

## **Documentation of statistics for Hospitalization 2024**

## **1 Introduction**

The purpose of the Hospital Utilisation Statistics is to shed light on the connection between hospitals stays and social and demographic conditions. The statistics have been compiled since 1990, but are comparable in their current form only from 2017 onwards.

## **2 Statistical presentation**

The statistics are an annual inventory of stays at public and private somatic and psychiatric hospital wards within one calendar year. The statistics show how hospital stays vary with demographic and social factors, such as residence, sex, age, educational level, labour market affiliation and relatives. The statistics are published in News from Statistics Denmark and in the StatBank.

### **2.1 Data description**

The statistics cover stays at public and private somatic and psychiatric hospital wards within one calendar year. The statistics are based on the National Patient Register from the Danish Health Data Authority combined with a number of background details from other registers. The statistics show e.g. how the use of hospitals varies with a range of sociodemographic factors such as residence, sex, age, educational level, labour market affiliation and relatives. The statistics also show how hospital stays are distributed according to main diagnosis group.

## 2.2 Classification system

The following groups and classifications are applied in connection with publication of the Hospital Utilisation statistics:

- In the StatBank table SBR01: Age, sex, and municipality of residence are extracted from the Population Register at the end of the given year.
- In the StatBank tables SBR02–08: Age is determined at the end of the given year based on the date of birth derived at the time of pseudonymisation of the CPR from LPR data. All individuals aged over 115 years are deleted.

Sex is determined during pseudonymisation from the most recently registered CPR in the LPR data for the given year. In the LPR data for 2024, there were 283 individuals with more than one CPR, and thus more than one sex recorded. This was handled by selecting the most recently registered CPR and using it exclusively to determine sex.

- Hospital service type (somatics - psychiatry - both). The hospital stays can be categorized according to somatics, psychiatrics or both (i.e. hospital stays where there has been physical attendance in both somatic and psychiatric hospital services) according to the Danish Health Data Authority.
- Hospital type (public - private - both)
- Labour market affiliation is taken as of 31 December of the previous year from the Labour Classification Module. It is broken down into: Employed - Unemployed - Long-term sick leave, vocational rehabilitation, etc. - Disability pensioner - Oldage pensioner - Students, persons under 15 years and others
- Highest completed education is taken as of 30 September of the previous year from the Education Register. It is grouped according to the DDU format: Primary school - Upper secondary education - Vocational education and training - Short-cycle higher education - Medium-cycle higher education - Long-cycle higher education - PhD or equivalent - Unknown educational level
- Ancestry is taken from the Population Register at the end of the given year. Broken down into: persons of Danish origin - immigrants - descendants - unknowns.
- Relatives (has a partner and no other relatives - has a partner and other relatives - has no partner but has other relatives - has neither a partner nor other relatives)
- Diagnosis (the primary diagnosis linked to the last contact of the stay) is grouped based on the 21 main diagnosis groups in the Danish version of the ICD (International Classification of Diseases), see [The SKS browser](#).

## 2.3 Sector coverage

Public and private somatic and psychiatric hospital wards.

## **2.4 Statistical concepts and definitions**

Hospital stay: One or more contacts involving physical attendance by a person at one or more hospitals or healthcare institutions. A contact may, for example, be a consultation, examination, admission or similar. Multiple contacts are considered part of the same hospital stay if no more than four hours pass between the end of one contact and the beginning of the next.

## **2.5 Statistical unit**

- Persons
- Stays

## **2.6 Statistical population**

The population's stays at public and/or private somatic and psychiatric wards.

## **2.7 Reference area**

Denmark

## **2.8 Time coverage**

2017 - 2024

## **2.9 Base period**

Not relevant for these statistics.

## **2.10 Unit of measure**

Number of hospital stays or of people using hospital services.

## **2.11 Reference period**

The reference time is the calendar year in which the hospital stay took place.

## **2.12 Frequency of dissemination**

Annually.

