

# OECD Health Statistics 2020

## Definitions, Sources and Methods

### Pharmaceutical consumption by DDDs

Pharmaceutical consumption according to the **Anatomic Therapeutic Chemical Classification (ATC)/Defined Daily Dose (DDD)** system, created by the WHO Collaborating Centre for Drug Statistics Methodology.

The Anatomic Therapeutic Chemical Classification system divides drugs into different groups according to the organ system on which they act and/or therapeutic, pharmacological and chemical characteristics. The main principles for the classification of medicinal substances according to the ATC is presented in the publication “Guidelines for ATC classification and DDD assignment”, WHO Collaborating Centre for Drug Statistics Methodology, Oslo. The publication “ATC Index with DDDs” lists all assigned ATC codes and DDD values. Both these publications are updated annually.

The ATC codes below are based on the **2020 version of the ATC Index**. All alterations implemented from January 2020 are available on the WHO Collaborating Centre for Drug Statistics Methodology website at [http://www.whooc.no/atc/lists\\_of\\_new\\_atc\\_ddds\\_and\\_altera/alterations\\_in\\_atc\\_ddd/](http://www.whooc.no/atc/lists_of_new_atc_ddds_and_altera/alterations_in_atc_ddd/).

The unit of measurement is **Defined Daily Dose (DDD)**, defined as the assumed average maintenance dose per day for a drug used on its main indication in adults.

| <u>Main groups / groups based on three levels</u>                            | <u>Codes (2020 Index)</u> |
|--|---------------------------|
| <b>A-Alimentary tract and metabolism</b>                                     | <b>A</b>                  |
| Antacids   | A02A                      |
| Drugs for peptic ulcer and gastro-oesophageal reflux diseases (GORD)         | A02B                      |
| Drugs used in diabetes   | A10                       |
| <b>B-Blood and blood forming organs</b>                                      | <b>B</b>                  |
| <b>C-Cardiovascular system</b>   | <b>C</b>                  |
| Cardiac glycosides   | C01A                      |
| Antiarrhythmics, Class I and III   | C01B                      |
| Antihypertensives  | C02                       |
| Diuretics  | C03                       |
| Beta blocking agents   | C07                       |
| Calcium channel blockers   | C08                       |
| Agents acting on the Renin-Angiotensin system                                | C09                       |
| Lipid modifying agents   | C10                       |
| <b>G-Genito urinary system and sex hormones</b>                              | <b>G</b>                  |
| Sex hormones and modulators of the genital system                            | G03                       |
| <b>H-Systemic hormonal preparations, excluding sex hormones and insulins</b> | <b>H</b>                  |
| <b>J-Anti-infectives for systemic use</b>                                    | <b>J</b>                  |
| Antibacterials for systemic use  | J01                       |
| <b>M-Musculo-skeletal system</b>   | <b>M</b>                  |
| Anti-inflammatory and antirheumatic products non-steroids                    | M01A                      |
| <b>N-Nervous system</b>  | <b>N</b>                  |

|   |  |
|---|--|
| Analgesics<br>Anxiolytics<br>Hypnotics and sedatives<br>Antidepressants<br><b>R-Respiratory system</b><br>Drugs for obstructive airway diseases | N02<br>N05B<br>N05C<br>N06A<br><b>R</b><br>R03 |
|---|--|

**Note:** Data on **Antibacterials for systemic use (J01)** for the period **1997-2018** for several European countries (see list below) come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2020 © European Union, 1995-2020. Data extracted 26 June 2020 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, "Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)".

**Coverage:** Antimicrobial consumption data for the community (primary care sector).

- Data for the following countries are taken from the ESAC-Net Database for the years indicated:

France (1997 onwards), Greece (1997-2018), Ireland (1998 onwards), Latvia (2002-2011), Lithuania (2006-2009), Luxembourg (1997-2008), Poland (1998 onwards), Slovenia (1997-2011), Spain (1997-2011), and the United Kingdom (1997-2011).

- Data are directly provided by countries for:

Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, Germany, Greece (1990-1996), Hungary, Iceland, Italy, Latvia (2012 onwards), Lithuania (2010 onwards), Luxembourg (2009 onwards), the Netherlands, Norway, Portugal, the Slovak Republic, Slovenia (2012 onwards), Spain (2012 onwards), Sweden, and the United Kingdom (2012 onwards).

### **Summary table**

|                       | Data include <b>drugs dispensed in hospitals</b>   | Data include <b>non-reimbursed drugs</b>  | Data include <b>OTC drugs</b>  |
|-----------------------|--|---|--|
| <b>Australia</b>      | No   | Yes   | No   |
| <b>Austria</b>        | No. Drug consumption in hospitals and in hospital ambulances is excluded.  | Data cover only drugs reimbursed by the sickness funds within the statutory health insurance. | No   |
| <b>Belgium</b>        | No   | No  | No   |
| <b>Canada</b>         | No   | No  | Generally, claims for OTC drugs are not reimbursed, but OTC drugs are not explicitly excluded. |
| <b>Chile</b>          | Yes  | -   | Yes  |
| <b>Colombia</b>       | -  | -   | -  |
| <b>Czech Republic</b> | Yes  | Yes   | Yes  |
| <b>Denmark</b>        | <u>Before 1997:</u> only the primary sector is included for all categories.<br><u>From 1997 onwards:</u> data cover the primary sector and hospitals for all categories. | Yes   | Yes  |
| <b>Estonia</b>        | Yes  | Yes   | Yes  |
| <b>Finland</b>        | Yes. Data are based on wholesale of pharmaceuticals.   | Yes   | Yes  |
| <b>France</b>         | Yes. Data include consumption both in hospitals and in pharmacies.   | Yes   | Yes  |

|                        | Data include <b>drugs dispensed in hospitals</b> | Data include <b>non-reimbursed drugs</b>  | Data include <b>OTC drugs</b>  |
|------------------------|--|---|--|
| <b>Germany</b>         | No   | Data contain exclusively the drug consumption debited to the statutory health insurance (i.e. drugs reimbursed by German Statutory Health Insurance). | No   |
| <b>Greece</b>          | No   | No  | No   |
| <b>Hungary</b>         | Up to 2006 only                                  | Up to 2006 only   | Up to 2006 only  |
| <b>Iceland</b>         | Yes  | Yes   | Yes  |
| <b>Ireland</b>         | Data not available                               | Data not available  | Data not available   |
| <b>Israel</b>          | No   | No  | No   |
| <b>Italy</b>           | -  | No  | No   |
| <b>Japan</b>           | Data not available                               | Data not available  | Data not available   |
| <b>Korea</b>           | Yes  | Yes   | Yes  |
| <b>Latvia</b>          | -  | -   | -  |
| <b>Lithuania</b>       | Yes  | Yes   | Yes  |
| <b>Luxembourg</b>      | No   | No  | No   |
| <b>Mexico</b>          | Data not available                               | Data not available  | Data not available   |
| <b>Netherlands</b>     | No   | No  | No   |
| <b>New Zealand</b>     | -  | -   | -  |
| <b>Norway</b>          | Yes  | Yes   | Yes  |
| <b>Poland</b>          | Data not available                               | Data not available  | Data not available   |
| <b>Portugal</b>        | No   | Yes, both reimbursed and non-reimbursed products.   | Yes, but only OTC products sold in pharmacies.                       |
| <b>Slovak Republic</b> | Yes  | Yes   | Yes  |
| <b>Slovenia</b>        | No   | Data include all medicines with a medical prescription – compulsory health insurance, regardless of the reimbursement.                                | Only OTC drugs with a medical prescription.                          |
| <b>Spain</b>           | No   | No  | No   |
| <b>Sweden</b>          | Yes  | Yes   | Yes, both from pharmacies and from other retailers.                  |
| <b>Switzerland</b>     | Data not available                               | Data not available  | Data not available   |
| <b>Turkey</b>          | No   | Yes   | Data include drugs dispensed in pharmacies and non-reimbursed drugs. |
| <b>United Kingdom</b>  | No   | No  | -  |
| <b>United States</b>   | Data not available                               | Data not available  | Data not available   |

## Sources and Methods

### Australia

**Sources:** 2013 onwards: Australian Institute of Health and Welfare analysis of **Pharmaceutical Benefits and Repatriation Pharmaceutical Benefits Schemes (PBS and RPBS)** data maintained by the **Department of Health** and sourced from the **Department of Human Services**.

