OECD Health Working Papers No. 101

How much do OECD countries spend on prevention?

Michael Gmeinder,
David Morgan,
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https://dx.doi.org/10.1787/f19e803c-en

OECD

Unclassified **DELSA/HEA/WD/HWP(2017)11**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development **11-Dec-2017**

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DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS
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DELSA/HEA/WD/HWP(2017)11
Unclassified

Health Working Papers

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HOW MUCH DO OECD COUNTRIES SPEND ON PREVENTION?

Michael Gmeinder, David Morgan, Michael Mueller*

JEL classification: H51, I18

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ACKNOWLEDGEMENTS

The authors would like to thank the delegates to the OECD's Health Committee, the OECD's Expert Group on Economics of Public Health and the OECD's Health Accounts Experts Meeting for their contributions at the different stages of the project. The authors would also like to thank Mark Pearson, Francesca Colombo and Michele Cecchini for their valuable comments when reviewing the paper.

ABSTRACT

OECD countries face the multiple challenges of rapidly ageing societies with the associated rise in chronic diseases and the ever-present threat from new or evolving communicable diseases. This is within the context of seeking better value for money from the health sector. While a growing body of evidence shows that many health promotion and disease prevention measures can improve health outcomes at relatively low cost, less has been documented – in an internationally comparable way – on how much countries actually invest in such activities and the drivers of prevention spending over the years. This is particularly pertinent in the context of fiscal sustainability and tight public budgets.

Using newly available data from across OECD countries, this study examines the differences in spending on prevention both at an aggregate and detailed level. This analysis brings a fresh perspective and raises questions as to the optimal resource allocations within the sector. Time series data is also scrutinised in conjunction with collated policy and public health developments from a number of countries to try to identify some of the drivers behind the observed prevention spending trends. In doing so, directions for further improvement in the underlying data as well as policy implications are discussed.

RÉSUMÉ

Les pays de l'OCDE doivent relever de nombreux défis liés au vieillissement accéléré de la population, accompagné d'une montée des maladies chroniques, et à la menace permanente des maladies contagieuses (qui apparaissent ou qui évoluent). Or, parallèlement, le secteur de la santé vise un rapport qualité-prix toujours meilleur. Les preuves s'accumulent sur l'efficacité de nombreuses mesures de promotion de la santé et de prévention des maladies à un coût relativement bas. En revanche, il existe peu de données permettant une comparaison entre pays en ce qui concerne les investissements dans ces domaines et les déterminants de l'évolution des dépenses de prévention au fil des années. Or, cet aspect est particulièrement important face à la question de la viabilité des finances publiques et des contraintes budgétaires.

Grâce à de nouvelles données provenant des pays de l'OCDE, nous étudions les différences en matière de dépenses consacrées à la prévention au niveau global et en détail. Cette analyse adopte un point de vue novateur et soulève des questions sur l'allocation optimale des ressources dans le secteur. Les données chronologiques sont également examinées en même temps que l'évolution des politiques et de la santé publique dans différents pays afin de déceler les facteurs derrière les tendances en matière de dépenses de prévention. Il est ainsi possible de discuter des orientations susceptibles de contribuer à améliorer la collecte des données et les retombées des politiques.

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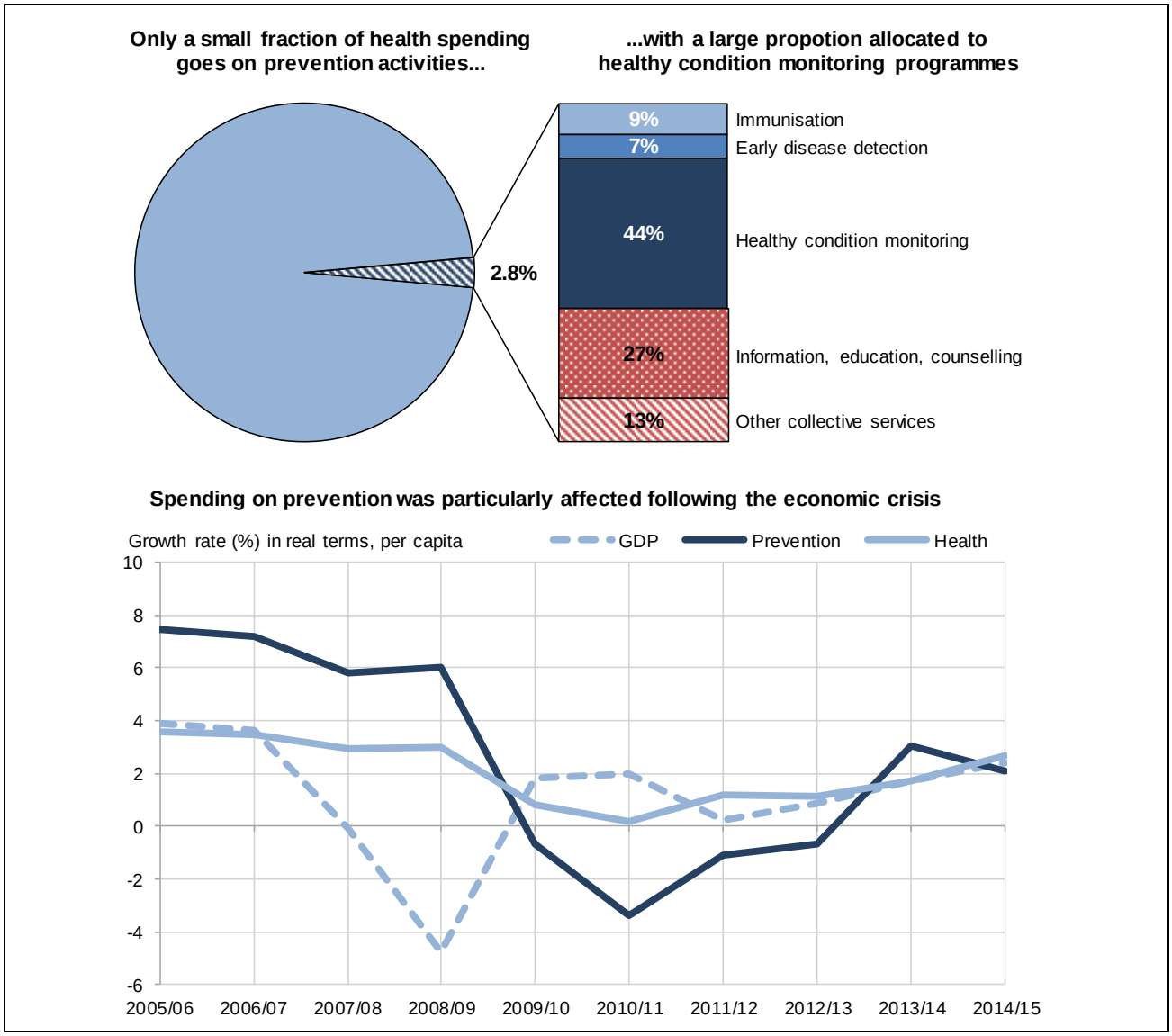
KEY FINDINGS



Note: Data refer to the OECD average for 2015 (top panel) and 2006-2015 (bottom panel).

Source: OECD Health Statistics 2017.

1. Prevention is an essential component of an effective health system. Whether targeted at individuals or populations, interventions aim to enhance health status and maintain a state of low risk for diseases, disorders or conditions, that is, to prevent their occurrence through programmes of information, immunisation, screening or monitoring. Over recent decades, there have been a number of public health success stories with increasing coverage of populations in terms of immunisation and screening as well as achievements in reducing accidents and lowering smoking and drinking rates through specific policy measures. Public health challenges remain as obesity rates both among adults and children risk an explosion of related illnesses and conditions if left unchecked. At the same time, the threat from infectious diseases, both old and new, requires health systems to be alert and responsive.

2. While many prevention activities have been shown to be cost-effective, less has been documented – in an internationally comparable way – about the amount that countries actually spend on prevention and public health services and the trends in spending over recent years. To assist in this task, this study uses recently published spending figures collected from OECD countries according to the System of Health Accounts (SHA), a globally adopted framework for reporting and tracking health expenditure in a consistent and harmonised way. Supplementary research on policies and public health developments is used to explain the observations, while identifying areas where further strengthening of reporting is needed. The main findings are:

- **Only a small fraction of health spending goes on prevention activities.** OECD countries allocate less than 3% of their health spending on average to public health and prevention activities. Most countries fall within a band of 2 to 4% which has remained fairly stable over the long-term. While a number of comparability and definitional issues remain (leading to a likely underestimation for some countries) this perhaps represents a surprisingly low level of investment, given the body of evidence pointing to the cost-effectiveness of many measures, particularly in immunisation and some screening programmes. The study does not attempt to identify an optimal level of spending on prevention or a correct prevention-to-treatment expenditure ratio, recognising that many effective measures have minimal spending implications or are outside of the prevention boundary as defined in SHA.

- **A large proportion of prevention spending is on less cost-effective measures.** In analysing spending across the various components making up prevention, a large proportion of spending goes on healthy condition monitoring programmes, such as check-ups and dental examinations. For most OECD countries such programmes were the main prevention spending category and accounted for nearly half of all prevention expenditure on average. Around a quarter of spending on average was allocated to health promotion while both immunisation and screening programmes accounted for less than 10% each. This finding may raise some questions for policymakers regarding resource allocations given that while many immunisation and some screening activities have been shown to be cost-effective (and some even cost-saving), there is less consensus on the effectiveness of general (including dental) check-ups, and particularly on the recommended frequency of such check-ups. While the range of activities under the immunisation and early disease detection categories is more homogeneous than some of the other prevention categories, expenditure variations between countries are still influenced by scope and range of national vaccination and screening plans as well as differences in unit costs.

- **Government and compulsory insurance are the main financers of preventive care.** Not surprisingly, government or compulsory insurance schemes cover the lion's share of prevention programme costs. On average, 80% of prevention spending comes from such financing schemes and in many countries immunisation programmes and epidemiological surveillance are under the responsibility of public authorities. Other types of financing do play a role in additional spending on health promotion (often by charities and civic society) and more notably the obligations on companies (14% of prevention spending) to carry out workplace medical check-ups for new and existing employees. The scope (as well as the reporting) of occupational health care expenditure can help explain a significant proportion of overall differences.

- **Spending on prevention was particularly affected following the economic crisis.** Despite the increasingly high priority that health policymakers place on public health and prevention and announcements to the effect of protecting public health budgets in the wake of the global financial crisis, prevention spending contracted in many OECD countries in the years following the economic crisis. Compared with frontline services, such as inpatient and outpatient care, the reduction in spending growth was particularly pronounced for both pharmaceuticals and

prevention, perhaps deemed to be a "softer target". The most recent years have seen renewed growth of prevention spending with average growth rates closer to overall health spending.

- **The H1N1 pandemic also played a role in the slowdown.** The drivers behind the overall reduction in prevention spending growth cannot be explained by any single factor – the trends across countries and components are quite specific. However, to some extent the reduction of prevention spending growth in 2010 can also be traced to the non-crisis related impact of the H1N1 swine flu pandemic. The spread of the virus led to some significant one-off expenditure on vaccinations which in turn resulted in a peak of prevention expenditure in many countries around 2009, with the subsequent reduction in the ensuing years. That said, overall spending for vaccination programmes has tended to increase over the last decade in many countries; this can partly be explained by the introduction of the expensive HPV vaccination into national immunisation plans.

- **The rollout of population-based screening programmes has pushed up spending.** Increased spending on early disease detection can be traced to the rollout of population-based screening programmes in recent decades, in particular for breast and cervical cancer screening. The development of "population-based" screening programmes, in which patients are actively identified and encouraged to participate rather than where the initiative for screening originates from individual health providers or patients, can lead to greater overall costs. In recent years, colorectal cancer screening has become more widely available across OECD countries, including a number of countries where the nationwide rollout of population-based screening programmes has been completed.

- **Further reporting and harmonisation of data on prevention spending is needed.** These findings are based on a set of comprehensive data from the majority of OECD countries on prevention expenditure and its components that are available for the first time. That said, limitations in countries' ability to identify and report prevention spending continue to exist and affect data comparability. This is an iterative process and this initial analysis should stimulate and help countries improve their future reporting. To that aim, additional guidance to compilers of national health accounts about how to classify particular preventive activities should further improve the comparability to inform policymakers on the level and trends in prevention spending across countries.

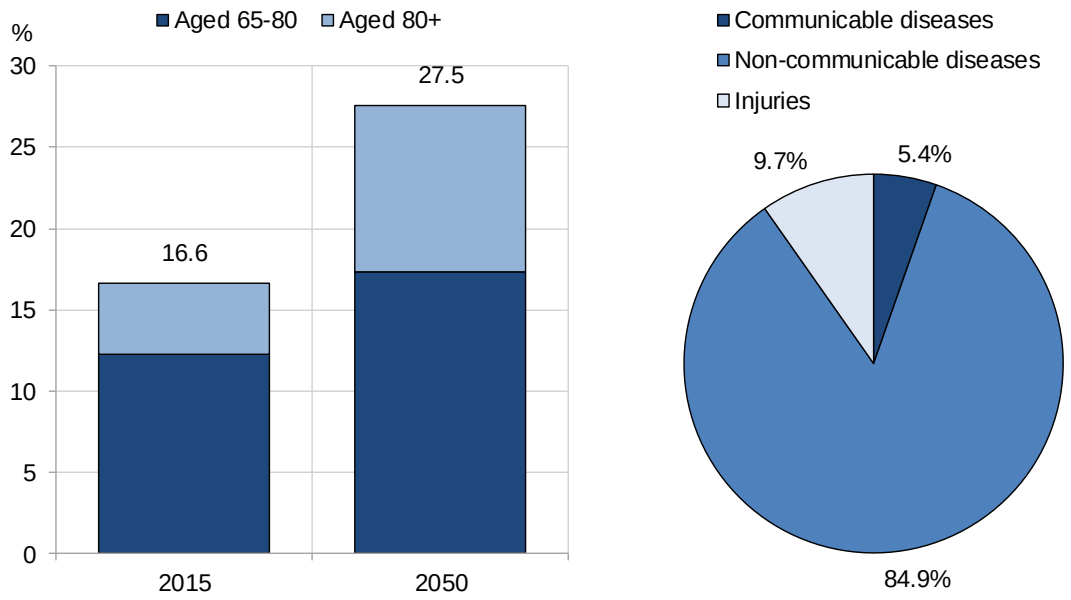
1. INTRODUCTION

Chronic conditions are on the rise while the risk of infectious diseases is ever-present

3. Prevention and public health policies are a key pillar of any modern health system. Their importance is likely to grow in ageing societies with an increasing number of people living with one or more chronic (non-communicable) diseases, such as cardiovascular disease, musculoskeletal disorders, cancer or diabetes, while infectious diseases, both old and new, continue to pose a threat to populations in OECD countries and beyond.

