Policy Brief

Cardiovascular Disease and Diabetes

Policies for Better Health and Quality of Care

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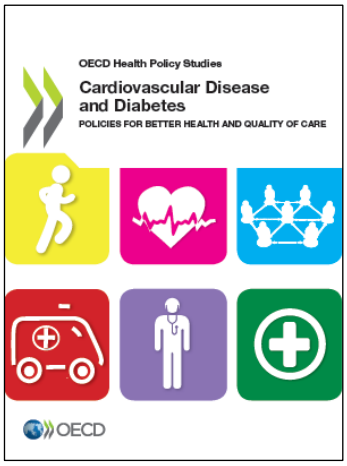
OECD

Directorate for Employment, Labour and Social Affairs



Over the last few decades, mortality from cardiovascular disease (CVD) has dropped faster than mortality from other causes. Despite this great success, prospects for making further progress are threatened by rising levels of obesity and diabetes and the lack of adherence to recommended treatments.

This report shows that throwing ever more resources to care services is not enough to deliver good outcomes and reduce unacceptable variation in performance for CVD and diabetes. It provides a better understanding of how countries can improve health system performance to reduce the burden of these diseases.

Cardiovascular disease and diabetes continuing to account for a high disease burden across OECD

Mortality from CVD dropped significantly over the past five decades but remains high

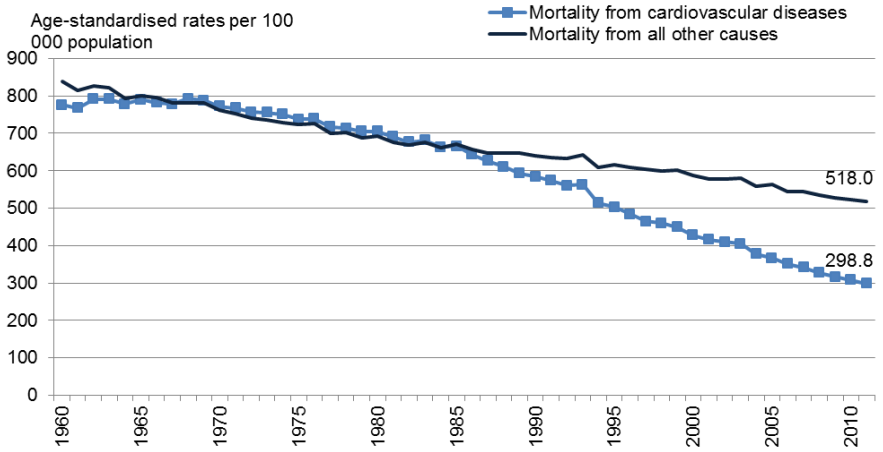
The last 50 years have witnessed remarkable improvements in cardiovascular disease (CVD) outcomes (Figure 1). Since 1960, CVD mortality rates have fallen by over 60%, whereas mortality rates for all other causes fell by 38% in OECD countries. Advances in the prevention and treatment of CVD have outpaced those of many other diseases. Smoking rates have fallen in virtually all OECD countries, from 28% in 1997 to 21% in 2012, resulting in a demonstrable positive impact on CVD outcomes. Technological innovations have expanded the health system's capacity to control CVD risk factors such as high cholesterol and blood pressure, improve the management of diabetes and provide more effective care in the event of an acute episode such as a stroke or heart attack. The foundation upon which these successes have been built has been the ability of health systems to deliver better and more timely access to high-quality health programmes, services and technologies.

Despite these gains, CVD remains the most common cause of death in most OECD countries, representing more than 40% of the health burden. The disease burden is high particularly in central and eastern European countries such as the Slovak Republic, Hungary, Estonia and the Czech Republic with mortality rates in excess of 500 per 100 000 population, while the mortality rate is less than 200 per 100 000 population in Japan, France, Korea and Israel.

Prospects for further improvements are slowing

Due to rising levels of risk factors for CVD, such as obesity and diabetes, the pattern of declining mortality is coming to an end or even reversing, particularly among younger age groups. Approximately 85 million people are living with diabetes in OECD countries, representing around 7% of the people aged 20-79 years. Prevalence ranges from less than 4% in Iceland to around 16% in Mexico in 2011. Based on current trends, the number is projected to reach almost 108 million by 2030.