Prior to 2013, PBS/RPBS data were supplemented by unpublished data extracted from the **Drug Utilisation Subcommittee database (DUSC)**.


#### **Methodology:**

- Data are based on the ATC Index 2019.

- Data are comprised from three sources:
  - (1) Records of prescriptions submitted for payment of a subsidy under the Pharmaceutical Benefits and Repatriation Pharmaceutical Benefits Schemes (PBS/RPBS);
  - (2) From 2013, the collection of under co-payment (non-subsidised) prescription data submitted by pharmacies in the same manner as for subsidised prescriptions;
  - (3) Survey data:
    - (a) private prescription survey data which ceased in August 2012; and
    - (b) under co-payment prescription survey data which ceased in March 2012.

**i Deviation from the definition:** The calculation of DDDs excludes combination products for all years.

**Note:** There was a noticeable reduction in the consumption of pharmaceuticals for N02-Analgesics in 2016. This is related to the delisting, and modification of listing, of some paracetamol preparations.

** Break in series in 2013:**

- From 2013 there has been a change to the non-subsidised component of the data:
  - Under co-payment data are now collected directly from approved suppliers.
  - Private prescriptions are no longer included (due to survey data being no longer available).
- Consumption data do not include drugs dispensed to in-patients in public hospitals and do not include OTC drugs.
- Data are not complete for the antacids category (A02A) hence not published in the OECD database. Most antacids in Australia are purchased over the counter, and only a few are listed on the Pharmaceutical Benefits Scheme, thus limiting the data available.
- Between 2002 and 2003, there was a noticeable reduction in the consumption of pharmaceuticals related to the Genitourinary system and sex hormones (G) as well as Sex hormones and modulators of the genital system (G03). This was due to falls in prescriptions for estrogens, progestogens and combinations. This may reflect broader public concerns surrounding hormone-replacement therapy which were prominent from 2003.
- The drug Colchicine (Antigout preparations) was listed on the pharmaceutical benefits scheme (PBS) at the end of 2010. The increase in consumption in 2011 of drugs for M-Musculo-skeletal system likely reflects this new listing.

## Austria

**Source:** **Hauptverband der österreichischen Sozialversicherungsträger (Vertragspartner Medikamente)** / Main Association of Austrian Social Security Institutions (Department of Pharmaceutical Affairs).

**i Methodology:** The classification used is the current version of the WHO ATC-DDD Classification, adapted for the Austrian pharmaceutical market (“Erstattungskodex”).

**Coverage:**

- Data cover only drugs reimbursed by the sickness funds within the statutory health insurance.
- Drug consumption in hospitals and in hospital ambulances is excluded.
- DDDs per 1000 inhabitants are DDD per 1000 insured persons within the statutory health insurance (i.e. per 1000 eligible persons).
- “Daily/per day” refers to the 360<sup>th</sup> part of the yearly dose, meaning every month is considered to be 30 days. Therefore, the numbers provided for the ATC-Group J01 do not correspond to existing ESAC-values (Antimicrobial consumption interactive database [ESAC-Net]).

**i Deviation from the definition:**

2017:

- Combined substances are excluded.
- Data for pharmaceuticals with a price below the prescription charge are only included for prescriptions with prescription charge exemptions.

Before 2017:

- Data include only those products within the code of reimbursement (Erstattungskodex) where a WHO-DDD is available. Products with a DDD rating removed from the refund code will continue to be considered.
- Combined substances are excluded.
- Data for pharmaceuticals with a price below the prescription charge are only included for prescriptions with prescription charge exemptions.

**Notes:**

- Since 2017, data provided cover all products dispensed and paid for by the Austrian health insurance funds which have an active ingredient for which a WHO-DDD exists, including products not listed in the Code of reimbursement.

- A02B-Drugs for peptic ulcer & gastro-oesophageal reflux diseases, GORD and C08-Calcium channel blockers: In 2015, price reduction, (e.g. for Pantoprazole and Amlodipine) were achieved. The price decreases came into full effect in 2015/2016, which explains the drop in pharmaceutical expenditure in these two areas. Price decreases in many cases additionally meant that prices dropped below the fixed co-payment rate for Austrian medicines (2016 Rezeptgebühr: € 5.70). Consequently, these costs are in some cases not registered anymore as pharmaceutical expenditure by the social insurance (because they are now privately paid for), except in cases where patients are exempt from co-payments.


**Further information:** <http://www.hauptverband.at> (in German).


## Belgium

**Source:** Pharmanet (RIZIV).

### Methodology:

- Data are gathered and DDDs calculated according to the 2020 ATC classification.
- Data are given as the number of DDDs per 1000 inhabitants per day, which is calculated as follows:  
Number of DDDs x 1000 / Total population / 365.
- Consumption data do not include drugs dispensed in hospitals, non-reimbursed drugs nor OTC drugs.
- Data are not available for the categories A02A-Antacids, N05B-Anxiolytics and N05C-Hypnotics and sedatives as they are not reimbursed in Belgium.

 **Break in series in 2008:** This source covers medication reimbursed by the Belgian Sickness-Invalid insurance and available in public pharmacies. Hospital medication, non-reimbursable medication and medication given to persons not covered by the reimbursement system are not included (mostly independent professions until 2007). After January 2008, self-employed people are also covered by the data. It induces a time series break in 2008 (estimated to be responsible for an increase of the volume around 5.4 %).

 **Break in series in 2005:** Classes **G** and **G03** (sexual hormones) show an important decrease in 2005, following temporary non-reimbursement of a large number of contraceptives.

**Note:** The increase in consumption of medications in the group B-Blood and blood forming organs in 2009 is due to the fact that acetylsalicylic acid in cardiovascular prevention (B01AC06) was made reimbursable from 2009 onwards and thus registered in the Pharmanet system.


**Further information:** <http://www.inami.fgov.be/drug/fr/statistics-scientific-information/index.htm#1> and <http://www.health.gov.bc.ca/pharmacare/pharmanet/netindex.html>.

## Canada

**Source:** Canadian Institute for Health Information (CIHI), National Prescription Drug Utilization Information System (NPDUIS) Database.

### Coverage:

- Data up until 2015 are from drug claims in a community-based setting accepted by provincial public drug programs, either for reimbursement or toward a deductible. Starting in 2016, data also include claims that are processed for documentation under a drug information system, including those that were not accepted by or submitted to the public drug program.


