

4. HEALTH CARE ACTIVITIES

4.6. Cardiac procedures (coronary bypass and angioplasty)

Heart diseases are a leading cause of hospitalisation and death in OECD countries (see Indicator 1.4). Coronary artery bypass graft and angioplasty are two revascularisation procedures that have revolutionised the treatment of ischemic heart diseases in recent decades.

There is considerable variation across countries in the use of coronary bypass surgery and angioplasty (Figure 4.6.1). Germany, the United States and Belgium have the highest rates of angioplasty in 2007. These three countries also have the highest rates of coronary artery bypass grafts. While at the individual patient level, coronary angioplasty may be a substitute for coronary bypass surgery, at the aggregate level, a higher rate of angioplasty in one country is not associated with a lower rate of bypass surgery. Countries that perform high rates of one type of revascularisation procedure also tend to perform high rates of the other.

In Belgium, the high rate of both coronary angioplasty and bypass surgery can be partly attributed to a sizeable number of non-residents receiving these treatments in Belgian hospitals. In 2006, 2.5% of people who received an angioplasty on an inpatient basis in Belgium were non-residents; this proportion reached about 4% for people receiving a bypass surgery (European Commission, 2008a).

The use of angioplasty has increased rapidly since 1990 in most OECD countries, overtaking bypass surgery as the preferred method of revascularisation around the mid-1990s – about the same time that the first published trials of the efficacy of coronary stenting began to appear (Moïse, 2003). The trend rise has also been supported by the introduction of drug-eluting stents and the decreased use of coronary bypass in most OECD countries. In most countries, angioplasty now accounts for between 65% and 80% of total revascularisations (Figure 4.6.2). Although angioplasty has replaced in many cases bypass surgery, it is not a perfect substitute since bypass surgery is still the preferred method for treating patients with multiple-vessel obstructions, diabetes and other conditions (Taggart, 2009).

A number of reasons can explain cross-country variations in the number of revascularisation procedures, including: i) differences in the incidence and prevalence of ischemic heart diseases; ii) differences in the capacity to deliver and pay for these procedures; iii) differences in clinical treatment guidelines and practices; and iv) coding and reporting practices.

The large variations in the number of revascularisation procedures across countries do not seem to be closely related to the incidence of ischemic heart disease (IHD), as measured by IHD mortality (Figure 4.6.3). IHD mortality in Germany is only slightly higher than the average across OECD countries, but Germany has the highest rate of revascularisation procedures. On the other hand, IHD mortality in Hungary and Finland is well above the OECD average, while revascularisation rates are below average. Some countries may be under-utilising revascularisation procedures, while others may be carrying out too many costly interventions which have little benefit.