Figure 1. Mortality from CVD and all other causes of death in OECD countries



Source: OECD Health Statistics

Promoting healthy lifestyles would reduce risk factors

Countries have had mixed results at tackling risk factors

Healthy lifestyles are key to successfully reduce the burden of CVD and diabetes as risk factors for both diseases can be controlled, treated or modified. These risk factors include high blood pressure, high cholesterol levels, obesity, lack of physical activity, unhealthy diet and tobacco use. For instance, across OECD countries around 18% of adults have high cholesterol levels and 26% have high blood pressure. Diabetes is a disease by itself which is, when not treated properly, adding to the risks and morbidity associated with CVD.

The percentage of the population who smokes daily has fallen among both adults and youth by about a quarter since late 1990s. The lowest smoking rates are found in Sweden, where only 13% of the population aged 15 and over smoke in 2011, while over 30% of them smoke in 2009 in Greece. Men are more likely to smoke than women in most countries.

Over the 2000-2009 period, the percentage of the obese population rose from 17% to 22%. Obesity levels have continued to rise in Australia, Canada, France, Mexico, Spain and Switzerland, with 2-3% increase over the past five years, although the growth rate has been stabilised in Canada, England, Italy, Spain and the United States.

Policies focusing on promoting healthy lifestyles are central

Although some lifestyle policies may interfere with personal choice, most are highly effective and cost-effective in changing unhealthy behaviours. This, in turn, saves lives and costs.

Tobacco control policies have been effective and have had a real impact on health outcomes. Australia, Ireland, New Zealand, Turkey and the United Kingdom were amongst the countries with the most stringent and comprehensive set of anti-tobacco policies, which include both population-wide measures and measures targeting high-risk individuals through regulations, education, incentives, as well as health care programmes. Smoking rates in these countries dropped more compared to others with less stringent policies.

To fight against obesity, Denmark, Finland, France, Hungary and Mexico recently introduced taxes on unhealthy food and/or sugar-sweetened non-alcoholic beverages, and Switzerland, the United Kingdom and the United States also introduced nationally co-ordinated health promotion programmes to increase physical activities. OECD analyses show that combining these single interventions in comprehensive strategies results in a more effective and efficient approach because it increases the coverage of groups at risks and exploit potential synergies across the different interventions.

To further reduce risk factors, governments may take actions aiming at: 1) improving the breadth or the attractiveness of healthy choices; 2) modifying preferences to encourage healthy choices; 3) increasing the price of selected unhealthy choices; and 4) regulating selected unhealthy choices. Strong advocacy and stakeholder engagement is also needed to develop support for making healthy lifestyle choices easier and less costly.

Strengthening primary care

Primary care should be placed front and centre of efforts to address CVD and diabetes

Not only are primary care providers the first point-of-contact with the health system for many patients, they also deliver a range of health care services that are vital to the prevention, early diagnosis and control of cardiovascular risk factors and diabetes. Good quality primary care, and greater involvement of patients in taking control of their care, will limit the potential long-term damage that risk factors can cause to the body and reduce the likelihood of more intensive and costly acute care.

The importance of primary health care is likely to grow in the future, due to population ageing and the growth in chronic conditions. From age 75, the majority of people with any chronic condition have three or more conditions. Many patients with diabetes, for example, are likely to have CVD, or chronic obstructive pulmonary disease or mental illnesses. More than one in five patients with dementia also have coronary heart disease. Thanks to technological progress, more patients survive CVD events such as heart attacks, and primary care providers are therefore responsible for ensuring that patients receive proper follow-up care in community settings.

Good access and high-quality are the foundations of a strong primary care system

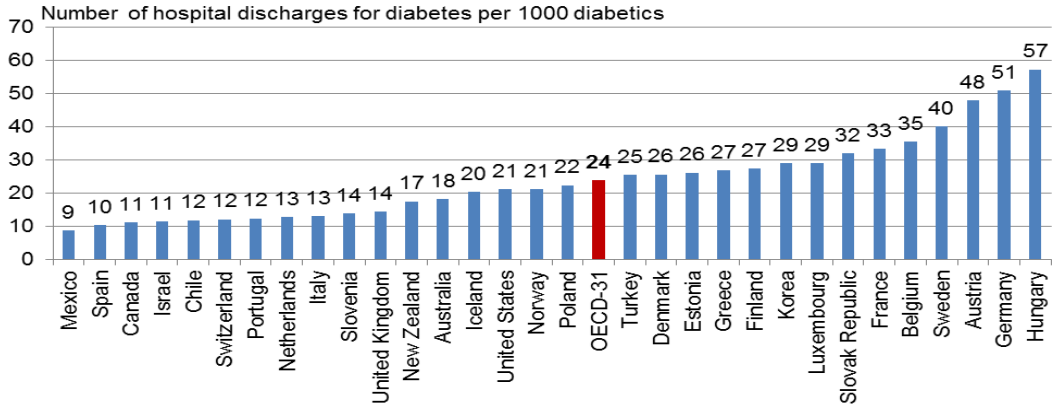
A highly accessible primary care system has the capacity to reduce inequalities in health outcomes and deliver care to those who stand to benefit the most. This is particularly important for diabetes, which is on average more prevalent among lower socio-economic groups.