 Only data from British Columbia, Manitoba and Saskatchewan, provinces for which population level data were available, were included.


- Due to the design of public drug programs in Canada (i.e. seniors and low income families/individuals are the only populations covered in all jurisdictions), data on drug consumption for non-seniors (with the exception of British Columbia, Saskatchewan and Manitoba where coverage is available to people of all ages) are limited.

- Data on pharmaceutical consumption do not include drugs for patients covered by provincial workers' compensation boards or federal drug programs as they are not eligible for coverage under provincial public drug programs. Federal drug programs include those delivered by the Correctional Service of Canada, Veterans Affairs Canada, and Health Canada - First Nations and Inuit Health Branch (except for the First Nations and Inuit population who resides in Ontario).

- Claims data do not indicate if the drugs were actually used, only that they were dispensed and the related claim was accepted for coverage.
- Data do not include information regarding:
  - Prescriptions that were written but never dispensed;
  - Prescriptions that were dispensed but for which the associated drug costs were not submitted to, or not accepted by, a participating public drug program;
  - Diagnoses or conditions for which prescriptions were written.
- Data do not include drugs dispensed in hospitals and do not include non-reimbursed prescriptions. Generally, claims for OTC drugs are not reimbursed, but OTC drugs are not excluded explicitly.
- Data are not complete for the Antacids category (A02A) and therefore are not shown. Most antacids are purchased over the counter and typically not reimbursed in Canada..
- 2019 data are provisional estimates.

#### **Methodology:**

-  Data for all years are based on the ATC/DDD Index 2019.
- Data are reported as the number of DDDs/1000 population/day in British Columbia, Manitoba and Saskatchewan. Population excludes the First Nations and Inuit population of these three provinces eligible to receive benefits through Health Canada's drug program.
- Claims were excluded where products did not have an assigned DDD or the quantity claimed could not be determined.

 **Break in time series in 2016:** 2007 to 2015 data include drug claims in a community-based setting accepted by provincial public drug programs, either for reimbursement or toward a deductible from provinces for which population level data were available, (i.e. British Columbia, Manitoba and Saskatchewan). Starting in 2016, data also include claims that were processed for documentation under a drug information system, including those that were not accepted by or submitted to the public drug program (i.e. all claims, both public and private, in those three provinces).

**Further information:** National Prescription Drug Utilization Information System (NPDUIS), <https://www.cihi.ca/en/national-prescription-drug-utilization-information-system-database-metadata>.

## **Chile**

**Sources:** The data used for the estimation of consumption of drugs in Chile come from the following sources:

- **“Public Market” Database.** This data include all the purchases made by the public sector through the **Central de Abastecimiento (CENABAST)**, institution in charge of making all the purchases for the different segments that depend on the State such as Hospitals, Municipalities, Armed Forces, Services of Health and other public entities.

**Methodology:** Each observation (row) in this database contains information regarding the quantity and price agreed between the purchasing public entities and the supplying laboratory. Since those data are based on purchases of medications, which are not necessarily distributed in the same way as consumption, it was necessary to adjust the data by redistributing it annually.

- Database **“Private Market” (IQVIA, ex IMS Health)**. These data include purchases of medicines dispensed in private pharmacies; therefore, the number of sales units are counted as purchases made by households directly in private pharmacies. The data may have strong variations in consumption from one year to another, but since this source is reported directly as the purchasing behaviour of people, such variations will be understood as real market behaviour.

- Projected population series 1992-2050 estimated by the Instituto Nacional de Estadísticas (INE).

**Coverage:** Data include medicines bought by people in the private market and medicines bought by public institutions.

#### **Methodology:**

- Data follow the ATC 2020 codes and DDD values..
- The population used to calculate DDDs per 1000 inhabitants per day corresponds to the population considered as adult for the use of medications (people aged 15 years or older).

**Notes:** The series of public market data between 2011 and 2014 represent purchases made at free demand by the aforementioned institutions, which best represent the consumption of medicine by the public sector. Starting in 2015, purchases begin to have a new structure in which Cenabast makes a large annual purchase for each institution,

and then only a few small ones during the year if necessary. Considering this information, the consumptions series is calculated with redistributed data of purchases.


## Colombia

Data not available.

## Czech Republic

**Source: State Institute for Drug Control.**

**Methodology:**

-  Data for all time series according to the current national adaptation of the ATC Index.
- Data express the volume of medication distributed.
- Data include drugs dispensed in hospitals, non-reimbursed drugs and OTC drugs.
- Data not available before 1985 for Agents acting on the Renin-Angiotensin system (C09) as this group of pharmaceuticals was registered in 1984 only.

**Further information:** <http://www.sukl.cz>.

## Denmark


**Source: The Danish Health Authority.**

**Coverage:**

- Data include all sales of medicines in Denmark.
- Data cover the primary sector and hospitals for all categories.

**Methodology:**

- The figures are based on the requested groups, according to the Anatomic Therapeutic Chemical Classification (ATC)/Defined Daily Dose (DDD).

 Data follow the ATC 2020.

**Further information:** <http://www.medstat.dk/en>.

## Estonia


**Source: State Agency of Medicines.**


**Coverage:**

- Data represent sales from the wholesalers to general and hospital pharmacies and to other institutions.
- Data include OTC drugs, reimbursed drugs, non-reimbursed drugs and drugs dispensed in hospitals (i.e., the total drug consumption in Estonia).
- The total population is used to calculate DDDs for all ATC groups.

**Methodology:**

- Data for all time series according to national adaptation of the ATC Index.
- Data are expressed in DDD per 1000 inhabitants per day, which is calculated as follows: total consumption measured in  $DDD \times 1000 / \text{number of inhabitants} / 365$ .
- Data are collected quarterly from all drug wholesalers in Estonia.

 **Break in time series in 2006:** 2006-2019 data are reported according to the latest ATC classification (2020 ATC Index). Data for 1999-2005 are presented according to the 2005 ATC Index.

 **Deviation from calculation method:** For some active ingredients such as combined oral preparations, “national” DDDs are used. These national DDDs are based on the WHO list of DDDs for combined products, but all preparations that are given DDDs might not be in the WHO list.

**Further information:** <http://www.ravimiamet.ee/en/statistics-medicines>.

## Finland

**Source:** FIMEA Finnish Medicines Agency, Kuopio/Helsinki.

**Methodology:**

- Data are based on the most recent ATC codes.
- Data are given as the number of DDDs per 1000 inhabitants per day, which is calculated as follows: Total consumption measured in DDD (Number of inhabitants)/1000 /365.
- The figures show the drug sales expressed as numbers of DDD/1000 inhabitants/day (not only adults).

**Coverage:**

- Sales from wholesaler to retail pharmacy and hospitals.
- Data are based on wholesale of pharmaceuticals, and they include non-reimbursed medicines and medicines sold over the counter.

## France

**Source:** Agence nationale de sécurité du médicament et des produits de santé (ANSM).


- *Les ventes de médicaments aux officines et aux hôpitaux en France*, Chiffres-clés 2009, 6ème édition, Afssaps, October 2010.


- *Analyse des ventes de médicaments aux officines et aux hôpitaux, 1999-2009*, 11ème édition, Afssaps, July 2011.

[http://www.ansm.sante.fr/var/ansm\\_site/storage/original/application/849879f9b33f8a16c739d28da79cb1d9.pdf](http://www.ansm.sante.fr/var/ansm_site/storage/original/application/849879f9b33f8a16c739d28da79cb1d9.pdf).