## **2.13 Legal acts and other agreements**

Section 6 of the act on Statistics Denmark, cf. consolidating act no. 610 of 30 May 2008. There is no EU regulation concerning the Hospital Utilization Statistics.

## 2.14 Cost and burden

The statistics are based on administrative registers. There is therefore no direct reporting burden in connection with the calculation of these statistics.

## 2.15 Comment

Further information is available at: [Statistics Denmark](#) or by contacting Statistics Denmark.

## 3 Statistical processing

The statistics are based on data retrieved from the National Patient Registry, which is shared with Statistics Denmark by the Danish Health Data Authority. Background data from Statistics Denmark are linked to the registry, and summaries and counts are produced — for example, the number of hospital stays and patients in public and private somatic and psychiatric hospital departments during the calendar year.

### 3.1 Source data

External sources: The National Patient Registry, provided by the Danish Health Data Authority. The National Patient Registry contains information on all contacts with Danish public and/or private somatic and psychiatric hospitals. From 2012 to 2015, data from the National Patient Registry were provided by the Statens Serum Institut, and prior to 2012, by the Danish Health Authority. LPR3 data are available for the years 2019–2024, and the annual (LPR3) data delivery was resumed in 2022. LPR2 data were received annually until 2019.

Internal sources:

- The register of population statistics (municipality and ancestry)
- The Employment Classification Module (labour market affiliation (SOCIO13))
- The Education Register (highest completed level of education)
- The Relatives Register (relatives, partner)

### 3.2 Frequency of data collection

Annually.

### 3.3 Data collection

Extracts from the master tables of the National Patient Register in the Danish Health Data Agency are transmitted via a secure connection to Statistics Denmark.

### 3.4 Data validation

The Danish Health Data Agency is responsible for the operation and validation of the National Patient Register. Go to the [Danish Health Data Agency](#) for more information. (Link in Danish)

### 3.5 Data compilation

In compiling the statistics, information from several registers are combined. The LPR table named “Hospital stays” is supplemented with a variable (the primary diagnosis linked to the last contact of the stay) from the LPR table named “Contacts.” In addition, variables are added from the Population Statistics Register (municipality of residence, ancestry), the Employment Classification Module (SOCIO13), the Education Register (highest completed education), and the Relatives Register (partner, other relatives).

Age is calculated at the end of the year based on the date of birth, which is determined during the pseudonymisation of LPR data. Persons over 115 years of age are excluded. Municipality of residence is taken as of year-end, labour market attachment as of 31 December of the previous year, and highest completed education as of 30 September of the previous year.

Diagnosis (the primary diagnosis linked to the last contact of the stay) is grouped into main diagnosis groups according to the Danish version of the WHO’s 21 ICD-10 (International Classification of Diseases) groups, see [the SKS browser](#). Certain diagnoses that cannot be placed within these groups are assigned manually.

The number of stays is also calculated by type of hospital, type of hospital service, and length of stay (under/over 12 hours). Finally, the data are compiled into two datasets: one with one observation per stay and one with one observation per person. The latter is created by removing duplicates from the former.

### 3.6 Adjustment

Not relevant for these statistics

## 4 Relevance

Public and private stakeholders, as well as the general population, can use the statistics to extract data on the population’s hospital utilisation for various analyses, research, public debate, etc. The statistics make it possible to produce figures for specific diagnosis groups and to link information on hospital utilisation with sociodemographic factors such as place of residence, education, labour market attachment, and origin. This is made possible by linking data from the National Patient Register with population register data from Statistics Denmark.

### 4.1 User Needs

The statistics are used by a wide range of users, including municipalities, regions, ministries, organisations, private companies, and individuals. They are used, among other things, for public planning purposes, analyses, research, reports, and public debate. Most enquiries about the statistics concern figures for specific diagnoses or assistance in extracting data from the StatBank.

## **4.2 User Satisfaction**

There is regular contact with users, and their stated needs and perspectives are documented. Currently, the main needs include: requests for diagnosis-based statistics and requests for statistics at the municipal level.

