Deaths of people experiencing homelessness in England and Wales QMI

Quality and methodology information for deaths of people experiencing homelessness in England and Wales. Local authority level data, detailing the strengths and limitations of the data, methods used and data uses and users.

Contact:
Population Life Events
health.data@ons.gov.uk
+44 1633 444110

Release date:
1 October 2026

Next release:
To be announced

Table of contents

1. Output information

2. About this Quality and Methodology Information report

3. Important points

4. Quality summary

5. Quality characteristics of the deaths of homeless people in England and Wales – local authority level data

6. Methods used to produce the Deaths of homeless people in England and Wales

7. Other information

8. Cite this page

1 . Output information

- Statistical designation: official statistics in development
- Data collection: administrative data
- Frequency: annual
- How compiled: death certificate records
- Geographic coverage: England and Wales
- Related publications: Deaths of people experiencing homelessness in England and Wales: 2013 to 2025 registrations
- Last revised: 1 October 2026

2 . About this Quality and Methodology Information report

This quality and methodology report contains information on the quality characteristics of the data (including the European Statistical System five dimensions of quality) as well as the methods used to create it.

The information in this report will help you to:

- understand the strengths and limitations of the data
- learn about existing uses and users of the data
- understand the methods used to create the data
- help you to decide suitable uses for the data
- reduce the risk of misusing data

3 . Important points

- These figures are produced as official statistics in development, which are in the testing phase and not yet fully developed, and they have yet to be assessed against the rigorous quality standards of accredited official statistics; comments and suggestions to improve the quality of this output and make it more useful to users are invited, and can be sent via email to health.data@ons.gov.uk.

- Deaths of homeless people were identified from the death registration records held by the Office for National Statistics (ONS), and a statistical method called capture-recapture modelling was applied to estimate the most likely number of additional registrations not identified as homeless people.

- The figures reported are the total estimated numbers, except where specifically described as being based on identified records only; the method used provides a robust but conservative estimate, so the real numbers may still be higher.

- Definitions of homelessness exist for different purposes and with variations across the UK for legal and policy reasons; the Government Statistical Service (GSS) Harmonisation Team have explored the feasibility of harmonising definitions of homelessness for official statistics and a report on this work was updated on the GSS website on 17 September 2020.

- The meaning of homelessness in this release is not based on a pre-existing definition but follows from the scope for identification of affected individuals in the death registration data; the records identified are mainly people sleeping rough, or using emergency accommodation such as homeless shelters and direct access hostels, at or around the time of death.

4 . Quality summary

Overview

The first official estimates of the number of deaths of homeless people in England and Wales, published on 20 December 2018, covered deaths registered in the years 2013 to 2017. Selected breakdowns by age and sex, cause of death, time of year, and geographical area were given. The geographical areas were England and Wales combined and separately, English regions, and combined authorities (“city regions”).

A follow-up article giving estimates of the number of deaths of homeless people for local authorities in England and Wales was published on 25 February 2019. Information on the distribution of these deaths by decile of The Index of Multiple Deprivation (IMD) and Welsh Index of Multiple Deprivation (WIMD) and by the 2011 rural-urban classification was also included. We plan to update both the national and local area figures annually.

Uses and users

Homelessness is an important problem affecting some of the most vulnerable people in society, but it is difficult to measure as well as to solve. The government’s Rough Sleeping Strategy for England set new aims, including that deaths or serious harm of people who sleep rough should be rigorously investigated, while the Welsh Rough Sleeping Action Plan called for better monitoring and measuring of the extent of rough sleeping. The UK Statistics Authority published a review of housing and planning statistics as a whole in November 2017.

In addition, every local authority (LA) has a rough sleeping strategy and typically employs outreach workers. The information in this analysis can inform these activities.

Strengths and limitations

Strengths

- The cross-referencing of different mentions of homelessness in death certificates provides a strong dataset of identified homelessness.
- These data provide users with valuable insight into the changing patterns of deaths while homeless in England and Wales.
- Deaths while homeless provide data produced using the same methods for all local authorities in England and Wales, so that data for one local authority are comparable with data for other local authorities.

Limitations

The local authority table includes current local authorities, even where no death was identified. Estimated additional deaths are allocated in proportion to identified deaths. Consequently, an authority with no identified death in a particular year receives an estimated count of zero, although this does not demonstrate that no death occurred there. Estimates for individual local authorities should be interpreted with particular caution because of small numbers and possible geographical variation in the recording of homelessness.