4. As a result of longer life expectancies and declining fertility rates, the share of the population aged 65 years and over is expected to almost double from 16.6% in 2015 to 27.5% by 2050 on average across the OECD; the increases being even more dramatic for the share of the population aged 80 years and over. The burden of non-communicable diseases – already accounting for the vast majority of the overall disease burden in OECD countries today – is expected to grow as more and more people suffer from one or more chronic conditions in a context of ageing societies (Figure 1).

Figure 1. Demographic trends (2015-50) and burden of disease (DALYs, 2016), OECD average



Source: OECD Health Statistics 2017; IHME (2017).

5. Communicable diseases account for only a relatively small share of the overall disease burden in OECD countries. Nevertheless, recurrent outbreaks of infectious diseases that were previously thought under control – for example, the H1N1 pandemic in 2009 or recent measles outbreaks in unvaccinated populations (ECDC, 2016a; CDC, 2016) – still present challenges in OECD countries. Ensuring high national immunisation coverage rates can help prevent many infectious diseases while reducing the need for antibiotics use can stem the spread of antimicrobial resistance (AMR) (Cecchini et al., 2015). In addition, measures also need to be put in place to deal with potential new challenges highlighted by the recent Ebola pandemic in Western Africa or the world-wide spread of the Zika virus.

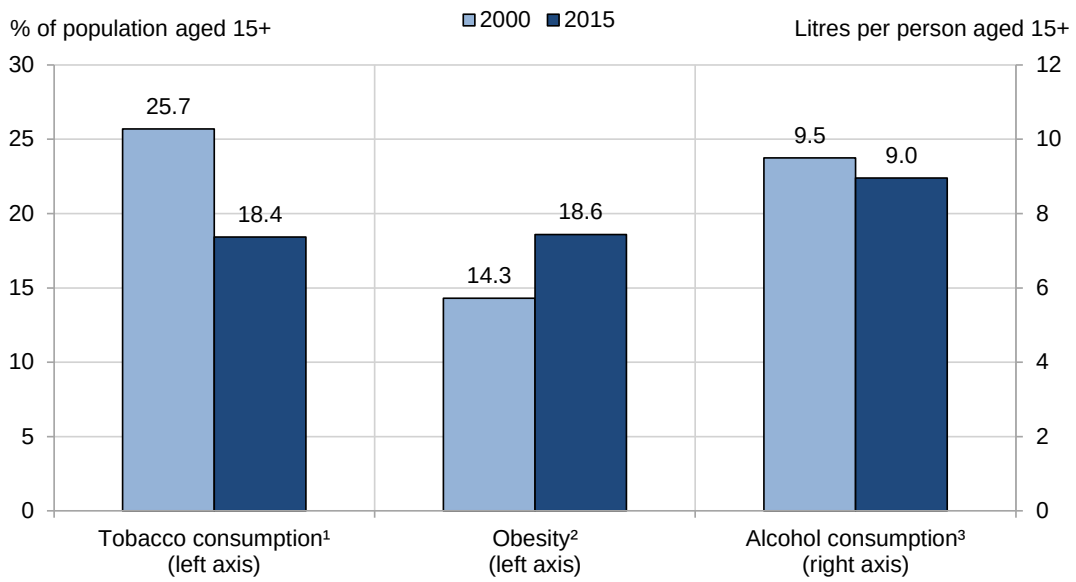
While smoking and drinking rates have fallen on average, levels of obesity continue to grow

6. Prevention policies have seen some success in reducing behavioural risk factors, such as smoking, harmful alcohol use, poor diet and physical inactivity, all contributing to a high burden of chronic diseases. Yet, while some of these risky behaviours have been in decline in many OECD countries in recent years, others have been on the rise (Figure 2). Daily smoking in adults has come down markedly in most OECD countries over the past decade (from 25.7% in 2000 to 18.4% in 2015), even if current rates continue to be a major contributor to mortality in OECD countries. Much of the fall is attributable to individual smoking cessation interventions as well as population-based measures aimed at reducing tobacco consumption, including public awareness campaigns, advertising bans, increased taxation and smoking bans in public spaces and restaurants (OECD, 2015a).

7. The consumption of alcohol in adults has on average decreased slightly in the past decade (from 9.5 litres per adult in 2000 to 9.0 litres in 2015), but while some OECD countries have seen gradual declines in alcohol consumption since 2000, others have experienced increases. Furthermore, hazardous individual drinking patterns have been on the rise, such as heavy episodic drinking in young people and women. Recent OECD work identified a number of policies that have proven effective in tackling harmful alcohol use, such as counselling of heavy drinkers, improving enforcement of drinking-and-driving laws, increasing taxes and prices as well as regulating the marketing of alcoholic drinks (OECD, 2015b).

8. Less progress has been made in the fight against obesity. In fact, obesity rates have been on the rise over the same period. In 2015, nearly one in every five adults was obese on average in OECD countries, up from about one in seven in 2000. To tackle the spread of obesity, a growing number of countries have adopted policies including public awareness campaigns, training of health professionals, advertising limits or bans on unhealthy food, taxations and nutrition labelling (OECD, 2017a).

Figure 2. Development of selected behavioural risks (2000-15), OECD average



Note: The OECD average only includes countries where data is available for both periods.

1. Refers to the share of population aged 15+ who are daily smokers. 2. Refers to the share of population aged 15+ who is obese (Body-Mass-Index of 30 or over). 3. Refers to the consumption of pure alcohol in litres per person aged 15+.

Source: OECD Health Statistics 2017.

9. Increased vaccination rates have reduced the risk of spreading some malicious diseases such as diphtheria, tetanus and pertussis but the outbreaks of measles in parts of Europe and the United States in 2015 and AMR in treating some infectious diseases (e.g. gonorrhoea) show that these diseases are still not eradicated. And while treatment of HIV patients has much improved over recent decades, HIV transmission is still a major concern in OECD countries and beyond, with newly diagnosed cases increasing strongly, in particular in the eastern part of the WHO European Region (ECDC/WHO, 2016). This clearly justifies ongoing public health interventions to better fight communicable diseases.

Getting a better handle on how much countries invest in prevention

10. Preventing chronic diseases and related behavioural risk factors as well as the spread of communicable diseases requires investments in properly designed public health and prevention policies. A growing body of evidence makes the case for investing in health promotion and disease prevention. McDaid et al. (2015a) provide an extensive review of interventions for tackling specific behavioural risk factors including alcohol and tobacco consumption, physical inactivity and unhealthy diets as well as poor mental health and harmful environmental factors and find strong evidence of the cost-effectiveness of at least some measures in all of the covered areas. Similarly, WHO (2014) showed a wide range of preventive measures to be cost-effective – providing returns on investment and/or cost-savings in both the short and longer term – including the promotion of healthy behaviours (e.g. tobacco and alcohol legislation, reduced salt intake, increased physical activity), disease prevention through vaccination and screening and interventions addressing social and environmental health determinants.

11. Investing in health promotion and disease prevention measures that can improve health outcomes at relatively low cost is of particular relevance with concerns about the fiscal sustainability of health systems (OECD, 2015c). The currently available evidence can therefore play an important role in optimising the allocation of resources within the health budget between prevention and treatment with a view to getting the best value for money. In England, Owen et al. (2011) analysed around 200 public health interventions and concluded that the majority of these interventions is highly cost-effective. In this context it is important to note that even though a wide range of public health interventions have been shown to be cost-effective, this does not necessarily imply cost-savings. While some cost-effective interventions have indeed the potential to reduce health care costs while improving health, others may in fact add to them (WHO, 2014; Cohen et al., 2008) as effective interventions may increase the lifespan of someone who might then go on to develop other diseases later in life (Srivastava, 2008). In other words, even if a public health intervention does not lead to cost-savings, the current evidence suggests that many interventions lead to better health outcomes at relatively low cost compared to the status quo or alternative interventions. Furthermore, investing in properly designed public health and prevention policies can result in substantial economic consequences via on the one hand a healthier and more active workforce and on the other longer life leading to higher pension and welfare benefits (OECD/EU, 2016).

12. While the evidence points to spending on prevention as good value for money, rather less is known on how much countries actually spend on such activities and the development in spending over recent years. Against this background, this paper compares levels of prevention expenditure and its subcomponents across the OECD as well as recent trends in order to gauge how much countries invest in health promotion and disease prevention. Using the latest available data based on a revised health accounting framework, the Section 2 compares prevention expenditure in the OECD and tries to identify some of the factors that explain cross-country differences in spending levels. Section 3 looks more closely at the development of prevention expenditure in recent years and further analyses the reasons behind the observed trends. The last section summarises the main findings and identifies possible avenues for further analysis.

2. LEVELS AND STRUCTURE OF PREVENTION SPENDING IN THE OECD

A standard accounting framework allows for a more detailed analysis of prevention spending

13. The most appropriate way of comparing how much countries invest in health promotion and disease prevention is to measure spending on such activities using standard definitions and concepts. The System of Health Accounts (SHA), which has been recently revised to make it respond better to policy needs (OECD/Eurostat/WHO, 2017), provides a comprehensive framework for reporting internationally comparable data on health expenditure and is organised around a tri-axial system of classifications: the different health care functions representing the types of health care services and goods consumed; the providers of these services and goods; and the financing schemes paying for them. The functional classification defines the overall boundary of health expenditure and is organised according to purpose, including services with the primary aim of prevention (Table 1).

14. Since 2016, OECD countries have reported health expenditure and financing data according to the revised SHA framework. Nearly all OECD countries provided information on total prevention expenditure for the most recent reporting years, with around two-thirds also reporting some or all of the more detailed prevention subcategories. While efforts continue to fill data gaps and improve data comparability, the introduction of the revised SHA marked an important step for the analysis of countries' investments in public health and prevention.

Table 1. Classification of health care functions in SHA

Current health expenditure	
HC.1	Curative care
HC.2	Rehabilitative care
HC.3	Long-term care (health)
HC.4	Ancillary services (non-specified by function)
HC.5	Medical goods (non-specified by function)
HC.6	Preventive care
HC.6.1	Information, education and counselling programmes
HC.6.2	Immunisation programmes
HC.6.3	Early disease detection programmes
HC.6.4	Healthy condition monitoring programmes
HC.6.5	Epidemiological surveillance and risk and disease control programmes
HC.6.6	Preparing for disaster and emergency response programmes
HC.7	Governance and health system and financing administration
HC.0	Other health care services not elsewhere classified (n.e.c.)
Memorandum items: health care related	
HCR.1	Long-term care (social)
HCR.2	Health promotion with a multi-sectoral approach

Note: The HC codes refer to the codes used in the functional classification of health care (ICHA-HC) as defined in SHA. Current health expenditure refers to the sum of HC.1-HC.7 (and HC.0).

Source: OECD/Eurostat/WHO (2017).

Defining prevention spending in the System of Health Accounts

15. Prevention spending can be measured through the functional classification in the SHA framework, where the category "HC.6 Preventive care" is defined as "any measure that aims to avoid or reduce the number or the severity of injuries and diseases, their sequelae and complications"

(OECD/Eurostat/WHO, 2017; p. 100) and covers expenditure on activities where the primary purpose is to avoid diseases and risk factors (primary prevention) or the early detection of disease (secondary prevention). This includes both services consumed by individuals (e.g. preventive immunisation or screening) as well as collective services (e.g. information campaigns or epidemiological surveillance).

16. Expenditure on tertiary prevention (i.e. reducing the negative impact of an already established disease or injury) is not included; rather it is accounted for under curative and rehabilitative care in the SHA framework. Moreover, prevention expenditure in SHA does not include pharmaceuticals or medical goods with a preventive function (e.g. anti-hypertensives, statins) which are, by convention, reported under the medical goods category. Also not covered under spending on preventive care are costs associated with introducing and enforcing public health legislation. While the former are considered under the governance and health system administration category, the latter are outside the scope of the core accounting framework and can be reported as a health care related memorandum item.

17. It is important to note that the prevention category in SHA is restricted to those activities that are within the health care boundary[1], i.e. only activities with a primary health purpose are considered. In other words, multi-sectoral approaches of health promotion with a public health interest that go beyond health (e.g. environmental interventions) are not included in prevention expenditure.[2] The definition of prevention employed by the SHA therefore tends to capture a narrower set of activities compared with dedicated public health frameworks, such as the list of Essential Public Health Operations (EPHOs) developed by the WHO with the "Enabler EPHOs" in particular outside the SHA prevention boundary (see Box 1).

18. SHA also provides for a further breakdown of prevention expenditure by service type into six subcategories. These subcategories were re-oriented in the revision of SHA to better reflect the differences in the nature of the types of services facilitating a more appropriate grouping of activities (OECD/Eurostat/WHO, 2017; pp. 103-106):

- **Information, education and counselling programmes (HC.6.1)** focus on primary and secondary prevention through a variety of formats, such as mass media and personal advice. Examples include: information about the health consequences of smoking, diet, physical activity or salt consumption; special warnings to pregnant women about drug abuse and alcohol consumption; information on risk protection effectiveness through the use of crash helmets and seat belts; and information on vaccination or screening programmes.

- **Immunisation programmes (HC.6.2)** refer to primary prevention of a disease through the use of pharmaceutical products, such as vaccines. Examples include immunisation for diphtheria, tetanus, pertussis, measles, mumps, rubella, hepatitis, influenza and HPV.

- **Early disease detection programmes (HC.6.3)** concern the active search for a specific disease (e.g. breast cancer, cervical cancer, HIV/AIDS) early in its course, before symptoms appear. This can involve screening, diagnostic tests and medical examinations.

- **Healthy condition monitoring programmes (HC.6.4)** refer to the active monitoring of healthy conditions and are not focused on specific diseases. These can target specific conditions (e.g.

1. The SHA lists four main criteria to determine whether an activity is within the health care boundary and should therefore be included in health expenditure. These are: 1) primary purpose is health, 2) qualified medical and health knowledge needed, 3) consumption is for final use and 4) there is a transaction of health care goods and services (OECD/Eurostat/WHO, 2017; pp. 55-56).

2. The category "Health promotion with a multi-sectoral approach" exists as a health care related memorandum item in SHA, but to date has not been systematically reported by OECD countries.

pregnancy), specific age groups (e.g. children) or specific health domains, such as dental and general health check-ups.

- **Epidemiological surveillance and risk and disease control programmes (HC.6.5)** includes conducting surveillance of outbreaks and patterns of communicable and non-communicable diseases and of injuries and exposure to environmental agents harmful to health, as well as investigating appropriate responses. Examples include: data collection on risks to human health; epidemiological assessment and analysis of causes and consequences of risks; and monitoring of drinking water in public health laboratories.