Most OECD countries have achieved good access to primary care. Coverage of primary services, including drugs and medical goods typically prescribed for CVD and diabetes, is generally good. For instance, the number of defined daily doses (DDD) of cholesterol lowering medications is remarkably similar in a large number of countries (between 0.3 and 0.5 per person in 18 out of 23 countries where data are available), showing similar access and prescription patterns across countries. Some evidence, however, shows that there is a need to improve access for specific population groups and in some countries. For example, in Greece, Estonia, Poland and Latvia, the percentage of the population reporting that they have not sought any needed medical care in 2012 was high. In addition, lifestyle advice is not always provided.

The quality of primary care, as measured by avoidable hospital admissions for diabetes and chronic heart failure, shows a large cross-country difference. Rates exceed 50 diabetes hospitalisations per 1 000 patients in Hungary and Germany, whereas in Spain and Mexico there are fewer than ten (Figure 2). Many central and eastern European countries have high numbers of admissions that are potentially avoidable.

Worryingly, there remains a substantial gap between recommended care and actual care in many countries. Less than half of all patients attain their clinical goals for blood pressure and cholesterol level, and for the majority of diabetes patients, blood glucose levels remain well above recommended clinical targets. An analytical study undertaken with support of the European Society of Cardiology, also found that across countries one in every 4 patients were not being treated in line with pharmacological recommendations for chronic heart failure. The most common barriers reported in primary care relate to the lack of physician time, prescribing costs, poor patient compliance and a lack of dedicated health care resources for preventive medicine. Such barriers can lead to suboptimal quality of care, poor compliance with guidelines and higher resource use as patients suffer more complications.

Figure 2. Diabetes admissions per 1 000 patients with diabetes, 2011 (or nearest year)



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

Better pre-hospital care and faster access to acute care

Pre-hospital care has improved

The speed at which a person receives emergency care after suffering a CVD event can often mean the difference between life and death. In the case of cardiac arrest, for example, there is a 10% decrease in the likelihood of survival for every minute that defibrillation (administration of a controlled electric shock to the heart to allow restoration of a normal rhythm) is delayed.

Many jurisdictions have sought to strengthen the pre-hospital survival chain from the moment a person goes into cardiac arrest by raising public awareness and reanimation skills, and putting in place high-quality emergency service systems (see, for example, Box 1).

Box 1. Emergency care systems in London and Seattle

In London, survival from pre-hospital cardiac arrest has increased from 12% to 32% in a short five-year period. This improvement has been attributed to several initiatives implemented by the London Ambulance Service between 2007 and 2012: 1) implementation of new guidelines on continuing resuscitation on scene; 2) delivery of a structured education programme for personnel to enhance the quality of medical services provided on scene; 3) improved pre-arrival instructions and assistance provided to emergency service callers; 4) public awareness building through media campaigns directed at improving bystander cardiopulmonary resuscitation rates (CPR); 5) implementation of a pathway for patients to be conveyed directly to a specialised cardiac care unit; and 6) increased number of fast response units and reduction of call to arrival at scene intervals from an average of 7 to 6 minutes.

In the Seattle model, quality of care reviews are done routinely, including recording of the emergency calls to determine if the cardiac arrest was identified at the time of the initial call and if CPR was delivered to the victim. Physicians review any deviations from optimal care, and feedback is provided to help firefighters improve their response to the next event. Hospitals are also provided with reports on the profile of care that they delivered to surviving patients. The system has set in place accountability structures that include measurement of process and outcome indicators reported publicly each year and reviewed by public officials.

