Care for AMI (heart attack) has changed dramatically in recent decades (Khush *et al.*, 2005; Gil *et al.*, 1999). Clinical practice guidelines, such as those developed by the European Society of Cardiology, provide clinicians with the best available evidence on how to optimise care. Numerous studies have shown that greater compliance with guidelines improves health outcomes (*e.g.* Schiele *et al.*, 2005; Eagle *et al.*, 2005). However, a considerable proportion of AMI patients do not receive recommended care (Brekke and Gjelsvik, 2009; Kotseva *et al.*, 2009).

AMI case-fatality rates refer to the percentage of patients who die within 30 days after a hospital admission for AMI. This rate is a good measure of acute care quality because there is a clear link between the processes of care and health outcomes (Bradley *et al.*, 2006). AMI case-fatality rates have been used for hospital benchmarking in several countries including Denmark and the United Kingdom, and have been used in the academic literature as a wider marker for hospital quality (*e.g.* Kessler and Geppert, 2005; Cooper *et al.*, 2011). However, the indicator is influenced by not only the quality of care provided in hospitals but also differences in hospital transfers, average length of stay, emergency retrieval times and average severity of AMI.

Figure 4.3.1 shows the crude and age-standardised AMI case-fatality rates, when the death occurs within a 30-day period and in the same hospital as the initial AMI admission. The average age-standardised AMI case-fatality rate across the European Union is 5% but rates vary widely between countries. The lowest age-standardised rates are found in Denmark and Norway (2.3% and 2.5%, respectively) and the highest rate is in Belgium (8.6%), although some of the variation between countries may be explained by differences in data definitions (see box on "Definitions and comparability"). The Minister of Health in Belgium introduced new reforms in 2012 that aim to minimise response time for cardiac interventions, improve co-operation within provider networks, set new care standards, as well as new minimum activity thresholds in hospitals which are aimed at reducing AMI case-fatality rates (Onkelinx, 2012).

Patient-based data, which follow patients in and out of hospitals and across hospitals, is a more robust indicator for international comparison than admission-based data, as admission-based data may bias case-fatality rates downwards if unstable cardiac patients are commonly transferred to tertiary care centres. Unfortunately, patient-based data is only available for a relatively small group of countries. Figure 4.3.2 presents AMI case-fatality rates for the nine countries for which both admission-based and patient-based data are available. It confirms that patient-based indicators are higher than hospital-based rates, but the degree of cross-country variation is considerably less compared to the admission-based indicator. The average patient-based AMI case-fatality rate is 6.9% and ranges from 5.5% (Sweden) to 7.8% (Slovenia).

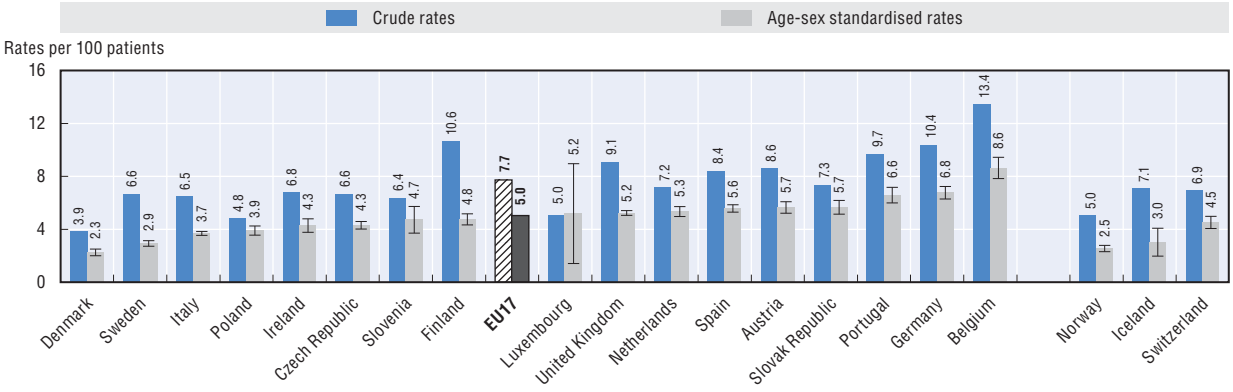
Case-fatality rates for AMI have decreased over time, with almost all countries recording sizeable reductions between 2000 and 2009 (Figure 4.3.3). The AMI case-fatality rate for the ten EU member states reporting data over this period fell by nearly 50% between 2000 and 2009. These substantial improvements reflect better and more reliable processes of care, in particular with respect to rapid re-opening of the occluded arteries. Most of these improvements were made between 2000 and 2005, with fewer gains in more recent years.