The figures presented show deaths registered each year, rather than deaths occurring each year. A substantial proportion (approximately 83% for the five-year period 2013 to 2017) of deaths of homeless people are certified by a coroner. This means that, due to the length of time it can take for an inquest to be completed, some of the deaths registered in (for example) 2017 will have occurred in earlier years, while some deaths that occurred in 2017 will not yet be included in the figures. These differences are likely to have relatively little impact at England and Wales level but can have more influence on figures for smaller geographical areas such as local authorities. See the latest report on the impact of registration delays on mortality statistics for more information.

Recent improvements

For the 2026 release, the identification process was updated to distinguish between clear, possible and exclusion evidence. Possible and conflicting cases are subject to individual review, and a structured no-fixed-abode indicator is incorporated for deaths registered from 2022. The capture-recapture source definitions and quality-assurance outputs were also revised to provide clearer audit trails and reconciliation checks.

5 . Quality characteristics of the deaths of homeless people in England and Wales – local authority level data

Relevance

Homelessness is an important problem affecting some of the most vulnerable people in society, but it is difficult to measure as well as to solve. The government's Rough Sleeping Strategy for England set new aims, including that deaths or serious harm of people who sleep rough should be rigorously investigated, while the Welsh Rough Sleeping Action Plan called for better monitoring and measuring of the extent of rough sleeping. The UK Statistics Authority published a review of housing and planning statistics as a whole in November 2017.

The Homelessness Reduction Act 2017 was a major change in government policy relating to homeless people in England. It effectively added two new duties to the original statutory rehousing duty: duty to prevent homelessness; and duty to relieve homelessness. The Act and the Welsh Government's action plan have created a need for better statistics to inform commissioning decisions. There has also been increasing public interest in homelessness as an issue, and the health of homeless people, and speculation in media outlets on the number of deaths.

These outputs are the first official estimates on deaths of homeless people, and therefore are an important step forward in meeting user needs. They will inform planning at all levels of government, including local authority commissioning, and help to focus provision of services in the most appropriate ways.

Accuracy and reliability

It is a legal requirement that all deaths are registered in England and Wales. However, the accuracy of mortality statistics is dependent on the quality of information supplied when the death is registered. An inaccurate cause of death may be provided by the doctor completing the death certificate or a contributory condition may be omitted. Many thousands of practicing doctors complete death certificates and the nature and amount of training they have had in death certification varies greatly.

Inaccurate information may also be supplied by the informant (usually a relative of the deceased), who takes the death certificate to register the death with the registrar and supplies further information about the death not captured on the death certificate. It is not possible to measure the magnitude of errors such as these.

Deaths should be registered within five days of occurring but, in some cases, the registration may be delayed so that registration may not take place in the same calendar year as the death occurred. Since mortality statistics are generally reported by the year of registration, this may lead to the under-reporting of deaths. This is most likely to occur in cases where the death is referred to a coroner and an inquest is held. Deaths are referred to a coroner in cases including where the cause of death is unknown, where the deceased was not seen by a doctor before or after death, or where the death was violent, unnatural or suspicious. If the coroner chooses to hold an inquest, the death can only be registered once the inquest has taken place. Further information about the process of death registration can be found in User guide to mortality statistics.

Annually, there are around 30,000 coroner's inquests held in England and Wales that conclude with a verdict. "Short form" verdicts such as accident or misadventure, natural causes, suicide and homicide make up the majority of all verdict conclusions. "Narrative" verdicts can be used by a coroner or jury instead of a short form verdict to express their conclusions about the cause of death following an inquest.

In recent years, there has been a large increase in the number of narrative verdicts returned by coroners in England and Wales. We do not always have a clear indication from a narrative verdict of whether the fatal injury or toxic substance was self-administered, or if there was deliberate intent to self-harm. The rules of coding cause of death dictate that, where no indication of intent has been given by the coroner, deaths from injury or poisoning must be coded as accidents.

Local registrars do not follow any consistent practice in recording deaths of homeless people. Furthermore, it is possible that the fact that the deceased was homeless might be omitted either due to incomplete information given to the registrar, or out of consideration for the preferences of the family. It is not known whether there is any systematic difference between areas or change over time in the pattern of recording. We intend to work with the General Register Office, who publish standards and guidance for local registrars, to promote clear and consistent recording of these circumstances, while respecting the sensitivities of the next-of-kin where they are involved.