National policy frameworks will help to improve pre-hospital survival

Emergency medical services are often organised in a decentralised manner; regional variations within OECD countries suggest that there is scope for designing better national policy

frameworks to measure, benchmark and encourage continuous quality improvement for emergency services. Clinical practice guidelines, with clear recommendations on the maximum times for the commencement of treatment following acute CVD events such as stroke or heart attack, have been developed and implemented in most OECD countries. The Czech Republic, France, Israel, Japan, Korea, Poland and Singapore (not an OECD member) are starting to measure and monitor the timeliness of intervention, with a number of those showing substantial improvements over recent years. Other initiatives, including raising public awareness, training and communication networks, also require strong national leadership and coordination across regional jurisdictions.

Towards higher-quality acute care

Improvements in acute care have increased survival after a heart attack and stroke…

Many OECD countries have shown substantial improvements in the timeliness of hospital care over recent years. For example, average door-to-needle time (from emergency room arrival to initiation of thrombolysis) for ischemic stroke in Poland and the Czech Republic fell from 90 minutes to the recommended time of 60 minutes between 2005 and 2012. In Korea, average door-to-needle times fell from 79.5 to 66.2 minutes in one year and door-to-balloon time (from emergency room arrival to initiation of catheterisation) for heart attack fell from 72.3 to 65.8 minutes.

Better access to high-quality acute care for patients, including timely transportation of patients, evidence-based medical interventions and high-quality specialised health facilities such as stroke units have helped to reduce 30-day case-fatality rates (referring to the percentage of patients who die within the 30 days following an admission to hospital for a specific disease) for both AMI and stroke . About half of OECD countries are able to monitor the status of patients in and out of hospitals; based on this, the annual reduction of case-fatality was 4.2% for AMI, 3.8% for Ischemic stroke, and 2.4% for Haemorrhagic stroke between 2000 and 2011. Other countries are able to monitor the status of patients only within the hospital where they were admitted; based on this, the annual reduction was 4.9% for AMI, 1.9% for Ischemic stroke, and 2.4% for Haemorrhagic stroke on average over the same period.

Case-fatality rates for both AMI and strokes in Austria, the Czech Republic, Korea, the Netherlands, the Slovak Republic and the United Kingdom have reduced at a faster pace than the OECD average (see Table 1). However, the rate of improvement has been slower in Hungary and Mexico, and case-fatality rates are in comparison still very high. For ischemic stroke, case-fatality rates have been increasing over recent years in Iceland and Mexico. Performance in acute CVD care for Finland, Japan, Latvia and New Zealand is mixed.

… but more should be done to improve the quality of acute care for these conditions

Even with improvements in prevention and primary care, the pressure on hospitals to deliver high-quality care is unlikely to diminish in the near future because patients will continue to rely on acute care facilities to deliver life-saving care. The complexity of cases may also rise, because more patients suffer multiple morbidities and chronic conditions such as diabetes.

There is still much room to improve implementation of best practice acute care for CVD. To shorten acute care treatment time, targeted strategies can be highly effective. In the United States, for instance, the establishment of the national Door-to-Balloon (D2B) Alliance has been successful at minimising treatment time while involving different stakeholders. Wider approaches are needed to encourage the use of evidence-based advanced technologies in acute care. Adequate funding and trained professionals should be made available, and health care delivery systems adjusted to enable easy access. For highly advanced acute care, specialised care provided in a concentrated manner at stroke units or percutaneous catheter intervention-capable centres is known to provide high-quality care, if access is assured through good referral systems and networks of facilities.

Table 1. Case-fatality rates and trends for AMI, ischemic and haemorrhagic stroke, 2011 (or nearest year)

