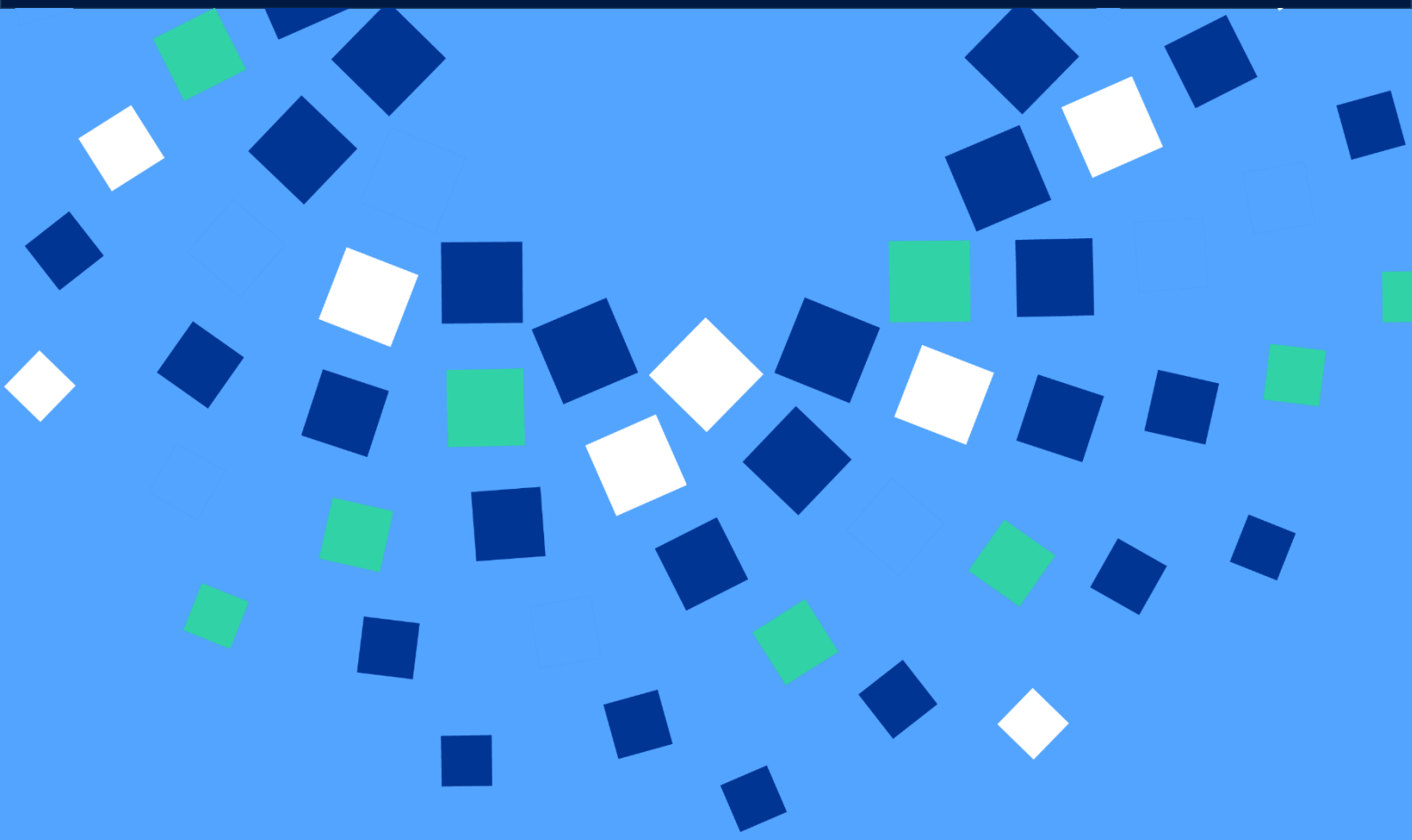
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Data Explained

Annual District Death Extract (ADDE)

