

Health

Historically, the main sources of information on the health conditions of the population are based on administrative birth and death data. In fact, civil status registers are not only the main source of demographic statistics, but also play an extraordinarily important role in the production of public health statistics.

From the 19th century onwards all European countries used these registries to establish a good level of civil status statistics. Italy also used this source as starting point for ongoing and exhaustive information on healthcare; ISTAT surveys on causes of death, as derived from civil status registers, are still the main source for epidemiological data covering the whole national territory.

Monitoring systems with obligatory notification of contagious diseases have had a particular importance in healthcare until improvements in general living conditions and the spread of hygiene regulations have resulted in a drastic reduction in epidemics and therefore a fall in mortality rates. Starting in the 1950s, administrative data began to be collected through surveys of public and private healthcare institutions conducted annually by ISTAT until the end of the 1980s. This information was later included in the healthcare information system developed by the Ministry of Health according to a coherent and integrated model.

In the meantime – in response to the need for more targeted data on emerging public healthcare issues – the information held by ISTAT was gradually extended with new specific surveys, including those on spontaneous and voluntary abortions.

A genuine revolution in public healthcare information took place in 1980 with the use of the first population surveys based on samples. Today, sampling is a standard technique in healthcare research and is the main information tool on health conditions and healthcare products used in Italy.

ISTAT is currently the main institution responsible for sample surveys on healthcare covering the whole nation. These surveys – which are part of the multi-purpose surveys system that the Institute regularly conducts on households – offer the possibility of relating the health conditions of individuals with other relevant aspects of family and social life, in addition to lifestyle; they also allow for the analysis of behaviour regarding health (obesity, use of tobacco and alcohol), resulting in a multidimensional image of the phenomenon.

Hospital and residential care facilities

Information on health care facilities has been collected since 1954 through a survey: “Statistics on public and private healthcare facilities”. Before 1954 there was only one publication concerning “Statistics on hospitals and other public and private hospital assistance institutes” in 1932. From 1954 to 1988 the survey has annually been conducted by the Istat, using the ISTAT D8-A form. From 1989 onwards information has been collected by the Ministry of Health, through several survey forms (HSP11, HSP12, HSP13, HSP14, HSP15, HSP16, HSP22, HSP23, and HSP24). The classification of health care facilities shown in the tables complies with the Ministry of Health classification system.

The “Statistics on public and private healthcare facilities” survey analyses all public health care facilities (excluding psychiatric institutions) and private hospitals (accredited or not); information collected by the survey includes the dimension of the facilities (the number of structures and the number of beds available) and the supply of health care services (the number of in-patients treated over time).

Figures concerning number of beds, admissions and length of stay refer to ordinary admissions. In-patients are calculated not considering the movement of patient inside the same health care facility. Until 2000 the information relating to health care facilities was published by ISTAT in the “Healthcare Statistics” Yearbook. From 2001 onwards they have been published in single-theme volumes in the

Information series and in data tables available online (<http://www.istat.it/dati/dataset/>).

Warnings for time series comparisons

- From 1954 the legislation on health care has undergone considerable evolution. In order to get a clear overview of the phenomena related to the survey it is therefore necessary to take into careful consideration not only the figures presented here, but also the direct and indirect effects of healthcare reforms carried out from the early 1990s onwards regarding the features of structures and the organisation of the healthcare sector in general.
- From 1997 overall information related to private rehabilitation facilities (as defined by art. 26 of Law no. 833/1978) are covered by specific survey forms (RIA11) collected by Ministry of Health.

Termination of pregnancy

The first survey of patients discharged from hospitals for abortion was performed by ISTAT in 1956. In compliance with Law no. 194/1978 on induced abortion, in 1979 ISTAT introduced two new surveys, one on spontaneous abortions (miscarriages) and one on induced abortions.

The survey for spontaneous abortions covers only the cases in which admission to public or private hospitals was necessary. Spontaneous abortions where admission was not necessary, for example if medical intervention was not required or only out-patient care was received, were not included in the survey.