Information is collected on users' utilisation of tables in the area of hospital utilisation in order to prioritise and adapt the tables to users' needs.

## **4.3 Data completeness rate**

There are no regulations or EU guidelines in this field.

## **5 Accuracy and reliability**

The National Patient Register is validated by the Danish Health Data Agency and the accuracy of the register data must be considered to be high because the registration has a long tradition and a high priority for administrative purposes. Accordingly, the overall accuracy of the Hospital Utilisation Statistics is high.

### **5.1 Overall accuracy**

The National Patient Register is based upon reports from the individual hospital wards.

The reporting of contacts at wards is currently assessed to be of high accuracy, but during the transition from LPR2 to LPR3 in 2019, challenges in registration occurred, which may have resulted in inaccurate data for 2019.

### **5.2 Sampling error**

Not relevant for these statistics.

### **5.3 Non-sampling error**

The registration of diagnoses may involve some uncertainty at a more detailed level. In some cases, in previous years in particular, a termination date may be missing for stays of less than 12 hours' duration.

### **5.4 Quality management**

Statistics Denmark follows the recommendations on organisation and management of quality given in the Code of Practice for European Statistics (CoP) and the implementation guidelines given in the Quality Assurance Framework of the European Statistical System (QAF). A Working Group on Quality and a central quality assurance function have been established to continuously carry through control of products and processes.

## 5.5 Quality assurance

Statistics Denmark follows the principles in the Code of Practice for European Statistics (CoP) and uses the Quality Assurance Framework of the European Statistical System (QAF) for the implementation of the principles. This involves continuous decentralized and central control of products and processes based on documentation following international standards. The central quality assurance function reports to the Working Group on Quality. Reports include suggestions for improvement that are assessed, decided and subsequently implemented.

## 5.6 Quality assessment

The National Patient Register is based on reports from the individual wards. The following caveats, which can conceivably influence the overall quality assessment, are known:

With LPR3's introduction in 2019, the National Patient Register became contact-based, so that all contacts with the hospital system are registered and hospital stays must be calculated via linkage of individual hospital contacts. Despite this change in registration practice and calculation methodology from 2018 to 2019, the actual reporting of contacts is assessed to be high and accurate. Any challenges with or lack of registration must be assumed to have occurred especially close to the transition from LPR2 to LPR3.

Before 2019, data on an admission must be reported to the National Patient Register when the hospitalization is terminated. This is estimated to happen in close to 100 percent of the cases.

The time at which the extract from the National Patient Register is generated for Statistics Denmark may impact the contents. The register is updated continuously by the Danish Health Data Agency.

Up to and including 2011, Statens Serum Institut (SSI) made cleansed versions of the National Patient Register (the so-called "årsbånd" (annual tapes)), and it was this cleansed version (free from e.g. a number of service departments and psychiatric research units in order to ensure that it contained only clinical departments) which Statistics Denmark received.

From 2012, Statistics Denmark performs a form of cleansing where non-clinical departments are disregarded. Cleansing of the National Patient Register ensures continuity in time series.

## 5.7 Data revision - policy

Statistics Denmark revises published figures in accordance with the [Revision Policy for Statistics Denmark](#). The common procedures and principles of the Revision Policy are for some statistics supplemented by a specific revision practice.

## 5.8 Data revision practice

Only final figures are published.

## 6 Timeliness and punctuality

The statistics are published within approximately nine months after the end of the reference period.



## **6.1 Timeliness and time lag - final results**

The statistics are published within approximately nine months after the end of the reference period.

## **6.2 Punctuality**

The statistics are usually published without delay in relation to the pre-announced dates of publication. Going forward, the statistics are expected to be published once a year.

## **7 Comparability**

The statistics have been developed since 1990, but are only comparable in their current form from 2017 onwards.

Eurostat and the OECD make comparable statistics in this field. There are a number of organizational and institutional conditions that we must keep in mind when comparing countries.

