5.3. In-hospital mortality following acute myocardial infarction

Although coronary artery disease remains the leading cause of death in most industrialised countries, mortality rates have declined since the 1970s (see Indicator 1.3 "Mortality from heart disease and stroke"). Much of the reduction can be attributed to lower mortality from AMI, due to better treatment in the acute phase. Care for AMI has changed dramatically in recent decades, with the introduction of coronary care units in the 1960s (Khush *et al.*, 2005) and with the advent of treatment aimed at rapidly restoring coronary blood flow in the 1980s (Gil *et al.*, 1999). This success is all the more remarkable as data suggest that the incidence of AMI has not declined for most countries (Goldberg *et al.*, 1999; Parikh *et al.*, 2009). However, numerous studies have shown that a considerable proportion of AMI patients fail to receive evidence-based care (Eagle *et al.*, 2005).

AMI case-fatality rate is a good measure of acute care quality because it reflects the processes of care for AMI, such as effective medical interventions including thrombolysis, early treatment with aspirin and beta-blockers, and co-ordinated and timely transport of patients. AMI case-fatality rates have been used for hospital benchmarking in several countries including Canada, Denmark, the United Kingdom and the United States.

Crude and age-sex standardised in-hospital case-fatality rates within 30 days of admission for AMI ranges widely, with the lowest rates found in Denmark and Norway (Figure 5.3.1). The highest rate is in Mexico, where annual AMI mortality including deaths outside hospital is also the highest. Mexican case-fatality data only refer to hospitals in the public sector and the quality of pre-hospital emergency medical services is poor (Peralta, 2006), possibly contributing to the high mortality rates in hospitals. Japan has the second highest case-fatality rates although it has the lowest AMI mortality. Beyond the quality of care provided in hospitals, differences in hospital transfers, average length of stay, emergency retrieval times and average severity of AMI may influence reported 30-day case fatality. The case-fatality rates for women are typically higher than for men, but the gender difference is not statistically significant for most countries. There are, however, some exceptions. Mexico has a large gender disparity, suggesting room for improving the survival of female patients with AMI.

Patient-based data, which follow patients in and out of hospitals and across hospitals, is a more robust indicator for international comparison as admission-based data may bias case-fatality rates downwards if unstable cardiac patients are commonly transferred to tertiary care centres and the transfer is recorded as a live discharge in a country. But it is only available for a relatively small group of countries. With the exception of Denmark, the relative performance of countries, measured by patient-based data, is similar to admission-based data (Figure 5.3.1). New Zealand and Sweden have a low case-fatality rate regardless of the measure used.

Case-fatality rates for AMI are decreasing over time, with the majority of countries recording statistically significant reductions between 2000 and 2009 (Figure 5.3.2). The improvement is particularly marked in Nordic countries, the Czech Republic, Ireland and Austria. Across countries, improvements in AMI case-fatality rates reflect advances in treatment such as the increased rates and timeliness of reperfusion therapy, which seeks to restore blood flow to the part of the heart muscle damaged during heart attack (Fox *et al.*, 2007; Tu *et al.*, 2009).