	AMI		Ischemic stroke		Haemorrhagic stroke	
	Case-fatality rate %	Annual % change	Case-fatality rate %	Annual % change	Case-fatality rate %	Annual % change
Admission-based						
Australia	4.8	-6.9	10	-1.6	22.2	-1.5
Austria	7.7	-6.7	6	-3.6	14.4	-2.9
Belgium	7.6	-6.5	9.2	-1.4	30.5	-0.6
Canada	5.7	-5.3	9.7	-3.1	22.2	-3.1
France	6.2	-4.7	8.5	-4.3	24	-1.2
Germany	8.9	-3.6	6.7	-4.4	17.5	-3.7
Iceland	5.7	-4.3	7.4	6.7	16.7	-10.4
Ireland	6.8	-7.4	9.9	-3.4	26.2	-1.2
Italy	5.8	-4.4	6.5	-2.4	19.9	-0.5
Japan	12.2	-1.8	3	-1.1	11.8	0.9
Mexico	27.2	1.5	19.6	1.3	29.7	-1.6
Portugal	8.4	-5.5	10.5	-2.5	23.8	-0.6
Singapore	12.5	-1.5	7.6	-0.4	22	-1.5
Slovak Republic	7.6	-10.4	11	-4.8	28	-4.5
Switzerland	5.9	-6.3	7	-3.2	16.5	-3.8
Turkey	10.7		11.8		32	
United States	5.5	-4.4	4.3	-2.1	22.3	-2.2
Patient-based						
Chile	13.8	-9.6	13.9	-2.9	29.9	-1.4
Czech Republic	11	-4.7	12.4	-3.9	32.5	-2.4
Denmark	9.6	-5.0	10.9	-1.5	33.2	-0.8
Finland	12.6	-3.4	10.3	-1.5	24.5	0.5
Hungary	18.8	-2.7	13.7	-2.1	45.9	-0.3
Israel	10.3	-3.3	8.9	-2.9	28.3	-1.8
Korea	11.2	-4.6	5.4	-4.9	18.5	-2.4
Latvia	17	-2.9	22.4	-3.0	36.3	-8.3
Luxembourg	11.9	-4.1	12.6	-0.7	23.3	-7.1
Netherlands	9.8	-5.0	10.3	-5.1	31.7	-2.3
New Zealand	8.4	-4.0	13.1	-1.3	34.7	-0.2
Norway	8.2	2.5	8.8	0.0	24.3	-1.2
Poland	8.9	-7.4				
Slovenia	10.5	-3.2	14.8	-8.6	34.4	-5.2
Spain	9	-4.4	10.4	-2.0	26.8	-1.1
Sweden	8.5	-4.5	9.8	-1.7	24	-1.3
United Kingdom	10	-5.9	12.4	-10.0	33.7	-1.4

Best third | Middle third | Worst third

Note: admission-base data relate to patients who die within 30 days of hospital admission if the death occurs in the same hospital as the initial admission and patient-base data relate to patients who die within 30 days of hospital admission and capture a patient's death even if it occurs in another hospital or outside of hospital. Trends reflect average annual growth rates over the observation period for which country data was available.

Source: OECD Health Statistics

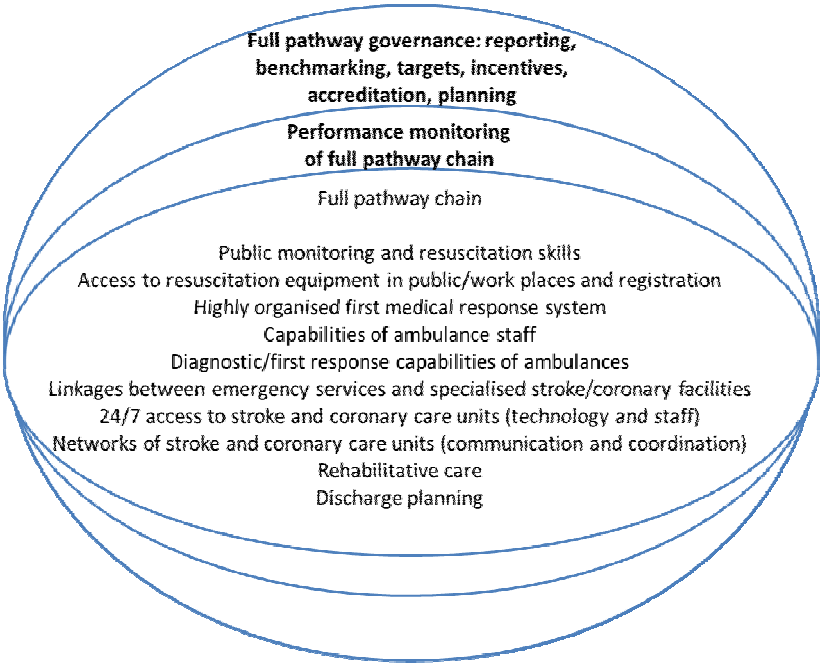
Stronger governance to promote integrated care across the clinical pathway

Further gains are feasible but require stronger governance over the full pathway of CVD care (Figure 3). This requires:

- effective operation and seamless interaction of many parts of the health system: prevention, primary care, patient involvement (Box 2);
- public awareness and first response capabilities;
- highly functioning emergency response teams; and
- access to specialised care and treatments.

Each of these links needs to perform well as individual units and be integrated in order to optimise health care outcomes.