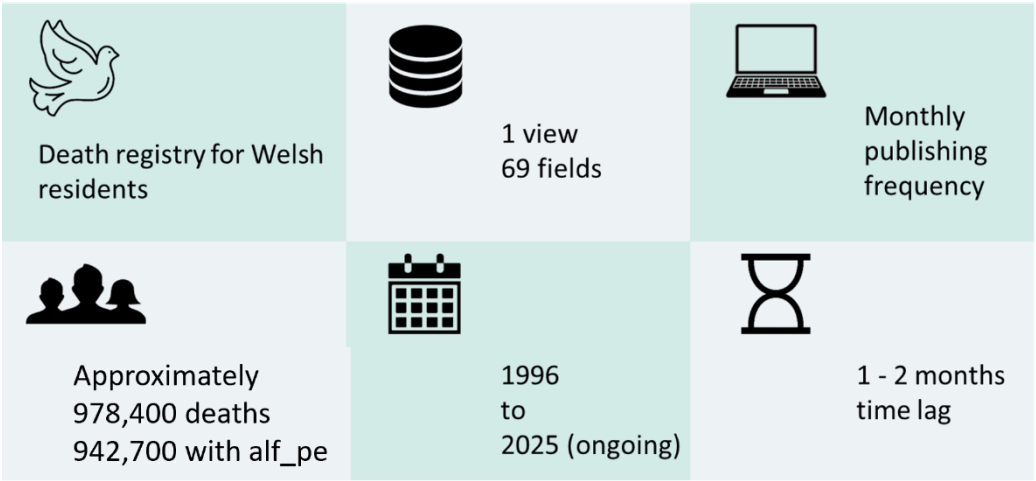
Authors: Victoria Best, Sarah Aldridge, Roberta Chiovoloni, Ashley Akbari
Date: October 2026



Summary

This Data Explained summarises experiences and learning from working with the Annual District Death Extract (ADDE) data. This publication is intended to help guide future researchers using this data and to provide feedback on future data development and documentation.

The administrative data discussed in this Data Explained was made securely available through an approved SAIL project via the independent Information Governance Review Panel (IGRP) – project 1934. The data used in this research project comes from the Office for National Statistics (ONS) and was accessed through the Secure Anonymised Information Linkage (SAIL) Databank. The data were not originally collected for research, and gaps and inconsistencies in their recording are expected; some are detailed below.



Introduction

The Annual District Death Extract (ADDE) is a patient-level register of all deaths for Welsh residents, including those who died outside of Wales. The ADDE is provided by the Office for National Statistics (ONS) (Health and Data Research UK, 2025). The ONS processes daily extracts of death registrations from the General Register Office's Registration Online (RON) system, which records births, deaths, and marriages.

Deaths do not appear within the ADDE until they have been registered. In Wales, it is a legal requirement to register a death within 5 days of being contacted by the medical examiner's office (Government Digital Service, n.d.). When a coroner is involved, the death cannot usually be registered until the investigations are finished and the final Medical Certificate of Cause of Death (MCCD) has been issued, which can take over 12 months.

The ADDE was implemented in 1996 (Health and Data Research UK, 2025), with a very small number of records available prior to this date.

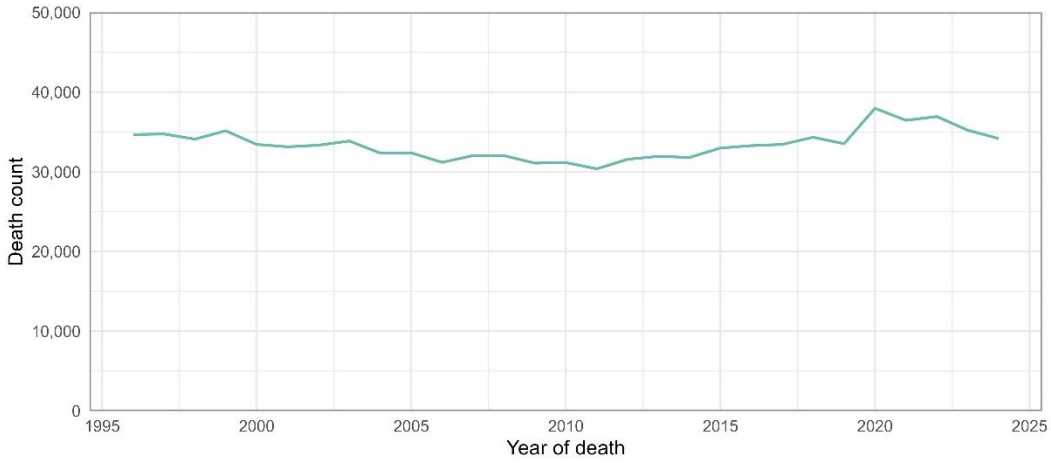


Figure 1 - Count of all ADDE deaths per year.

