Documentation of statistics for
Hospitalisation 2017
1 Introduction

The purpose of the hospitalisation statistics is to contribute to a description of the relationship between social conditions and admissions to hospitals. The first year covered by the statistics is 1990. Since then, the content of the statistics has continuously been extended. E.g., in 1994, the statistics were supplemented with a number of new variables at family level. Starting from 1999, the statistics have been supplemented with information about ancestry. Starting from 2006, the statistics include outpatient treatments and emergency room visits.

2 Statistical presentation

The statistics cover admissions to and outpatient treatments at public somatic hospital departments within one calendar year. The statistics are based on the National Hospital Discharge Register from Statens Seruminstitut (SSI) 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 social conditions, such as family, education, occupation, accommodation, parentage, and geography with standardisation for sex and age.

2.1 Data description

The statistics cover admissions to, outpatient treatments at and emergency room visits to public somatic hospital wards within one calendar year. The statistics are based on the National Hospital Discharge Register from SSI 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 social conditions, such as family, education, occupation, accommodation, ancestry and geography with standardisation for sex and age.

Somatic admissions and outpatient treatments at private hospitals and corresponding contact with private as well as public psychiatric hospitals are not included.

Until the statistics on hospitalisation for 2008, background information from The Cohesive Social Statistics was included. After the termination of the Cohesive Social Statistics, Statistics Denmark is considering whether other background variables regarding income should be included in future Hospitalisation Statistics.

In connection with the publication of 2012, tables in the statistics bank have been extended and rearranged, which included integration with the statistics for outpatient treatments. Changes have been made in the delimitation of population in some of the tables with standardised indexes and, for the preceding years (2006-2008), very small changes have been made regarding municipal information.

In connection with the publication of 2014, the delimitation of outpatient treatments and emergency room visits has been changed, and this constitutes a break of data as the former categorisation of emergency room patients has been discontinued in the National Hospital Discharge Register. Starting from 2014, the scope for outpatient treatments has been delimited by patient type equal to outpatient and type of hospitalisation equal to planned. Starting from 2014, the delimitation of emergency room patients has been defined by patient type equal to outpatient and type of hospitalisation equal to emergency.
2.2 Classification system

The following classifications are applied in connection with publication of Hospitalisation statistics:

- Diagnosis (disease diagnoses – all diagnoses). Diagnoses are grouped according to the International Classifications of Diseases ICD - on aggregated 23 and 99 groups (the S list), IDC10 from WHO. More on IDC10 and classification of diseases available on The SKS browser.
- Admissions (emergency, planned).

Furthermore, other 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)
- Parentage (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)
- Geography (municipalities; provinces; regions)

2.3 Sector coverage

Public somatic hospital wards.
2.4 Statistical concepts and definitions

Admission: Terminated admission to public somatic hospitals where the patient type is in-patient as opposed to outpatient (or emergency room patient – until 2014).

Inpatient: Persons who have been admitted to hospital once or more during the year.

Beddays: Number of bed days: Number of bed days in connection with admissions.

Outpatient treatment: An outpatient treatment is carried out at the hospital in connection with a visit to an outpatient clinic or a ward. In the register, patient type is stated as outpatient when the patient type is not in-patient (or emergency room patient – until 2014).

Outpatient: Persons who have received outpatient treatment once or more during the year.

Emergency room visit: Terminated admission to public somatic emergency room.

Patient in emergency room: Persons who have visited an emergency room or emergency clinic once or more during the year.

Index (standardization): Index based on calculations standardised for sex and age enabling comparison across various groups of e.g. education, income, socio-economic background, etc. An index above 100 indicates more frequent treatment than average, whereas an index below 100 indicates less frequent treatment than average. The indexes are not comparable between men and women, nor are they meant for analysis of the development over time. In groups with few subjects in particular, the index can develop dramatically from one year to the next since only small changes can affect the result.

2.5 Statistical unit

- Number of persons
- Number of admissions
- Number of outpatient treatments
- Number of bed days
- Number of emergency room visits
- Index (in connection with standardisation)

2.6 Statistical population

Admissions, outpatient treatments and emergency room visits at public somatic in-patient wards during a calendar year.

2.7 Reference area

Denmark

2.8 Time coverage

1990-

Tables from before 2006 can be found in the Archive at the bottom of each list of tables in the Statbank.
2.9 Base period

Not relevant for these statistics.

