable financial basis is particularly acute in countries where funding mechanisms are not linked to health financing as a whole, but rather are ad hoc or based on external funding. One method of addressing this issue was tried in Estonia, where a system of financing health promotion projects was successfully established, leading to the proportion of state health budget allocations devoted to public health almost doubling in seven years (90). The funding system was not, however, based on a sustainable mechanism, and cutbacks have been experienced following the financial crisis.

Slovakia has also taken a very proactive approach, using fundamental health reforms to incentivise the primary health care system to screen the population for risk factors and risky health behaviours (see Box 1 above). In the United Kingdom specific clinical indicators are tied to financial reimbursement in primary care. Attempts have been made to use these indicators to reduce health inequalities and to incentivise primary care health professionals to take a preventive approach (92).

**Non-health government ministries**

Government funding for health is primarily channelled through the health ministry, but as outlined earlier, other non-health ministries have important roles to play in preventing disease and maintaining well-being. Important ministries include education, housing, welfare or social security, transport and planning, agriculture and the environment, the police and, of course, finance. The government of Slovakia reflected this approach by allocating funding for health not only to the health ministry but also to other key ministries (see Box 1 above).

**Health insurance**

Many personal health insurance programmes measure relatively downstream risk factors for poor health outcomes such as raised blood pressure, body mass index, alcohol intake and active travel habit. If more upstream factors were taken into account – informed by the evidence base – this would be a more effective way to fund interventions influencing health behaviour changes.

Proper inclusion of health externalities in insurance risks could be an effective mechanism for influencing health behaviours without the requirement for vast public health spending on health promotion and behaviour change programmes.
Additional financing options

As well as the core business of public health funding outlined above there are many other financing options worthy of consideration, particularly during these economically difficult times. Four examples are provided below.

Occupational health insurance premiums

This is a successful approach used in a number of European countries whereby employers pay an insurance premium for work-related health problems (Box 2). This not only provides funds for treating problems that arise but also, by including these health externalities, acts as a strong incentive for employers to improve the working environment for health and well-being. Although this approach has been used in a number of European countries there is scope for it to be further expanded within the European Region.

Sin taxes

Sin taxes are aimed at reducing unhealthy behaviours. Examples of sin tax targets include alcohol, tobacco and vehicles emitting excessive pollutants, as well as unhealthy foods such as sugary and high-energy drinks and high-fat foods. A number of countries in the WHO European Region have introduced these taxes with varying degrees of success (Box 3), often related to the proportion of the taxation reinvested in prevention, or the lobbying influence of industry. To be successful, the ministry of

---

**Box 2. Case study: the German approach to occupational health**

Germany has a compulsory, no-fault and pay-as-you-go occupational health and safety system, with self-governed statutory accident insurance institutions funded solely by employers’ contributions providing a comprehensive prevention, rehabilitation and compensation service (93). Contributions are appropriate to the industrial sector and are weighted according to risk class, the size of the payroll and the number and severity of accidents.

An incentive to prevent accidents at the company level is provided in the form of the so-called “bonus–malus” system, whereby the employer receives a contribution rebate if the accident rate is below the average for that particular sector. In addition to their preventive activities, the accident insurance institutions provide medical and occupational rehabilitation and compensation for people injured either at work or on their way to and from work (commuting accidents), or for those suffering from occupational diseases.

The inspection services of the statutory accident insurance institutions monitor health and safety at the workplace, in addition to Land (state) labour inspectorates. Under federal law, all employees are compulsorily insured against occupational accidents and diseases. Students and schoolchildren are also automatically covered by the same legal provisions.

---

**Box 3. Case study: financing public health services in Hungary**

The Hungarian Parliament approved a new excise tax – the “public health product tax” – in July 2011. This aims both to collect additional revenues for the health system and to decrease the consumption of unhealthy foods such as soft drinks above a certain sugar content and under a certain fruit content; energy drinks; packaged sweet biscuits, candy and ice-cream above a certain sugar content; and crackers and food flavourings above a certain salt content.

The National Health Insurance Fund Administration estimated a total anticipated income of HUF 19 billion for 2012, which amounts to approximately 1.4% of public expenditure on health. The new policy opens the way for further innovative refinements of health financing. In light of this, the government increased the tax rate on tobacco and alcohol several times in 2012 and plans further increases in 2013. These will have an impact on consumption, and therefore on the population’s health status, as well as mobilizing resources to the health system.

A “road vehicle accident tax” was also introduced in November 2011; this is levied on compulsory third party motor vehicle liability insurance to compensate the health sector for the costs of treating injuries caused by road accidents.
health needs to advocate strongly for a proportion of sin taxes to be earmarked for funding public health and prevention activities.

**Social Impact/Just Bonds**
Social Impact Bonds are a way to attract funding from the private sector for social outcomes. Investors only receive a return if the social outcome is achieved. Provided the outcome measures are appropriately designed, this ensures not only that funding is made available but also that only the most effective initiatives are funded. A similar example is Just Bonds (94). Costing £500 each, these are issued by the New Economics Foundation (NEF) to support initiatives aiming for environmental and economic sustainability, as well as individual well-being and social justice.

**Health and environmental taxes**
Inclusion of health externalities when setting levels of environmental taxes is a useful mechanism for influencing health behaviours. Setting surcharges on toxicity in this way is intended primarily to discourage commercial practices that may be damaging for health and the environment. It also, however, provides funds for governments to use for cleaning up damage that may subsequently be caused by such activities.

**Pool funding/social insurance**
Pool funding may be voluntary or compulsory and aims to provide financial protection against the risk of using health care services, equity in the utilization and distribution of health resources, and administrative efficiency. It is used for health services by including health ministries, non-health ministries and non-government organizations, local governments and social health insurance funds. The pooled funds are then allocated to the purchasers. Many countries in the European Region have introduced reforms for health care pool funding (95).


64. Pitkala KH, Routasalo P, Kautianinen H, Tilvis RS. Effects of psychosocial group rehabilitation on health, use of health care services, and mortality of older persons suffering from loneliness: a randomized, controlled trial. *Journal of Gerontology Series A. Biological Sciences and Medical Sciences*, 2009, 64A(7):792–800.


Assuring sustainable organizational structures and financing

The 10 Essential Public Health Operations (EPHOs) 2012

1. Surveillance of population health and well-being  |  2. Monitoring and response to health hazards and emergencies
3. Health protection, including environmental, occupational, food safety and others
4. Health promotion, including action to address social determinants and health inequity
5. Disease prevention, including early detection of illness  |  6. Assuring governance for health and well-being
7. Assuring a sufficient and competent public health workforce  |  8. Assuring sustainable organizational structures and financing
9. Advocacy, communication and social mobilization for health  |  10. Advancing public health research to inform policy and practice

For further information on Health Systems and Public Health, please contact:
Dr Hans Kluge
Director, Division of Health Systems and Public Health
Special Representative of the Regional Director to Prevent and Combat M/XDR-TB in the WHO European Region
Tel.: +45 45 33 67 44. E-mail: klugeh@who.int

World Health Organization
Regional Office for Europe
UN City, Marmorvej 51
DK-2100 Copenhagen Ø, Denmark
Tel.: +45 45 33 70 00. Fax: +45 33 70 0
E-mail: contact@euro.who.int
Website: www.euro.who.int