Deaths in Wales show seasonal variation, with higher counts in winter. This winter increase is often referred to as excess winter deaths (EWD), and the calculated percentage increase is known as excess winter mortality (EWM) (Office for National Statistics, 2023).

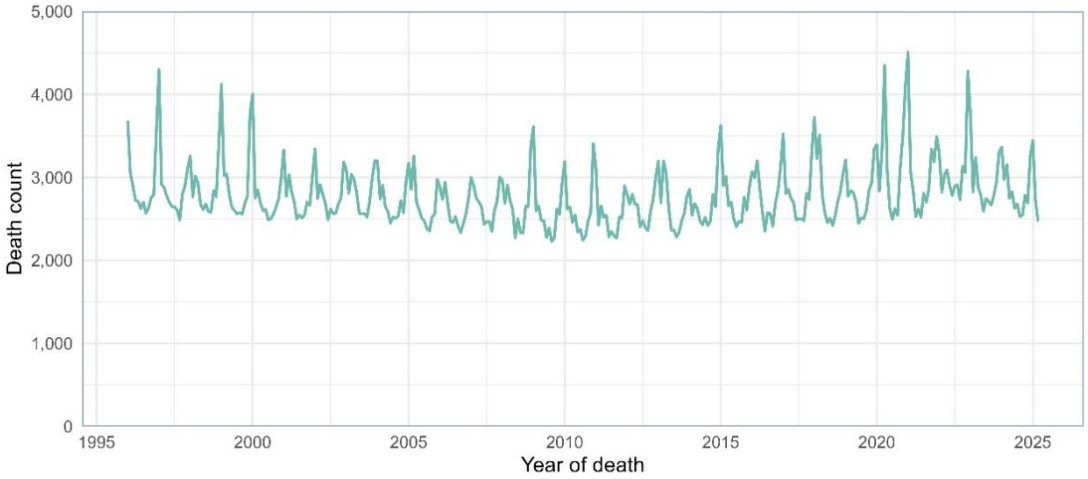


Figure 2 - Count of all ADDE deaths per month.

How is the data collected?

Where a coroner is not involved, the attending physician normally certifies the death and indicates the causes. The conditions or events leading directly to death should be recorded on part one of the MCCD, and conditions which may have been contributory, but were not directly involved in leading to death, should be recorded on part two (World Health Organisation, 2019). Following completion of the MCCD, the death must be registered, at which point the registrar will enter the information into the RON system, which contains some built-in validation checks. The ONS receives death extracts from the RON system and conducts further validation checks to ensure data quality and completeness.

For deaths in Wales, the ONS is responsible for transforming all conditions on the death certificate into International Classification of Diseases (ICD) codes. Automated software converts approximately 80% of the ONS mortality data from text on death certificates to ICD codes, with selection rules used to identify the underlying cause of death. The World Health Organisation (WHO) issues detailed instructions on how to establish the underlying cause of death, which depend on 1) where the condition is recorded on the death certificate; 2) the sequence of conditions or events that led to death; and 3) whether any special instructions apply to the ICD code. Where no special conditions apply, the underlying cause of death is considered "the disease or event that started the chain of events leading to death" (World Health Organisation,

2019). When the MCCD has been properly completed, the underlying cause of death is usually the condition entered on the last completed line in part 1 (Department of Health and Social Care, n.d.).

Since 2014, the ONS has used the automated coding system IRIS, developed to consistently code causes of death across multiple languages, improving international comparisons of death statistics (Office for National Statistics, 2014). This was updated to the Multicausal and Unicausal Selection Engine (MUSE) in 2022. The software is not used for deaths certified via inquest due to the nature of the free-text format used in these scenarios (Office for National Statistics, n.d.-b). In these cases, trained coders manually transform the data into ICD codes.

A timeline of key ADDE events is provided below. This list is not exhaustive but aims to cover the most significant changes relevant for data users.

