

## 5. QUALITY OF CARE

### 5.5. Surgical complications

Patient safety remains one of the most prominent issues in health policy and public debate. High rates of errors during the delivery of medical care have been demonstrated repeatedly, including the landmark report by the Institute of Medicine which estimated that more people die from medical errors than from traffic injuries or breast cancer (Kohn et al., 2000). Two types of patient safety event can be distinguished: *sentinel* events that should never occur such as failure to remove surgical foreign bodies (e.g. gauze swabs) at the end of a procedure; and *adverse* events, such as post-operative sepsis, which can never be fully avoided given the high-risk nature of some procedures, although increased incidence at an aggregate level may indicate a systemic failing.

Figures 5.5.1 and 5.5.2 show rates of two adverse events, post-operative pulmonary embolism (PE) or deep vein thrombosis (DVT) and post-operative sepsis. PE or DVT cause unnecessary pain and in some cases death, but can be prevented by anticoagulants and other measures before, during and after surgery. Likewise, sepsis after surgery, which may lead to organ failure and death, can in many cases be prevented by prophylactic antibiotics, sterile surgical techniques and good postoperative care. Figure 5.5.3 illustrates a sentinel event – rates of foreign body left in during procedure. The most common risk factors for this “never event” are emergencies, unplanned changes in procedure, patient obesity and changes in the surgical team; preventive measures include methodical wound exploration and effective communication among the surgical team (Gawande et al., 2003).

International variation in post-operative PE or DVT rates (all surgeries) varies more than 10-fold. Belgium, Portugal and Spain report the lowest rates, whilst Slovenia and Australia report rates approaching double the OECD average. Rates following hip and knee replacement surgery are also shown. These are high risk procedures and higher rates would be expected (Heit, 2012; Januel et al., 2012), yet this pattern is observed in relatively few countries. Several explanations are possible, including more careful care after hip and knee surgery. Differences in emergency/elective case mix across countries, in the mix of procedures across the public and private sectors if countries vary in the volume of hip and knee replacements undertaken in each sector, in how national databases link secondary complications back to the primary procedure, or in how secondary complications are reported to the national database, across surgical specialities within a country, are also possible explanations.

Variation in post-operative sepsis (all surgeries) is even greater, at around 20-fold. Rates following abdominal surgery, a high risk procedure (Bateman et al., 2010; Vogel et al., 2010) are higher, as expected, in almost all countries.

Variation in rates for the sentinel event is around 10-fold (Figure 5.5.3). Belgium, Denmark and Israel report the lowest rates and Switzerland, New Zealand and Australia the highest rates.

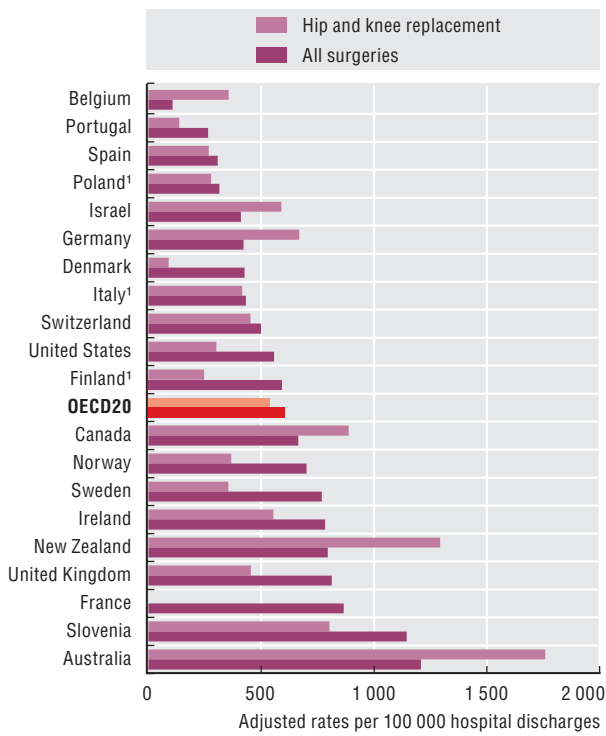
Caution is needed in interpreting the extent to which these indicators accurately reflect international differences in patient safety rather than differences in the way that countries report, code and calculate rates of adverse events (see *Definition and comparability* box). In some cases, higher adverse event rates may signal more developed patient safety monitoring systems rather than worse care. Nevertheless, these figures demonstrate how large numbers of patients suffer adverse events during medical care. International initiatives to make medical care safer, such as the European Union Joint Action on Patient Safety and Quality of Care, include efforts to improve the comparability of how countries document and report the occurrence of adverse events.

#### **Definition and comparability**

Surgical complications are defined as the number of discharges with ICD codes for the complication in any secondary diagnosis field, divided by the total number of discharges for patients aged 15 and older. The rates have been adjusted by the average number of secondary diagnoses (Drösler et al., 2011) in order to improve inter-country comparability. Despite this adjustment, results for countries that report less than 1.5 diagnoses per record may be underestimated. Rates have not been age-sex standardised, since this makes a marginal difference to countries' reported rate or ranking relative to other countries.