The statistical survey on hospital discharges for spontaneous abortion involved two information processes: a monthly collection of provisional data (ISTAT form D.14) relating to the overall number of discharges for spontaneous abortion in each month for each hospital, and an annual collection performed through the ISTAT D.11 form. This is an individual and anonymous form containing information on the socio-demographic characteristics of the woman (date of birth, place of birth and residence, citizenship, civil status, qualification, etc.), her reproductive history (previous pregnancies, etc.), the miscarriage and the admission (place, cause, type of intervention, etc.).

The survey on induced abortions also relies on two information sources. The first is managed by the National Institute of Health (ISS) through a monitoring system based on aggregate figures communicated on a quarterly basis from Regional authorities relating to the overall number of induced abortions performed each month in each region or independent province. These figures are transmitted to ISTAT by the ISS. The second information source is managed directly by ISTAT on an annual basis through the individual declaration of induced abortion form (ISTAT D.12), which must be filled out by the doctor who performs the operation. The form, like that for spontaneous abortions, contains information on the socio-demographic characteristics of the woman, her reproductive history and the abortion (date, issue of certification, urgency, place and type of operation, etc.).

The results of these surveys (preliminary monthly data) were published in the Monthly Statistics Bulletin up until March 2011, while from April 2011 onwards they are published in the *online* Monthly Statistics Bulletin; the final annual data are presented on the ISTAT website. The Institute usually publishes the results of these surveys in the Italian Statistical Yearbook and in the national healthcare information system known as "[Health for All - Italia](#)".

Warnings for time series comparisons

The survey on induced abortions, started following Law no. 194/1978, also had an impact on the information available on the number of spontaneous abortions, which have fallen considerably since 1979.

Caesarean births

From 1980 to 1998, information on Caesarean births was garnered from the ongoing and exhaustive survey of State birth records, performed by ISTAT ever since 1926. From 1980, this survey has also allowed for a survey of Caesarean births.

The survey forms (ISTAT D1 and D2, relating to male and female births respectively) were composed of three sections containing information on Civil status and Personal details, health information taken from the birth certificate - that parents were required to present as proof of birth when making a declaration of birth - and socio-demographic information (parents' level of education, professional condition, sector of economic activity, etc.) collected by Civil records officials directly from the applicant. The forms were compiled according to the Civil status records in the Municipality in which the event took place.

The survey was interrupted due to Law no. 127 (May 17, 1997) on the Simplification of Administration and the subsequent regulations implementing the measure. In fact, this law states that health information on births should no longer pass through municipal offices. Furthermore, at the time of birth, parents may declare the event directly at the healthcare office in the hospital where the birth took place.

From 1999 figures on Caesarean births were calculated by processing Hospital discharge records (SDO). The SDO, established by the Ministry of Health by ministerial decree dated 28th December 1991, represents the ordinary tool used for collecting information relating to each patient discharged from public and private institutions in the entire national territory and is an integral part of the medical file. The SDO contains both personal and clinical information relating to the entire period of in-patient care up until discharge.

The information on the patient's clinical profile is codified, using ICD-9-CM classification for diagnosis (International classification of diseases, IX revision, clinical modification). The information on diagnosis is used by the DRG (Diagnosis related groups) system which is at the basis of the financing method for sanatoria, based on specific tariffs associated with individual classes. The codes in the DRG system are, in turn, linked to 25 Major Diagnostic Categories (MDC), which group diseases and complaints associated with a single organ or system, following the subdivision into sectors used by the international classification of diseases.

Caesarean birth is selected using DRG 370 (Caesarean section with complications) and 371 (Caesarean section without complications) codes from MDC category 14 (pregnancy, birth and postnatal period). The entire range of births is identified with DRG codes 370-375. Only acute cases included in the ordinary care regime are included.

Figures on Caesarean births are available both in the Ministry of Health "Annual reports on in-patient care" and in the above mentioned ISTAT national information system on healthcare "[Health for all - Italia](#)".