Box 1. The 10 Essential Public Health Operations (EPHOs) and their link to SHA

The 10 EPHOs constitute a list of essential public health functions which should be provided by any effective public health system. These centre around three main areas of service delivery (EPHOs 3-5) and are informed by public health intelligence (EPHOs 1-2) and enhanced by enablers (EPHOs 6-10):

Core EPHOs: Intelligence
1. Surveillance of population health and wellbeing
2. Monitoring and response to health hazards and emergencies

Core EPHOs: Service Delivery
3. Health protection including environmental, occupational, food safety and others
4. Health promotion including action to address social determinants and health inequality
5. Disease prevention, including early detection of illness

Enabler EPHOs
6. Assuring governance for health and wellbeing
7. Assuring a sufficient and competent public health workforce
8. Assuring sustainable organisational structures and financing
9. Advocacy communication and social mobilisation for health
10. Advancing public health research to inform policy and practice

The EPHOs take a much broader view of public health and prevention than SHA. In SHA, prevention spending would mainly cover EPHOs 1, 2 and 5, even though not all of the activities subsumed under these EPHOs might be included in the SHA definition of preventive care. EPHOs 1 and 2 roughly correspond to the SHA functions HC.6.5 (epidemiological surveillance and risk and disease control programmes) and HC.6.6 (preparing for disaster and emergency response programmes), respectively. EPHO 5 broadly covers SHA functions HC.6.2 (immunisation programmes), HC.6.3 (early disease detection programmes) and HC.6.4 (healthy condition monitoring programmes) with the main difference that EPHO 5 also includes tertiary prevention which is not part of prevention expenditure in SHA.

While some parts of EPHOs 3 and 4 have a primary health purpose (e.g. protecting against communicable diseases, occupational health, maternal and child health, tackling behavioural risk factors) and would therefore be covered by prevention expenditure in SHA, others focus on broader social and environmental determinants (e.g. housing, transport, climate change) and are outside the SHA boundary.

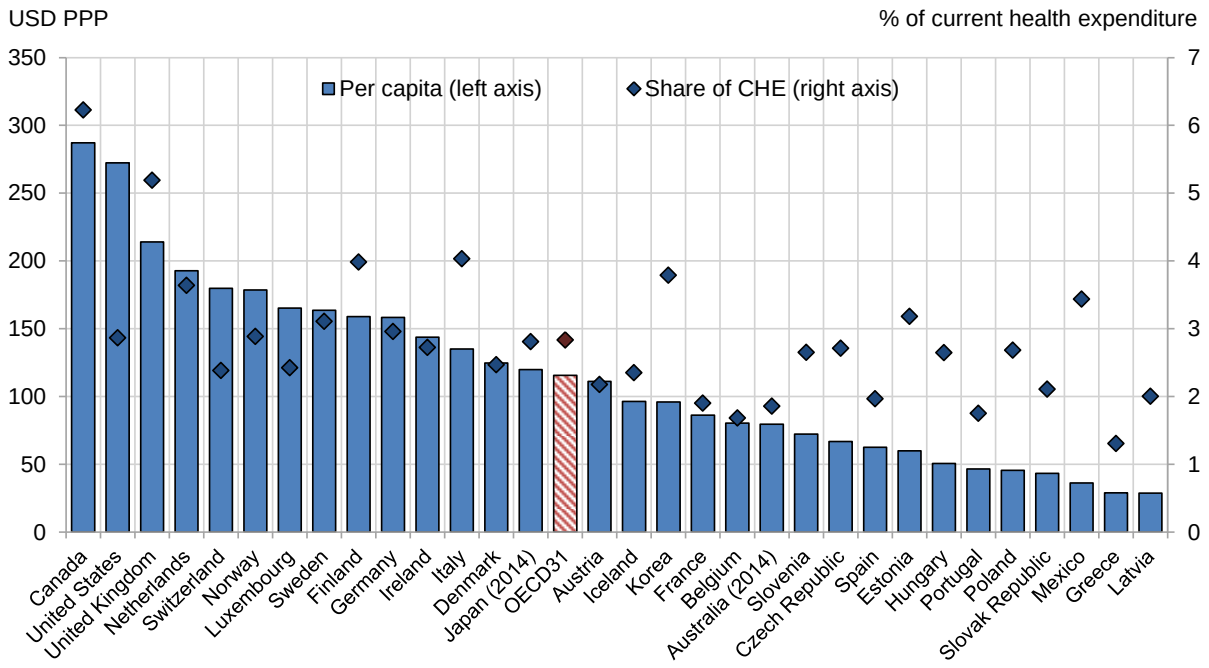
Enabler EPHOs are mostly not reported under prevention expenditure in SHA. Whereas some activities under EPHO 9 might be relevant for SHA function HC.6.1 (information, education and counselling programmes), most other enabler EPHOs would not be explicitly reported in SHA as they do not refer to the final consumption of health care services and goods. Expenditure related to (public) health governance and administration of (public) health financing, which are aspects of EPHOs 6 and 8, are part of SHA function HC.7 (governance and health system and financing administration) rather than preventive care.

Source: WHO (2017) and authors' assessment.

OECD countries spend much less on prevention compared to treatment

19. In 2015, per capita prevention expenditure was highest in Canada and the United States with more than USD 250 (adjusted for differences in purchasing power) – about two-and-half times the OECD average (USD 116) (Figure 3). This is followed by a group of mainly northern and western European OECD members with above average prevention expenditure. At the other end of the spectrum is a group of mainly southern and central European countries with per capita prevention expenditure significantly below the OECD average. Prevention expenditure per capita was lowest in Greece and Latvia. Some of this variation can be attributed to definitional issues and data limitations (see Box 2).

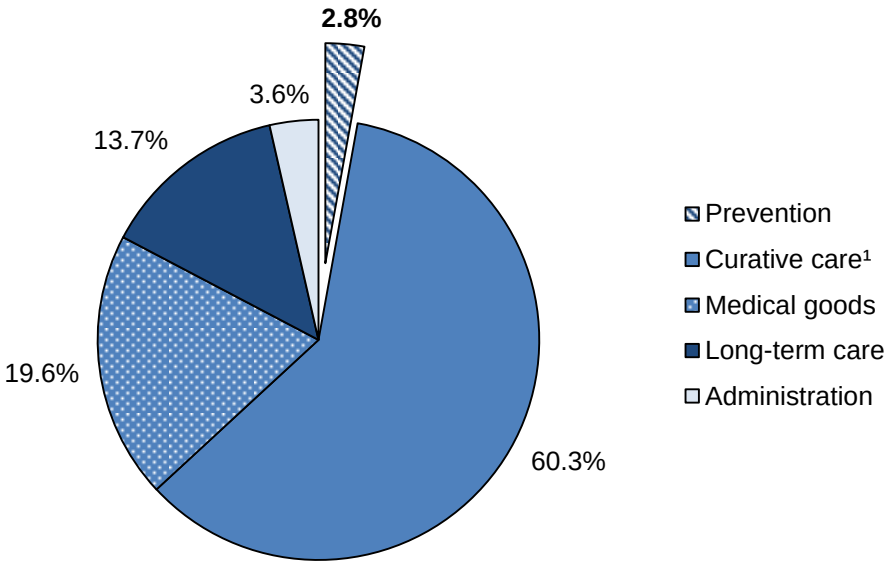
Figure 3. Prevention expenditure per capita and as a share of current health expenditure, 2015



Source: OECD Health Statistics 2017.

20. Measured as a share of current health expenditure, Figure 3 shows that in 2015 nearly all OECD countries allocated between 2 and 4% of all final consumption expenditure on health care services and goods to preventive care. Only Greece (1.3%) devoted clearly below the 2% figure to prevention, whereas Canada (6.2%) and the United Kingdom (5.2%) were the only countries reporting significantly more than 4% of health expenditure to this category. On average, OECD countries dedicated 2.8% of their total health care bill to health promotion and disease prevention. This is much less than OECD countries' spending on other health care functions (Figure 4). Across the OECD about 80% of health expenditures were devoted to treatment including curative and rehabilitative care services (60.3%) and medical goods (19.6%) with the latter consisting mainly of expenditure on pharmaceuticals (although including medicines with a preventive function). The remaining portion of health expenditure went to long-term care (13.7%) and health system administration (3.6%).

Figure 4. Health expenditure by function of health care, OECD average, 2015



1. Includes rehabilitative and ancillary services.

Source: OECD Health Statistics 2017.

21. Given the importance that health policymakers in OECD countries place on public health and prevention in their national health strategies, it may seem surprising to see that at an aggregate level relatively few resources are devoted to prevention, with less money spent on prevention than on administration – a purely supportive health care function. Of course, many prevention activities have few spending implications. In spite of the general improvements in the reporting of prevention expenditure that have been achieved with the new SHA framework, there is reason to believe that spending on prevention is still underestimated in some countries. Moreover, using different definitions of prevention – for example, by including some elements which are by convention part of other health care functions in SHA – might result in higher estimates of prevention spending (Box 3 provides an example of this for France).

Box 2. Some reporting issues and data limitations remain

To some extent the variation in prevention spending across countries reflect differences in reporting practices as well as the ability to identify expenditure on preventive activities in national data sources. Overall, it would be fair to say that prevention expenditure tends to be underestimated for the majority of countries – albeit to varying degrees.

One reason for this is that certain components of health promotion and disease prevention are in some cases missing altogether from countries' health expenditure, mainly due to a lack of appropriate data sources. This is mostly the case for health promotion activities that don't fall under the responsibility of health ministries, but also for preventive activities that are not financed by public payers but through private funds. Moreover, national data sources do not always allow a distinction between preventive care and other health care services. For example, routine check-ups or preventive activities at the primary health care level are frequently reported under curative rather than preventive care expenditure. In some individual cases the inability to separate preventive care from other functions might also lead to an overestimation of prevention expenditure. Canada, for example, reports provincial expenditure on community and mental health – which includes both a preventive component and other services such as treatment or housing – fully under the prevention category in the absence of any further information on the nature of the expenditure. Lastly, even if expenditure on preventive activities is correctly reported as such, it is not always allocated to the designated prevention subcategory. Although this does not explain the underestimation (or in some cases overestimation) of prevention spending as a whole, it affects the allocation between prevention subcategories.

The following list results from a survey conducted by the OECD Secretariat among its group of national health accounts data correspondents in 2016 (see Annex 1 for a template of the survey) and summarises some of the main reporting issues for the different service types of preventive care:

Information, education and counselling programmes: Countries typically only include activities under the responsibility of health ministries while information campaigns and programmes outside of health ministries are in most cases neither included in health nor in prevention expenditure. For example, Sweden does not include mass media campaigns carried out by the government-owned stores selling alcoholic beverages, Austria excludes spending on school information programmes under the responsibility of the Ministry of Education and Estonia does not consider the provision of health and safety information to firms and workers by the Labour Inspectorate. Moreover, personal counselling at the primary health care level (e.g. to inform people about the risks of alcohol and tobacco consumption) is generally included under curative rather than preventive care expenditure.

Immunisation programmes: The reporting of organised vaccination programmes is generally in line with SHA definitions. However, some countries include expenditure associated with vaccination programmes under curative rather than preventive care expenditure. This is true, for example, for the Slovak Republic and to some extent for France which includes only the part of organised vaccination programmes financed by local authorities and the National Fund for Prevention, Education and Health Information (FNPEIS) under prevention expenditure. Norway and Switzerland, on the other hand, include vaccination programmes under prevention expenditure but report them under different prevention subcategories. Furthermore, patient-requested vaccinations outside of organised programmes (e.g. travel vaccinations) are for most countries included under curative rather than preventive care expenditure.

Early disease detection programmes: About one-quarter of countries include laboratory and imaging services as part of screening programmes in their health expenditure but report them as ancillary services rather than under prevention expenditure. This is, for example, the case for Greece, Norway, the Slovak Republic and Sweden. In Finland, screening programmes carried out by ambulatory health care centres are included under curative care. Switzerland includes early disease detection programmes under prevention expenditure but reports them under a different prevention subcategory.

Healthy condition monitoring programmes: Depending on the type of check-up, between one-third (routine general health check-ups) and half (routine dental check-ups, routine antenatal check-ups) of OECD countries include associated expenditure under curative care rather than prevention.

Epidemiological surveillance and risk and disease control programmes: For activities around the design, monitoring and evaluation of prevention programmes, countries find it difficult to separate prevention activities from governance and health system administration. This means that some prevention expenditure might be reported under administration expenditure and vice versa.

Box 3. Prevention expenditure in France using different definitions of prevention

According to SHA data, France spent around 4.6 billion EUR (or 1.9% of all health expenditure) on preventive care in 2015. This includes a wide range of individual and collective services aimed at primary and secondary prevention, as illustrated in the following table:

SHA category	EUR, Millions	Examples of included activities
Information, education and counselling programmes	1 024	Health information and education (e.g. information campaigns for vaccinations or against drug abuse and STIs); Advice for maternal and child health
Immunisation programmes	134	Vaccinations
Early disease detection programmes	385	Early detection of cancer and infectious diseases
Healthy condition monitoring programmes	2 517	Health check-ups; Occupational health; Maternal and child health in dedicated centres; School health services
Epidemiological surveillance and risk and disease control programmes	511	Public health monitoring and surveillance; Prevention of occupational hazards
Preparing for disaster and risk and disease control programmes	25	Managing of resources for health emergencies and crises through the Health Emergency Preparedness and Response Agency (EPRUS)
Total	**4 596**	

For national reporting purposes, however, France includes additional spending items – that is, for certain environmental interventions (e.g. pollution abatement, environmental protection, vector control) – that are not included in the prevention expenditure figure reported in the SHA framework. Prevention expenditure in 2015 according to this broader national definition was about 5.8 billion EUR – one-quarter above the figure reported in SHA.

In France, both prevention expenditure reported in the SHA framework and according to the national definition refer to “institutionalised” prevention; that is, they are limited to preventive activities that are financed or organised by national or departmental prevention funds or programmes. This means, for example, that expenditure on immunisation programmes is limited to “organised” vaccination financed by local authorities and the National Fund for Prevention, Education and Health Information (FNPEIS) – amounting to 134 million EUR in 2015. However, according to the French National Agency for Medicines and Health Products Safety (ANSM), total expenditure on vaccination in 2015 amounted to 547 million EUR. The difference to the 134 million EUR is financed by the French Social Health Insurance and private households and is included under the curative care and medical goods categories in the French SHA data. Similarly, expenditure on screening and health check-ups is limited to certain “institutionalised” programmes and does not include many of the “day-to-day” preventive activities financed by the Social Health Insurance and private households.

According to a DREES (2016) study, such “non-institutionalised” preventive activities and medical goods and laboratory services with a preventive purpose, which are normally included under the curative care, ancillary services and medical goods categories in the French SHA figures, amounted to about 9.3 billion EUR in 2014. The vast majority of this stems from preventive pharmaceuticals (about 4.2 billion EUR) and preventive consultations such as routine examinations in practices of GPs, gynaecologists and paediatricians (2.3 billion EUR).