### **7.1 Comparability - geographical**

In other – especially European – countries, registers exist of the same type as the Danish National Hospital Discharge Register. The coding on diagnoses will typically be by international classification. For international comparison, it is recommended that you look at data from Eurostat and the OECD which make comparable data collections and publish data that are comparable to a certain extent in this field. There are a number of organizational and institutional conditions that we must keep in mind when analysing possible differences.

### **7.2 Comparability over time**

The statistics have been compiled on the same basis from the beginning in 1990 and until 2018. From 2019, the statistics will be revitalized on the basis of LPR3 since it contains a new data register structure. The Danish Health Data Agency describes the modernization of the National Patient Register (the transition from LPR2 to LPR3) and the substantive implications thereof in more detail [Sundhedsdatastyrelsen](#). (Link in Danish). The Capital Region (Hovedstaden), Region Zealand and Region Midt transferred to LPR3 on the 2nd and 3rd. February 2019. Region South and Region North Jutland switched to LPR3 on 2-3 March 2019. 2019 cannot therefore be compared directly with 2020 and 2021, as 2019 does not contain LPR3 data regarding every 12 calendar months. The figures between the regions must also be viewed with caution for 2019.

From 2018 to 2019, a data break in the volume of admissions is expected. The same applies to a certain extent to the count of out-patient treatments. This has a background in structural conditions, such as the transition to a new register data structure (from LPR2 to LPR3) where admissions are formed in output data rather than in input data. Validation for raw admission figures from 2019 alone is therefore done against the National Health Data Agency's calculations [Sundhedsdatastyrelsen](#). (Link in Danish).

Until 2019: Statistics Denmark compares the received data with data from the previous year and any major variations are investigated. If we observe any apparent error, we contact the Danish Health Data Agency for the purpose of clarification. We also assess the internal data, and in cases of doubt we contact the person in charge of the statistics for further explanation.

Before 2019: Information is applied about admissions to, outpatient treatments at and emergency

room visits to public somatic hospital wards during the calendar year. If a person is transferred during a hospital stay from one hospital ward to another, this will count as two admissions. The number of bed days in connection with admissions is applied. Accordingly, the units in the statistics are persons, admissions and bed days, outpatient treatments and emergency room visits. The statistics are broken down by sex, age, diagnosis, region of residence and a number of background variables: family type, occupational group, education, type of accommodation, ancestry and job function. (Up to and including 2008, the statistics were also broken down by predominant social security benefit).

Furthermore, in the statistics from before 2019, classifications from other sets of statistics are applied:

- Socio-economic status (from AKM) (self-employed persons; assisting spouses; senior executives; high-level employees; mid-level employees; ground-level employees; other employees; unemployed persons; persons temporarily outside the labour force; students; retired persons etc.; recipients of cash benefit; other persons outside the labour force)
- Education (basic general education or N/A; upper secondary education; basic vocational training and education; short-cycle education; medium-cycle education; bachelor; long-cycle education)
- Family type (single; married/registered; cohabiting couples; cohabiting couples who have had children together)
- Type of accommodation (single-family houses; terraced houses, linked houses and semi-detached houses; flats; other types of accommodation)
- Inherit (persons with Danish parents; immigrants from the Western part of the world; immigrants from outside the Western part of the world; children of persons from the Western part of the world; children of persons from outside the Western part of the world).

In previous table series, the following developments have taken place in the area up to the year of 2018:

- From 1994, a number of new information at family level have been supplemented.
- From and including 1999, the statistics are supplemented with information on ancestry.
- From and including 2006, there is an inventory of outpatient treatments and emergency room visits.

As at 1 January 1994, the new classification of diseases (ICD10) was employed in Denmark. This replaced the former ICD8 classification. This means that we must be cautious when comparing the diagnosis pattern across this point in time. The development in the diagnosis pattern can further be influenced by changes in the registration practice. E.g. the number of admissions with diagnoses in the group Symptoms and insufficiently defined states has increased significantly. This is due to an enhanced tendency to register symptoms and less use of actual disease diagnoses in the examination phase or in case of uncertainty as to the nature of the disease. Consequently, the number of admissions e.g. with diagnoses in the group Tumours has declined. The National Hospital Discharge Register's data about admissions caused by road traffic accidents is estimated to be insufficient up to and including 1994. From 1995, the data is considered to be sufficient.