Note: As of 1<sup>st</sup> May 2012, the Agence française de sécurité sanitaire des produits de santé (Afssaps) became the Agence nationale de sécurité du médicament et des produits de santé (ANSM).

**Coverage:** Data include consumption both in hospitals and in pharmacies, and include non-reimbursed drugs and OTC.

**Methodology:**  DDDs have been calculated based on the DDDs published by the WHO in January 2010.

 **Break in series in 1999:** Up until 1998, data for drugs used in diabetes refers to the ATC category A10B-Blood glucose lowering drugs, excluding insulin, and refer to the category A10-Drugs used in diabetes from 1999 onwards.

- Data on **Antibacterials for systemic use (J01)** for the period **1997-2018** come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2020 © European Union, 1995-2020. Data extracted 26 June 2020 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, “Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)”.


**Coverage:** Antimicrobial consumption data for the community (primary care sector).

## Germany

**Source:** AOK Research Institute (WIdO), **German Drug Index**; special evaluation by the AOK Research Institute (WIdO).

**Methodology:**


- Classification: Current version of the WHO's ATC classification with DDDs (January 2020) and additional classifications of specific drugs for the German drug market by the AOK Research Institute (WIdO) for the German Drug Index (Fricke U, Günther J, Niepraschk-von Dollen K, Zawinell A (2019): *Anatomisch-therapeutisch-chemische Klassifikation mit Tagesdosen für den deutschen Arzneimittelmarkt*. WIdO, Berlin).

 DDD per 1000 insured persons in the German Statutory Health Insurance per day (instead of DDD per 1000 inhabitants per day).


**Coverage:**

- Prescriptions of drugs covered by German Statutory Health Insurance, starting from 1991 including East Germany. The database is a sample which is projected on the total expenditure for drugs of the official statistics (KV45).

- Data contain exclusively the drug consumption debited to the statutory health insurance (i.e. drugs reimbursed by German Statutory Health Insurance). Data on the drug consumption in hospitals as well as data on prescriptions for privately insured persons and over-the-counter drugs are not available; these can therefore not be considered.

 Data cover only the ambulatory sector.

- DDD for the ATC code C10AA increased in the 2009 WHO ATC classification, leading to changes in data for the ATC groups C-Cardiovascular system and C10-Lipid modifying agents.

 **Break in series in 2004:** With the Health Care Modernisation Act (GMG), non-prescription drugs have been largely excluded from reimbursement. Therefore, the market basket of goods of 2004 differs from that of previous



years.

**Further information:** <http://www.wido.de> (in German).

## Greece

2013-2015 and 2017-2019:

**Source: Pharmaceutical Department of the National Organization for Health Care Services Provision (EOPYY).**

**Coverage:**


- Data include prescribed drugs dispensed to outpatients covered by EOPYY. EOPYY covers almost 95% of the total population in Greece.

- Data do not include in-hospitals drugs, non-reimbursed drugs and OTC drugs.

- A02A-Antacids: Data not available, as those drugs are not prescribed and EOPYY only provides data on prescribed drugs.

- For 2013-2015 and 2017-2018, data also include pharmaceuticals dispensed via EOPYY pharmacies. However, they do not include HIV drugs, growth factors and anti-bleeding factors as these drugs are dispensed via public hospitals pharmacies.

**Methodology:**

 Data for 2017-2019 are based on the ATC 2019 version. Data for 2014, 2014 and 2015 are based on the ATC 2015 version.

- The formula used for the estimates is the following: **DDDs/1,000 inhabitants/day** =  $\sum^k_{j=1} Y_{ij} / (365 \times \text{Population})$


When: Number of DDDs sold per medicinal product package  $\equiv$  Number of DDDs sold<sub>i</sub> = AHD<sub>i</sub> x N<sub>i</sub> = Y<sub>i</sub>

AHD<sub>i</sub> = number of DDDs per package per i barcode i=1,2,3.....6,560

N<sub>i</sub> = the volume of sold packages per barcode i

k=1,2..... the volume of packages in an ATC code (ATC or ATC 2 or ATC 3)

- The population refers to the Greek population Census of 2011.

 **Break in time series in 2013** due to a change of source and methodology.

1990-2004: **Source: Institute of Pharmaceuticals Research and Technology - IFET** (subsidiary of National Organisation for Medicines).


**Coverage:** Data include drugs dispensed in hospitals, non-reimbursed drugs and OTC drugs.

 1990-2003 data are based on the ATC 2003 version. 2004 data are based on the ATC 2004 version.

**Antibacterials for systemic use (J01):**

1997-2018: Data on **Antibacterials for systemic use (J01)** for the period **1997-2018** come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2020 © European Union, 1995-2020. Data extracted 26 June 2020 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, "Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)".

**Coverage:** Antimicrobial consumption data for the community (primary care sector), except for 2004-2008 and 2010: data include total care cases only.

 **Break in time series in 1997** due to a change in source and methodology.

1990-1996: Data from the **Institute of Pharmaceuticals Research and Technology - IFET** (subsidiary of National Organisation for Medicines).

## Hungary

From 2007 onwards:

**Sources:**

From 2017 onwards: **National Institute of Health Insurance Fund Management (NEAK, in Hungarian).**

2007-2016: **Hungarian National Health Insurance Fund (OEP, in Hungarian).**

**Methodology:**

- Data are expressed in DDD per 1000 inhabitants per day.

- Pharmaceutical preparations are given their ATC classification by the National Institute of Pharmacy and Nutrition during the registration process, based on the ATC Index currently available on WHO's webpage.

- **A02A-Antacids and N05C-Hypnotics and sedatives:** Data from **2008 onwards** reflect the fact that the Hungarian National Health Insurance Fund (OEP, in Hungarian) offers no or minimal subsidies for those ATC codes as of 2008, thus both the consumption and the sale data are null or close to 0 in those ATC codes.

**Coverage:**

- Data include only pharmaceutical consumption subsidised by social health insurance in pharmacies, and do not include pharmaceutical consumption in pharmacies not subsidised by social health insurance nor in hospitals.
- Data do not include drugs dispensed in hospitals from 2007 onwards.
- Data do not include non-reimbursed drugs from 2007 onwards.
- Data do not include OTC drugs from 2007 onwards.

**Further information:** <http://www.oep.hu>.

Up to 2006:

**Source:** PharmMIS Index review of the Hungarian pharmaceutical market Yearbook.

**Coverage:**

- Data include all pharmaceutical consumption in pharmacies and hospitals (subsidised and not subsidised by social health insurance), expressed in DDD per 1000 inhabitants per day.

## Iceland

**Sources:**

From 2011 onwards: **The Directorate of Health:** Prescription Medicines Register.

Before 2011: **Icelandic Medicines Agency.**

**Methodology:**

- DDD are not comparable between years due to changes in definition.

🔴 **As of 2011,** data extracted from the Icelandic Prescription Medicines Register.

Data as of 2007 are based on the requested groups, according to the version of the ATC/DDD classification of each year. Data for previous years are not updated with newer versions of the ATC.

🔴 **Break in time series in 2011:**

From 2011 onwards, data cover all prescription medicines, reimbursed and non-reimbursed, dispensed by pharmacies and by dispensing services. Data cover individuals in private residences as well as residents in nursing homes and residential care facilities. Data exclude medicines dispensed in hospitals.