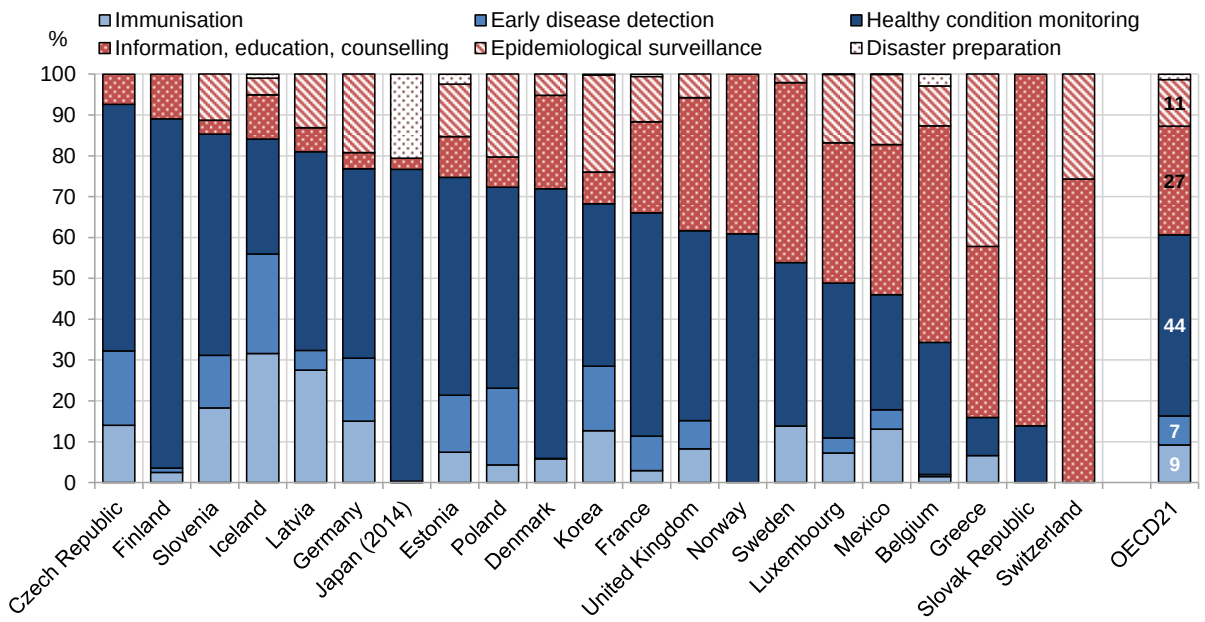
Source: DREES (2017; 2016); OECD Health Statistics 2017.

A large part of prevention expenditure is allocated to healthy condition monitoring programmes

22. Disaggregating prevention expenditure by service type gives a broad overview of the relative priorities that countries attach to different preventive activities (Figure 5). In 2015, for the OECD countries able to disaggregate spending, around 60% of all prevention spending was allocated to *individual* prevention services including immunisation, early disease detection and healthy condition monitoring programmes and 40% to *collective* prevention services including epidemiological surveillance as well as information, education and counselling programmes – although the latter also includes some components of individual consumption such as personal advice from GPs to address behavioural risk factors.

23. Within individual preventive services, a high proportion of spending went on *healthy condition monitoring programmes*. Such programmes were the main prevention spending category for most OECD countries and accounted for nearly half (44%) of all prevention expenditure on average. Among the other individual services, *immunisation programmes* and *early disease detection programmes* each accounted on average less than 10% of prevention spending. However, the spending shares attributed to immunisation differed vastly between countries and made up nearly one-third of prevention spending in Iceland and Latvia but less than 5% in a group of countries including Belgium, Finland, France and Poland. Similarly, the early disease detection category was not reported by a number of countries but accounted for up to one-quarter of prevention spending in Iceland. These disparities can at least partially be explained by a number of the aforementioned reporting issues and data limitations.

Figure 5. Prevention expenditure by service type, 2015

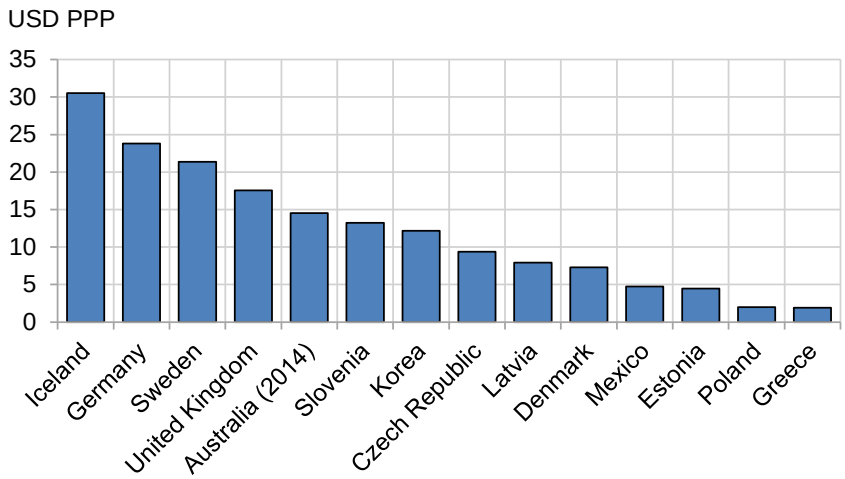


Source: OECD Health Statistics 2017.

24. The variations in prevention spending figures across OECD countries can also be explained by differences in health spending priorities, the scope of coverage of prevention programmes and relative prices of these programmes. However, in many instances, such as for public health information campaigns, the diversity of these programmes in countries is difficult to quantify making a like-for-like comparison nearly impossible. Yet, for other preventive activities, in particular in the areas of immunisation, early disease detection and healthy condition monitoring programmes, OECD countries show more similarities allowing for more in-depth comparisons.

25. ***Immunisation programmes*** account for less than 10% of all prevention spending on average across the OECD. All OECD countries provide publicly financed vaccination against a variety of communicable diseases but spending can differ widely – in 2015, from more than USD 20 per capita in Iceland, Germany and Sweden to less than USD 5 in Mexico, Estonia, Poland and Greece (Figure 6).

Figure 6. Public expenditure on immunisation per capita, selected countries, 2015



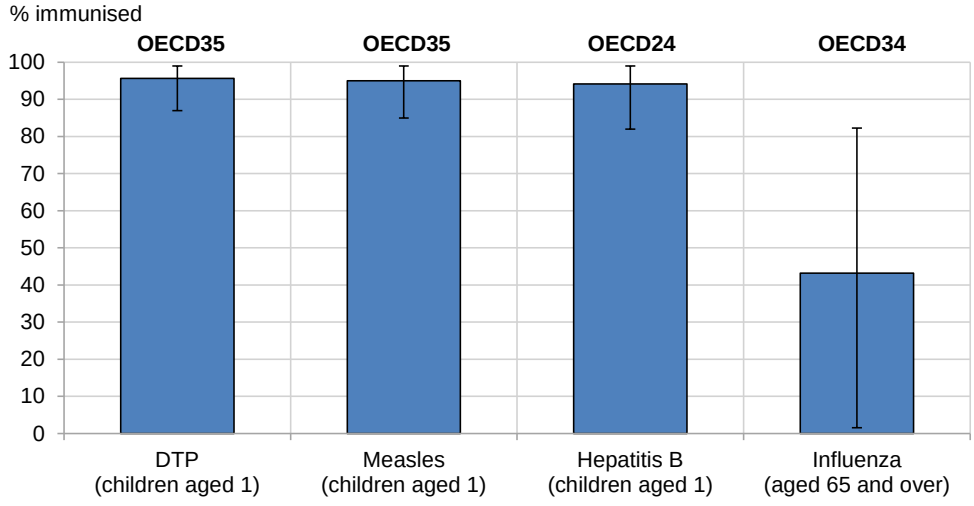
Note: "Public" refers to government/compulsory insurance schemes and therefore includes compulsory private insurance.

Source: OECD Health Statistics 2017.

26. Whereas all OECD countries have established childhood vaccination programmes with generally high coverage rates (Figure 7), some gaps remain leaving unvaccinated populations vulnerable to infectious diseases. On average, 96% of children aged one received the recommended vaccination against diphtheria, tetanus and pertussis (DTP) and 95% received measles vaccinations in 2015. However, coverage rates are below 90% in Mexico for DTP as well as in Italy for measles. Among the 24 OECD countries that have followed the WHO recommendation to incorporate the hepatitis B vaccine into their national childhood vaccination programmes, coverage was 94% on average in 2015. However, a number of countries including Denmark, Finland, Hungary, Iceland, Japan, Norway, Slovenia, Sweden, Switzerland and the United Kingdom are not included in this figure as hepatitis B vaccination is not part of their general infant vaccination programme but is only recommended for specific high-risk groups (ECDC, 2016b; OECD, 2017b). As a result, hepatitis B vaccination rates are significantly lower in these countries. The biggest variation in vaccination rates exists for influenza vaccination for people aged 65 ranging from 1.6% in Estonia to 82.3% in Mexico. On average across the OECD, less than half (43%) of the elderly population was vaccinated against influenza in 2015.

27. Even though there is a good degree of overlap in the range of infectious diseases included in vaccination programmes, schedules and guidelines may differ among countries which in turn can affect the total cost for these programmes. Table 2 provides an overview of vaccination against the human papillomavirus (HPV) in a number of OECD countries. Differences exist with respect to targeted age groups, numbers of recommended vaccination doses and whether boys should also be vaccinated.

Figure 7. Coverage rate for selected vaccinations, OECD average, 2015



Note: Bars show OECD average, whiskers show range across OECD countries.

Source: OECD Health Statistics 2017.

Table 2. Recommended immunisations for HPV infection in selected countries

General recommendation
Catch-up (e.g. if previous dose missed)
Vaccination recommended but not funded by the National Health System.

	Years												
	9	10	11	12	13	14	15	16	17	18	19	26	60
Austria		HPV[1]						HPV[2]					
Czech Republic					HPV[3]					HPV[4]			
France			HPV[5]				HPV[6]						
Germany	HPV[7]						HPV[8]						
United Kingdom				HPV[9]									

1. Females and males. Two doses with at least 6 months interval. 9-valent vaccine recommended.

2. Vaccination recommended for older age groups in a 3-dose scheme.

3. Females only. Recommended only.

4. Recommendation only for men and women not vaccinated in childhood: 3 doses between 18 and 26 years of life.

5. Both marketed HPV vaccines (Gardasil and Cervarix) can be given in a 2-dose schedule with a 6 months interval between doses at the age of 11-13 years (Gardasil) or 11-14 years (Cervarix).

6. Three doses in a 0, 1 or 2, 6 month schedule (girls aged 15 to 19 years).

7. Two doses at 6 months interval. Females only. If the interval between two doses is < 6 months, a third dose may be recommended.

8. Three dose schedule according to the product information leaflet. Females only.

9. Females only. First dose can be given at any time during school year 8, to girls who are usually 12 to 13 years old. Second dose to be given around 12 months after the first. In September 2014, Scotland moved from a 3-dose to a 2-dose immunisation regimen for girls, with the minimum age being 11. In most instances, the second dose is to be administered 1-year post initial dose. For those girls who would be aged 15 throughout their immunisation regimen, the 3-dose regimen is to be used.
Source: ECDC (2016b).

28. Finally, in addition to the vaccination plan and the size of the targeted population, the cost of vaccines can play an important role in explaining differences in overall vaccination expenditure across countries. As with other pharmaceuticals, comparing the prices of vaccines is complicated by a number of factors, such as the existence of unpublished rebates on list prices. Nevertheless, Table 3 displays the difference in the price of the identical HPV vaccine directly after its accreditation in 2006/2007 in a number of OECD countries. The fact that the price in Germany was 80% higher than in the country with the lowest price, New Zealand, may serve as an indication as to why spending on immunisation in Germany is above that seen in many other countries.

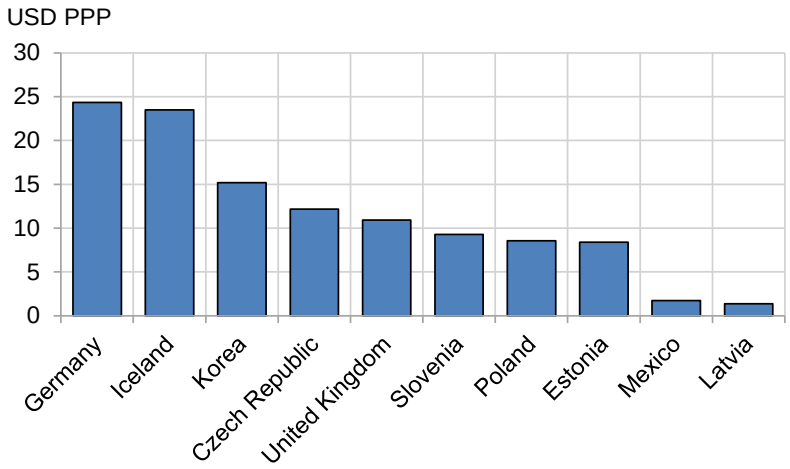
Table 3. Price of HPV vaccines after accreditation in selected countries

	Price (USD PPP)	Name	Approval of vaccine
Australia	315	Gardasil	Jun 2006
Canada	335	Gardasil	Jul 2006
Denmark	359	Gardasil	Oct 2006
Germany	527	Gardasil; Cervarix	Gardasil: Sep 2006; Cervarix: Sep 2007
New Zealand	292	Gardasil	Jul 2006
Switzerland	429 (291 since 2008)	Gardasil	Nov 2006
United States	360	Gardasil	Jun 2006

Source: adapted from Haas et al. (2011)

29. ***Early disease detection programmes*** including, for instance, breast cancer screening, account for around 7% of total prevention spending on average. While differing in scope and design, some early disease detection programmes are part of the benefit package in all OECD countries; however spending implications can be very different across countries (Figure 8).

Figure 8. Public expenditure on early disease detection per capita, selected countries, 2015



Note: "Public" refers to government/compulsory insurance schemes and therefore includes compulsory private insurance.