In an evaluation of the Hospital Utilization for the years 1995 and 2008 and 2021 respectively, nurse disputes in these years must be taken into consideration. For the years 2020 and 2021, the Covid19 pandemic must be taken into account.

In an evaluation of the number of outpatient treatments and the number of emergency room visits, a data break between 2013 and 2014 must be taken into consideration. There may be a related effect of the data break in 2015, especially in the Capital Region of Denmark.

The statistics' use of background information has continuously been extended. Accordingly, it will

not be possible to retrieve certain statements for all years back in time, nor from 2019 forwards.

In 2017, there is a large drop in data regarding 'Diseases in pregnancy and during childbirth'. The decrease is due to changed registration practices for contacts during pregnancy, seen in LPR 2017 for outpatient visits with obstetric codes (DO00-DO99) as main diagnosis.

### **7.3 Coherence - cross domain**

The Danish Health Data Agency (previously SSI and the Danish Health Authority respectively) publish information on [eSundhed.dk](https://eSundhed.dk) from the National Hospital Discharge Register, moreover, they publish key figures for the health sector on a quarterly basis. Deviations in key figures on the number of admissions and outpatient treatments are due to the fact that the Danish Health Data Agency makes publications based on non-cleansed versions of the National Hospital Discharge Register or based on "Det Grupperede Landspatientregister" (the Grouped National Hospital Discharge Register), where Diagnose Related Groups are included. Furthermore, there may also be differences in the delimitation, e.g. inclusion of publicly financed treatments in private hospitals in the Danish Health Data Agency's key figures. The development from one period to the next is generally consistent between the Hospitalisation rate and Key figures from the Danish Health Data Agency.

When counting the number of hospital admissions and outpatient treatments from 2019 onwards, a calculation method named by the Danish Health Data Agency has been applied, more information is available (in Danish) at [Sundhedsdatastyrelsen](https://sundhedsdatastyrelsen.dk).

The Danish Health Authority published an annual set of statistics until 2005 – also based on the National Hospital Discharge Register – about the activity in the hospitals (Hospital Statistics). The hospitalisation rate is comparable to these statistics, except from the fact that the hospitalisation rate in most statements only include persons who were in the population as at 1 January (and consequently not persons born or immigrated during the year) and that the hospitalisation statistics in the geographical statements group the persons with their residence as of 31st of December January, whereas the Danish Health Authority's statements in the Statistics relating to hospitals group the persons with their municipality of residence at the time of admission.

### **7.4 Coherence - internal**

Data are highly internally consistent.

There is an extremely limited number of gender reassignment. In such rare cases, data on gender is set to undisclosed.

## **8 Accessibility and clarity**

The statistics are released in the newsletter Nyt from Statistics Denmark (in Danish only) and the Statbank, Statbank tables on hospitalisation utilisation (<https://www.Statbank.dk/20050>). Statistical Yearbook and Statistical Ten-Year Review contain selected sections about hospitalisation rates. For further information, go to the [subject page](#).

### **8.1 Release calendar**

The publication date appears in the release calendar. The date is confirmed in the weeks before.

### **8.3 User access**

Statistics are always published at 8:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published.

### **8.2 Release calendar access**

The Release Calendar can be accessed on our English website: [Release Calendar](#).

### **8.4 News release**

The statistics are published annually in Danish press release.

### **8.5 Publications**

Not relevant for these statistics.