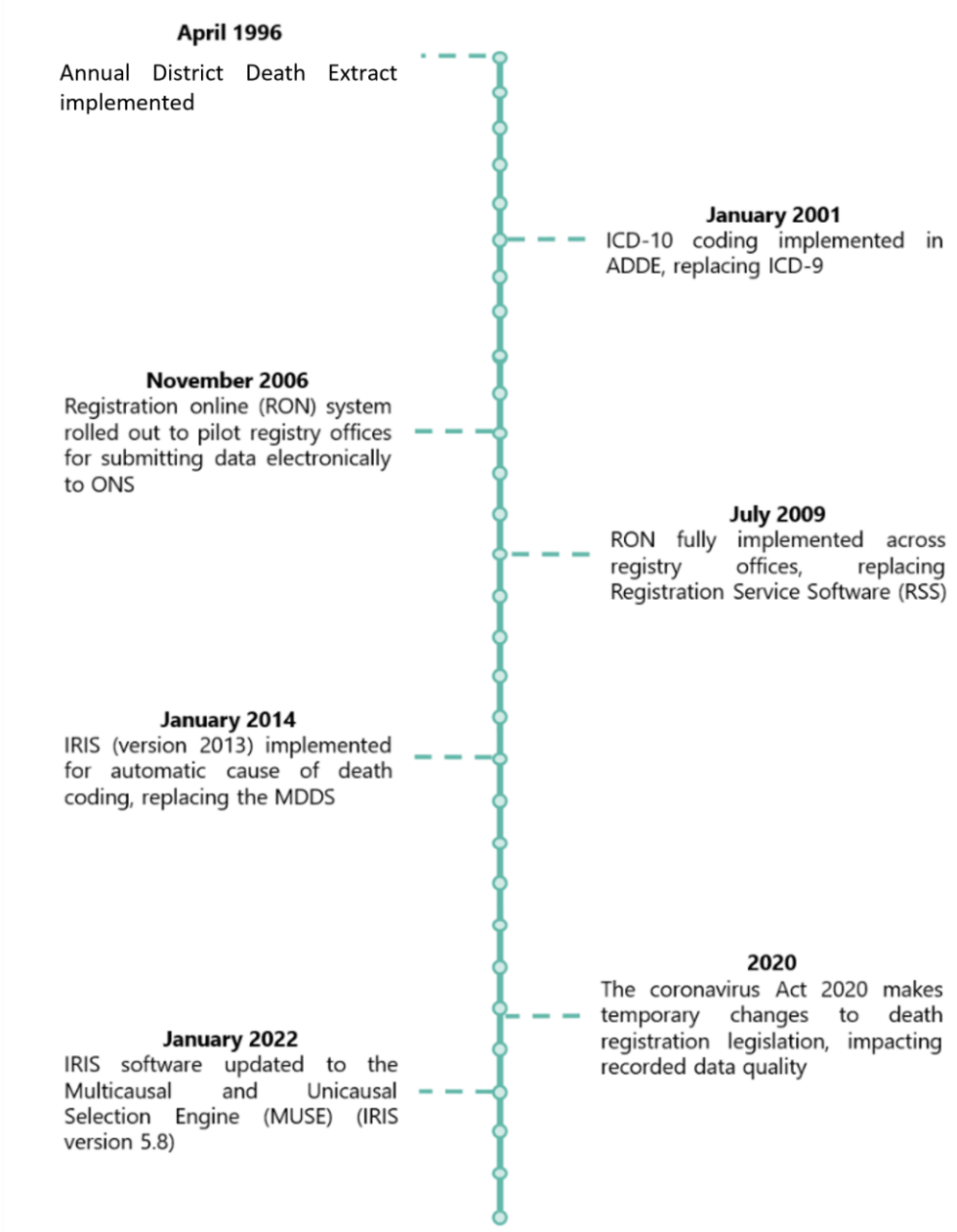


Figure 3 - Timeline of key events for ADDE.

Data structure and linkage

ADDE is provided within SAIL as a single, individual-level table, with each record representing an individual death. The data includes a unique Anonymised Linkage Field (ALF) for each individual, enabling robust linkage to other data sources in the SAIL Databank.

Key variables

The WHO (2019) publishes a dictionary of ICD-10 codes and is therefore a useful resource for understanding and interpreting the ADDE data. Researchers using the ADDE are often interested in establishing the date and causes of death. Some commonly used fields are outlined below, but full structural metadata is provided on metadata resources (Health and Data Research UK, 2025).