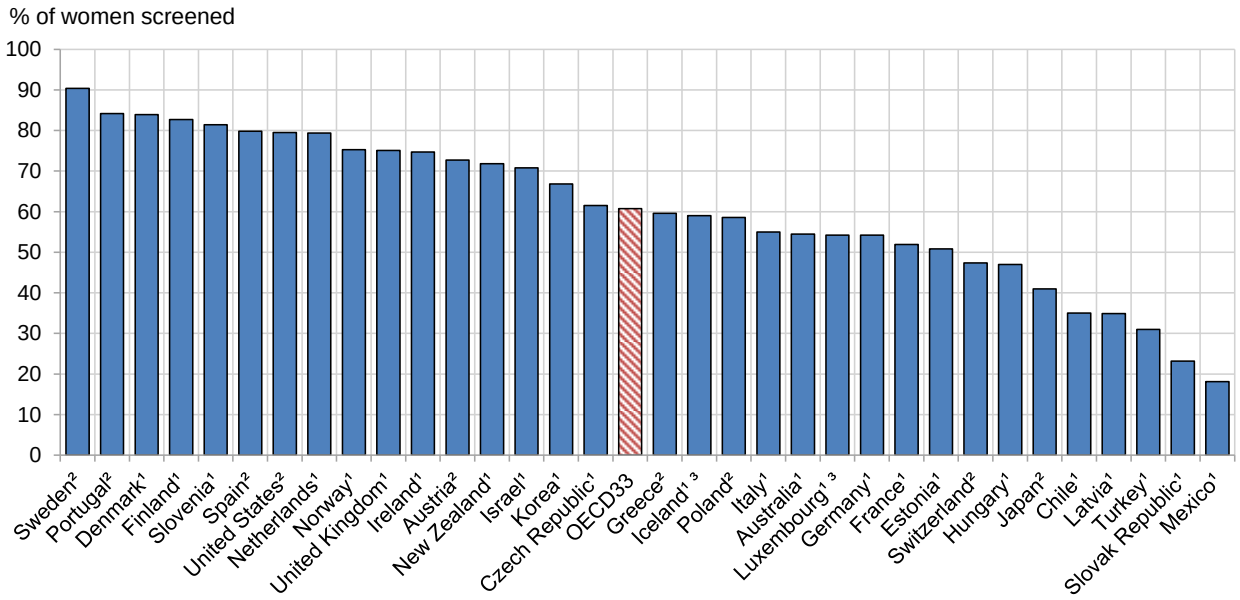
Source: OECD Health Statistics 2017.

30. In 2003, the Council of the European Union recommended screening programmes for breast, cervical and colorectal cancer after reviewing the scientific evidence about their effectiveness. The WHO European Region endorsed this recommendation in 2011 (McKee and Rechel, 2014). As a result, screening programmes for breast, cervical and colorectal cancer are among the most prominent early disease detection programmes across OECD countries. However, depending on the country, these can refer to "opportunistic" screening programmes, where the initiative for screening may come from the individual health providers or patients themselves, or organised "population-based" screening programmes, in which patients are actively identified and encouraged to participate. Evidence suggests that population-based screening programmes are more effective and reach patients with low socio-economic status better than screening that is conducted in an opportunistic fashion (OECD, 2013). Indeed, countries with non-population-based breast cancer screening (e.g. Chile, the Czech Republic or the Slovak Republic) are seen to have lower screening rates than countries with population-based screening programmes (Figure 9).

31. It is important to note that in some cases the coverage may only reflect national programmes. For example, the figure for Australia refers only to its population-based breast cancer screening programme, which is free to all women aged 40 years and over. However, some women aged 50-69 years may choose to screen through private providers. Even where nationwide rollout of population-based screening has been achieved, differences between countries exist in terms of target populations and other design elements which in turn affect overall screening costs. Annex 2 provides an overview of target age, recommended frequency and financial access for breast cancer screening programmes across the OECD.

32. While nearly all OECD countries include screening for breast cancer in their public benefit basket (co-payments may apply), screening programmes have been rolled out less comprehensively for cervical and colon cancer. Going beyond programmes to screen for breast, cervical and colorectal cancer, some countries also have detection programmes for other types of cancer included in the benefit basket. Germany, for example, includes bi-annual screening for skin cancer for people above 35 years of age.

Figure 9. Breast cancer screening in women aged 50-69, 2015 (or nearest year)

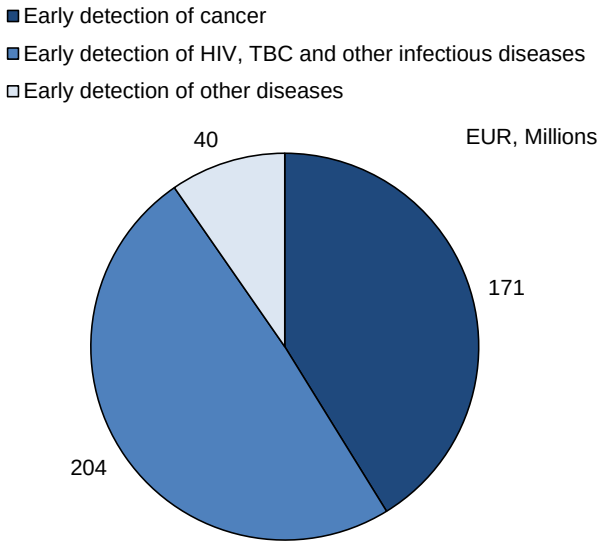


1. Programme data. 2. Survey data. 3. Three-year average.

Source: OECD Health Statistics 2017.

33. Apart from cancer screening, early disease detection programmes can also focus on other conditions such as infectious diseases or on the detection of foetal anomalies. In some countries, such as France, these other programmes may have even higher spending implications compared to cancer screening (Figure 10). Some of the cross-country differences in spending on early disease detection programmes are explained by differences in the extent to which such screening programmes are in place.

Figure 10. Spending on early detection of cancer and other diseases in France, 2016

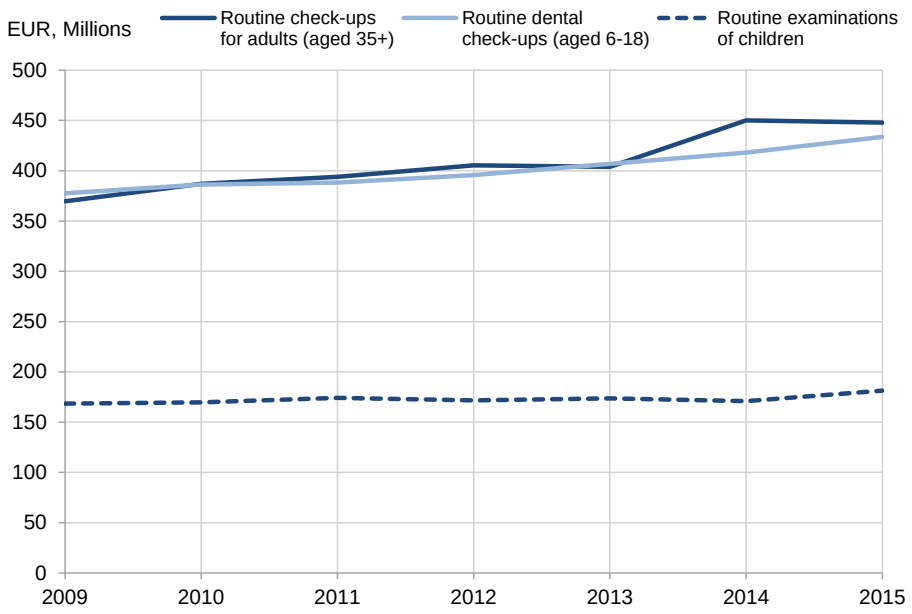


Source: DREES (2017).

34. It is challenging to clearly distinguish ***healthy condition monitoring programmes*** from early disease detection; both aim at detecting disease before symptoms appear, so that interventions can be put in place when its detrimental effects are still limited. There is, however, still some value in separating the two. While early disease detection programmes focus on *specific* conditions, healthy condition monitoring programmes are typically broader in nature. They refer, for example, to the various recommended examinations for new-borns, infants and young children to guarantee their physical and psychological development in good health. General health check-ups targeting the adult population aim to detect risky health behaviours and try to assess whether people are at risk of developing chronic conditions, such as cardiovascular diseases or diabetes. Activities carried out as part of these health check-ups can involve the establishment of the medical history of the patient, clinical examination, laboratory tests of blood (e.g. for cholesterol and glucose levels) and urine (e.g. for protein, erythrocytes, leukocytes, nitrite) and subsequent counselling based on examination and test results. Regular check-ups also exist to screen for dental and eye diseases. Surveillance of employee health is a particular element of healthy condition monitoring and largely depends on the industry and job characteristics. Employees exposed to certain occupational hazards may be required to take more frequent and more thorough medical examinations. Figure 11 gives an example of the costs of several healthy condition monitoring programmes in Germany.

35. Across the OECD, healthy condition monitoring programmes account for nearly half of all prevention spending. As with the other components discussed in this section, the total spending on healthy condition monitoring programmes is affected by (i) the scope of such programmes existing in countries, including the legal obligations put on companies to carry out medical examinations; (ii) the size of the targeted population; (iii) the price of the individual examinations. Unfortunately, very little is currently known about cross-country differences in these components.

Figure 11. Spending on selected healthy condition monitoring programmes in Germany, 2009-15



Source: Bundesministerium für Gesundheit (2016).

36. Generally speaking, specifics in the design of healthy condition monitoring programmes will affect their total costs and can explain some of the observed spending differences. In England, the "NHS Health Check" was introduced in 2009 targeting adults between 40 and 74 who are invited every 5 years to be screened for the risk of developing a chronic condition such as heart disease, stroke, kidney disease, type 2 diabetes or dementia[3] (NHS, 2017). The check-up is frequently undertaken by a nurse or health care assistant and involves questions about lifestyle and medical history, the measurement of weight and height, blood pressure and a blood test. Based on this, personal advice on how to lower the risk of developing any of the most common chronic diseases follows. In total, around 3 million people are invited annually with an uptake of around 50%. Annual costs are estimated at around 165 million GBP for this programme (Robson et al., 2016). In France, the "bilan de santé" is offered every 5 years to the entire population above the age of 16. This check-up appears to be more comprehensive than the NHS check-up but is less standardised. It also includes urine tests and can potentially include a dental examination and test of the eyes, ears, breath and an electrocardiogram or other complementary tests. It takes place in dedicated test centres and not in GP practices (L'Assurance Maladie, 2017). This is again different from the bi-annual check-ups for people over 35 in Germany where GPs receive a fee per check-up carried out. In Canada, the establishment of check-ups covered under the public benefit package is at the discretion of the provinces. Where they exist, for example in Ontario, GPs receive a fee for each check-up carried out but fees vary with the patient's age.

37. Apart from differences in the design of healthy condition monitoring programmes, spending variations are partly influenced by the extent to which countries are able to identify relevant activities. Despite these data comparability issues, the relatively strong focus on healthy condition monitoring programmes – accounting for nearly half of all prevention spending on average – is striking. While many public health interventions have shown to be cost-effective, including a broad range of vaccinations and some screening activities, other interventions such as general health or dental check check-ups – both

3 . This is assessed only for patients above 65 years old.

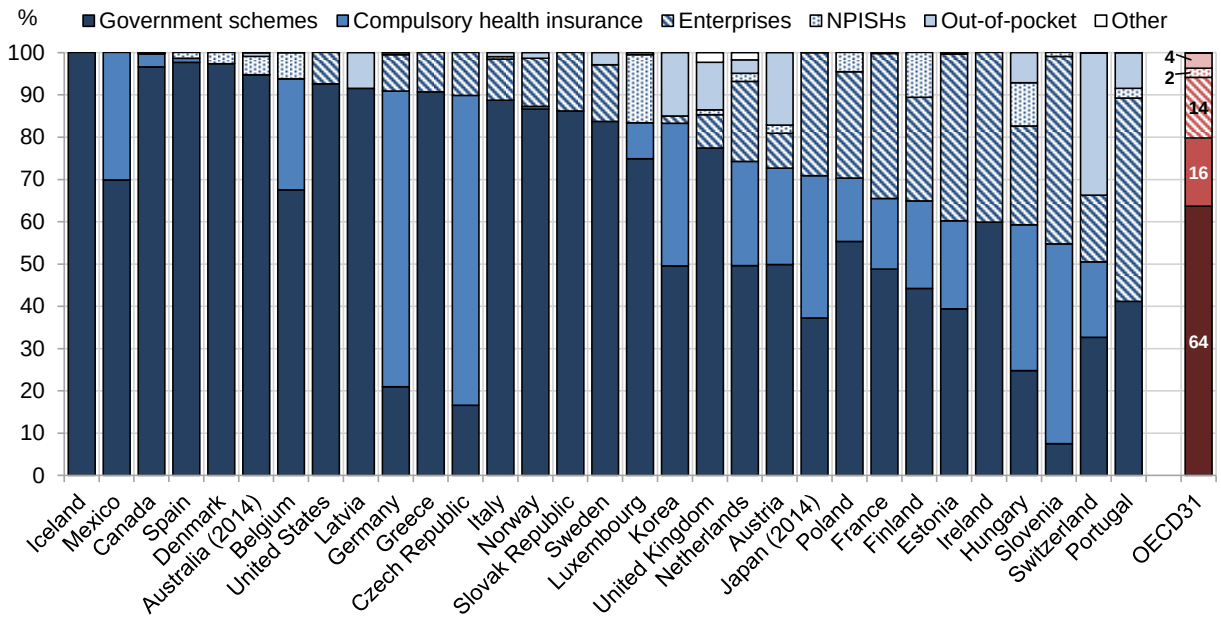
interventions that are included under healthy condition monitoring – tend to be less evidence-based or there is less of a consensus on frequency of routine check-ups (Chang et al., 2016; Krogsbøll et al., 2012; Riley et al., 2013; Davenport et al., 2003). Nevertheless, countries tend to devote a much larger share of their prevention spending to healthy condition monitoring compared to immunisation and early disease detection, while at the same time room for improvement remains across OECD countries in terms of achieving and retaining high vaccination and screening coverage. This suggests that there might be the potential to improve the resource allocation within the area of health promotion and disease prevention.

Government and compulsory insurance are the main financers of preventive care

38. The vast majority of prevention expenditure is financed through government schemes (i.e. central, regional and local government) or compulsory health insurance (i.e. social health insurance and compulsory private insurance). In 2015, government and compulsory insurance covered on average 80% of prevention expenditure (Figure 12). This share is higher than for overall health expenditure (73% for the OECD in 2015). This indicates higher public coverage of preventive care services compared to other health care services which tend to be financed to a larger degree through out-of-pocket payments, voluntary health insurance and other private funds such as those of non-profit institutions serving households (NPISHs) and enterprises. Moreover, Figure 13 shows that government is an important financer across the various preventive activities. Even in countries characterised by health insurance systems, where compulsory insurance cover significant portions of prevention spending, some vital public health activities are financed and organised by central, regional or local government. In some cases, reported spending may be restricted to the latter; the United States only submits spending by public health programmes such as Maternal and Child Health and School Health and does not include programmes covered under compulsory health insurance plans.