## 8.6 On-line database

The statistics are published in the StatBank under the subject hospital utilisation [Statistics Denmark](#) in the following tables:

From 2017-2024:

- SBR01: Hospital utilisation by municipality, hospital stay, age, and sex
- SBR02: Hospital stays by main diagnostic category, acute/non-acute, age, and sex
- SBR03: Individuals by number of hospital stays, age, and sex
- SBR04: Individuals by healthcare sector, age, and sex
- SBR05: Individuals by hospital type, age, and sex
- SBR06: Individuals by labour market affiliation, age, and sex
- SBR07: Individuals by education, age, and sex
- SBR08: Individuals by origin, age, and sex
- PAAROE40: Individuals by healthcare sector, family/relationship status, age, and sex
- PAAROE41: Individuals by hospital type, family/relationship status, age, and sex

From 2019-2023 - archived (in contrast to the new tables, these are divided into admissions and out-patient treatments):

- [INDL 001](#): Admissions (LPR3) by region, diagnosis main groups, emergency/non-emergency, age and sex
- [INDL 002](#): Hospitalized patients in somatics and psychiatry by region of residence, hospital service type, admissions, age and sex
- [INDL 003](#): Hospitalized patients in public and private hospitals by region of residence, hospital, age and sex
- [INDL 004](#): Hospitalized patients by hospital service type, ancestry, age and sex
- [INDL 005](#): Hospitalized patients by hospital service type, family type, age and sex
- [INDL 01](#): Admissions (LPR3) by region, diagnosis (99 groups), emergency/non-emergency, age and sex
- [INDL 02](#): Admissions (LPR3) by region, diagnosis (23 groups), emergency/non-emergency, age and sex
- [AMBU 001](#): Out-patient treatments (LPR3) by region, diagnosis main groups, emergency/non-emergency, age and sex
- [AMBU 002](#): Out-patients in somatics and psychiatry by region of residence, hospital service type, treatment numbers, age and sex
- [AMBU 003](#): Out-patients in public and private hospitals by region of residence, hospital, age and sex
- [AMBU 004](#): Out-patients by hospital service type, ancestry, age and sex
- [AMBU 005](#): Out-patients by hospital service type, family type, age and sex
- [AMBU 01](#): Out-patient treatments (LPR3) by region, diagnosis (99 groups), emergency/non-emergency, age and sex
- [AMBU 02](#): Out-patient treatments (LPR3) by region, diagnosis (23 groups), emergency/non-emergency, age and sex

## 8.7 Micro-data access

Researchers and other analysts from authorized research institutions, can be granted access to the underlying microdata by contacting [Research Services](#).

## 8.8 Other

Information from the Hospital Utilization register can be made available in a different form than in the Statistics Bank, e.g. tailor-made tasks can be ordered via DST-Consulting at [consulting@dst.dk](mailto:consulting@dst.dk) or [Consulting](#).

## 8.9 Confidentiality - policy

Publications of Hospitalisation utilisation comply with [the data privacy policy of Statistics Denmark](#). (Link in Danish).

## 8.10 Confidentiality - data treatment

Data is discretized when there are fewer than 3 observations in a strata.

## 8.11 Documentation on methodology

From 2019 onwards a download in Danish on the methodology is available in a note (named [Notat om nye nøgletal for indlagte og ambulante patienter på sygehuse.pdf](#)) from [Sundhedsdatastyrelsen](#). (Link in Danish). Furthermore, the content of the register of Hospital Utilization Statistics is documented in Statistics Denmark's documentation system. Before 2019, the basis and contents of the statistics are described in Statistical Information. Statistical Information for 2012 is the last version of this and concerns admissions (not outpatient treatments). Furthermore, the content of the register of Hospital Utilization Statistics is documented in Statistics Denmark's documentation system ([TIMES](#)). (Link in Danish).

## 8.12 Quality documentation

Results from the quality evaluation of products and selected processes are available in detail for each statistics and in summary reports for the Working Group on Quality.

## 9 Contact

The administrative placement of these statistics is in the division of Personal Finances and Welfare, Social Statistics. The contact person is Line Neerup Handlos, tel.: + 45 2664 0300, and e-mail: [LHA@dst.dk](mailto:LHA@dst.dk).