The consumption of pharmaceuticals has increased over the past decade not only in terms of expenditure (see Indicator 5.5 "Pharmaceutical expenditure"), but also in terms of the volume or quantity of medicines consumed. This section reviews trends in the volume of consumption of three categories of pharmaceuticals: antibiotics, antidiabetics and antidepressants. Consumption of these medicines is measured through the defined daily dose (DDD) unit, as recommended by the WHO Collaborating Center for Drug Statistics (see the box on "Definition and comparability").

Antibiotics should not be used needlessly, as there is a clear correlation between their use and the emergence of resistant bacterial strains (Bronzwaer *et al.*, 2002; Goossens *et al.*, 2005). As with any other prescribed medicines, overprescribing exposes patients unnecessarily to risks of side-effects without achieving more rapid recovery (Fahey *et al.*, 2004).

The use of antibiotics varies across European countries, ranging from 10 DDDs per 1 000 people per day in Latvia, the Netherlands and Romania, to over 30 in Greece and Cyprus (Figure 3.11.1). Consumption has stabilised in several countries over the past decade, and it has decreased in some countries including Estonia, France, Hungary, Portugal and Slovenia. But antibiotic use has risen in other countries such as Belgium, Greece and Italy which already had higher-than-average consumption in 2000, thereby widening the gap with other European countries. One way of reducing unnecessary use is to avoid prescribing them for mild and/or viral infections. Many countries have launched information campaigns targeting physicians and patients to reduce consumption. At the international level, WHO launched in 2011 a campaign to stimulate co-ordinated efforts to promote appropriate and rational use of antibiotics (WHO, 2012b).

Clinical guidelines in different European countries recommend the use of various medicines to treat people with diabetes to reduce the risk of cardiovascular and microvascular complications (Beckman *et al.*, 2002; UKPDS, 1998). There is wide variation in the use of medicines for the treatment of diabetes across European countries, with consumption in Iceland and Estonia almost half that in Finland or Germany (Figure 3.11.2). This can be partly explained by the prevalence of diabetes, which is low in Iceland (see Indicator 1.10). However, some of the countries with the highest consumption do not have high diabetes prevalence (*e.g.* Finland, Germany and the United Kingdom). Between 2000 and 2010, the consumption of antidiabetics increased by 75% on average across EU member states. The growth rate was particularly strong in Finland, Germany and the Slovak Republic. The main reasons for this strong rise are increases in the proportion of people treated and the average dosages used in treatments (Melander *et al.*, 2006).

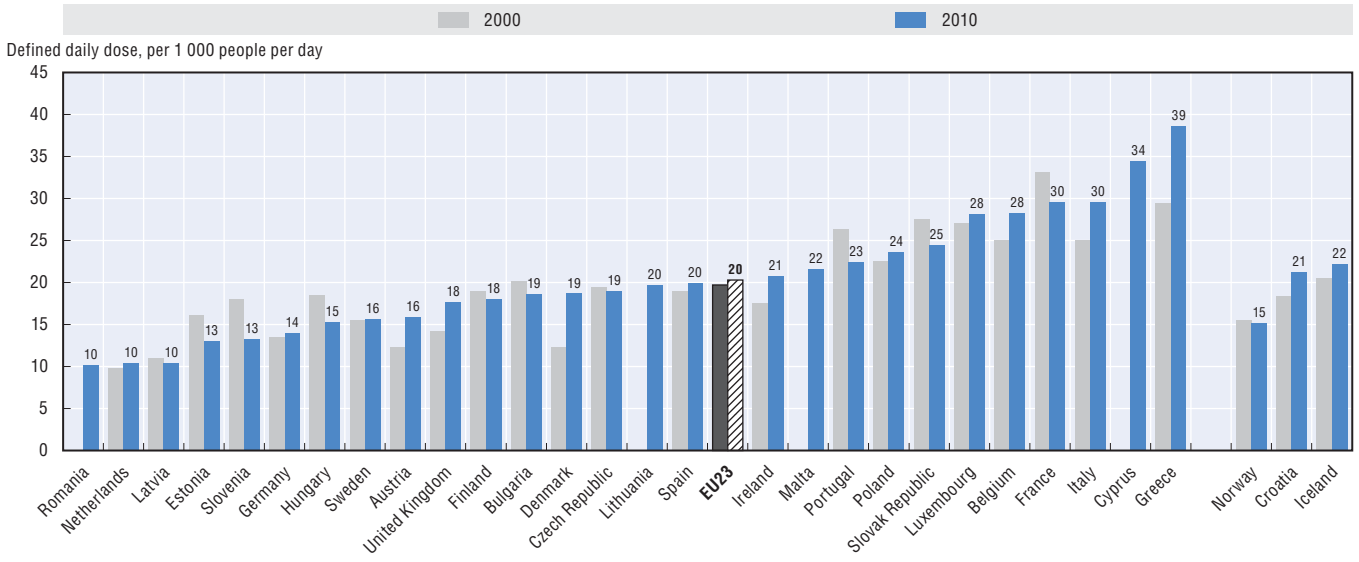
Guidelines for the pharmaceutical treatment of depression vary across countries, and there is also great variation in prescribing behaviors among general practitioners and psychiatrists not only across countries, but also among individual practitioners in each country. Iceland has the highest level of consumption of antidepressants, followed by Denmark and Portugal (Figure 3.11.3). Part of the explanation for the high consumption in Iceland is that a much higher proportion of the population receives at least one prescription for an antidepressant each year. In 2008, almost 30% of women aged 65 and over had an antidepressant prescription in Iceland, compared with less than 15% in Norway (NOMESCO, 2010). But the intensity and duration of treatments also play a role in explaining variations across countries and trends over time. In all European countries for which data is available, the consumption of antidepressants has increased a lot over the past decade, by over 80% on average across EU member states. While some analysts interpret these findings as evidence of a growing prevalence of depression, this also reflects greater efforts to provide treatments to people suffering from severe depression and greater intensity of these treatments. This rise can also be explained by the extension of the set of indications of some antidepressants to milder forms of depression, generalised anxiety disorders or social phobia, which have raised issues in some countries about the appropriateness of such extensions of prescriptions.