Figure 3. Governance and performance measurement of the full pathway of CVD acute care



Box 2. Involving patients

People with CVD and diabetes are increasingly involved in managing their own care and changing their health care needs. Structured patient education programmes are known to reduce the risk of diabetes-related complications and a number of evidence-based programmes are already widely used in Australia, Canada, Denmark, Ireland, Spain, the United Kingdom and the United States. Educational programmes mixed with behavioural or psychological approaches contribute to increasing the knowledge around diabetic care and to achieving metabolic control. Interventions that mix patient collaboration and didactic presentations alongside regular follow-up have been shown to be effective in improving health outcomes. Programmes adapted to specific cultural background and age groups can also improve outcomes more effectively.

New models of integrated care, designed to deliver patient-centred care to people with complex health care needs such as is required by many people with CVD, have been developed in some countries (e.g., the Netherlands, Germany and the United States). These initiatives share several common features: high scope and depth of interaction and information sharing among providers; the development and use of performance indicators; allocation of mutual tasks across providers; the use of financial incentives; emphasis on patient-centred care; benchmarking and target setting.

Strengthening information systems and monitoring mechanisms

Information systems are the bedrock of performance management. They enable comparative health system assessment as well as evaluation of the impact of policies at both the national and international levels. Better monitoring contributes to avoid potential duplication of services, unnecessary or ineffective care or, worse, adverse events, for example through prescribing errors. Information systems need to monitor patient care and assess performance along the entire pathway of CVD and diabetes, from prevention to management and care, including pre-hospital, hospital and post-hospital phases. Efforts should be also made to monitor the gap between recommended care and actual care and initiate the necessary improvements steps.

These monitoring efforts should be matched by stronger governance systems that create clear lines of accountability and improve transparency, highlighting aspects of the health system that are doing well and where performance could be improved.

Several countries already monitor performance along full pathway of CVD and diabetes care. For AMI, for example, France has developed a full-pathway evaluation, while for stroke, the Netherlands and the United Kingdom have implemented full-pathway evaluation mechanisms (care after hospital admission).

Information systems need to be strengthened particularly in primary care, where data are often lacking. Countries could learn from Denmark, which has a system of automatic data capture (DAK-E) from primary care practices allowing to collect and monitor diagnoses, procedures, prescribed drugs and laboratory results; and Israel, which captures more than 35 measures of quality of care on prevention, use of recommended care and the effectiveness of care in their QICH (Quality Indicators in Community Care) system. These information systems allow to identify patients treated sub-optimally and to benchmark performance of general practices against each other.

Did you know?

- Since 1960, CVD mortality rates have fallen by over 60%, whereas mortality rates for all other causes fell by 38% in OECD countries. Better management of risk factors contributed around 50% and better treatments accounted for around 40% of the overall improvements in CVD mortality.
- Early onset of diabetes is very high in Mexico, Chile, Portugal, the United States and Poland where prevalence exceeds 12% of the 40 to 59 year-old population, compared to an OECD average of 8.9% in this age group.
- Smoking rates have fallen in virtually all OECD countries, from 28% in 1997 to 21% in 2012.
- Undiagnosed diabetes is high. According to one estimation method, on average one in 4 patients is not aware of their conditions, while on a different method, nearly one in two patients is undiagnosed. In Hungary, 17% of diabetic patients are undiagnosed and up to 61% of diabetic patients are undiagnosed in Finland.
- Case fatality 30 days after a heart attack or stroke has declined in the past decade in nearly all OECD countries. The annual reduction was 4.2% for AMI, 3.8% for Ischemic stroke, and 2.4% for Haemorrhagic stroke. The only country where fatality rates increased for both AMI and Ischemic stroke is Mexico.

Further reading

Strengthening Health Information Infrastructure for Health Care Quality Governance: Good Practices, New Opportunities and Data Privacy Protection Challenges

OECD Health Care Quality Reviews (the Czech Republic, Denmark, Israel, Italy, Japan, Korea, Norway, Portugal, Sweden and Turkey)

Obesity Update

Health at a Glance 2015 (forthcoming)

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Useful links

http://www.oecd.org/health/cardiovascular-disease-and-diabetes-policies-for-better-health-and-quality-of-care-9789264233010-en.htm

http://www.oecd.org/els/health-systems/strengthening-health-information-infrastructure.htm

http://www.oecd.org/els/health-systems/health-care-quality-reviews.htm

http://www.oecd.org/els/health-systems/obesity-update.htm

http://www.oecd.org/els/health-systems/health-at-a-glance.htm

OECD Health: www.oecd.org/health