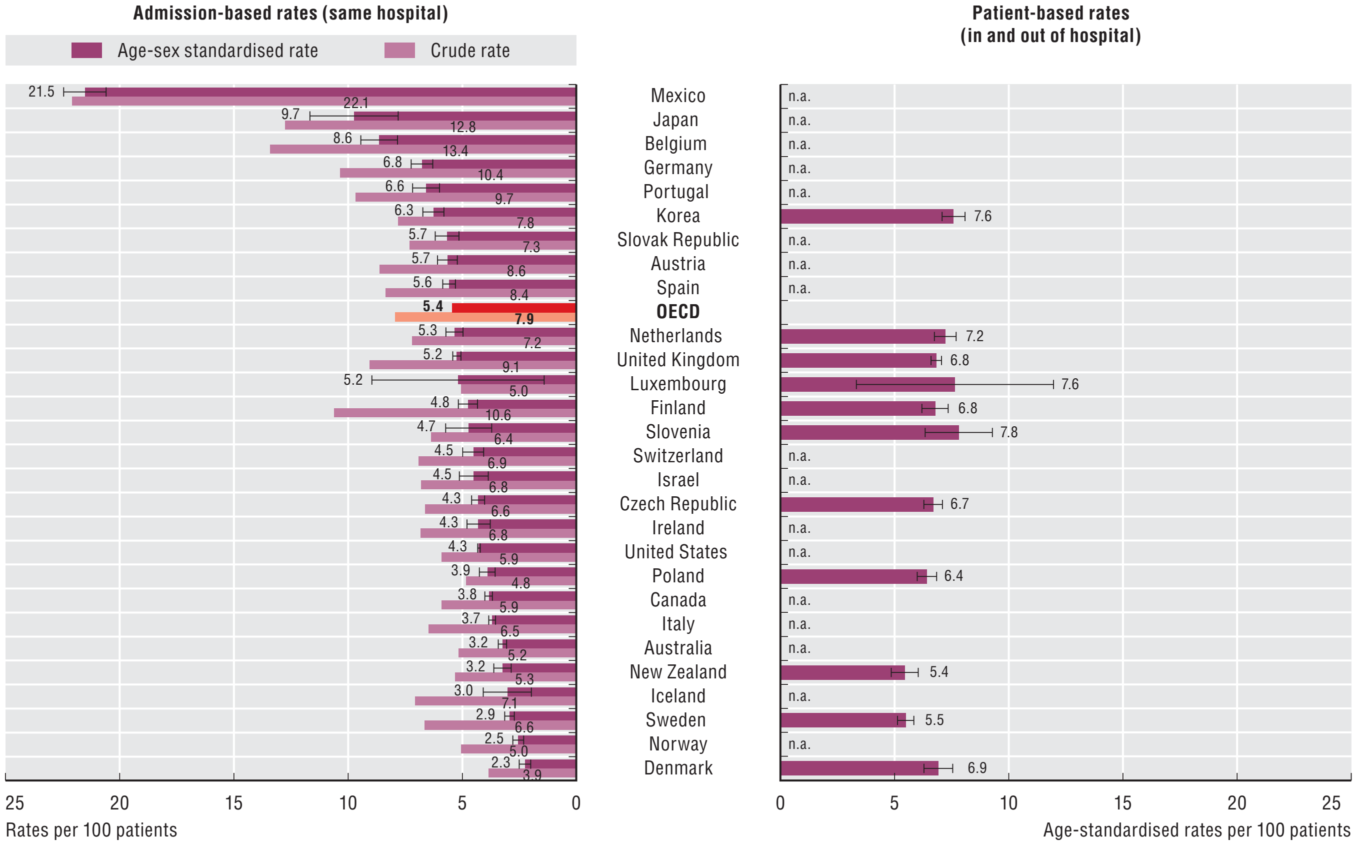
Definition and comparability

In-hospital case-fatality rate following AMI is defined as the number of people who die within 30 days of being admitted (including same day admissions) to hospital with an AMI. Ideally, rates would be based on individual patients; however, only some countries have the ability to track patients in and out of hospitals, across hospitals or even within the same hospital because they do not currently use a unique patient identifier. In order to increase country coverage, this indicator is also presented based on individual hospital admissions and restricted to mortality within the same hospital, so differences in practices in discharging and transferring patients may influence the findings.

Both crude and age-sex standardised rates are presented for admission-based data. Standardised rates adjust for differences in age (45+ years) and sex and facilitate more meaningful international comparisons. Crude rates are likely to be more meaningful for internal consideration by individual countries.

Information on data for Israel: *http://dx.doi.org/10.1787/888932315602*.

5.3.1 Admission-based and patient-based in-hospital case-fatality rates within 30 days after admission for AMI, 2009 (or nearest year)

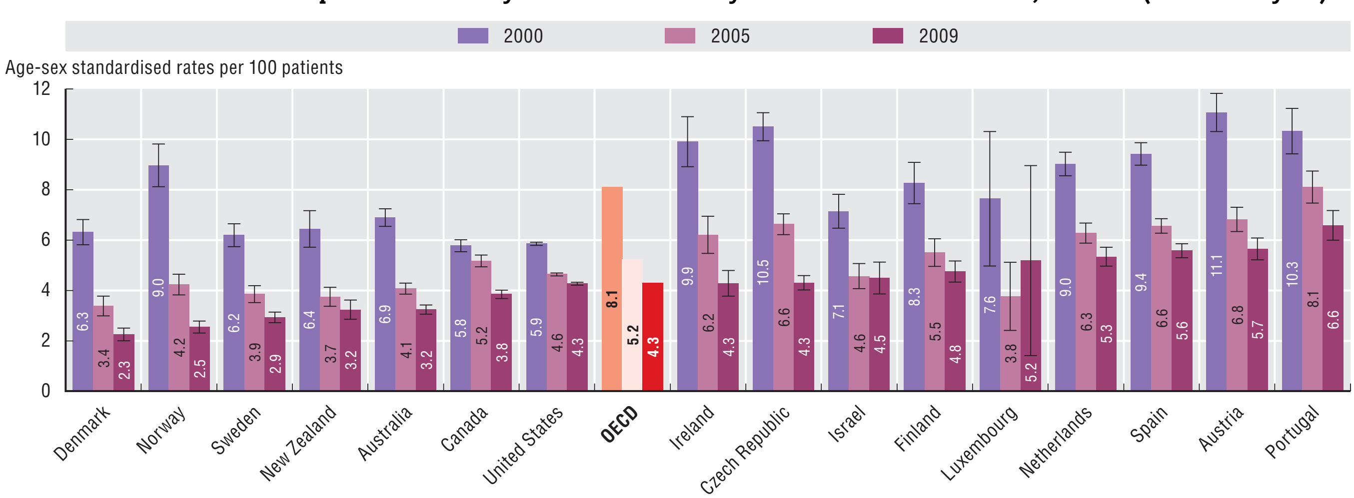


Note: Rates age-sex standardised to 2005 OECD population (45+). 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525115

5.3.2 Reduction in in-hospital case-fatality rates within 30 days after admission for AMI, 2000-09 (or nearest year)



Note: Rates age-sex standardised to 2005 OECD population (45+). 95% confidence intervals represented by ⊢⊣.

Source: OECD Health Data 2011.

StatLink http://dx.doi.org/10.1787/888932525134

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