Definitions 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, not all 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. In counting the number of AMI admissions, Belgium excludes transfers to other hospitals from the denominator leading to some over-estimation.

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.

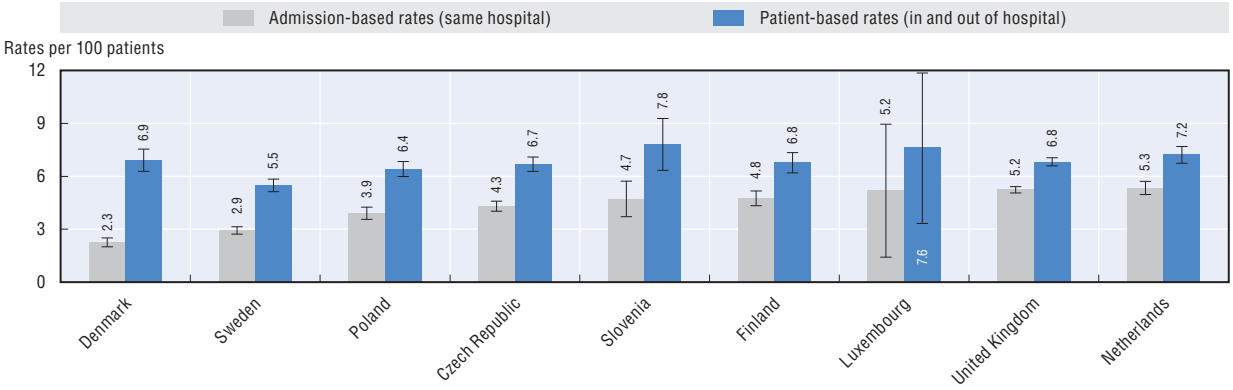
4.3.1. Admission-based in-hospital case-fatality rates within 30 days after admission for AMI, 2009 (or nearest year)



Note: Rates are age-sex standardised to the 2005 OECD standard population (45+). 95% confidence intervals represented by ⊢⊣.
Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932704874

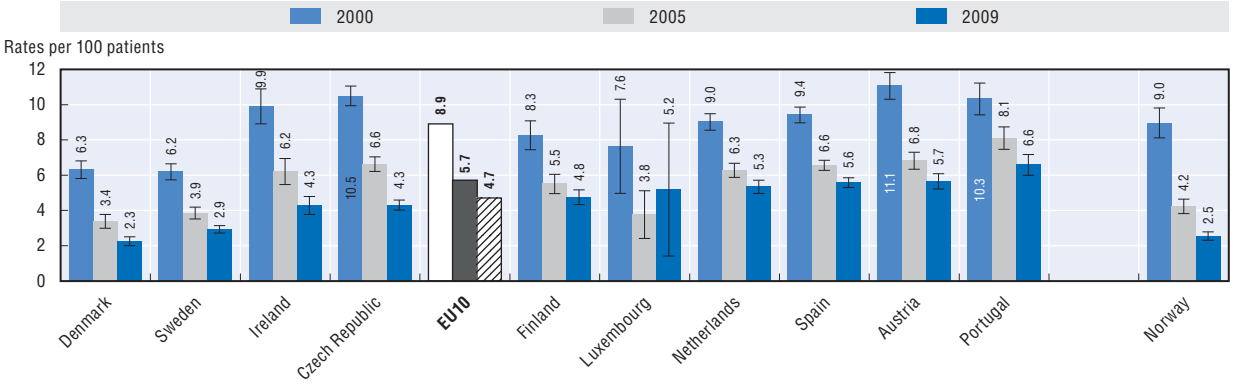
4.3.2. Comparing admission-based and patient-based in-hospital case-fatality rates within 30 days after admission for AMI, selected EU countries, 2009 (or nearest year)



Note: Rates are age-sex standardised to the 2005 OECD standard population (45+). 95% confidence intervals represented by ⊢⊣.
Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932704893

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



Note: Rates are age-sex standardised to the 2005 OECD standard population (45+). 95% confidence intervals represented by ⊢⊣.
Source: *OECD Health Data 2012.*

StatLink http://dx.doi.org/10.1787/888932704912

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