There is no single, comprehensive list available of all homeless hostels and emergency shelters. We will work with stakeholders to improve the lists used in our searches. However, the model is an estimation based on matching between lists, which accounts for incomplete data, so this is not considered a major problem.

The lack of a count of the homeless population that meet our definition means that we were unable to produce rates of death within the homeless population itself. Instead, crude rates are calculated using the general population aged 15 to 74 years as the denominator. These rates should not be interpreted as measuring an individual homeless person's risk of death.

It was found while checking the records initially identified as homeless that some were elderly people who had died in an institutional setting, such as in a care home or after a long hospital stay, where for unknown reasons no residential address was recorded. To avoid the inclusion of such cases in these figures, an upper age limit of 74 years was applied. This means that a small number of genuine deaths of homeless people aged 75 years or over might have been excluded.

Like any statistical model there is the potential for error. However, we are confident that we have managed to minimise this by checking the records identified as homeless people individually, and by application of a well understood statistical model with expert peer review of our results.

Small numbers at local level limit the breakdowns that can be published because of the need to protect confidentiality. It should also be noted that the margin of error in the estimation and the possibility of geographical differences in recording mean that the estimates are less reliable at subnational, and especially more local levels.

Coherence and comparability

Definitions of homelessness exist for different purposes and with variations across the UK for legal and policy reasons. The Government Statistical Service (GSS) Harmonisation Team have explored the feasibility of harmonising definitions of homelessness for official statistics. A report on this work, which will outline recommendations to improve understanding of the comparability of UK homelessness statistics, will be published on the GSS website in early 2019.

Rough sleeping statistics for England are produced annually by the Ministry of Housing, Communities and Local Government (MHCLG). The latest rough sleeping statistics were published on 26 February 2026. The publication provides information on the single-night snapshot of rough sleeping that is taken annually in England using street counts and intelligence-driven estimates. The Welsh Government also collects data on homelessness. However, the figures on deaths contained in this bulletin cannot be directly compared with the rough sleeping statistics, as we have used a wider definition of homelessness and also these new statistics collect data for the year as a whole rather than taking a single snapshot in time.

The figures presented show deaths registered each year, rather than deaths occurring each year. A substantial proportion of deaths of homeless people are certified by a coroner. This means that, due to the length of time it can take for an inquest to be completed, some of the deaths registered in (for example) 2025 will have occurred in earlier years, while some deaths that occurred in 2025 will not yet be included in the figures. These differences are likely to have relatively little impact at England and Wales level but can have more influence on figures for smaller geographical areas such as local authorities. See the latest report on the impact of registration delays on mortality statistics for more information.

Accessibility and clarity

Our recommended format for accessible content is a combination of HTML web pages for narrative, charts and graphs, with data being provided in usable formats such as CSV and Excel. Our website also offers users the option to download the narrative in PDF format. In some instances other software may be used, or may be available on request. Available formats for content published on our website but not produced by us, or referenced on our website but stored elsewhere, may vary. For further information please refer to the contact details at the beginning of this report.

In addition to this Quality and Methodology Information, basic quality information relevant to each release is available in the Quality and methodology section of the relevant statistical bulletin.

Timeliness and punctuality

The provisional date for the annual release of Deaths of homeless people in England and Wales is announced on the ONS release calendar and GOV.UK website in advance in accordance with the Code of Practice for Statistics. The date is then finalised at least one month before publication.

The Deaths of homeless people in England and Wales bulletin is likely to be published around July each year starting in 2019, following the release of final annual death registrations data and mid-year population estimates for the preceding year. The exact date may vary for operational reasons.

For more details on related releases, the GOV.UK website provides advance notice of release dates. In the unlikely event of a change to the pre-announced release schedule, public attention will be drawn to the change and the reasons for the change will be explained fully at the same time, as set out in the Code of Practice for Statistics.

Concepts and definitions (including list of changes to definitions)

Definition of homelessness

There are many different definitions of homelessness in the UK. Currently, the Office of Statistical Regulation is considering the feasibility of a national statistics homelessness definition.