Deaths and causes of death

Statistics on mortality are available from 1862 on the basis of the monthly summaries filled out by the register offices. Since 1871 a separate form has been filled out for each death in the municipal territory and the information provided was published in the annual publication on vital statistics ("Popolazione: movimento dello stato civile") produced by the General Statistics Department of the Ministry of Agriculture, Industry and Trade (also see [Population](#)).

Over time the form was extended and – in 1881 – the annual statistics on causes of death started, and today it still represents the main exhaustive source of epidemiological information on the Country. Until 1886 surveys were only made in provincial (69), area (137) or district capitals (78), covering approximately a quarter of the population of the Kingdom of Italy (little more than 7 million inhabitants). In 1887 the survey was extended to all the municipalities in the Kingdom, with some local variations due to changes in municipal borders.

From 1881, when the annual statistics on deaths were first launched, to 1928, the survey was

conducted by the General Statistics Department of the Ministry of Agriculture, Industry and Commerce. With Law no. 2238/1929 the responsibility of "...compiling and publishing general and special statistics..." in addition to "...directly performing (or through public administrations) statistical surveys of interest for the government's work..." was entrusted to ISTAT.

In particular, with reference to the mortality statistics on causes of death, the Institute is still responsible today for the coordination of the survey, collection of death certificates, control of certification quality, codification of causes of death and release of official mortality figures. Statistics cover the entire population of Italy and includes all the deaths which occur in the national territory every year. Statistics on causes of death are currently performed by ISTAT forms D.4 (death record over the age of one year) and D.4-bis (death record for child under the age of one year) completed per each single death.

The ISTAT death form is an official document based on an international standard recommended by the World Health Organisation (WHO). In Italy the death form is composed of two parts: part A "medical", to be completed by the doctor or coroner with the information regarding the causes that led to death, and part B to be compiled by the register office, with demographic and social information regarding the deceased. The part filled out by the doctor certifying the decease must indicate the main sequence that led to death and other significant conditions that also contributed to death.

Mortality statistics by cause refer to the "underlying cause" of the sequence, i.e. the disease or traumatic event which, through any additional complications or intermediate clinical conditions, led to decease. The next step of data processing consists, for each death, in identifying and coding the underlying cause of death according to the criteria and rules established by the International Classification of Diseases (ICD).

The evolution of mortality and the ever more accurate specification of its causes represent one of the most important aspects of the changes that our Country has undergone over the last 150 years. In the present work these modifications are well documented, through the time series of general and cause-specific mortality indicators, which have been reconstructed both through the revision of historical data and the statistical elaboration of more recent statistics on causes of death. Particular attention should be paid to reading the notes and warnings that accompany the figures. In the more than one hundred years of evolution of mortality statistics, an important transformation took place not only in sanitary and clinical conditions, but also in the statistical tools used to collect and classify information. Consider that the historical reconstruction of the mortality time trend for the main causes of death has had to take account of five different nosological classification systems.

Warnings for time series comparisons

- Mortality figures refer: up until 1923, to the Kingdom of Italy with borders as in 1871; from 1924 to 1942 to the Kingdom of Italy with the borders established following the First World War, when the territories of Gorizia, Fiume, Pola, Trieste, Zara and Trento (Venezia Tridentina) were annexed; from 1943 to 1953 to the borders established with the 1947 Peace Treaty. In 1954 the figures relating to cause of death include the territory of Trieste.
- For the years between 1881 and 1886 mortality figures by cause of death only refer to provincial, area or district capitals. The figures on deaths divided into wider groups of causes are not perfectly comparable over time due to modifications in nosological classifications in the various periods. For the years in correspondence of which important changes to the groups of causes considered have been introduced, the figures are also reported according to the previous classification. In particular:
 - for 1951, the year when the VI Revision (1948) of the International Classification of Diseases came into use, figures are also presented using the V Revision;
 - the VII Revision (1955), in force from 1958, did not make any modifications to the groups of causes considered;
 - for 1968, the year when the VIII Revision (1965) of the International Classification of Diseases came into use, figures are also presented using the VII Revision;
 - for 1979, the year when the IX Revision (1975) of the International Classification of Diseases came into use, figures are also presented using the VIII Revision;

