

## 5. QUALITY OF CARE

### 5.2. Prescribing in primary care

Beyond consumption and expenditure (see Indicators 4.10 “Pharmaceutical consumption” and 7.4 “Pharmaceutical expenditure”), information on prescribing can be used as an indicator of health care quality. Two related indicators are shown: the total volume of antibiotics and, more specifically, the volume of quinolones and cephalosporins prescribed as a proportion of all antibiotics.

There is a clear correlation between the volume of antibiotics prescribed at community level and prevalence of resistant bacterial strains (Bronzwaer et al., 2002; Goosens et al., 2005). Infections caused by resistant microorganisms often fail to respond to conventional treatment, resulting in prolonged illness, greater risk of death, and higher costs. Reduced prescribing in primary care has been associated with reductions in antibiotic resistance (Butler et al., 2007). Antibiotics, therefore, should only be prescribed where there is an evidence-based need, avoiding use in mild throat infections, for example, which are nearly always viral (Cochrane Collaboration, 2013). Whilst an optimal level of prescribing is difficult to establish, variations in prescribing volume are a good indicator of health care quality in the primary care setting (Coenen et al., 2007).

Quinolones and cephalosporins are considered second-line antibiotics in most prescribing guidelines. Their use should be restricted to ensure availability of effective second-line therapy should first-line antibiotics fail. Again, although an optimal level of prescribing of these antibiotics is difficult to establish, there is widespread evidence that these antibiotics are prescribed unnecessarily where no, or a more standard, antibiotic would suffice. Their volume as a proportion of the total volume of antibiotics prescribed has also been validated as a marker of quality in the primary care setting (Adriaenssens et al., 2011).

Figure 5.2.1 shows volumes of antibiotics prescribed in primary care at national level. Volumes vary more than three-fold across countries, with Chile, Estonia and the Netherlands reporting the lowest volumes and Greece, Luxembourg and Belgium reporting volumes around 1.5 times the OECD average. Variation is likely to be explained, on the supply side, by differences in the regulation, guidelines and incentives that govern primary care prescribers and, on the demand side, by cultural differences in attitudes and expectations regarding the natural history and optimal treatment of infective illness (Akkerman et al., 2005; Koller et al., 2013).

Figure 5.2.2 shows the volume of quinolones and cephalosporins as a proportion of all antibiotics prescribed in primary care. The ten-fold variation across countries is much greater than for total antibiotic prescribing volume; Denmark, Norway and the United Kingdom report the lowest proportions, whilst Greece, Germany and the Slovak Republic report volumes approaching double that of the OECD average. There is some association in countries' ranking across these two indicators: Greece and Luxembourg report high volumes and the Nordic countries relatively low volumes, for example. Germany, Austria and Hungary, however, report low total prescribing volumes but relatively high proportions of quinolone and cephalosporin use.

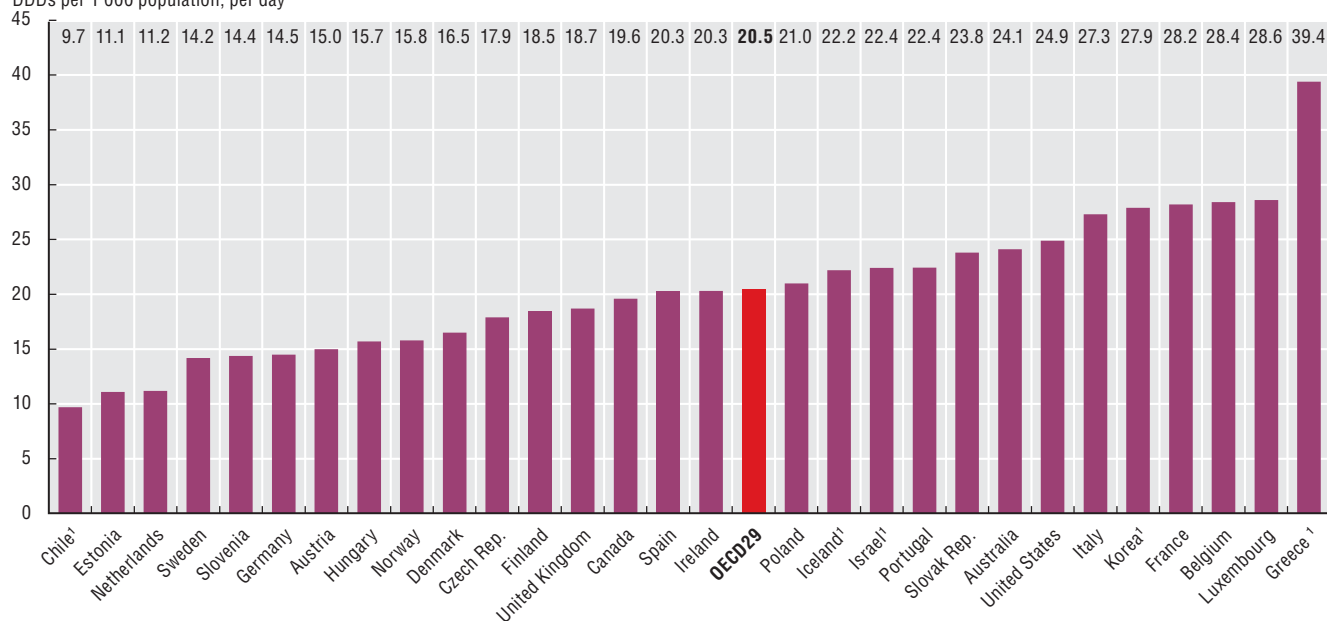
Total use may well exceed the volumes reported here given that, in some countries, self-medication is prevalent (Grigoryan et al., 2006). Reducing use is a pressing, yet complex problem, likely to require multiple co-ordinated initiatives including surveillance, regulation and education of professionals and patients. Many such programmes are underway, including a European Union Joint Programme launched in 2008 (JPIAMR) and the World Health Organisation's Global Strategy for the Containment of Antimicrobial Resistance, as well as initiatives at national level, many of which have been shown to be effective (Huttner et al., 2010).