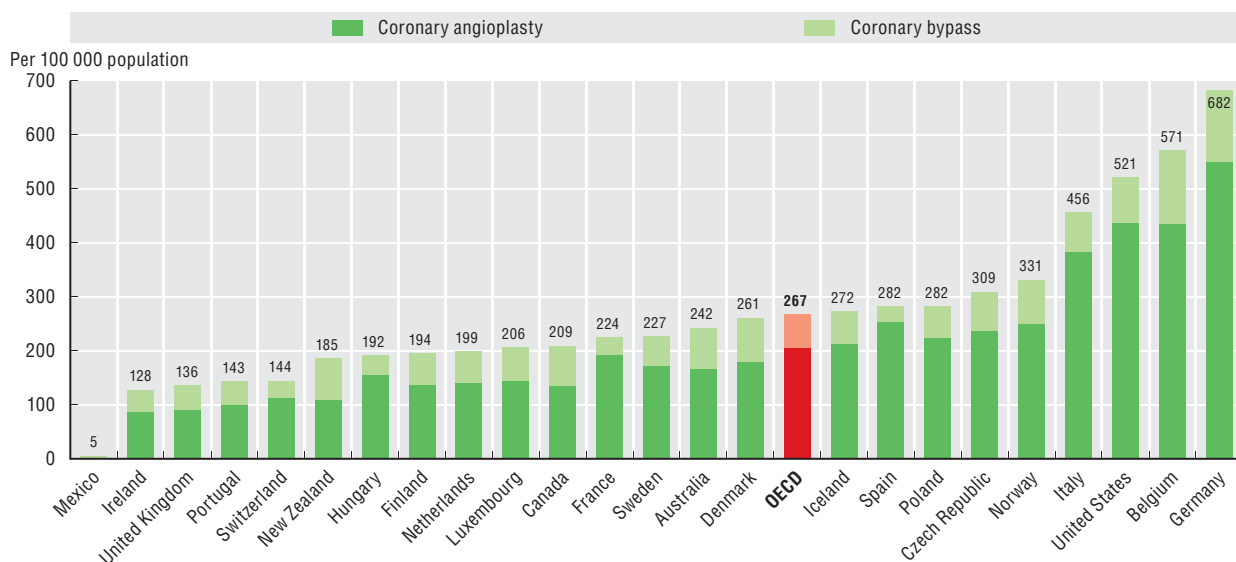
Definition and deviations

A coronary bypass is the grafting of veins and/or arteries to bypass an obstructed coronary artery. It may involve bypassing only one coronary artery, but multiple coronary artery bypasses are more common. Coronary angioplasty involves the threading of a catheter with a balloon attached to the tip through the arterial system, usually started in the femoral artery in the leg, into the diseased coronary artery. The balloon is inflated to distend the coronary artery at the point of obstruction. The placement of a stent to keep the artery open accompanies the majority of angioplasties. Drug-eluting stents (a stent that gradually releases drugs) are increasingly being used to stem the growth of scar-like tissue surrounding the stent.

The data relate to inpatient procedures, normally counting *all* procedures. However, classification systems and registration practices vary across countries, and the same procedure can be recorded differently (e.g. an angioplasty with the placement of a stent can be counted as one or two procedures). Some countries report only the *main* procedure (or the number of *patients* receiving one or more procedures), resulting in an under-estimation of the total number. This is the case for the Netherlands, Spain and the United States (for coronary bypass). In Ireland, the data only include activities in publicly-funded hospitals (it is estimated that over 10% of all hospital activity in Ireland is undertaken in private hospitals). For all countries, the data do not include coronary angioplasties performed on an ambulatory basis.

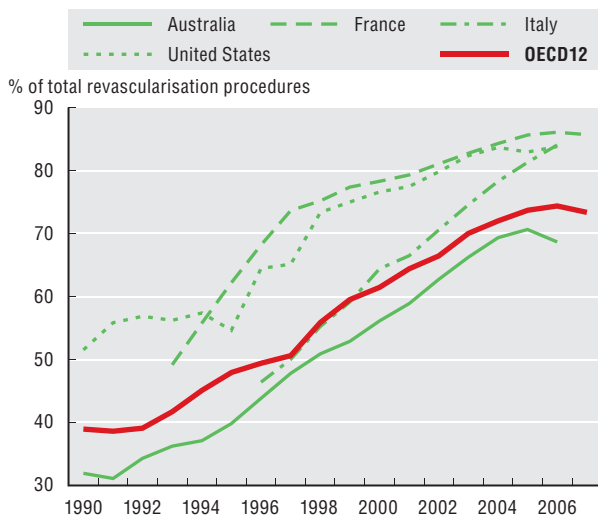
4.6. Cardiac procedures (coronary bypass and angioplasty)

4.6.1 Coronary revascularisation procedures, per 100 000 population, 2007 (or latest year available)

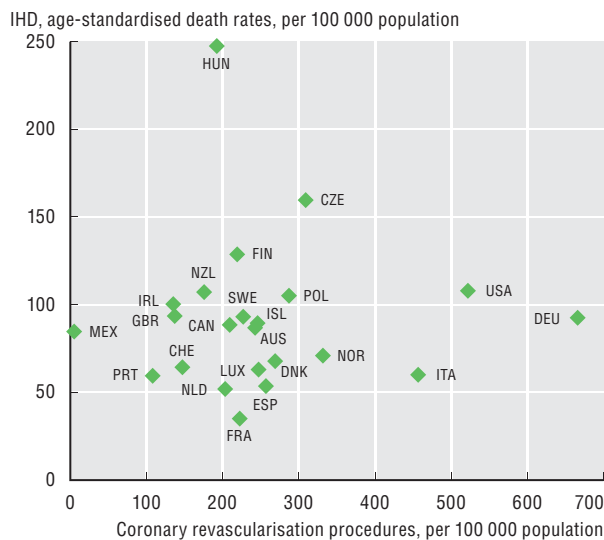


Note: Some of the variations across countries are due to different classification systems and recording practices.

4.6.2 Coronary angioplasty as a percentage of total revascularisation procedures, 1990-2007



4.6.3 Ischemic heart disease mortality and coronary revascularisation procedures, 2006



Source: OECD Health Data 2009.

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