For this research, to investigate the number of homeless deaths, we have used the following definition:

- include all persons recorded at death as rough sleeping, no fixed abode or in emergency accommodation, night shelters, hostels and so on

- hostels and shelters defined as resident by licence, not assured shorthold tenancy

- bed and breakfast accommodation, prisons, custodial deaths, criminal justice accommodation, and rehabilitation settings are excluded as it is not possible for us at this time to ascertain from the data if the residents are exclusively homeless

This definition is driven by the data available. Before 2022, there was no specific question on a death certificate asking if a person was homeless at the time of death. To determine if a person is homeless at time of death, we need to search the available data, for example, registered address for words like NFA, no fixed abode or known hostel addresses.

The International Statistical Classification of Diseases (ICD) is the standard diagnostic tool for epidemiology, health management and clinical purposes. It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records. In addition to enabling the storage and retrieval of diagnostic information for clinical, epidemiological and quality purposes, these records also provide the basis for the compilation of national mortality and morbidity statistics by World Health Organisation (WHO) member states. It is used for reimbursement and resource allocation decision-making by countries. We have been using the ICD 10th revision since 2001.

Important points about deaths related to drug poisoning data

Drug-poisoning deaths are identified by linking final retained homeless-death records to authoritative drug-poisoning data using the death-registration identifier. Different source data are used for registrations up to 2017, and from 2018 onwards.

Source records are reduced to one record per registration identifier before linkage. Estimated drug-poisoning deaths are obtained by allocating the annual England and Wales capture-recapture uplift in proportion to the share of identified deaths linked to the drug-poisoning data. A separate drug-poisoning capture-recapture model is not fitted.

- Many deaths involve more than one type of drug and/or alcohol and it is not possible to tell which substance was primarily responsible for the death.

- The figures include accidents and suicides involving drug poisonings, as well as deaths from drug abuse and drug dependence; they do not include other adverse effects of drugs (for example, anaphylactic shock), or other types of accidents (for example, a car crash) where the driver was under the influence of drugs.

- Causes of death are coded using the International Statistical Classification of Diseases and Related Health Problems; due to changes in this (and the software used for coding) over time, the deaths by underlying cause data are not a consistent time series.

Important points about deaths related to suicide

We code all deaths according to the International Classification of Diseases (ICD), which is produced by the WHO. Since 1993, we have stored the text of death certificates on a database, along with all ICD coding relating to causes of death identified on the death certificate. We use a combination of ICD codes and this text to identify death certificates that meet the National Statistics definition of suicide.

The National Statistics definition of suicide includes deaths given an underlying cause of injury or poisoning of undetermined intent. In England and Wales, it has been customary to assume that most injuries and poisonings of undetermined intent are cases where the harm was self-inflicted but there was insufficient evidence to prove that the deceased deliberately intended to kill themselves (Adelstein and Mardon, 1975). This convention has been adopted across the UK.

Table 1: National Statistics definition of alcohol-specific deaths

ICD-10 code	Description of condition
E24.4	Alcohol-induced pseudo-Cushing's syndrome
F10	Mental and behavioural disorders due to use of alcohol
G31.2	Degeneration of nervous system due to alcohol
G62.1	Alcoholic polyneuropathy
G72.1	Alcoholic myopathy
I42.6	Alcoholic cardiomyopathy
K29.2	Alcoholic gastritis
K70	Alcoholic liver disease
K85.2	Alcohol-induced acute pancreatitis
K86.0	Alcohol-induced chronic pancreatitis
Q86.0	Fetal-induced alcohol syndrome (dysmorphic)
R78.0	Excess alcohol blood levels
X45	Accidental poisoning by and exposure to alcohol
X65	Intentional self-poisoning by and exposure to alcohol
Y15	Poisoning by and exposure to alcohol, undetermined intent

Source: Office for National Statistics

Table 2: International Statistical Classification of Diseases, Ninth Revision (ICD-9) and Tenth Revision (ICD-10) codes used to define deaths related to drug poisoning

Description	ICD-9 codes	ICD-10 codes
Mental and behavioural disorders due to drug use (excluding alcohol and tobacco)	292, 304, 305.2–305.9	F11–F16, F18–F19
Accidental poisoning by drugs, medicaments and biological substances	E850–E858	X40–X44
Intentional self-poisoning by drugs, medicaments and biological substances	E950.0–E950.5	X60–X64
Assault by drugs, medicaments and biological substances	E962.0	X85
Poisoning by drugs, medicaments and biological substances, undetermined intent	E980.0–E980.5	Y10–Y14

Source: Office for National Statistics

In the UK, deaths are currently coded using the International Classification of Diseases, Tenth Revision (ICD-10). The codes used to define the suicide figures presented in this bulletin are detailed in this section.