39. Notwithstanding some underreporting of private funding for prevention, a stronger role for public payers is to be expected since promoting healthy lifestyles, preventing the spread of non-communicable and communicable diseases and surveillance of population health are normally considered as the responsibility of governments (Box 4 describes the funding of public health functions in England). From an economic perspective, the stronger role of government in health promotion and disease prevention might be warranted due to different market failures and behavioural pressures that may lead to unhealthy behaviours. Equity considerations can also justify government intervention as prevention policies provide an opportunity to address health inequalities as they can be targeted at at-risk individuals and population groups (McDaid et al., 2015b). To a lesser extent the higher share of public financing of preventive care might also reflect the greater availability of routinely collected administrative data for government schemes and compulsory health insurance compared to private funding sources.

Figure 12. Prevention expenditure by type of financing, 2015



Source: OECD Health Statistics 2017.

Box 4. Funding of public health functions at the local level in England

Under the 2012 Health and Social Care Act much of the responsibility for public health at the local level was transferred from the NHS to local government via ring-fenced allocations; such grants account for roughly three-quarters of overall government spending on public health and prevention activities in England. According to the conditions, the grants allocated to each local authority must be used for the purposes of carrying out a raft of public health functions (as specified in the National Health Service Act 2006) and can be used in conjunction with other sources of funding. The allocation is the responsibility of the local authority but should be in line with the overall priorities set. Reporting on the spending is made on a quarterly basis and is reviewed by Public Health England (PHE) on behalf of the Secretary of State for Health. The lines of expenditure that need to be reported are as follows:

Sexual health services – STI testing and treatment	Preventing and reducing harm from drug misuse in adults
Sexual health services – Contraception	Preventing and reducing harm from alcohol misuse in adults
NHS Health Check programme	Specialist drugs and alcohol misuse services for children and young people
Local authority role in health protection	Stop smoking services and interventions
Public health advice to NHS Commissioners	Wider tobacco control
National Child Measurement Programme	Children 5-19 public health programmes
Prescribed Children's 0-5 services	Other Children's 0-5 services non prescribed
Sexual health services – Advice, prevention and promotion	Health at work
Obesity – adults	Public mental health
Obesity – children	Miscellaneous, which includes: (Nutrition initiatives, Accidents Prevention, General prevention, Community safety, violence prevention & social exclusion, Dental public health, Fluoridation, Infectious disease surveillance and control, Environmental hazards protection, Seasonal death reduction initiatives, Birth defect preventions, Other public health services)
Physical activity – adults	
Physical activity – children	
Treatment for drug misuse in adults	
Treatment for alcohol misuse in adults	

Source: Department of Health (2016).

40. Among private expenditure on preventive care, employer-based enterprise schemes tend to be the main financing arrangements. Enterprise schemes primarily include the direct provision and financing of occupational health services by private corporations to their employees. For five countries (Portugal, Slovenia, Ireland, Estonia and France), enterprises accounted for one-third or more of prevention expenditure in 2015 (see Box 5 for an example of employers' obligations on health check-ups). Occupational health care is included under healthy condition monitoring programmes and can take up a significant share of this function (Figure 13). About one third of OECD countries do not report any prevention expenditure attributable to enterprises. This likely reflects difficulties in estimating such expenditure due to a lack of appropriate data sources, rather than the non-existence of preventive activities carried out and paid for by private corporations.

41. Similarly, prevention expenditure paid for by NPISHs through their own funds is not reported by nearly half of countries, most likely also due to a lack of data sources. However, the non-reporting of this spending element is unlikely to influence aggregate spending much as NPISHs account for 5% or less of prevention expenditure where reported (except in Luxembourg, Finland and Hungary). Examples of NPISHs financing include public awareness campaigns or information exchanges (e.g. alcoholism, substance abuse, safe sex) typically financed through donations (from the general public, governments or corporations) and provided by self-help organisations, charities, etc.

42. Lastly, out-of-pocket payments, either as direct payments or in the form of cost-sharing for vaccinations, screening or routine check-ups (e.g. dental check-ups), account for a relatively small share of prevention expenditure overall. Nevertheless, a handful of countries – including Switzerland, Austria, Korea and the United Kingdom – reported a more significant contribution out of households' own resources. The implications of this are unclear. On the one hand, co-payments can limit access to vital personal preventive services, in particular for the vulnerable population who could benefit most from these services. A different story may be self-payment for preventive services in cases where patients are not included in the target population of a prevention programme. Here, the question again arises as to whether these services are effective in the first place.

Box 5. Medical examinations in the workplace: recent changes in France

The recent Loi El Khomri reformed France's Labour Code and included changes regarding employers' obligations on health check-ups. In summary, the new law abolished the principle of systematic medical examinations for all employees in France.

As of 1 January 2017, newly hired employees are no longer required to pass a medical examination before starting work (except for minors and night-shift workers). This is replaced by a simple information and prevention visit (VIP) once hired. The VIP is an interview carried out by a doctor, a medical intern or a nurse within 3 months of starting work in which the employee is asked about their state of health and informed about the risks associated with their activity as well as any prevention measures to be implemented.

Also, the period between each examination is now dependent on the working conditions specific to the employee's employment. Previously, an employee had to undergo a periodic medical examination every two years. Now they must have a follow up within a maximum of 5 years after the first visit. However, this is reduced to 3 years for workers with disabilities, night-shift workers and persons in receipt of a disability pension.

Other high-risk employees benefit from so-called "enhanced individual follow-up". These include those exposed to certain hazards such as lead or asbestos, carcinogens, as well as higher risk occupations e.g. assembly of scaffolding, etc. Such employees are seen by an occupational physician before hiring and undergo a more advanced examination to ensure that the employee's state of health does not constitute a danger for colleagues. The visit must be renewed within a time limit set by the occupational physician and in any case not less than 4 years. An intermediate visit must in the meantime be carried out by a health professional (such as a nurse, for example) within 2 years after the first visit.

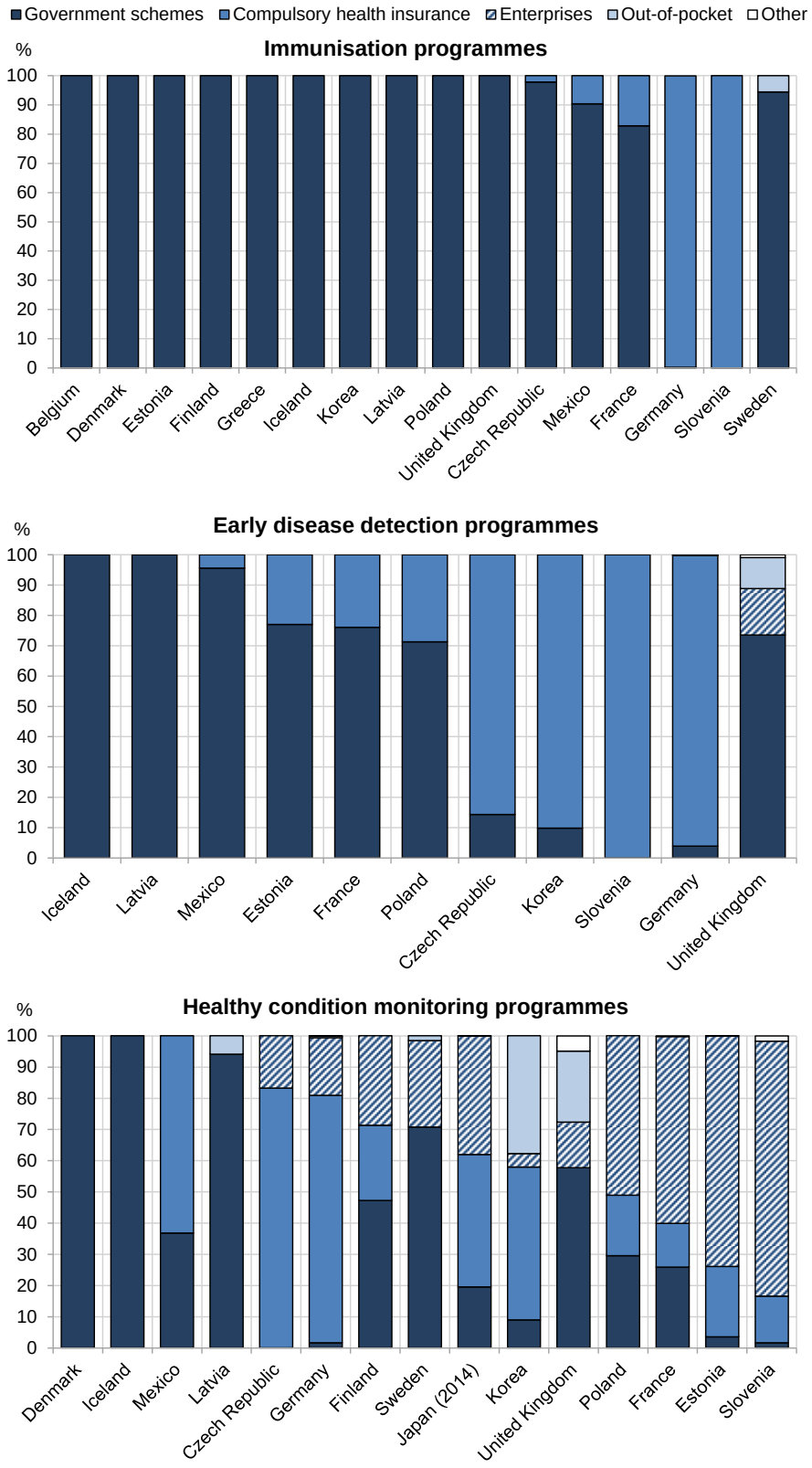
The Labour Code (article R4624-21) also requires the employer to organise a medical check-up within 8 days for an employee who returns to the company after an absence following maternity leave, absence due to occupational disease or an absence of at least 30 days following a non-occupational illness, an accident or an accident at work.

Failure to comply with its obligations can leave the employer liable to sanctions in the form of a fine (Article R4745-1 of the Labor Code) or even imprisonment for repeated offences (L4745-1). An employee can also take legal action against his employer in the event of damage suffered as a result of the employer's failure to meet their medical examination obligations.

Changes in the regulations are likely to result in a reduction of the costs of occupational health care for employers in France.

Source: Ministère du Travail, de l'Emploi, de la Formation professionnelle et du Dialogue social (2017)

Figure 13. Prevention expenditure by type of service and financing, selected countries, 2015



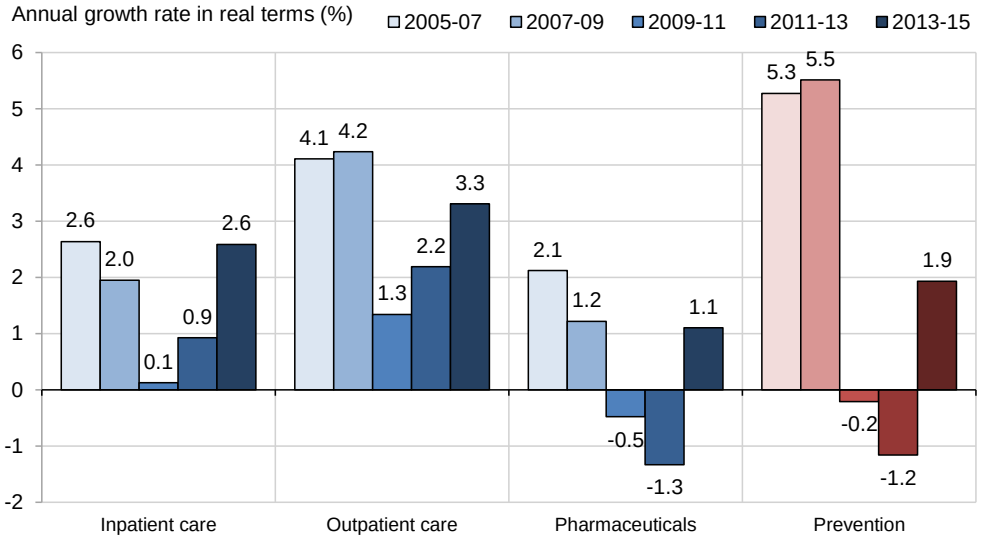
Source: OECD Health Statistics 2017.

3. RECENT TRENDS IN PREVENTION EXPENDITURE

Prevention expenditure was affected post economic crisis more than other health care services

43. While over the longer term, spending on prevention as a share of overall spending has been relatively stable, one recent short-term observation is that prevention expenditure was affected more by the economic crisis than other health care services (Figure 14). The slowdown in overall health spending in the aftermath of the economic and financial crisis affected all spending categories, but to varying degrees. The reduction in growth rates was particularly pronounced for pharmaceutical spending (OECD, 2016) and prevention spending whereas frontline services, including inpatient and outpatient care, were much less affected.

Figure 14. Growth of health expenditure per capita for selected functions, OECD average, 2005-15



Source: OECD Health Statistics 2017.

44. Despite initially protecting public health budgets, prevention spending contracted in more than half of OECD countries both in 2009-2011 and in 2011-2013 (Table 4). This may appear counter-intuitive in that in times of economic uncertainty, governments might wish to prioritise more cost-effective prevention measures for long-term savings. However, short-term fiscal concerns can prevail. Notable decreases between 2009 and 2013 could be observed in the southern European countries that were especially hard hit by the economic crisis including Greece, Portugal and Spain, but also in Hungary, Israel and Poland. Belgium and France saw substantial declines in 2009-2011 and the Czech Republic, Estonia and Mexico in 2011-2013. Even in countries that did not experience such drastic declines in prevention spending, growth rates between 2009 and 2013 were generally reduced compared to earlier periods. In the most recent period (2013-2015), prevention spending has seen renewed growth in many countries and has been roughly in line with overall health spending growth for the OECD as a whole.

45. Public health budgets have been targeted for cuts during the economic crisis in a number of European countries (Mladovsky et al., 2012). In Estonia, the cuts in 2009 focused on non-communicable diseases. Preventive spending was also reduced in Italy and Latvia. Moreover, Iceland, Latvia and Lithuania planned to merge or close public health bodies in the wake of the crisis. On the other hand, a

number of countries have introduced reforms to strengthen public health measures, such as increasing the taxes on alcohol and tobacco, introduce taxes on food and beverages (on sugar or fat) to address poor nutrition (OECD, 2017a) or other measures to encourage healthy nutrition, exercise and screening (Mladovsky et al., 2012). Yet, many of these initiatives mainly related to changes to the legal framework and have only small spending implications.