Before 2011, data include medicines dispensed in hospitals and non-reimbursed medicines, as well as OTC drugs (in volume).

🔴 **Break in time series in 2006 for Antibacterials for systemic use:** Data for Antibacterials for systemic use (J01) represent the total use until 2005, and the outpatient use as of 2006.

🔴 **Break in time series in 1989:** Data before 1989 are not corrected for changes in DDD definitions. Data as of 1989 are corrected for changes in DDD and are presented according to definitions in the 2006 ATC.

- Decrease in data for **Lipid modifying agents** from 2008 to 2011 as Health Authorities in Iceland have been working systematically on decreasing the expenditure on Lipid modifying agents by a change in the reimbursement.

## Ireland

Data not available.

- Data on **Antibacterials for systemic use (J01)** for the period **1997-2018** come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2020 © European Union, 1995-2020. Data extracted 26 June 2020 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, “Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)”.

**Coverage:** Antimicrobial consumption data for the community (primary care sector).

## Israel

**Source:** Analysis of the data was performed by the **NLHS (National List of Health Services) Assessment Division, Medical Technology and Infrastructure Administration in the Ministry of Health.**

**Coverage:**

- Data are based on annual reports on pharmaceutical consumption from HMOs (Health Maintenance Organisations) to the Ministry of Health:
- 2014-2019 data are based on reports from all 4 HMOs in Israel (Clalit, Maccabi, Meuhedet and Leumit).
- 2012 data are based on reports from 3 HMOs (Maccabi, Meuhedet and Leumit; half (47.5%) of the population have health insurance through those HMOs. The data do not include consumption from the 4<sup>th</sup> HMO (Clalit).
- The annual reports are required by law and submitted biannually.
- Consumption data do not include drugs dispensed in hospitals, non-reimbursed prescriptions and OTC drugs.

**Methodology:**

**i** Data are based on the ATC Index 2013 (for 2012 data), ATC Index 2014 (for 2014 and 2015 data), ATC Index 2015 (for 2016 data), ATC index 2016 (for 2017 and 2018 data) and online ATC data index (for 2019 data).

**Reference period:** January 1<sup>st</sup>-December 31<sup>st</sup> 2012, January 1<sup>st</sup>-December 31<sup>st</sup> 2014, January 1<sup>st</sup>-December 31<sup>st</sup> 2015, January 1<sup>st</sup>-December 31<sup>st</sup> 2016, January 1<sup>st</sup>-December 31<sup>st</sup> 2017, January 1<sup>st</sup>-December 31<sup>st</sup> 2018, January 1<sup>st</sup>-December 31<sup>st</sup> 2019.

**Note:** The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

## Italy

**Source:** AIFA (Agenzia Italiana del Farmaco) - Italian Medicines Agency, "The Use of Pharmaceuticals in Italy", National Report **2011-2018**, and AIFA internal database.

**Coverage:** Data do not include non-reimbursed drugs and OTC products.

**i Methodology:** Data are indicated in DDDs according to the **2019** Anatomic Therapeutic Chemical Classification (ATC).

## Japan

Data on **Antibacterials for systemic use (J01):**

**Sources:**

- **Ministry of Health, Labour and Welfare**, National Database of health insurance claims, and specific health checkups of Japan (2011, 2012 and 2013).
- Yamasaki D, Tanabe M, Muraki Y, Kato G, Ohmagari N, Yagi T. *The first report of Japanese antimicrobial use measured by national database based on health insurance claims data (2011-2013): comparison with sales data, and trend analysis stratified by antimicrobial category and age group*. Infection. 2017. DOI: 10.1007/s15010-017-1097-x.

**Coverage:**

- Data exclude non-electronic claim data (approximately 2% of claim data).
- The database excludes antibacterials prescribed in dental departments in hospitals and in dental clinics.

**Methodology:**

- The National Database of health insurance claims and specific health checkups of Japan (NDB) is the database of all electronic claims data constructed by the Ministry of Health, Labour and Welfare (MHLW), and encompasses approximately five billion health insurance claims as of June 2012.
- In 2011, MHLW opened this database to researchers, central and local governments for research and health policy discussion.
- Data on total systemic antibacterial prescription at the hospital, clinic, and pharmacy through health insurance (medical and pharmaceutical claims) in 2011, 2012, and 2013 were extracted from the NDB.
- Data reflect total consumption of antibacterials, including oral and parenteral antimicrobial use expressed in defined daily doses (DDDs) per 1000 inhabitants per day.
- Since antibacterials are not available over-the-counter in Japan, virtually all antibacterials were prescribed by physicians at medical institutions and reimbursed using an electronic claim system. Therefore, the data should include all antibacterial consumption.

## Korea


### Sources:

From 2011: **Ministry of Health and Welfare, Health Insurance Review & Assessment Service**, Administrative data from National Health Insurance, Medical Aid, Veterans Benefits, Industrial Accident and Occupational Disease Insurance, and Auto Insurance and Supply data from wholesalers to retail pharmacy, hospitals and other retailers.

Until 2010: **Ministry of Health and Welfare, Survey on the Sales and Consumption of Pharmaceuticals in Korea.**

**Coverage:** Data encompass all pharmaceutical products supplied in Korea.

### Methodology:

 From 2014, data are based on the following year's version of the ATC classification (i.e. 2017 data based on the 2018 ATC classification, 2016 data based on the 2017 ATC classification. 2015 data based on the 2016 ATC classification. 2014 data based on the 2015 ATC classification). 2011-2013 data based on the 2014 ATC classification. 2010 data based on the 2013 ATC classification. 2009 data based on the 2009 ATC classification, and 2008 data based on the 2008 ATC classification.

#### From 2016:

- Overall reimbursed drugs consumption is added up by using the current year's administrative data.

- Non-reimbursed drugs consumption is added up by using the current year's supply data.

#### 2011-2015:

- Overall reimbursed drugs consumption is added up by using the last 3 years of administrative data.

- Non-reimbursed drugs consumption was estimated by using the last 3 years of supply data.

- Non-reimbursed drugs were estimated using data mining (random forest) model by algorithm based on reimbursed drugs.

#### From 2011:


- Overall reimbursed drugs consumption is added up by using administrative data from National Health Insurance, Medical Aid, Veterans Benefits, Industrial Accident and Occupational Disease Insurance, and Auto Insurance.

- Non-reimbursed drugs consumption was estimated by using the data on pharmaceutical supply provided by wholesalers to retail pharmacy, hospitals and other retailers

#### Until 2010:

- Pharmaceutical consumption data in Korea are collected either through National Health Insurance or through other sources. Data compiled by National Health Insurance (including Medical Aids and Veterans benefits) cover the whole reimbursed consumption. Data from other sources, such as non-payment items and OTC, are collected and estimated by sampling analysis (from survey of medical institutions and pharmacies).

- Data include drugs dispensed in hospitals, non-reimbursed drugs and OTC drugs.

 **Breaks in time series in 2011 and 2016** due to a change in source and methodology.


## Latvia

### Source: State Agency of Medicines.

**Coverage:** Only consumption of authorised medicines is included. Consumption of unauthorised medicines is roughly about 1% of the total market of medicines.


### Methodology:

- Data are collected and compiled from all licensed wholesalers. Only WHO-approved DDDs for non-combined products are used for the calculation of consumption in DDDs/1000 inhabitants/day. Due to the adjustments made by the wholesalers in their monthly sales reports, the previous data have been changed.