ICD-10 codes

- X60–X84: intentional self-harm
- Y10–Y341: injury or poisoning of undetermined intent
- Y87.0 and Y87.22: sequelae of intentional self-harm, injury or poisoning of undetermined intent

Notes for ICD-10: Excluding Y33.9 where the coroner's verdict was pending in England and Wales, up to 2006. From 2007, deaths that were previously coded to Y33.9 are coded to U50.9.

Y87.0 and Y87.2 are not included for England and Wales.

Geography (including list of changes to boundaries)

The geography used for the publication on 20 December 2018, Deaths of homeless people in England and Wales: 2013 to 2017, is at national and subnational level and includes England, Wales and all nine English regions.

The follow-up publication on 25 February 2019, Deaths of homeless people in England and Wales –local authority estimates: 2013 to 2017, included data at local authority district (LAD) level and additionally deprivation deciles for England (Index of Multiple Deprivation) and for Wales (Welsh Index of Multiple Deprivation). Also, the 2011 Census areas for urban and rural categories were used.

The geography used for the publication on 1 October 2026, Deaths of people experiencing homelessness in England and Wales: 2013 to 2025 registrations, is at national and subnational level and includes England, Wales and all nine English regions at local authority district (LAD) level. It also includes deprivation deciles for England (Index of Multiple Deprivation) and for Wales (Welsh Index of Multiple Deprivation). The 2021 Census areas for urban and rural categories were used.

Output quality

Deaths while homeless statistics are based on deaths registered in a particular calendar year, rather than the year the death occurred. This allows timelier publication of the statistics. The disadvantage of using registration-based figures is that it is harder to examine the relationship between deaths while homeless and other, external factors. Further information about the delay between occurrence and registration is available in the Impact of registration delays on mortality statistics report.

Occurrence-based tables use identified deaths only and do not include proportionally allocated capture-recapture estimates. They include only deaths registered between 2013 and 2025. Consequently, occurrence-year figures do not include deaths that were registered after 2025. Records with missing, invalid or structurally impossible occurrence dates are excluded from the relevant occurrence table and retained for quality assurance.

Why you can trust our data

We are the UK's largest independent producer of statistics and its National Statistics Institute. The Data Policies and Information Charter detail how data are collected, secured and used in the publication of statistics. We treat the data that we hold with respect, keeping it secure and confidential, and we use statistical methods that are professional, ethical and transparent.

6 . Methods used to produce the Deaths of homeless people in England and Wales

How we collect the data, main data sources and accuracy

The figures are compiled using information supplied when a death is registered. A record for each death registered in England and Wales is held on our death registrations database. Further details about the information held on our death registrations database, and the methods used to quality assure the data can be found in our User guide to mortality statistics.

We code all deaths in England and Wales according to the International Classification of Diseases (ICD) produced by the World Health Organization. We have used the Tenth Revision (ICD 10) since 2001.

How we process the data

The figures in this release were produced following a two-stage process. First, the complete death registration records held by ONS, for deaths registered in the relevant calendar years, were analysed using multiple search strategies to identify all those deaths where there was evidence that the deceased was homeless at or around the time of death. Then, the results of the searches were used in a statistical modelling technique known as capture-recapture to estimate a total figure, which allows for the likelihood of more deaths of homeless people being present in the data but not identified.

The original method used five search strategies.

Search one

The recorded place of residence contained any of a list of text expressions such as “no fixed abode”, “homeless” and “night shelter” or the name or address of a known homeless hostel or project. An extensive list of addresses was compiled from publicly available sources. While this list was necessarily incomplete, the statistical model was found to be robust against even a substantial number of omissions.

Search two

Similarly, the recorded place of death containing any of a list of text expressions such as “no fixed abode”, “homeless” and “night shelter” or the name or address of a known homeless hostel or project.

Search three

The death had been investigated by a coroner, and the details received by ONS after the inquest, included any of the text expressions or addresses outlined previously. The information provided by coroners is broader and may be more precise than for deaths that do not require an inquest.