#### Definition and comparability

See Indicator 4.10 for a description of the defined daily dose (DDD). Data generally refer to outpatient consumption except for Chile, Canada, Greece, Korea, Israel, Iceland where data also include consumption in hospitals and other institutions beyond primary care. Data are from 2010 except for the United States (2004), Israel (2009) and the Slovak Republic (2009). Data for Chile only include drugs dispensed by private pharmacies. Data for Canada only cover Manitoba and Saskatchewan, provinces for which population level data were available, representing 6.7% of the population.

## 5.2.1. Overall volume of antibiotics prescribed, 2010 (or nearest year)

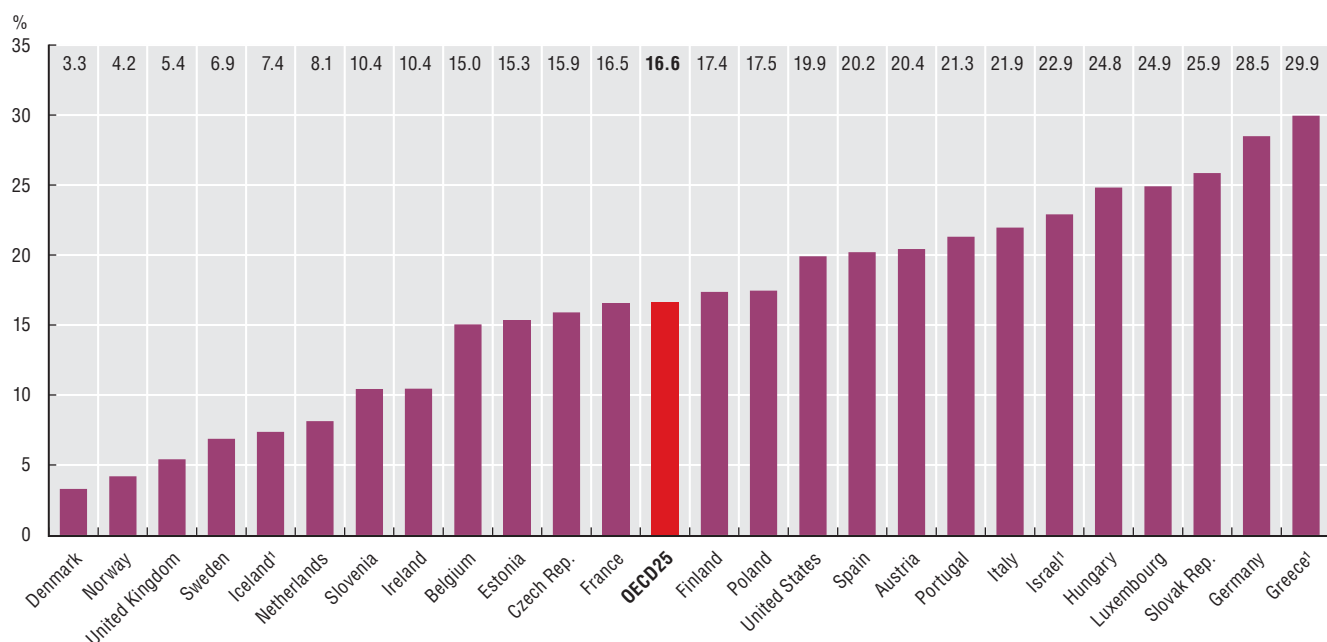
DDDs per 1 000 population, per day



1. Data refer to all sectors (not only primary care).

Source: OECD Health Statistics 2013, <http://dx.doi.org/10.1787/health-data-en>, IMS for United States.StatLink <http://dx.doi.org/10.1787/888932917864>

## 5.2.2. Cephalosporins and quinolones as a proportion of all antibiotics prescribed, 2010 (or nearest year)



1. Data refer to all sectors (not only primary care).

Source: European Centre for Disease Prevention and Control 2013 and IMS for United States.

StatLink <http://dx.doi.org/10.1787/888932917883>



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