Field name	Description	Use
ALF_PE	Anonymised linkage field (person ID)	Data linkage with other SAIL data sources
DEATH_DT	Date of death	To establish the date of death
DEATHCAUSE_DIAG_UNDERLYING_CD	Underlying cause of death ICD-10 code	To establish the initial root disease, injury or circumstance which ultimately led to the death
DEATHCAUSE_DIAG_1_CD […] DEATHCAUSE_DIAG_8_CD	Secondary causes of death ICD-10 codes	To establish all other causes of death, which can include the immediate cause of death
DEATHCAUSE_DIAG_SEC_CAUSE_CD	Injury where death cause was external	To establish the nature of injury where the underlying cause of death is external, recorded as an ICD-10 code
DEC_AGE	Calculated age at death	Numeric age of deceased. Must be used in combination with dec_age_unit_cd
DEC_AGE_UNIT_CD	Age unit (year, months, weeks or days)	Must be used in combination with the dec_age to ensure the correct age is interpreted
DEC_SEX_CD	Sex code of the deceased	As recorded on the death certificate

Table 1 - Commonly used fields available in ADDE.

Further fields could be used to explore mortality inequalities, such as the socioeconomic class of parents or spouse, Lower-layer Super Output Area (LSOA), and rurality indicator.

What can the data be used for?

The ADDE can be used in isolation to produce mortality statistics across Wales, or combined with other data sources to identify death rates or causes of death for individuals with specific conditions.

The most frequently recorded underlying causes of death are provided below.

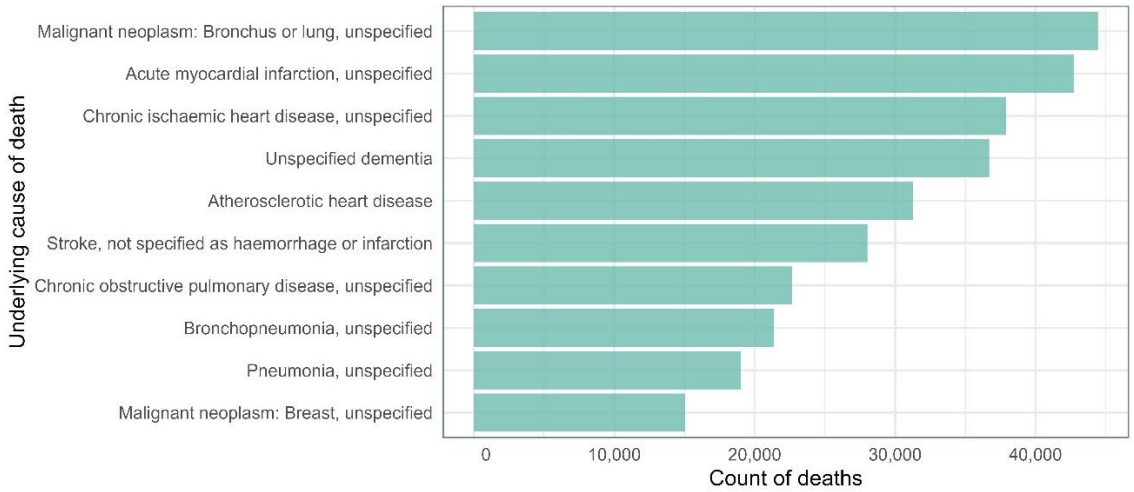


Figure 4 - Ten most recorded underlying causes of death (ICD-10 code to 3 characters) from 2001 onwards (ICD-10 start).

Mortality data is often of interest in medical research, whether to establish causes of death, time to death, or death as a competing condition, and the ADDE can be used to establish all of these. This allows the comparison of death rates between cohorts based on demographic or medical differences.

The ONS also use death data to calculate excess deaths, defined as the difference between actual deaths and expected deaths for that period based on historical data (Office for National Statistics, n.d.-c).

Data limitations encountered

Time lag: Data owners estimate a time lag of one to two months; however, death registration may be delayed further, particularly when coroner inquests are required. A coroner is involved when a death is violent, unnatural, of unknown cause, or occurs in state custody, suspected suicide for example always falls into this category. Because coroner-referred deaths cannot be registered until the coroner's investigation or inquest concludes, these deaths may be disproportionately represented among those registered more than 60 days after the date of death.

According to 2022 data, 1.1% of deaths were registered more than a year after they occurred across England and Wales. The median time for deaths to be registered in Wales was 6 days, but increased to 26 days (across England and Wales) when a coroner was involved (Office for National Statistics, 2024).

Deaths will not appear in the ADDE until they are registered; therefore, data on recent deaths are unlikely to be complete, and researchers should account for this in their study design. The visual below shows the proportion of deaths registered more than 60 days after the date of death, to indicate where data lag is likely to exceed 2 months.