 **Break in time series in 2015:** 2015-2019 data are reported according to the latest ATC classification (2020 ATC Index). Data for the period 2012-2014 are based on the ATC 2014.

### Antibacterials for systemic use (J01):

2012 onwards: Data from State Agency of Medicines.

 **Break in time series in 2012** due to a change in source and methodology.

2002-2011: Data on **Antibacterials for systemic use (J01)** come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2019 © European Union, 1995-2019. Data extracted 16 October 2019 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, "Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)".

**Coverage:** Antimicrobial consumption data for the community (primary care sector).

## Lithuania

**Source:** State Medicines Control Agency of Lithuania database.

**Methodology:**

- Medicines consumption is calculated using monthly wholesales data on medicines packages.
- Data are expressed in DDD per inhabitant per day.
- Data follow the ATC classification (the annual version is used for each year).


**Coverage:**

- Data include drugs dispensed in hospitals.
- Data include non-reimbursed drugs.
- Data include OTC drugs.

**Further information:** The statistics on medicines are published on the Agency's website at [www.vvkt.lt](http://www.vvkt.lt).

**Antibacterials for systemic use (J01):**

2010 onwards: Data from State Medicines Control Agency of Lithuania database.

 **Break in time series in 2010** due to a change in source and methodology.


- Data on **Antibacterials for systemic use (J01)** for the period **2006-2009** come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2019 © European Union, 1995-2019. Data extracted 16 October 2019 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, "Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)".

**Coverage:** Antimicrobial consumption data for the community (primary care sector), except for 2006-2009: data include total care cases only.


## Luxembourg

**Source:** Caisse nationale de santé (CNS).

**Coverage:**

 The data provided refer only to the **insured resident population** (annual average number) covered by the public health insurance regime (i.e. the insured resident population) and not to the total resident population. Information on the insured resident population is given under the chapter "Health Care Coverage".


**Methodology:**

 Data for 2017-2018-2019 follow the ATC 2020. Data for 2016 follow the ATC 2019. Data for 2013-2015 follow the ATC 2017. Data for 2012 follow the ATC 2016. Data for 2010-2011 follow the ATC 2014. Data for the period 1995-2010 follow the ATC 2013.

- 2018-2019 data are preliminary.
- Data based on medication reimbursed by health insurance, not including hospital consumption or OTC drugs.
- Data may be under-estimated due to the lack of information for all sub-groups at the third level of the ATC classification.

**Antibacterials for systemic use (J01):**

2009 onwards: Data come from the **Caisse nationale de santé (CNS)**.

 **Break in time series in 2009** due to a change in source and methodology.

1997-2008: Data on **Antibacterials for systemic use (J01)** come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2019 © European Union, 1995-2019. Data extracted 16 October 2019 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, "Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)".

**Coverage:** Antimicrobial consumption data for the community (primary care sector).

## Mexico

Data not available.

## Netherlands

**Source: GIP (Drug Information System of the Health Care Insurance Board).** The GIP is an information system of the Health Care Insurance Board, in use since 1988, containing information on (external) expenditure on drugs in the Netherlands and the degree to which they are used. Data updated in October 2019 are used.

**Coverage:**

- OTC drugs are not included. The register includes prescription-related data on drugs that are:
  - prescribed by general practitioners and specialists
  - dispensed by pharmacists, dispensing general practitioners and other outlets
  - reimbursed under the Health Care Insurance Act.
- Medications given in hospitals are not included.

**Methodology:**

- Data are given as the number of DDDs per 1000 inhabitants per day, which is calculated as follows:  $\text{Number of DDD's} \times 1000 / \text{Total (yearly average) population} / 365$  (or 366 in case of a leap year).

**i** The 2018 ATC index has been used for 2014-2018 data. For 2013 data: ATC 2017; for 2012 data: ATC 2016; for 2011 data: ATC 2015; for 2010 data: ATC 2014; for 2008-2009 data: ATC 2012; for 2007 data: ATC 2011; for 2006 data: ATC 2010; for 2003-2005 data: ATC 2008; and for 2001-2002 data: ATC 2005.

- The GIP database of 2012 contains data from 25 of the 27 health insurance organisations. The sample of insured persons is around 16.1 million persons (almost 97% of the entire Dutch population).

**i** N-Nervous system, N05B-Anxiolytics and N05C-Hypnotics and sedatives: the decrease in 2009 is explained by the fact that these pharmaceuticals are no longer reimbursed by the compulsory healthcare insurance as of 2009, and thus have to be covered by OOP or by private insurance.

**i** G-Genito urinary system and sex hormones and G03-Sex hormones and modulators of the genital system: the increase in 2008 and the decrease in 2011 are explained by large fluctuations due to the renewed reimbursement of the contraception pill.

**i** The decrease in the consumption of A-Alimentary tract, A02A-Antacids, G-Genito-urinary system and sex hormones and G03-Sex hormones and modulators of the genital system can be explained by the fact that from 2004 onwards, several over-the-counter medicines have been exempt from compensation by the health insurance fund and exempt from compensation by most of the private insurance as well.

- Data for the last 4 years are updated if new numbers were available in the GIP database. The GIP database only contains data for the last 5 years.

- The DDD used is valid in the most recent year available. This DDD is applied to the preceding years (from 2008). Data from 2008 onwards are comparable. Data before 2008 are sometimes not comparable to those after 2007 due to possible changes in DDDs.

## New Zealand

**Source: PHARMAC - Pharmaceutical management agency.** Data provided from the **Pharmhouse database.**

**Methodology:**

- Many chemicals are only mapped to their corresponding ATC 2 and 3 levels.
- New Zealand drugs are classified based on funding source rather than Anatomical Therapeutic Chemical.
- Data expressed in DDDs according to this procedure: the units measured in the formulation were compared to the units measured by the DDD and one side was multiplied accordingly so that the formulation strength and the DDD were both measured in the same units (i.e., mg). The total units dispensed for each formulation was multiplied by the formulation strength and divided by the DDD then by 365 then by population as at 30 June 2014 (4,442,100) and multiplied by 1000.

## Norway

**Source: Norwegian Drug Wholesale statistics database, The Norwegian Institute of Public Health (Department of Drug Statistics).**

**Coverage:**

- Total sales from wholesalers to retail pharmacies, hospitals and outlets selling a selection of OTC products (e.g. grocery stores).
- Data thus include drugs dispensed in hospitals, non-reimbursed drugs and OTC-drugs.

**Methodology:**

- Data for all years follow the ATC version January 2020.
- Sales given in DDD/1000 inhabitants/day are included for selected ATC groups.
- Due to changes in ATC/DDD 2020 for A10BJ02 Liraglutide, the ATC group A10 has been updated from 2012 to 2018.

**Further information:** Norwegian Wholesales Statistics at <https://www.fhi.no/en/hn/drug/om-den-grossistbaserte-legemiddelforbruksstatistikken/>.

## Poland

Data not available.

- Data on **Antibacterials for systemic use (J01)** for the period **1997-2018** come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2020 © European Union, 1995-2020. Data extracted 26 June 2020 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, “Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)”.