- for 2003, the year when the X Revision (1993) of the International Classification of Diseases came into use, figures are also presented using the IX Revision. In this case the effect of the changes to the classification of causes of death is documented at the following link: http://www.istat.it/dati/dataset/20080111_00/
- In 1908 the number of deaths used for calculating infant mortality includes a quota of deaths of an unknown age, victims of the earthquake that hit Messina and Reggio Calabria (28th December 1908) proportional to the number of children living in those areas under the age of one. For 1915: a similar adjustment was made in relation to the earthquake that hit Marsica on 13th January 1915.
- For the years between 1915-1918 the figures do not include the deaths in war stricken areas or abroad, or civilian deaths in the invaded territories in the Venetian provinces in 1917 and 1918.
- For the years between 1935 and 1939 the figures do not include deaths during the war or due to the wars in Africa and Spain.
- For the years between 1940 and 1945 the figures do not include deaths in war stricken areas or abroad.
- The average age at death is calculated on the basis of the distribution by age at death observed in the various calendar years. The rise in age at death over time is therefore affected by the progressive population ageing, due, in the earliest years, to the fall in mortality rates in young people and in more recent years, to the fall in mortality rates among the elderly.
- The group of causes entitled “other clinical conditions” includes diseases of the blood and haematopoietic organs and certain immune system, endocrinal, nutritional and metabolic diseases, skin and subcutaneous tissue diseases, osteomuscular and connective tissue diseases, genitourinary diseases, pregnancy, birth and puerperium and certain other clinical conditions which originate during the perinatal period, congenital malformations and deformations and chromosomal abnormalities.

Health conditions and risk factors

The health conditions of the population and the main risk factors for health are analysed, from 1980 onwards, using sample surveys among households. For the years 1980, 1983, 1986/1987, 1990/1991, the indicators presented refer to the multi-purpose survey on “Health conditions and use of health services”, while from 1993 to 2009 the source used for estimates in time series, regarding both chronic diseases and obesity, tobacco and alcohol consumption, is the multi-purpose survey entitled “Aspects of daily life”.¹ For invalidity and use of health services, the source remains the survey on health conditions.

In both surveys, the population of interest consists of households resident in Italy and the individuals of whom they are composed, excluding people permanently living in institutions. The survey unit is a de facto family (with the exception of 1980 and 1983, when the survey unit was registered family), that is a group of people who live together and are linked by marriage, relation, adoption, affinity, guardianship or affection.

Regarding the “Conditions of health and use of health services” surveys, the sample size in the various editions varies from a minimum of approximately 22,000 households in 1994 to a maximum of more than 50,000 families. In fact, in the two most recent editions of the survey (1999/2000 and 2005), the sample size was expanded, with a contribution from the National Health Fund, to provide estimates on a sub-regional level.

With respect to the multi-purpose survey “Aspects of daily life”, please refer to [Households](#): here we simply note that in 2004 this survey was not performed because the data collection was anticipated to the month of February from 2005 onwards.

The presence of chronic diseases was recorded using a pre-codified list, from which the interviewee was asked to select the pathologies which he suffers from. The number of chronic diseases, included

¹ In the tables the 1986/87 survey is shown as 1987; the 1990/91 survey is shown as 1990, and the 1999/2000 survey is shown as 2000.

in the list, varies in the different editions of health surveys, while from 1993 the annual “Aspects of daily life” survey continues to refer to the same list. The list of chronic diseases was provided by surveyors during direct interviews from 1980 to 2007, while in 2008 and 2009 it was included in the self-completion questionnaire. The tables presented here show the groups of diseases most comparable over time.