Table 4. Growth of prevention expenditure per capita by country, 2005-15

	2005-07	2007-09	2009-11	2011-13	2013-15
Australia	16.6	-3.3	7.8	-0.8	3.6
Austria	3.0	-2.7	1.6	3.3	2.9
Belgium	3.7	15.9	-10.3	1.2	0.1
Canada	2.3	3.0	-1.2	2.4	3.2
Czech Republic	17.4	6.9	1.3	-10.4	-4.2
Denmark	1.7	5.5	1.6	3.7	0.8
Estonia	19.4	10.5	2.3	-10.5	9.4
Finland	5.8	-3.0	0.1	2.3	8.7
France	3.1	7.1	-7.9	0.5	-2.6
Germany	6.9	3.3	-3.0	0.1	1.8
Greece[1]	..	..	-11.3	-10.6	8.6
Hungary	-5.8	-6.2	-3.8	-10.2	0.8
Iceland	4.3	-7.3	-3.9	4.0	-1.9
Ireland[1]	..	..	..	..	-1.1
Israel[1]	-4.5	3.3	-12.9	-10.1	..
Italy	3.1	2.0	-1.3	-1.7	0.1
Japan	2.4	16.7	3.1	0.7	12.5
Korea	17.6	22.9	3.2	8.7	11.1
Mexico	4.4	13.3	16.7	-5.4	1.2
Netherlands	0.9	4.4	-1.1	-2.9	-1.3
Norway	3.5	11.5	4.9	5.1	3.2
Poland	7.0	8.0	-2.9	-4.7	5.4
Portugal	-4.5	2.6	-1.4	-13.0	0.4
Slovenia	4.5	1.5	4.0	-2.5	-11.3
Spain	5.2	8.5	-11.4	-5.7	1.3
Sweden	2.9	7.0	0.9	5.3	1.8
Switzerland	3.3	6.4	-1.9	1.4	1.5
United Kingdom[1]	..	..	..	..	4.4
United States	3.3	3.5	-2.4	-0.1	-0.3
OECD25	**5.3**	**5.5**	**-0.2**	**-1.2**	**1.9**

Note: Values refer to annual average growth rates (%) in real terms. Darker bars indicate increases; lighter bars indicate decreases.

1. Not included in the OECD average because data not available for all periods.

Source: OECD Health Statistics 2017.

46. Due to data limitations it is difficult to identify clear trends for the respective components of preventive spending. As healthy condition monitoring is generally the biggest component of total preventive spending, it is not surprising that the development of this spending component is an important

contributing factor to the general trends. This is, for example, true in Korea and Sweden where growth for this component explains a large part of total prevention spending growth since 2009. In Sweden, increased spending for information, education and counselling programmes has also contributed to prevention spending growth in recent years. In Iceland too spending for information, education and counselling programmes increased strongly since 2011, compensating for slower increases or reductions in other prevention measures. Yet, in Greece, much of the total reduction since 2009 can be attributed to cuts in spending for information, education and counselling.

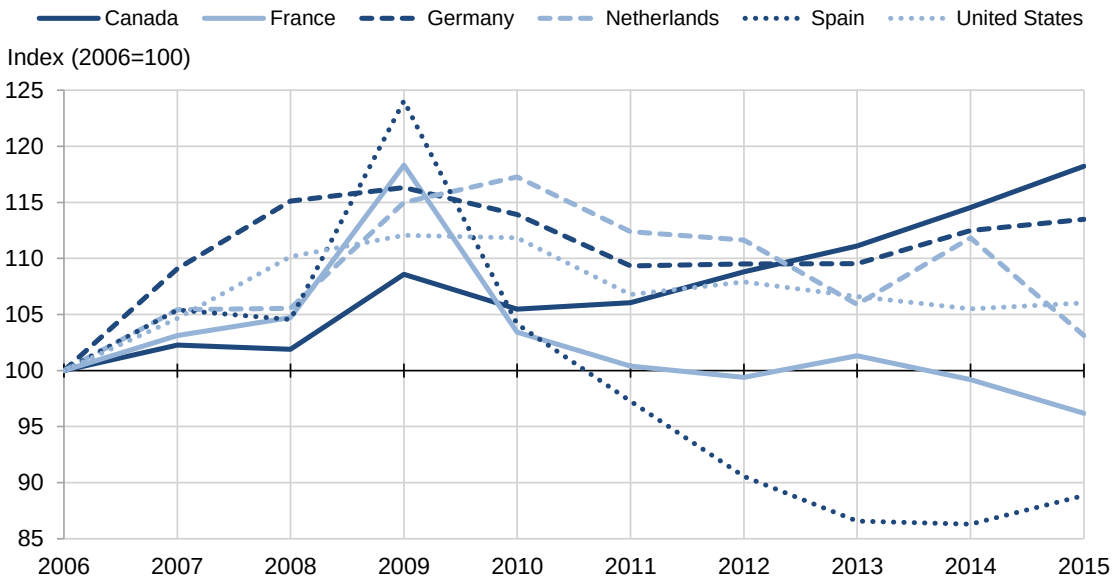
Some of the slowdown since 2009 is due to volatility in immunisation spending

47. One component of prevention expenditure that has shown some volatility in the past is spending on vaccination programmes. There are different reasons for this: pandemic emergencies can require extraordinary vaccination plans, scientific advances that make new vaccines possible can lead to updates in national vaccination plans and attitudes of the population towards voluntary vaccinations may change. One example of emergencies was the H1N1 swine flu pandemic in 2009/2010. After the WHO raised the pandemic alert to the highest possible level in June 2009, countries took the required measures to protect their populations to the greatest extent possible. Effective vaccines against the H1N1 virus became available as of fall 2009 leading to significant one-off expenditure for vaccinations which in turn resulted in a peak of prevention expenditure in many countries around 2009 (Figure 15). This peak explains to some extent the reduction of prevention spending growth since 2009.

48. However, the actual spending for vaccinations was smaller than anticipated in many countries and far less than the acquisition costs.[4] In Germany, for example, the authorities initially ordered 50 million doses of vaccines – eventually covering 25 million people as two doses per persons were deemed necessary to be effective – but in the end, only around 5 million vaccinations against H1N1 were carried out at a cost of roughly 70 million EUR. This led to a 1% increase in preventive spending in 2009. For Germany, a bigger factor in explaining the increase in vaccination spending around that time was the introduction of the "Act to strengthen competition in Statutory Health Insurance" which came into effect in April 2007 and made a number of vaccinations mandatory for all Statutory Health Insurance Funds (Mueller and Boehm, 2009). Before that time, vaccinations were at the discretion of the individual funds.

4 . Current health expenditure as defined in the SHA refers to the final consumption of health care services and goods. The acquisition of unused vaccines is not considered as final consumption and should hence not be part of prevention spending. However, for some countries prevention expenditure includes the acquisition of unused vaccines rather than just the consumption of the vaccine.

Figure 15. Evolution of prevention expenditure per capita, real terms, selected countries, 2006-15

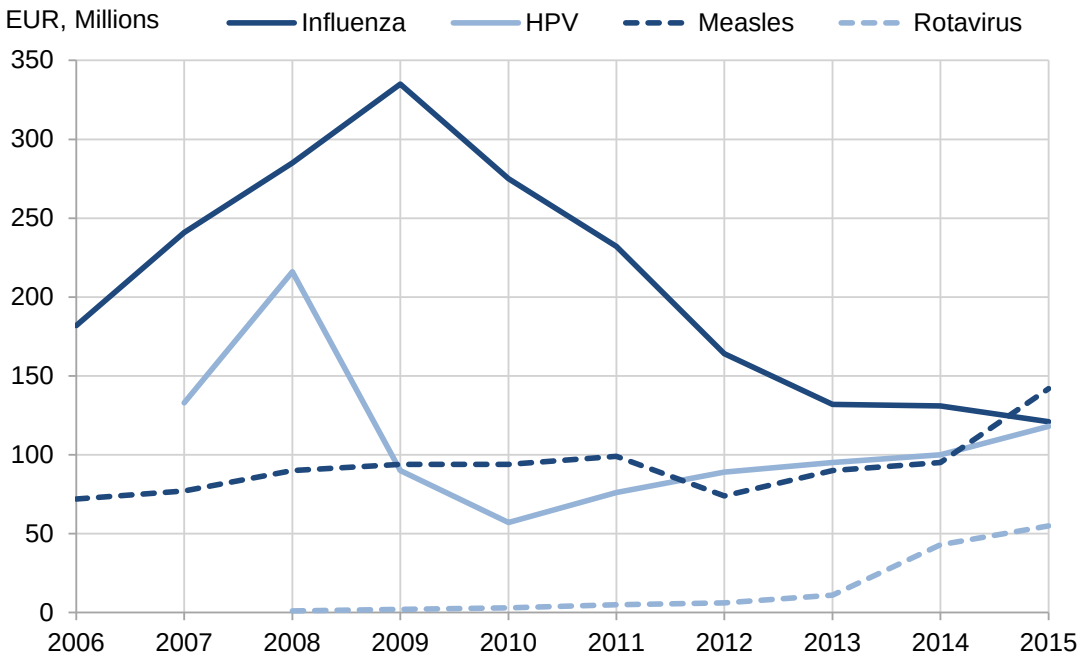


Source: OECD Health Statistics 2017.

49. Changes in national vaccination plans also appeared to have had an important impact on preventive costs: the inclusion of the vaccination against HPV infection – preventing genital warts and lesions that can cause different forms of cancer such as cervical cancer – in public prevention programmes increased vaccination costs substantially, in Germany and elsewhere. Public coverage for HPV vaccinations has been gradually introduced since 2006, the first year that vaccines became available. Part of the significant impact of HPV on total immunisation spending is related to the fact that – compared to other diseases – the costs of the HPV vaccine is relatively high[5] (WHO, 2013). Figure 16 shows the trend in spending for some selected vaccinations over the last 10 years in Germany, also reflecting changes in the national vaccination plan. The rise in costs for influenza vaccination in 2009 is closely related to the H1N1 swine flu pandemic. The spending peak in 2008 for HPV vaccination is due to the increased number of vaccinations carried out in the first year after inclusion in the benefit basket. The change in the vaccination guidelines – from a recommended three doses within one year for girls between 12 and 17 in 2007 to two doses within 6 months for girls between 9 and 14 in 2014 – does, thus far, not seem to have affected the total costs of HPV vaccinations. The uptake of the cost of vaccination against the rotavirus in 2014 is most likely due to its inclusion in the vaccination recommendations by the permanent vaccination committee in August 2013.

5. The cost of H1N1 vaccination was 14 EUR per dose in Germany in 2009 (9 EUR vaccine plus 5 EUR vaccination service charge) (Rieser and Siegmund-Schultze, 2009). Cost for one dose HPV vaccine is around 160 EUR (Deutsches Krebsforschungszentrum, 2016).

Figure 16. Spending on selected vaccinations in Germany, 2006-15



Source: ABDA (2016).

The introduction of population-based screening has driven up spending

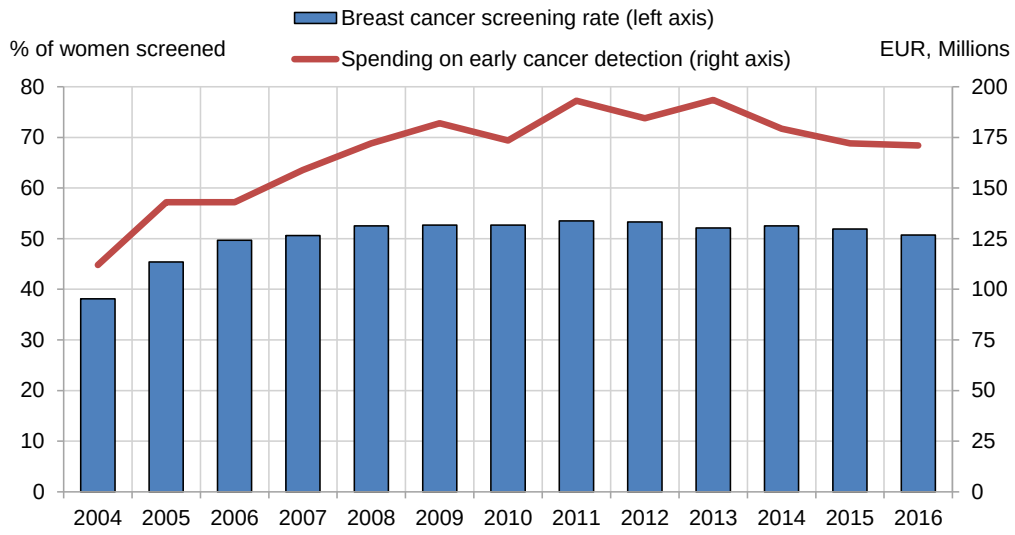
50. Many OECD countries have introduced population-based cancer screening programmes in recent decades and achieved nationwide rollout[6] by the end of the 2000s – in particular for breast and cervical cancer screening. While some countries completed the nationwide rollout of population-based breast cancer screening programmes already in the 1990s (e.g. Australia, Luxembourg, the Netherlands, Sweden) or even earlier (e.g. Finland, Iceland), most other OECD countries followed during the 2000s. Similarly, for cervical cancer screening, several OECD countries have rolled out nationwide population-based programmes since the 2000s, even though, compared with breast cancer screening, cervical cancer screening tends to be less often population-based. In addition to breast and cervical cancer screening, colorectal cancer screening has become more widely available across OECD countries in recent years, including a number of countries where the nationwide rollout of population-based screening programmes has been completed (OECD, 2013).

51. France introduced nationwide population-based breast cancer screening in 2004 under the First (2003-2007) and Second (2009-2013) French Cancer Plans (Moutel et al., 2014) and achieved a significant increase in population coverage from 38% of women aged 50-69 screened in 2004 to 53% in 2009 (Figure 17). At the same time, spending on cancer screening in France doubled (in nominal terms). In 2003, 91 million EUR were spent on the early detection of cancer, increasing to 182 million EUR by 2009. However, between 2009 and 2016, breast cancer screening rates have remained fairly constant suggesting that further increasing or maintaining screening coverage is difficult once the nationwide rollout of a

6. "Nationwide rollout is considered completed if at least ca. 90% of the eligible target population in the respective region or country should have received at least one personal invitation to attend the screening programme, and all elements of the screening services should be fully functional in order to assure that every eligible person has an equal opportunity to participate in screening." (OECD, 2013; p. 67)

population-based screening programme has been achieved. Additional measures might be necessary to reach the rest of the population (OECD, 2013). Spending on early cancer detection has also remained fairly stable from 2009 to 2016 but has declined somewhat in recent years after reaching a peak of 194 million EUR in 2013.

Figure 17. Breast cancer screening and early cancer detection spending in France, 2004-16



Note: Screening rates are based on programme data and refer to women aged 50-69.

Source: OECD Health Statistics 2017; DREES (2017; 2016; 2013).