**Coverage:** Antimicrobial consumption data for the community (primary care sector).

## Portugal

**Source: Ministry of Health - National Authority of Medicines and Health Products (INFARMED).**

### Coverage:

- Data represent the total ambulatory market for mainland Portugal.
- Data do not include hospital consumption.
- Data include both reimbursed and non-reimbursed products.
- Data include OTC products sold in pharmacies but do not include OTCs sold outside of pharmacies in authorised establishments.

### Methodology:

- Data follow the ATC Index 2020.
- The ATC J01 (Antibacterials for systemic use) DDD have been calculated following the ESAC-Net methodology.
- Data refer to pharmaceutical utilisation by DDD per 1000 inhabitants, by ATC group, calculated as follows: Total utilisation measured in DDD x 1000 / Number of inhabitants / 365.

## Slovak Republic


### Sources:

From 2016 onwards: **National Health Information Center (NCZI).**


### Coverage:

- Data include drugs dispensed in hospitals (and in hospital ambulances), reimbursed and non-reimbursed drugs and OTC drugs.
- Data include only those products where a WHO-DDD is available.
- Individual substances and special imports of drugs are excluded.

### Methodology:

 Data for 2018 follow the 2020 version of the ATC classification, data for 2017 follow the 2019 ATC, data for 2016 follow the 2018 ATC.

- The Slovak Republic uses the prophylactic DDD value of 0.4 for folic acid (ATC code B03BB01), as opposed to the therapeutic DDD value of 10. As a result, Slovak data for the consumption of “B-Blood and blood forming organs” are comparatively large.

 **Break in time series in 2016** due to a change of data source. Since 2016, the new data source gathers quarterly statistical reports from public and hospital pharmacies and health insurance companies, which represents the real consumption by end-customers.


- Information on consumption is also available in electronic form in a NCZI software.

**For further information:** [www.nczisk.sk](http://www.nczisk.sk).

Up until 2015: **MCR, limited company**, Modra, Slovak Republic.

**Coverage:** Data include drugs dispensed in hospitals, reimbursed and non-reimbursed drugs and OTC drugs.

### Methodology:

 Data for 2015 follow the 2016 version of the ATC classification, data for 2014 follow the ATC 2015, data for 2013 follow the ATC 2014, data for other years follow the ATC 2013.

- Information on drug consumption as a system of drug acquisition and processing comes from reports of wholesale distribution organisations. Following Act no. 140/1998 Coll., they provide information to the “State Institute for Drug Control” (Štátny ústav pre kontrolu liečiv, ŠÚKL) regarding the amounts of drugs sold to the population.
- Information on consumption is also available in printed and electronic form (database on cumulative quarterly data, in a software released by MCR, s.r.o. Modra).


## Slovenia

**Source:** Health Insurance Institute of Slovenia, Database on Out-patient prescribing of drugs in Slovenia.

### Coverage:

- Data include all medicines with a valid medical prescription – compulsory health insurance, regardless of the reimbursement.
- Data include all drugs, prescribed with a valid medical prescription, regardless of reimbursement.
- Data do **not** include drugs dispensed in hospitals.


### Methodology:

 Data are based on the following versions of the ATC Index: 2018 data follow the 2018 ATC Index, 2017 data follow the 2017 ATC Index; 2015 and 2016 data follow the 2016 ATC Index; 2014 data follow the 2015 ATC Index; data up until 2013 follow the 2014 ATC Index.

- Data are required for all out-patient drug prescriptions issued.

### Antibacterials for systemic use (J01):

2012 onwards: Data come from the **Health Insurance Institute of Slovenia** Database on Out-patient prescribing of drugs in Slovenia.

 **Break in time series in 2012** due to a change in source and methodology.

1997-2011: Data on **Antibacterials for systemic use (J01)** come from the **European Surveillance of**

**Antimicrobial Consumption Network (ESAC-Net) Database**, 2019 © European Union, 1995-2019. Data extracted 16 October 2019 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, “Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)”.

**Coverage:** Antimicrobial consumption data for the community (primary care sector).

## Spain

**Source:** Ministerio de Sanidad (Ministry of Health), Directorate General for NHS Basic Services Portfolio and Pharmacy.

### Coverage:

- Since 2018, data refer both to:

- Consumption of official medical prescriptions receipts issued by the National Health System and dispensed in community pharmacies. Data exclude non-reimbursed drugs, OTC drugs and private medical prescriptions.
- Hospital consumption, for hospitals belonging to the public network of the National Health System. Data coverage is total, for in-patients and out-patients.

- Until 2018 data are obtained from official medical prescriptions receipts issued by the National Health System and dispensed in pharmacies. Data exclude non-reimbursed drugs, OTC drugs, private medical prescriptions and drugs used in hospitals.

- Data after 2012 are not available for the subgroup A02A-Antacids since these drugs were excluded from public reimbursement in September 2012.

- There are subgroups in the ATC classification without any assigned DDD: the consumption of these medicinal products is not included in the corresponding defined daily dosage. This is the case for A12CX, B03AD, B05, G04, C05, J07, M01CX, and N01B, and some combinations of R06A.


- 2011 data for the C10 subgroup have incorporated the modification of the Omega-3-triglycerides, DDD 2000 mg.


- 2010 data for the A10 subgroup have incorporated the modification of the Glicazide DDD, 160 mg to 60 mg, established by the WHO.




- Methodology change for the subgroup C03-Diuretics: the DDD for hydrochlorothiazide and amiloride combination has been modified from 2 to 1 U.D.
- In the C10 subgroup, the DDD for 2008 has been updated, in view of the modifications in the 2009 DDDs for statins.
- In the R03 subgroup, the DDDs have been modified from 2006, because WHO established DDDs for fixed dose drug combinations in subgroup R03AK07 which have been considered.
- In the J01 subgroup, the DDD for 2017 has been updated, in view of the modifications in the 2019 DDDs for some antibacterials for systemic use. Please note that the significant decrease for both “J-Anti-infectives for systemic use” and “J01-Antibacterials for systemic use” from 2016 to 2017 is due to the new DDD established in accordance with the ATC/DDD 2019 classification.
- In the R03 subgroup, the DDD for 2017 has been updated, in view of the modifications in the 2019 DDDs in subgroup R03DA12.

#### **Methodology:**


 2018 data according to the ATC/DDD 2020 classification, 2017 data according to the ATC/DDD 2019 classification, 2016 data according to the ATC/DDD 2018, 2015 data according to the ATC/DDD 2017 classification, 2014 data according to the ATC/DDD 2016 classification, 2013 data according to the ATC 2015 classification, 2012 data according to the ATC 2014 classification, 2011 data according to the ATC 2013 classification, 2010 data according to the ATC 2011 classification, 2009 data according to the ATC 2010 classification. For data from 2004 to 2008, the ATC version employed for each year is that of the year following the corresponding information.

 **Break in time series in 2018:** Hospital consumption data are included for the first time in 2018.

 **Break in time series in 2014:** 2014 figures include for the first time prescription invoices data from special health insurance schemes such as General Mutual Civil Servants (MUFACE), the Social Institute of the Armed Forces (ISFAS) and the General Mutual Judicial (MUGEJU).

#### **Antibacterials for systemic use (J01):**

2012 onwards: Data come from the **Ministerio de Sanidad (Ministry of Health), Directorate General for NHS Basic Services Portfolio and Pharmacy.**

 **Break in time series in 2012** due to a change in source and methodology.

1997-2011: Data on **Antibacterials for systemic use (J01)** come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2019 © European Union, 1995-2019. Data extracted 16 October 2019 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, “Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)”.