2.10 Unit of measure

- Number (of admissions, outpatient treatments, emergency room visits, in-patients, outpatients, emergency room patients)
- Index (in connection with standardisation for sex and age)

2.11 Reference period

The reference time is the calendar year in which the admission to hospital, the outpatient treatment or emergency room visit took place.

2.12 Frequency of dissemination

Annually.

2.13 Legal acts and other agreements


There is no EU regulation concerning the Hospitalisation Statistics.

2.14 Cost and burden

Not relevant for these statistics.

2.15 Comment

Further information is available at: https://dst.dk/en/Statistik/emner/levevilkaar/sundhed#

3 Statistical processing

Data are from the National Hospital Discharge Register and are received annually. 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).
3.1 Source data

External sources:
- The National Hospital Discharge Register, Sundhedsdatastyrelsen (the Danish Health Data Agency) (from 2012-2015 from SSI and before 2012 from the Danish Health Authority)

Internal sources:
- The Population Statistics Register · The Income Register · The Employment Classification Module · The Education Classification Module · The Buildings and Dwellings Statistics Register

Internal sources up to and including 2008:
- The register of transfer payments, see the statistics documentation for Interconnecting Social Statistics (discontinued) under the subject group Living conditions, Persons receiving public benefits.

3.2 Frequency of data collection

Annually.

3.3 Data collection

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

3.4 Data validation

Statistics Denmark compares the received data with data from the previous year and any major variations are investigated. If we observe any seeming errors, 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.

3.5 Data compilation

In the Hospitalisation Statistics Register, the following information exists for any person who has resided in Denmark during a calendar year about the person’s admissions to hospital:

- The person’s dominant diagnosis in relation to groupings in the classification of diseases: the 23 grouping and the 99 grouping. (The dominant diagnosis is defined as the diagnosis due to which the person has spent most days in hospital in the calendar year).
- The two groupings (the 23 grouping and the 99 grouping) are Danish so-called short lists of the WHO’s International Classification of Diseases, version 10.
- The number of admissions and the number of bed days within four main groups of admission reasons: own disease, healthy companion (discontinued as from 2002), pregnancy/birth and examinations/preventive measures
- The number of outpatient treatments
- The number of emergency room visits
- The person’s total number of different diagnoses according to the S list (up to and including 2005)
- The number of bed days with dominant diagnosis according to the 23 grouping (up to and
including 2005) and the S list

- Information as to whether the person has been admitted in the last 4 years and if so for which admission reasons (up to and including 2005).

In the Hospitalisation Statistics Register, the following information is available for each admission during the calendar year:

- Admission and discharge dates for admissions, outpatient treatments and emergency room visits respectively
- Type of admission, i.e. emergency or planned admission
- Type of discharge for emergency room visits
- The key diagnosis grouped in accordance with the 23 grouping and the S list (99 grouping)
- Duration of the stay (bed days)
- Codes indicating the hospital and the ward to which the admission took place (up to and including 2005)
- Contact reason indicating whether the contact is due to disease, accident, violence etc. For admissions, the variable exists up to and including 2005. The variable does not exist for outpatient treatments.
- In case the admission is caused by an accident, information is available about the circumstances of the accident (up to and including 2005)
- Number of days since any previous admission in the year (up to and including 2005).

The method of calculation of the number of outpatient treatments is the number of visits in the year, and if the same person has several visits on the same day, this is only counted as one treatment.

Type of discharge for emergency room visits:

- The key diagnosis grouped in accordance with the 23 grouping and the S list (99 grouping)
- Duration of the stay (bed days)
- Codes indicating the hospital and the ward to which the admission took place (up to and including 2005)
- Contact reason indicating whether the contact is due to disease, accident, violence etc. For admissions, the variable exists up to and including 2005. The variable does not exist for outpatient treatments.
- In case the admission is caused by an accident, information is available about the circumstances of the accident (up to and including 2005)
- Number of days since any previous admission in the year (up to and including 2005).

The assessments include an index (illustration of the concept admission rate) which is defined as the share of a given population group that has been hospitalised. Age standardisation is applied for a number of the assessments, since the hospitalisation rate varies strongly with age. As from 2000, further standardisation is made as far as adults are concerned for socio-economic grouping and as far as children are concerned for the families' educational level.

3.6 Adjustment

Not relevant for these statistics
4 Relevance

Statistics Denmark estimates that these statistics meet the users’ needs. We estimate on a regular basis whether there is a need for adjustments of contents.

4.1 User Needs

- Users: Municipalities, regions, ministries, organisations, private companies and private individuals.
- Field of application: Public planning purposes, research and public debate.