Information on invalidity has been carried out since 1980 in the health conditions survey, using the same list of invalidity, blindness, deaf-mutism, deafness, mobility invalidity, invalidity due to mental handicap. Note that invalidity estimates are not synonymous with disability estimates (which are not considered in this section); in fact, ISTAT uses a separate range of questions drawn up by the OECD for the latter.

Estimates of smokers are collected, since 1993, using self-completion questionnaire, while data collection for previous years were carried out using face to face questionnaire.

Similarly, estimates of overweight or obese people were calculated, for the years 1990, 1994 and 2000, using information collected through a face to face questionnaire. For the following years (from 2001 to 2009) information was gathered through the self-completion questionnaire in the “Aspects of daily life” survey. In order to estimate the obesity phenomenon in population studies, reference is the Body Mass Index (BMI), given by the ratio between body weight, in kilograms, and square height, in metres. According to the WHO classification of BMI, people with values of 30 BMI or over are considered obese, between 25-29 are defined as overweight, normal weight is between 18.5-24.9 BMI and those with a BMI of less than 18.5 are classified as underweight.

With respect to the alcohol consumption, estimates for 1983 come from the multipurpose “Health conditions and use of health services” survey, while for the years between 1993-2009 the estimates are drawn from the multi-purpose “Aspects of daily life” survey on the basis of the information gathered using a self-completion questionnaire. Data shown include “wine drinkers”, including both daily and less frequent (even seasonal) consumption of wine, and “more than half a litre of wine per day drinkers” and those who “beer drinkers”, excluding only those who reported not consuming alcohol

The indicators relating to medical consultations and diagnostic examinations refer both to the number of people who used the service and to the overall volume of consultations and diagnostic examinations performed by each person in the four weeks before the interview. The “Number of medical consultations (per 100 people)” refers to the average number of medical consultations made by one hundred people in the four weeks before the interview. The indicators on diagnostic examinations are calculated in the same way.

Warnings for time series comparisons

- Within the group of respiratory diseases, the questionnaire in 1980 only reported in the list “chronic bronchitis”; therefore, emphysema, respiratory insufficiency and asthma were not included in estimates. In 1983 the list included three separate items (chronic bronchitis; bronchial asthma; emphysema and respiratory insufficiency). From 1987 the respiratory diseases was split in two different items (1- chronic bronchitis, emphysema and 2-respiratory insufficiency; bronchial asthma).
- The group of cardiac diseases includes a varying range of pathologies: in 1980 heart diseases were grouped under a single item; in 1983 and 1987 they were split in two items (1- myocardial infarction and 2-other cardiac diseases); in 1990 three distinct groups were listed (myocardial infarction, angina pectoris and other cardiac diseases).
- In 1983 the question on medical consultations had a slightly different wording compared to that used in subsequent years.
- In 1983 and 1987 the total number of medical consultations was calculated by summing the total number of specialist, general and paediatric medical consultations, and the sum for diagnostic examinations in the same years was calculated from the volume of the various types of examinations.

- Regarding alcohol consumption, the 1996 was used different questions, and this year has therefore been omitted as non-comparable.
- In the tables, the multi-purpose “Aspects of daily life” survey in 1986/87 is shown as 1987; the 1990/91 survey is shown as 1990, and the 1999/2000 survey is shown as 2000.

Cases of obligatorily reported infectious diseases

The statistical recording of infectious diseases started in Italy in 1888, the year in which the first coordinated public health laws were issued. From 1934 to 1952 the figures on contagious and infectious diseases subject to obligatory reporting were drawn from the results of the information recorded on public health form no. 15, filled out by local health structures following reports presented by doctors in compliance with the Consolidated Health Law approved by Royal Decree no. 1265 dated 27th July 1934 and subsequently in the Ministerial Decrees dated 05th July 1975 and 07th February 1983. The responsibility for collecting and processing of statistics passed to ISTAT with Law no. 572 dated 17th May 1952.