**Coverage:** Antimicrobial consumption data for the community (primary care sector).

## **Sweden**

**Source:** Swedish eHealth Agency (eHälsomyndigheten), Stockholm, Sweden.

#### **Coverage:**

- Total sales from pharmacies to patients and hospitals.
- Data include drugs dispensed in hospitals and non-reimbursed drugs, as well as OTC drugs (both from pharmacies and from other retailers).

#### **Methodology:**

- Data updated from 2000 onwards according to the ATC 2020.
- The figures show the drug sales expressed as number of DDD/1000 inhabitants/day (not only adults), which are updated according to the annual version of the ATC Index from the WHO Collaborating Centre, Oslo.
- The DDD statistics comprise all approved drugs sold to hospitals, prescribed to the public and sold over-the-counter.

#### Main Group B-Blood and blood forming organs:

- Sweden only used national DDDs for B05 until the year 2004. The implication on the consumption of “B-Blood and blood forming organs” is minimal since consumption of B05 is very low relative to B as a whole.
- Sweden uses the prophylactic DDD value of 0.4 for folic acid (ATC code B03BB01), as opposed to the therapeutic DDD value of 10. As a result, Sweden’s values for the consumption of “B-Blood and blood forming organs” are comparatively large.

**Further information:** <http://www.ehalsomyndigheten.se/Om-oss-/Uppdrag-och-verksamhet/Other-languages1/Swedish-eHealth-Agency/>. Information on the re-regulation of the Swedish pharmacy market is available at the Medical Products Agency website at <http://www.lakemedelsverket.se/english/overview/About-MPA/pharmacy-market/>.

## Switzerland

Data not available. There is no source concerning consumption of pharmaceuticals, and data from health surveys do not enable the calculation of DDDs for pharmaceutical consumption.

## Turkey

**Source:** Ministry of Health, Turkish Medicines and Medical Devices Agency.

**Coverage:** Data include drugs dispensed in pharmacies and non-reimbursed drugs.

### Methodology:

 Data follow the 2019 ATC/DDD index.

- Data were gathered via IMS Health (now IQVIA), Intercontinental Medical Statistics for 2008-2012. Since 2013, Pharmaceutical Track & Trace System has been used for the data collection.

- The Pharmaceutical Track & Trace System is the adaptation of the well-known Track & Trace System into the pharmaceutical industry. This system enables to define the locations of the products in the supply and distribution chain. It is possible with the help of the electronic product code to track each transaction of the drugs in the supply chain beginning from the production or importation. Accordingly, with the help of DataMatrix printed on the drug packages, it is possible to report the incoming and outgoing of the products, so that the last location, time and status of the product can be saved and stored in a live data source.

**Further information:** <https://itsportal.saglik.gov.tr/index.php?run=home>.

## United Kingdom

### Sources:

England: Data calculated by **NHS Digital** using data for England from the **Prescription Cost Analysis (PCA)**.

Scotland: Data calculated by **Information Services Division, NHS National Services Scotland** (<http://www.isdscotland.org/>) using data from **Prescribing Information System (PIS)**.

Northern Ireland: Prescription information is taken from the pharmaceutical payment system, supplied by the **Business Services Organisation (BSO)**.

Wales: **NHS Wales Informatics Service**.

### Coverage:

- Data do not cover drugs dispensed in hospitals, including mental health trusts or private prescriptions, only those drugs dispensed in the community.


- Data only include those prescriptions submitted for reimbursement. If prescriptions were not submitted for dispensing or if the medicines were given to the patients by a route other than prescriptions (e.g. homecare or in hospital), they would not be included.

- Prescribers are GPs, hospital doctors, dentists and non-medical prescribers such as nurses and pharmacists.

### Northern Ireland:

- Data are based on a full analysis of all prescriptions dispensed in the community, i.e. by community pharmacists and appliance contractors, dispensing doctors, and prescriptions submitted by prescribing doctors for items personally administered in Northern Ireland. Also included are prescriptions written in Wales, Scotland, England and the Isle of Man but dispensed in Northern Ireland.

- Northern Ireland only report on generic volume in terms of items, not DDDs.

 **Break in series in 2013:** Data for England only until 2012; data for the United Kingdom from 2013 onwards.

### Methodology:

- The United Kingdom does not classify DDDs according to the Anatomic Therapeutic Chemical (ATC) classifications and instead uses the British National Formulary (BNF classification). Therefore BNF drug groups have been approximately mapped to ATC classifications, and each group may not strictly contain the same drugs.

No information on why a drug is prescribed is available. Since drugs can be prescribed to treat more than one condition, it is impossible to separate the different conditions for which a drug was prescribed.

- **Prescription items:** prescriptions are written on a prescription form, and each single item written on the form is counted as a prescription item.

- **Net Ingredient Cost (NIC):** the NIC is the basic cost of a drug. It does not take account discounts, dispensing costs, fees or prescription charges income.

- All data are for calendar year.

#### England:

- Prescription information is taken from the Prescription Cost Analysis (PCA) system, supplied by NHS Prescription Services, a division of the NHS Business Services Authority (BSA), and is based on a full analysis of all prescriptions dispensed in the community, i.e. by community pharmacists and appliance contractors, dispensing doctors, and prescriptions submitted by prescribing doctors for items personally administered in England.

- Also included are prescriptions written in Wales, Scotland, Northern Ireland and the Isle of Man but dispensed in England.

- Data available in DDDs cover 79% of prescription items and 67% of Net Ingredient Cost in 2017.

#### Scotland:

- Prescription Information is taken from the Prescribing Information System (PIS) supplied by Practitioner and Counter Fraud Services, NHS National Services Scotland and is based on a full analysis of all prescriptions dispensed in the community, i.e. by community pharmacists, appliance contractors, and dispensing doctors.

- Also included are prescriptions written in England, Wales and Northern Ireland but dispensed in Scotland.

#### Northern Ireland:

- Prescription information is taken from the pharmaceutical payment system, supplied by the Business Services Organisation (BSO), and is based on a full analysis of all prescriptions dispensed in the community i.e. by community pharmacists and appliance contractors, dispensing doctors, and prescriptions submitted by prescribing doctors for items personally administered in Northern Ireland.


- Also included are prescriptions written in Wales, Scotland, England and the Isle of Man but dispensed in Northern Ireland.

- The data do not cover drugs dispensed in hospitals, including mental health trusts, or private prescriptions.

- Northern Ireland does not classify drugs by ATC but rather uses the British National Formulary (BNF).

#### **Antibacterials for systemic use (J01):**

**2012 onwards:** Data calculated by NHS Digital (<https://www.digital.nhs.uk/>) using data for England from the **Prescription Cost Analysis (PCA)**.

 **Break in time series in 2012** due to a change in source and methodology.

**1997-2011:** Data on **Antibacterials for systemic use (J01)** come from the **European Surveillance of Antimicrobial Consumption Network (ESAC-Net) Database**, 2019 © European Union, 1995-2019. Data extracted 16 October 2019 via <https://ecdc.europa.eu/en/antimicrobial-consumption/database/trend-country>, “Trend of the consumption of Antibacterials for systemic use (ATC group J01) in the community (primary care sector)”.

**Coverage:** Antimicrobial consumption data for the community (primary care sector).

#### **United States**

Data not available.

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<http://www.oecd.org/health/health-data.htm>