4.2 User Satisfaction

In connection with the preparation of major assignments, Statistics Denmark sends a user satisfaction form to the customer.

We are in contact with users on a regular basis either by mail or by telephone and user needs and views are noted. Twice a year, Statistics Denmark participates in a liaison committee meeting with the Danish Health Data Agency.

4.3 Data completeness rate

There are no regulations or guidelines in this field. The completeness is estimated to be high.

5 Accuracy and reliability

The National Hospital Discharge 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 Hospitalisation rate is high.

5.1 Overall accuracy

The National Hospital Discharge Register is based on reports from the individual wards. Data on an admission is reported to the National Hospital Discharge Register when the hospitalisation is terminated. This is estimated to happen in close to 100 per cent of the cases.

An evaluation has been made of the data quality in the National Hospital Discharge Register for 1990. The result of this evaluation is that the administrative data (e.g. dates) in the register is very reliable whereas the medical data (diagnoses) has a lower level of reliability. However, since Statistics Denmark uses the diagnosis codes on an aggregate level, this is not considered to be of great importance. For an evaluation of the reliability of the other registers operated by Statistics Denmark and included in the Hospitalisation statistics, please see the description of these.

In 2016 one region (Hovedstaden) experienced challenges due to implementing a new registration platform in some hospitals. These challenges were solved prior to the transmission of data to Statistics Denmark.

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. At the level on which the statistics are published, it is not considered to be a source of uncertainty. In some cases, in previous years in particular, a termination date may be missing for outpatient contacts.

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

Statistics Denmark estimates that data from the National Hospital Discharge Register is of high quality. The National Hospital Discharge Register is based on reports from the individual wards. Data on an admission must be reported to the National Hospital Discharge Register when the hospitalisation is terminated. This is estimated to happen in close to 100 per cent of the cases.

The time at which the extract from the National Hospital Discharge Register is generated for Statistics Denmark may impact the contents. The register is live, as it is updated continuously by the Danish Health Data Agency.

Up to and including 2011, Statens Serum Institut (SSI) made cleansed versions of the National Hospital Discharge 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 Hospital Discharge 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 5-10 months after the end of the year. The punctuality is high.

6.1 Timeliness and time lag - final results

Only final figures are prepared.

The statistics are published within 10 months after the end of the reference period.

Until 2012, the time for delivery of data by the Danish Health Authority varied somewhat which caused the statistics for some years to be published much later than usual after the end of the reference year. One of the reasons for this was the restructuring of the National Hospital Discharge Register.

Publication time lag in recent years:

- 2017: 6 months, 12 days
- 2016: 9 months, 11 days
- 2015: 5 months, 20 days
- 2014: 9 months, 20 days
- 2013: 9 months, 21 days
- 2012: 10 months, 19 days
- 2011: 9 months, 5 days - 2010: 11 months, 22 days
- 2009: 21 months, 11 days
- 2008: 26 months, 29 days
- 2007: 16 months, 25 days
- 2006: 17 months, 17 days

6.2 Punctuality

The statistics are usually published without delay in relation to the pre-announced dates of publication.

7 Comparability

The comparability over time is good.

In certain areas, however, we must pay attention: - Transition from diagnosis classification ICD08 to ICD10 in 1994 - Outpatient treatments and emergency room visits included from 2006 - Data break between 2013 and 2014 for outpatient treatments and emergency room visits. - Structural reform 2007, redivision of local government - Income replacing benefits not included after 2007

Eurostat and the OECD make comparable data collections and publications in this field. There are a number of organisational 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 organisational and institutional conditions that we must keep in mind when analysing any differences.

7.2 Comparability over time

The statistics have been compiled on the same basis from the beginning in 1990.

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 hospitalisation rate for the years 1995 and 2008 respectively, nurse disputes in these years must be taken into consideration.

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.
7.3 Coherence - cross domain

The Danish Health Data Agency (previously SSI and the Danish Health Authority respectively) publish information in eSundhed (eHealth) 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 DRG is 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.

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 at 1 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 internally consistent.

8 Accessibility and clarity

“Nyt” (News) from Statistics Denmark and the Statbank, Statbank tables on hospitalisation rates (https://www.dst.dk/en/Statistik/nyt/relateret?pid=580). Statistical Yearbook and Statistical Ten-Year Review contain selected sections about hospitalisation rates. The journal “Sociale forhold, sundhed og retsvæsen (Statistiske Efterretninger)” (social conditions, health and legal system (statistical information)), the series Sygehusbenyttelse (hospitalisation rates) was last published for the year 2012.