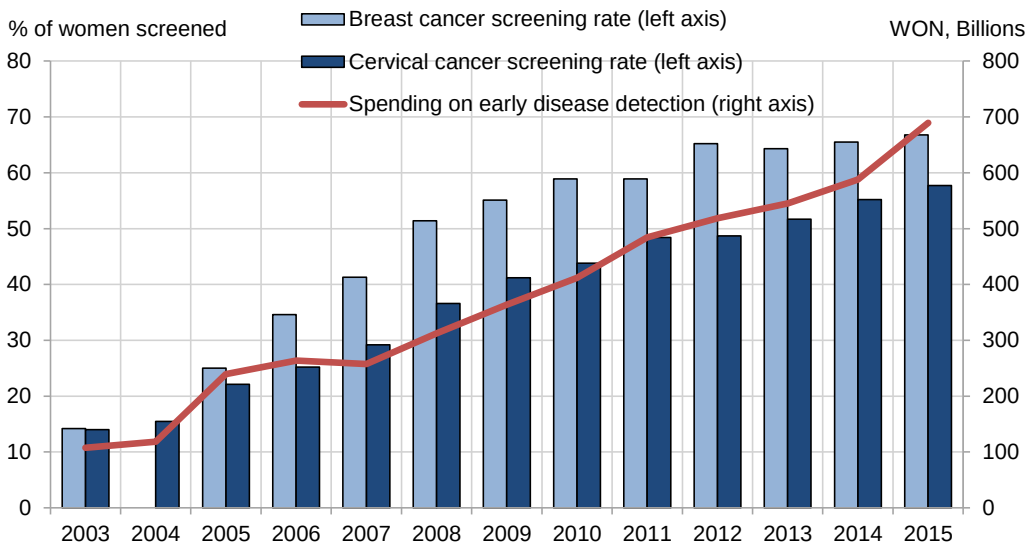
52. Korea launched the National Cancer Screening Programme (NCSP) in 1999 covering free-of-charge breast, cervical and stomach cancer screening for Medical Aid[7] beneficiaries (Kim et al., 2011). In subsequent years, the target population as well as the scope of the NCSP has been expanded. For example, in 2002, the target population was expanded to include National Health Insurance (NHI) beneficiaries in the lower 20% income bracket; in 2003, liver cancer was added to the NCSP and the target population expanded to the lower 30% of NHI beneficiaries; in 2004, colorectal cancer screening was added to the NCSP; in 2005, the target population was expanded to the lower 50% of NHI beneficiaries (Kim et al., 2011). Cost-sharing applies to the upper 50% of NHI beneficiaries who are not covered by the NCSP free-of-charge. However, whereas these patients initially had to cover 50% of the screening expenses out of their own pockets, cost-sharing was reduced to 20% in 2005. In 2010, cost-sharing requirements were removed for cervical cancer screening and reduced to 10% for breast, colorectal, stomach and liver cancer screening (Kim et al., 2011).

53. All these changes have contributed to the dramatic increases in screening rates as well as the substantial growth of spending on early disease detection observed in Korea since the early 2000s (Figure 18). Breast cancer screening coverage continuously increased from only 14% in 2003 to 67% in 2015. Similarly, population coverage for cervical cancer screening saw a four-fold increase within a decade, from 14% in 2003 to 58% in 2015. These large expansions in coverage were accompanied by substantial spending increases. In 2015, expenditure on early disease detection amounted to WON 689 billion, a more than 500% increase (in nominal terms) from the WON 108 billion spent in 2003. The increases were especially large between 2004 and 2005, when the amount spent on early disease detection

7. The Korean Medical Aid programme provides medical services for the low-income population.

more than doubled. This coincided with the expansion of the NCSP's target population and the relaxing of cost-sharing requirements.

Figure 18. Cancer screening rates and early disease detection spending in Korea, 2003-15



Note: Screening rates are based on programme data. Prior to 2008, data refer to women aged 50 and over for breast cancer screening and to women aged 30 and over for cervical cancer screening. From 2008 onwards, data refer to women aged 50-69 and 30-69, respectively.

Source: OECD Health Statistics 2017.

54. Less is known about the development of spending associated with healthy condition monitoring programmes. Generally, the biggest impact on overall costs will be associated with the introduction of such a programme or changes to the target groups. For example, changes in the scope of healthy condition monitoring programmes have been at the heart of the strong increase in prevention spending in Korea in recent years. In 2007 the Korean government introduced the "National Screening Program for Transitional Ages" – a health check-up programme focussing on two specific age groups, at 40 and 66 (Kim et al., 2012) – and the "National Health Screening Program for Infants and Children" (Moon, 2010). Moreover, since 2012, health check-ups were also extended to beneficiaries of the Medical Aid programme. Similarly, the "NHS Health Check" was introduced in 2009 in England and can be expected to have contributed to the rise of preventive spending in that year.

55. On the other hand, after a review questioning the effectiveness of health check-ups, such examinations were put on hold in Denmark in 2013 (Krogsbøll et al., 2013). In Ontario, Canada, criticism about the usefulness of annual check-ups has also led to a reassessment of the programme (Ministry of Health and Long-Term Care Ontario, 2017). As of 2013, the scope of "Periodic Health Visits" has been refocused making it more patient-specific and moving away from a standardised one-size fits all examination. The fee schedule now reflects differences in age groups and pre-existing conditions. For healthy individuals the fee was cut from CAD 72 to CAD 50 with estimated savings in fees totalling CAD 7.3 million in the 2012/13 financial year and CAD 29 million in the 2013/14 financial year.

4. CONCLUSIONS AND WAYS FORWARD

56. The "Healthy Ireland" strategy, Austria's public health promotion strategy (as part of the agreement between the federal and state governments) or Mexico's national strategy against obesity, overweight and diabetes, show that strengthening prevention and public health is high on the agenda of health ministries across the OECD. Given the strong evidence on the cost-effectiveness of many interventions in health promotion and disease prevention, the findings from this analysis that average spending on prevention and public health interventions accounts for less than 3% of overall health expenditure (and has remained more or less stable over time) may appear surprising and at odds with the importance attached to public health and prevention by policymakers. It should be stressed though, that not all public health measures have spending implications that are reflected in prevention expenditure as measured under SHA.

57. Within overall prevention spending, healthy condition monitoring programmes, which cover routine medical and dental check-ups as well as occupational health services, account for almost half of prevention spending, whereas spending on immunisation and screening programmes combined typically account for less one-fifth of prevention spending. Given the debate around the scope and frequency of such check-ups and their effectiveness and potential to save costs, this may raise questions regarding the optimal resource allocations given the constraint on health budgets. A further qualitative analysis could highlight the variation in prevention and public health priorities across countries but could also help re-assess whether countries focus on the right prevention programmes – that is, those that bring the most value for money.

58. Recent spending trends show that prevention spending was cut during the financial crisis. Some of this coincided with the increases in vaccination spending to fight the H1N1 epidemic which peaked in 2009 and dropped thereafter. Over the longer term, spending for vaccination programmes has increased in the last decade, not least due to the inclusion of the expensive HPV vaccination in national immunisation plans. Cancer screening programmes have also been rolled out in the 2000s and have been a driver of spending on early disease detection. Check-ups for healthy adults have been introduced in a number of countries but were redesigned in others to reduce costs given some disappointing evaluations of population-wide healthy condition monitoring programmes. Generally, it seems that advancement in technology and knowledge, such as the development of new vaccines as well as changes in unit costs are driving prevention spending trends. Again, gathering more information on other prevention domains, such as occupational health care or school prevention programmes, is required to get a more complete picture.

59. This paper compares and analyses spending on prevention and public health in OECD countries at an aggregate level as well as at a more detailed service type level. The analysis is the first to use the revised definition of prevention spending and the new structure of subcategories introduced under the updated SHA framework. For health spending in general, the revision of the SHA framework has led to greater coverage of countries reporting the different health spending elements and improved international comparability. This is also true in the area of prevention spending. Nevertheless, limitations in countries' ability to identify and report the elements of prevention and public health spending and all related subcategories still exist and affect data comparability. This is an iterative process and more can be done to further improve the comparability of these figures, for instance by providing additional guidance to national health accounts data correspondents about how to classify particular preventive activities.

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ANNEX 1: SURVEY ON ACCOUNTING OF PREVENTION EXPENDITURE UNDER SHA

1. What data sources are you using for the estimation of expenditure on preventive care (HC.6)? Please select all that apply.

- ☐ National accounts - government expenditure by function (COFOG)
- ☐ Public accounts/budgets
- ☐ Financial records of social/public health insurance
- ☐ Provider-specific data sources
- ☐ National accounts - supply/use tables
- ☐ Company accounts
- ☐ Surveys of household spending
- ☐ Ad-hoc studies or irregular surveys
- ☐ Expert opinion/estimate
- ☐ Other, please specify:

2. For each of the following activities, please indicate if it is included in your health accounts (i.e. HC.1-HC.7). If the activity is included, please specify under which HC, HP and HF categories.

Activity	Is the activity included in your health accounts?	Under which HC categories is the activity classified?	Under which HP categories is the activity classified?	Under which HF categories is the activity classified?	Additional information (e.g. specify the content of the activity, estimation method used, how/why is activity allocated to several different HC categories, reason for not including the activity, etc.)
Childhood vaccination programme					
Public information campaigns providing information on the vaccination programme	Select…				
Service provision (cost of vaccine, health care personnel, overheads)	Select…				
Programme design, monitoring and evaluation	Select…				
Cancer screening programmes (e.g. breast cancer)					
Public information campaigns providing information on the screening programme	Select…				
Service provision (cost of mammography, health care personnel, overheads)	Select…				
Programme design, monitoring and evaluation	Select…				
General medical examination programme (routine check-ups)					
Public information campaigns providing information on the medical examination programme	Select…				
Service provision (cost of medical examination, health care personnel, overheads)	Select…				
Programme design, monitoring and evaluation	Select…				
Other activities					
Vaccination requested by the patient outside of an organised vaccination programme (e.g. vaccination for travel)	Select…				
Regular dentist visits for routine check-up (e.g. examination of teeth/gums/mouth, x-rays, cleaning, advice on oral hygiene)	Select…				
Routine antenatal check-ups (maternity outpatients)	Select…				
Monitoring of drinking water and food in relation to water and food-borne disease	Select…				
Charity providing information and support to reduce incidence of suicide	Select…				
Preventive medicines (e.g. antihypertensive drugs, statins)	Select…				

3. For each of the following activities related to interventions against behavioural risks (e.g. harmful drinking, smoking, substance abuse), please indicate if it is included in your health accounts (i.e. HC.1-HC.7). If the activity is included, please specify under which HC, HP and HF categories.					
Activity	**Is the activity included in your health accounts?**	**Under which HC categories is the activity classified?**	**Under which HP categories is the activity classified?**	**Under which HF categories is the activity classified?**	**Additional information** (e.g. specify the content of the activity, estimation method used, how/why is activity allocated to several different HC categories, reason for not including the activity, etc.)
Mass media campaigns providing health information to the public or specific groups about how to reduce risks (e.g. campaign against drinking & driving, anti-drug campaign)	Select…				
School information programme to prevent substance abuse (alcohol, nicotine, drugs)	Select…				
Activities at the primary health care level (e.g. counselling of patients at risk by physicians and other health care professionals)	Select…				
Making regulations (e.g. advertising or labelling regulations)	Select…				
Costs to those regulated of complying with regulations (e.g. costs of new labelling)	Select…				
Enforcing of regulations (e.g. inspection, monitoring, tackling contraventions)	Select…				

4. For each of the following activities related to occupational health care and interventions against occupational risks, please indicate if it is included in your health accounts (i.e. HC.1-HC.7). If the activity is included, please specify under which HC, HP and HF categories.					
Activity	**Is the activity included in your health accounts?**	**Under which HC categories is the activity classified?**	**Under which HP categories is the activity classified?**	**Under which HF categories is the activity classified?**	**Additional information** (e.g. specify the content of the activity, estimation method used, how/why is activity allocated to several different HC categories, reason for not including the activity, etc.)
Routine medical check-ups required for employees (on or off-business premises)	Select…				
Providing health and safety information to firms and workers about sources of hazards and how to reduce risks (e.g. about the safe handling of dangerous materials)	Select…				
Making regulations to protect employees' health and safety (e.g. making wearing of hard hats mandatory)	Select…				
Costs to those regulated of complying with regulations (e.g. buying mandatory equipment)	Select…				
Enforcing of regulations (e.g. inspection, monitoring, tackling contraventions)	Select…				

5. Do you include any other main spending items under preventive care (HC.6) that go beyond the activities described in Q.2, Q.3 and Q.4? Please specify.

6. Do you include any activities under preventive care (HC.6) that are outside of an organised prevention programme, i.e. activities at the individual's own initiative? Please specify.

7. Do you have any other comments you consider relevant for your estimate of preventive care (HC.6)?

8. Are you willing to provide more details regarding your responses?

Select…

ANNEX 2: BREAST CANCER SCREENING PROGRAMMES IN THE OECD

Target age in breast cancer screening programmes, 2010

Nationwide population-based		Population-based but not nationwide	Non-population-based	
Wider age range (20 years+)	Narrower age range	Wider age range (20 years+)	Wider age range (20 years+)	Narrower age range
Australia (50-69), Belgium (50-69), Finland (50-69), France (50-74), Germany (50-69), Hungary (45-65), Iceland (40-69), Israel (50-74), Italy (50-69), Korea (40+), Latvia (50-69), Luxembourg (50-69), Netherlands (50-75), New Zealand (45-69), Norway (50-69), Poland (50-69), Portugal (45-69), Spain (50-69), Sweden (40-74), United Kingdom (50-70)	Ireland (50-64)	Canada (50-69), Denmark (50-69), Japan (40+), Slovenia (50-69), Switzerland (50-70), Turkey (50-69)	Czech Republic (45+), Greece (40+), Slovak Republic (40-69), United States (50+)	Chile (50-54)

Recommendations on frequencies of breast cancer screening, 2010

Nationwide population-based		Population-based but not nationwide	Non-population-based
Frequent access (every two years)	Less frequent access (every three years)	Frequent access (every two years)	Frequent access (every two years)
Australia, Belgium, Finland, France, Germany, Hungary, Iceland, Ireland, Israel, Italy, Korea, Latvia, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Spain,	United Kingdom	Canada, Denmark, Japan, Slovenia, Switzerland, Turkey	Chile, Czech Republic, Greece, Slovak Republic, United States

Breast cancer screening programmes and financial access, 2010

Nationwide population-based		Population-based but not nationwide		Non-population-based	
Free access	Access with fee	Free access	Access with fee	Free access	Access with fee
Australia, Belgium, Finland, France, Germany, Ireland, Italy, Japan, Korea, Latvia, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, United Kingdom	Hungary, Iceland, Israel, Poland	Denmark, Switzerland, Turkey	Canada, Slovenia	Chile, Czech Republic, Greece, Slovak Republic	United States

Note: Changes in breast cancer screening programmes since 2010 are not included in the tables.
Source: Adapted from OECD (2013).

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