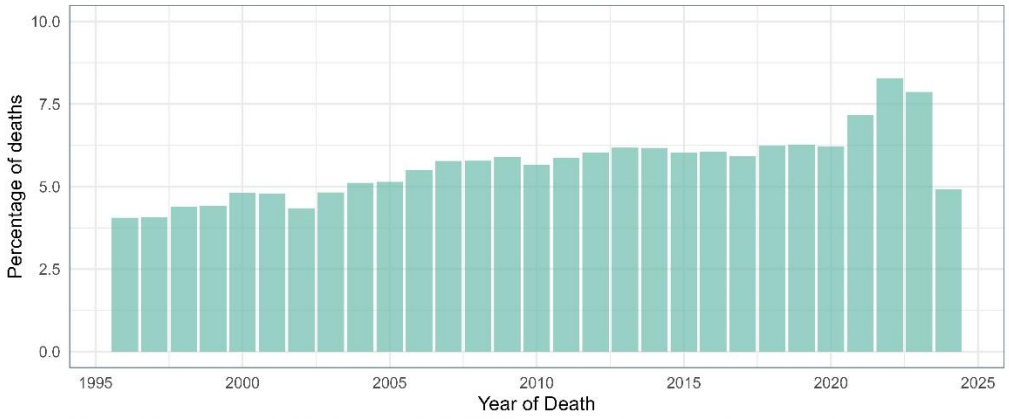


Figure 5 - Percentage of all deaths recorded in ADDE per year where the death was registered more than 60 days after the date of death.

Clinical coding changes: ICD-10 has been used for recording causes of death in Wales since January 2001 (Office for National Statistics, 2022); therefore, in older ADDE records, causes of death are recorded using ICD-9 codes. ICD-10 has also undergone further updates to correct errors or incorporate new conditions (notable updates occurred in 2012 and 2016), so researchers should consider the ICD version in use at the time of death and ensure they use appropriate reference data.

As systems change and ICD recording guidance is amended, the underlying cause of death identified may also change. The ONS publishes reviews of the impact of software changes, so researchers who are interested in specific underlying death causes may want to review these,

Missing *ALF_PE*: Despite ADDE coverage starting in 1996, ALF_PE is very often missing in the first year, reducing the period during which ADDE data can be linked to wider SAIL data from 1997 onwards.

Deceased age*:* *DEC_AGE* and *DEC_AGE_UNIT_CD* are calculated fields based on the deceased's date of birth and date of death, which the informant or the coroner generally supplies. The values in the *DEC_AGE* field are recorded inconsistently; for example, a death at 1 year of age could be recorded as 001 or 1.

DEC_AGE must also be considered in combination with the *DEC_AGE_UNIT* field, which indicates whether *DEC_AGE* is recorded in years, months, weeks, or days. Therefore, some cleansing and standardising is generally required to obtain a continuous age variable. It may be more consistent for researchers to calculate age at death from the ADDE date of death field and a linked week of birth, particularly for deaths under the age of one.

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Glossary

Abbreviation	Description
ADR UK	Administrative Data Research UK
ALF	Anonymous Linkage Field
DHCW	Digital Health and Care Wales
EWD	Excess winter deaths
EWM	Excess winter mortality
ICD-10	International Statistical Classification of Diseases Version 10
IGRP	Information Governance Review Panel
LSOA	Lower-layer Super Output Area
MCCD	Medical Certificate for Cause of Death
MMDS	Mortality Medical Data System
MUSE	Multicausal and Unicausal Selection Engine
ONS	Office for National Statistics
RON	General Register Office's Registration Online system
RSS	Registration Service Software
SAIL	Secure Anonymised Information Linkage (SAIL) Databank
WHO	World Health Organisation

Disclaimer

This work was produced using administrative data accessed through the SAIL Databank. The use of the data in this work does not imply the endorsement of the SAIL Databank or data owners in relation to the interpretation or analysis.

This work uses research data which may not exactly reproduce National Statistics aggregates.

Acknowledgements

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This Data Insight has been produced by the ADR Wales Ymateb research team. It provides a snapshot of informative research currently underway at ADR Wales but is not intended to provide a complete picture of work undertaken within this field or the ADR Wales programme of work. The information presented in this Data Insight has been reviewed by ADR Wales colleagues with expertise within this thematic area and accepted to be accurate at the point of publication. Views expressed in this Data Insight are those of the researchers and not necessarily those of ADR Wales partner organisations.

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Publication contact

Please contact the SAIL Databank via the Helpdesk.