8.1 Release calendar

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

8.2 Release calendar access

The Release Calender can be accessed on our English website: Release Calendar.

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. Theme publications etc. may be published at other times of the day. The National Statistician can decide that such publications may be released before their official publication time, e.g. to the media and other stakeholders.
8.4 News release

The subject page on Hospitalisation rates:

8.5 Publications

The statistics are presented in the annual publications in Statistical Ten-Year Review, Statistical Yearbook and Denmark in Figures, which can be found in Statistics Denmark’s web pages.

8.6 On-line database

The statistics are published in the StatBank under the subjects in the following tables:

- **IND01**: Admissions by region, diagnosis, emergency/non-emergency, age, sex and time
- **INDAMP03**: Population by group of diagnosis, key figures, age, sex and time
- **INDP10**: Rates for admissions of children by index type, socioeconomic status, age, sex and time
- **AMB05**: Out-patient treatments and out-patients by region, key figures, out-patients treatments, age, sex and time
- **AMB09**: Rates for out-patient treatments by index type, type of dwelling, age, sex and time
- **AMB07**: Rates for out-patient treatments by index type, region, age, sex and time
- **AMB08**: Rates for out-patient treatments by index type, ancestry, age, sex and time
- **AMB10**: Rates for out-patient treatments of children by index type, socioeconomic status, age, sex and time
- **IND05**: Admissions, bed-days and hospital patients by region, key figures, bed-days, age, sex and time
- **INDP07**: Rates for admissions by index type, region, age, sex and time
- **INDP08**: Rates for admissions by index type, ancestry, age, sex and time
- **INDP09**: Rates for admissions by index type, type of dwelling, age, sex and time
- **INDAMP01**: Population by region, group of persons, key figures, age, sex and time
- **INDP01**: Hospital patients by region, dominant diagnosis, age, sex and time
- **INDP02**: Hospital patients by region, diagnosis, age, sex and time
- **INDP03**: Rates for admissions by index type, family type, age, sex and time
- **INDP04**: Rates for admissions of adults by index type, socioeconomic status, age, sex and time
- **INDP05**: Rates for admissions of adults by index type, education, age, sex and time
- **INDP06**: Rates for admissions of children by index type, education, age, sex and time
- **INDAMP02**: Population by region, group of diagnosis, key figures, age, sex and time
- **AMB01**: Out-patients by region, dominant diagnosis, age, sex and time
- **AMB02**: Out-patients by region, diagnosis, age, sex and time
- **AMB03**: Rates for out-patient treatments by index type, family type, age, sex and time
- **AMB04**: Rates for out-patient treatments of adults by index type, socioeconomic status, age, sex and time
- **AMB05**: Rates for out-patient treatments of adults by index type, education, age, sex and time
- **AMB06**: Rates for out-patient treatments of children by index type, education, age, sex and time
- **AMB02**: Out-patient treatments by region, diagnosis, age, sex and time
- **AMB01**: Out-patient treatments by region, diagnosis, age, sex and time
- **AMB03**: Out-patient treatments and out-patients by region, key figures, age, sex and time
8.7 Micro-data access

External access to de-identified Micro-data is only available via Statistics Denmark’s Research Services.

8.8 Other

The hospitalisation rates register with de-identified Micro-data exists as module data in an internal database, and data can be made available to employees in e.g. Statistics Denmark’s Research Services and SD Consulting on application in this regard.

8.9 Confidentiality - policy

Publications of Hospitalisation rates comply with: the data privacy policy of Statistics Denmark.
8.10 Confidentiality - data treatment
The statistics are not published at a level detailed enough for individuals to be identified.

8.11 Documentation on methodology
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 hospitalisation statistics is documented in Statistics Denmark's documentation system (TIMES) and, in 2015, a number of variables were high-quality documented.

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
In terms of administration, these statistics belong in the office Personal Finances and Welfare. Susanne Brondbjerg, tlf. +45 39 17 35 46, e-mail: snb@dst.dk

9.1 Contact organisation
Statistics Denmark

9.2 Contact organisation unit
Personal Finances and Welfare, Health Statistics

9.3 Contact name
Susanne Brondbjerg

9.4 Contact person function
Responsible for the statistics

9.5 Contact mail address
Sejrøgade 11, 2100 Copenhagen

9.6 Contact email address
snb@dst.dk
9.7 Contact phone number
+45 39 17 35 46

9.8 Contact fax number
+45 39 17 39 99