Definition and comparability

Defined daily dose (DDD) is the assumed average maintenance dose per day for a medicine used for its main indication in adults. DDDs are assigned to each active ingredient(s) in a given therapeutic class by international expert consensus. For instance, the DDD for oral aspirin equals 3 grams, which is the assumed maintenance daily dose to treat pain in adults. DDDs do not necessarily reflect the average daily dose actually used in a given country. DDDs can be aggregated within and across therapeutic classes of the Anatomic-Therapeutic Classification (ATC). For more detail, see *www.whocc.no/atcddd*.

Data generally refer to outpatient consumption except for the Czech Republic, Finland and Sweden, where data also include hospital consumption. Greek figures may include parallel exports.

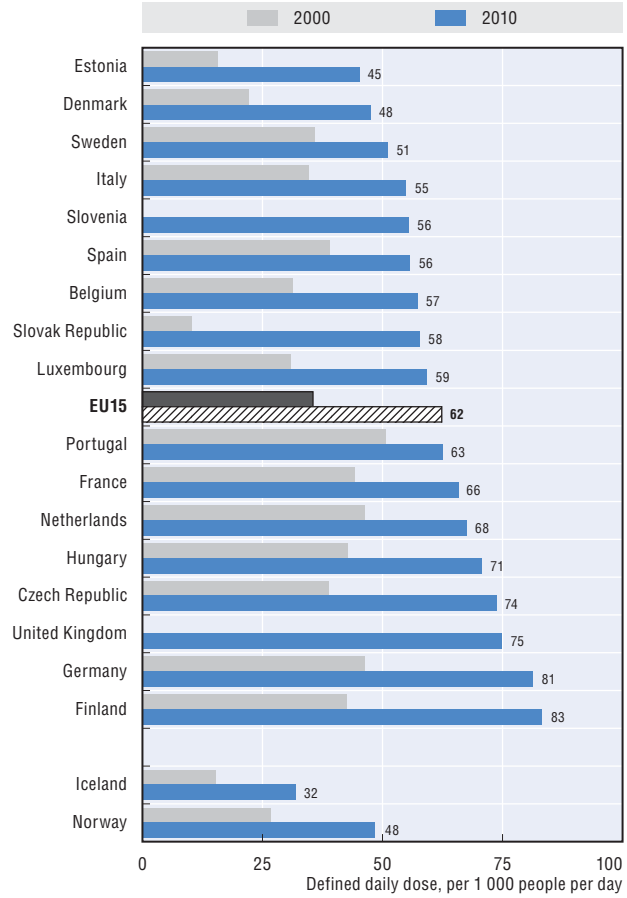
3.11.1. Antibiotics consumption, 2000 and 2010 (or nearest year)



Source: OECD Health Data 2012; European Surveillance of Antimicrobial Consumption (ESAC) project, 2011.

StatLink http://dx.doi.org/10.1787/888932704684

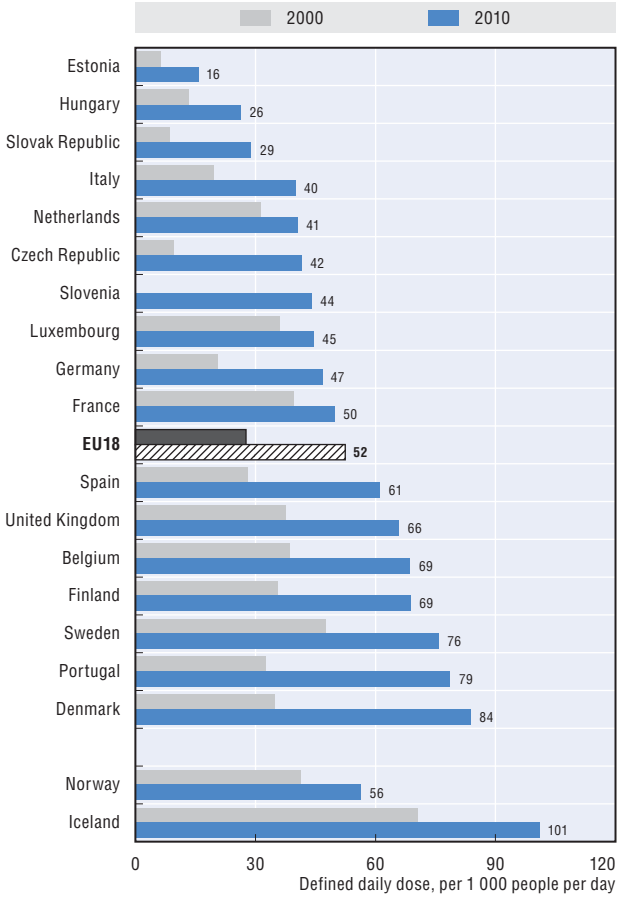
3.11.2. Antidiabetics consumption, 2000 and 2010 (or nearest year)



Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704703

3.11.3. Antidepressants consumption, 2000 and 2010 (or nearest year)



Source: OECD Health Data 2012.

StatLink http://dx.doi.org/10.1787/888932704722