From 1990 the entire information system on infectious and contagious diseases has been governed by the Ministerial Decree dated 15th December 1990, with which the Ministry of Health updated and modified the list of infectious and contagious diseases which necessitate particular public health measures. The decree in question specifies the obligation for doctors to report all cases that could present a danger for public health that they come across in the performance of their professional duties. Local health authorities (ASL) are in turn obliged to communicate the information received from doctors to the Regional government, which then notifies the Ministry of Health, the Higher Institute of Health and ISTAT, using different processes according to the type of disease.

Although the survey is complete, the monitoring of infectious diseases is in some cases hindered by the problem of different levels of notification, which can result in a high level of variability in data. The variations which are observed over time, therefore, are not always traceable to modifications in the course of the epidemic, but may depend on the failure to report a number of cases. This may occur, for example, in the case of the most common childhood diseases such as measles, mumps, scarlet fever or chicken pox. Reports of less common pathologies, on the other hand, tend to be more reliable.

Warnings for time series comparisons

Over time the infectious diseases subject to obligatory notification have changed. Nonetheless, only those diseases subject to notification both in the past and the present day have been selected for this publication. The figures are therefore comparable over time.

Height of military service recruits

The source of data on the height of those enrolled on military service records is formed by the measurements taken during the recruitment medical exam for obligatory military service. Obligatory military service, which was performed for the first time in the early 1800s in Napoleon’s time, came into force from the creation of the Kingdom of Italy in 1861 and remained in use for 144 years. The military service records were formed on a municipal level and included all young men with Italian nationality born or legally domiciled in Italy.

Up until 1940, the records covered young people over the age of 19, which was lowered to 17 in 1941. Those enrolled on the records underwent an obligatory medical examination the following year to ascertain whether they were of healthy and robust constitution; in the latter period, therefore, the examination was performed at the age of 18.

The duration of military service has been gradually reduced over time. The most recent reduction was

applied in 1997 (10 months). The obligation to perform military service was then definitively suppressed on 01st January 2005, following the approval of Law no. 226 dated 23rd August 2004.

The information on the height of candidates for military service was collected during the examination and noted on the “physical-psychological-training” file which, in addition to information on the main anthropometric measurements (weight, height and chest perimeter), included notes on family and professional situation and a medical profile. The process, necessary to complete these operations, was rather complex and was structured in two phases: the first aimed at ascertaining the legal and psycho-physical conditions of the candidate, and the second aimed at imposing the obligation of military service.

Not all young men were obliged to perform military service. Applicability was in fact subject to the ascertainment of the candidate’s psycho-physical conditions, which had to meet a minimum standard under which the person was declared to be invalid. If the invalidity was considered to be susceptible to modification, the candidature was postponed to the next group examination and classed as “to be reviewed”.

Moreover, young people who benefited from particular conditions, known as “dispensation” or “exoneration”, were not required to perform military service. The first removed the obligation to perform military service, but not that to remain available until final dismissal (at the age of 45 for the army and air force and 39 for the navy), while the second completely liberated the candidate from any present or future obligations. Information on height was recorded for all candidates examined, regardless of the result.

Regarding the figures, those relating to candidates born between 1854-1956 are based on the publications by the Ministry of War – General Directorate of military service sub-officials and troops and the Ministry of the Navy. In more recent years – i.e. for those born from 1957 onwards – the figures were drawn up by the Ministry of Defence – General Office for Telecommunications, Electronics and Informatics and subsequently provided by the Ministry of Defence, General Directorate of Military Service – Obligatory recruitment, militarisation and mobilisation of civilians and auxiliary corps (Levadife).

Warnings for time series comparisons

- Up until 1927 the figures referred exclusively to land military service candidates; from 1928 onwards they include both land and sea recruits, with the exception of 1953 when the sea candidates were once again excluded.
- Only those born in 1941 onwards were examined at the age of 18 and not 20 as was previously performed. (Ministry of Defence – Army Circular no. 480 dated 03rd December 1960).