Search four

The record contained a “communal establishment code”, which specified a homeless hostel or shelter. These codes are assigned by ONS during the initial processing of a death registration, based on a periodically updated list of known postcodes of institutions of all kinds, ranging from hospitals to prisons.

Search five

The death occurred in hospital or in a hostel or similar location, and the recorded postcode of the place of residence was identical to the postcode of the place of death. This search ensured the inclusion of homeless people who had been found in need of medical attention in the street and subsequently died in hospital, or certain other possible scenarios.

Under the original approach, records identified by the searches were checked individually to reduce incorrect inclusion of deaths, such as a person who lived in a hostel for a non-homeless client group. No definite homeless deaths were identified below the age of 15 years, which was taken as the lower age cut-off. An upper age cut-off of 74 years was applied to reduce inclusion of elderly people in a care home or after a long hospital stay, for whom in some cases no residential address had been recorded.

The approach was updated for the 2026 release. The updated method uses the same underlying registration information but organises the available indicators into clear, possible and exclusion evidence. Cases identified through possible or conflicting evidence are reviewed individually before the final dataset is produced.

The following evidence-based approach was used to search and identify deaths.

Positive evidence

Direct positive evidence includes an exact match to the controlled accommodation list, explicit no-fixed-abode wording, a structured no-fixed-abode indicator, or a recognised homelessness residence. Text evidence includes relevant wording in the coroner, address and place-of-death fields after specified false positives are removed. Specific postcode evidence is used only where the place wording is sufficiently homelessness-specific.

Ambiguous evidence

Ambiguous routes are designed to maximise review coverage without automatically inflating the final count. Examples include:

- selected communal establishments with missing or weak address information
- hospital or infirmary postcode pathways
- short-address postcode matches

New ambiguous cases are not automatically included before review.

Negative and exclusion evidence

Negative evidence is maintained externally and reason-coded. It includes known reject addresses and search terms for prisons, custodial deaths, criminal-justice accommodation, rehabilitation settings and other recognised false positives. A settled-home phrase can suppress a weak heuristic-only route, but does not override direct homelessness evidence.

Manual review

Manual review was reserved for evidence conflicts and ambiguous pathways where contextual judgement adds value, as well as ensuring compatibility with historic published figures.

How we analyse and interpret the data

The number of additional deaths not identified directly was estimated using capture-recapture analysis in the Rcapture package for the R programming language. The primary estimate uses the Mth Chao lower-bound estimator and is calculated separately for each year of death registration.

This estimator allows the probability of identification to vary between evidence sources and between records. It produces a conservative lower-bound estimate, meaning that the true number of deaths may be higher. Alternative log-linear models were examined as sensitivity analyses to assess the stability of the results, but they were not used as the primary published estimates.

The identified figures include all records with a final decision to retain. Previously published cases were retained to preserve continuity, unless the current evidence provides a reason for exclusion or requires individual review. Cases retained solely for historic continuity remain in the identified figures but are excluded from capture-recapture model fitting.

Retained records without an approved capture source also remain in the identified total but cannot contribute to the fitted capture histories. The estimated number of additional deaths is added to the complete identified total.

For deaths registered from 2013 to 2021, the primary model uses three evidence sources:

- registered residence
- information supplied by a coroner
- place-of-death information

For deaths registered from 2022 to 2025, residence and no-fixed-abode evidence are combined into one residence-based source, alongside coroner and place-of-death information. This avoids treating closely-related representations of the same registration information as separate identifications. A four-source specification was examined as a development sensitivity but was not used for the primary estimates.

Standard errors are obtained from the annual Mth Chao lower-bound model. The 95% confidence limits are calculated using a normal approximation. The lower limit for the capture-recapture abundance is constrained not to fall below the number of records included in the fitted capture histories. The corresponding estimated-unseen limits are then added to the complete identified total. Standard errors and confidence limits for breakdowns are proportional allocations of the England and Wales values and do not result from separate capture-recapture models for those groups.

Further description of the capture-recapture estimation

The parameters of interest in the Rcapture package depend on whether the population is assumed to be closed, open, or both. Births and deaths, together with immigration and emigration, can occur in an open population, but not in a closed one. Death registrations for a given (past) year are a closed population.