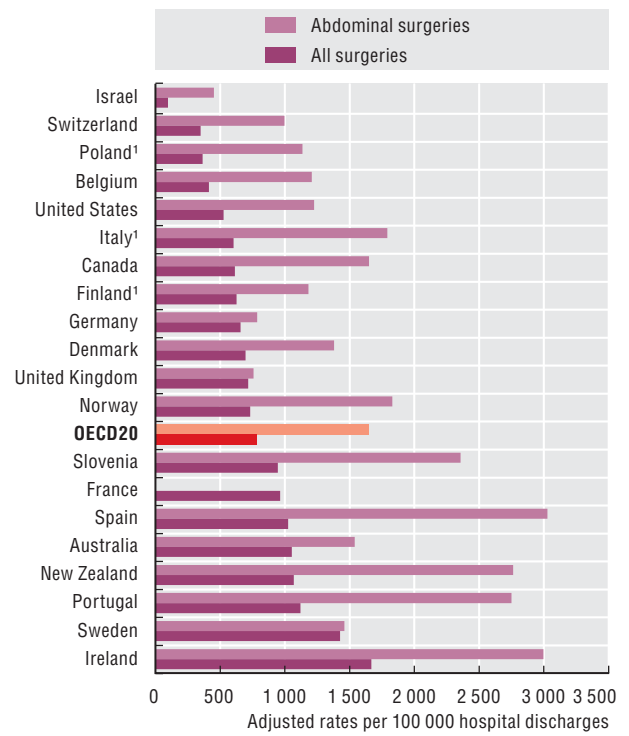
A fundamental challenge in international comparison of patient safety indicators centres on the quality of the underlying data. The indicators are typically derived from administrative databases, rather than systems specifically designed to monitor adverse events, hence differences in how countries record diagnoses and procedures and define hospital episodes can affect calculation of rates. Countries which rely on clinicians to report adverse events may record them less completely than countries which employ specially trained administrative staff to identify and code adverse events from patients' clinical records, for example. The extent to which national databases facilitate recording of secondary diagnoses or to which payments are determined by diagnosis or procedure lists may also influence recording.

5.5.1. Postoperative pulmonary embolism or deep vein thrombosis in adults, 2011 (or nearest year)



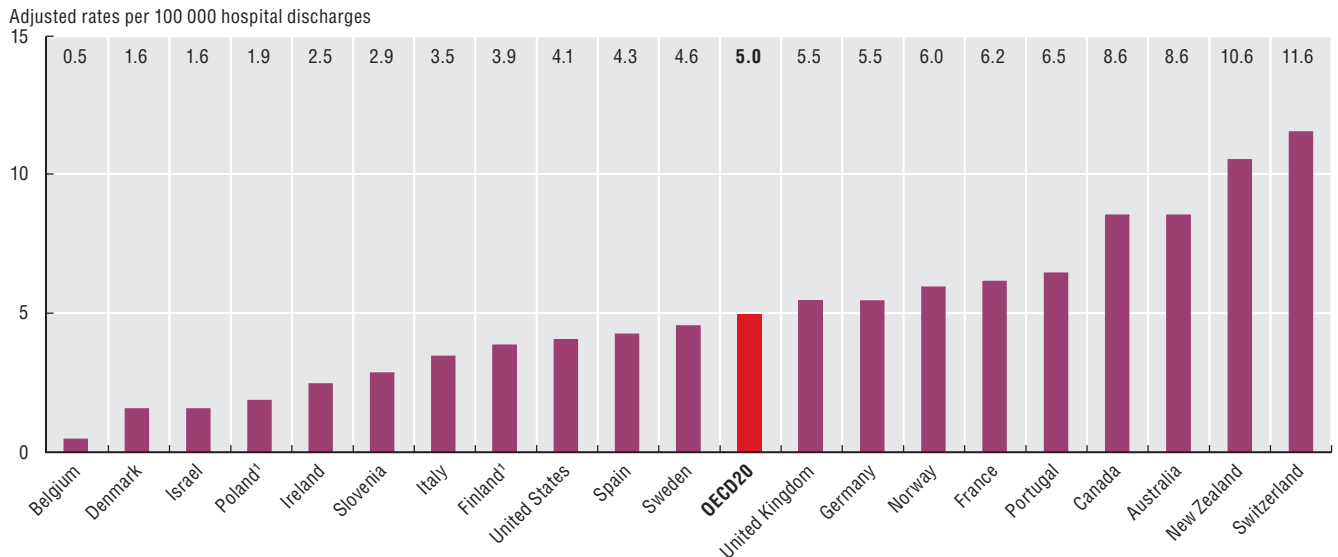
1. The average number of secondary diagnoses is < 1.5.  
 Source: OECD Health Statistics 2013, <http://dx.doi.org/10.1787/health-data-en>.  
 StatLink <http://dx.doi.org/10.1787/888932917978>

5.5.2. Postoperative sepsis in adults, 2011 (or nearest year)



1. The average number of secondary diagnoses is < 1.5.  
 Source: OECD Health Statistics 2013, <http://dx.doi.org/10.1787/health-data-en>.  
 StatLink <http://dx.doi.org/10.1787/888932917997>

5.5.3. Foreign body left in during procedure in adults, 2011 (or nearest year)



Note: Some of the variations across countries are due to different classification systems and recording practices.  
 1. The average number of secondary diagnoses is < 1.5.  
 Source: OECD Health Statistics 2013, <http://dx.doi.org/10.1787/health-data-en>.

StatLink <http://dx.doi.org/10.1787/888932918016>



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