To estimate this population size, a model is fitted to the data. Following Otis, Burnham, White, and Anderson (1978), the model can incorporate up to three sources of variation among capture probabilities:

- a temporal effect (t)
- a heterogeneity between units (h)
- a behavioural effect (b)

A temporal effect causes the capture probabilities to vary among capture occasions; heterogeneity causes the capture probabilities to vary among units. A behavioural effect means that the first capture changes the behaviour of a unit, so the capture probability differs before and after the first capture. These sources of variation lead to eight fundamental closed population models:

- M0 (no source of variation)
- Mt
- Mh
- Mth
- Mb
- Mtb
- Mbh
- Mtbh

The following description and example tables provide the model-comparison approach used for the original release. For the 2026 release, the primary annual estimate is the Mth Chao lower-bound estimate previously described, while alternative log-linear models are retained as sensitivity analyses.

Table 3: Descriptive statistics for 2017 data

Frequency statistics:

	fi	**ui**	**vi**	**ni**
i=1	247	364	126	364
i=2	208	74	192	205
i=3	29	34	32	45
i=4	7	6	89	112
i=5	0	13	52	52

fi: number of units captured i times

ui: number of units captured for the first time on occasion i

vi: number of units captured for the last time on occasion i

ni: number of units captured on occasion i

vi: number of units captured for the last time on occasion i

ni: number of units captured on occasion i

Source: Office for National Statistics

The descriptive function of the Rcapture package computes basic capture-recapture frequency statistics. It displays, for i = 1, . . . , t, the number of units captured i times (fi), the number of units captured for the first time on occasion i (ui), the number of units captured for the last time on occasion i (vi) and the number of units captured on occasion i (ni). If the ni statistics vary among capture occasions, there is a temporal effect. The descriptive function also gives the m-array matrix, which contains recapture frequencies for units released on each occasion.

The plot.descriptive function in the R package Rcapture explores possible heterogeneity in the capture probabilities. The graphs produced by plot.descriptive are linear. Rivest (2007) shows that the fi graph should be concave downward when there is a temporal effect. This effect is typically small and the graph of the fi stays almost linear for model Mt.

Furthermore, from the work of Lindsay (1986) on mixing distributions in an exponential family, the fi graph for model Mh and the ui graph for models Mh and Mbh should be convex, up to sampling errors. The shape of the fi graph for model Mth depends on the relative importance of the temporal effect and the heterogeneity. So, the plot. descriptive function can bring out heterogeneity among capture probabilities in a dataset through graphs with a convex shape.

The fit of a model can also be judged through its residuals. The function boxplot.closedp from the R package Rcapture was used to produce boxplots of the Pearson residuals for the different fitted models. The graph brings out badly fitted data.

The final estimate is produced using the function closedp from the R package Rcapture. When several models have been fitted, they are compared and one selected. The function closedp was used to generate deviances, degrees of freedom and Akaike Information Criteria (AIC). These statistics are useful tools to compare models and to assess the goodness of their fit. Under the assumption of a good fit, the deviance of a model follows a chi squared distribution with the model's degrees of freedom. Also, likelihood ratio tests can be constructed to compare nested models and a smaller AIC indicates a better model.

Table 4: Estimates and best fit for the 2017 data

Number of captured units: 491

Abundance estimations and model fits:

	abundance	stderr	deviance	df	AIC	BIC	infoFit
M0	669.2	23.2	858.788	29	937.487	945.880	OK
Mt	594.2	16.3	262.365	25	349.065	374.244	OK
Mh Chao (LB)	669.2	23.2	858.788	29	937.487	945.880	OK
Mh Poisson2	606.5	24.2	849.730	28	930.430	943.019	OK
Mh Darroch	563.3	22.0	845.577	28	926.277	938.866	OK
Mh Gamma3.5	538.2	19.0	844.058	28	924.757	937.347	OK
Mth Chao (LB)	597.2	17.0	261.519	24	350.219	379.594	OK
Mth Poisson2	578.9	19.0	260.998	24	349.698	379.073	OK
Mth Darroch	557.4	20.5	259.218	24	347.918	377.293	OK
Mth Gamma3.5	542.4	20.8	258.420	24	347.120	376.495	OK
Mb	492.4	1.2	426.078	28	506.778	519.367	OK
Mbh	497.1	6.7	406.175	27	488.875	505.660	OK

Source: Office for National Statistics

How we quality assure and validate the data

Rigorous quality assurance is carried out at all stages of production. Specific procedures include:

- scrutinising input data to investigate the accuracy of any abnormal values
- scrutinising trends in the total population, projected over time for plausibility
- comparing current deaths while homeless with previous deaths while homeless and estimates, to see where large changes are taking place and understand the reasons for these
- examining sex ratios to find any areas of imbalance
- comparison between local authorities, to check for outliers
- checking output tables to ensure that there are no errors or inaccuracies during the creation of published tables

Following initial investigation of the methods, two sensitivity analysis were carried out.

The statistical model was rerun using a method of randomly removing from 50 to 200 out of approximately 600 specific addresses from the list of addresses, to gauge the impact of the incompleteness of the available lists. The results of four iterations showed that removing a substantial proportion of the addresses made no more than 2% difference to the final estimate.

The model was rerun removing each of the separate lists (searches) one at a time. Again, the results were found to be relatively stable. The model was also run with and without two independent data sources in addition to the death registration records, namely the national list of deaths compiled by The Bureau of Investigative Journalism and a dataset provided in confidence by the CHAIN service in London. Both produced higher but less robust estimates, due largely to the difficulty of accurately matching the records (which often contained minimal identifying details) to the death registrations.

How we disseminate the data

Deaths while homeless are available online, by local authority and region for 2013 to 2025.

Links from the release calendar make the release date and location of each new set of deaths while homeless clear. Deaths while homeless can be downloaded free of charge in Microsoft Excel format. A statistical bulletin accompanies each publication. The underlying data for the charts and tables in the bulletin can be downloaded. Supporting documentation is also available on the deaths while homeless webpage.

Other data not published on the web are available on request by emailing health.data@ons.gov.uk. Metadata describing the limitations of the data for more detailed tables are provided with each individual request. Most queries can be answered from the website datasets or supporting methods documents. Any additional enquires regarding deaths while homeless can be made by emailing health.data@ons.gov.uk.

How we review and maintain the data processes

Future revisions to the deaths while homeless analysis may be required to reflect occasional or post-census revisions to the subnational population projections. This is in line with the ONS revision policy for population statistics.

7 . Other information

We have received user feedback and assessment of user needs and perceptions via correspondence and attendance at stakeholder meetings and plan to act on their recommendations to provide greater detail and regularity to the publication.

We received many enquires whilst producing this bulletin. A considerable amount were from stakeholders requesting local authority level data. We have responded to this by planning a local authority level analysis which is due for release early 2019.

We are grateful for advice and assistance in the development of these Experimental Statistics from The Bureau of Investigative Journalism, the Combined Homelessness and Information Network (CHAIN), the Homeless Impact Centre, Homelessness and Troubled Families team at the Ministry for Housing, Communities and Local Government, Planning and Housing Research – Greater Manchester Combined Authority, University College London – Institute of Health Informatics, and the Welsh Government. However, Office for National Statistics (ONS) independently produces these statistics, including determining the focus, content, commentary, illustration and interpretation of the measures presented, and the comments provided from other organisations are purely advisory.

We welcome feedback from users on the content, relevance and format of our outputs and user feedback is requested at the bottom of all emails sent by customer service teams within the division.

Feedback is also received through regular attendance of our researchers at user group meetings and conferences. In addition, the views of a wide range of users were sought as part of the UK Statistics Authority assessment of mortality statistics.

References

Adelstein A and Mardon C (1975) ‘Suicides 1961 to 1974’, in: Population Trends, number 2, London: Her Majesty's Stationery Office

Otis DL, Burnham KP, White GC, Anderson DR (1978), ‘Statistical Inference from Capture Data on Closed Animal Populations’, volume 62 of Wildlife Monographs, Wildlife Society

Rivest LP (2007).’Why a Time Effect Has a Limited Impact on Capture-Recapture Estimates in Closed Populations’, Canadian Journal of Statistics, Under revision

Lindsay BG (1986). ‘Exponential Family Mixture Models (With Least-Squares Estimators)’, The Annals of Statistics, volume 14, pages 124 to 137

8 . Cite this page

Office for National Statistics (ONS), updated 1 October 2026, ONS website, methodology, Deaths of people experiencing homelessness in England and Wales QMI