Mortality Statistics in Wales – An Overview
Laura Clarke, James Daniealis & Ruth Studley – Knowledge and Analytical Services

Introduction

Accurate mortality statistics are a pre-requisite for improvements in survival rates as they enable the measuring of progress in combating causes of death and facilitate the identification of areas with potential for effective interventions.


Measures of Mortality

The simplest measure of mortality is the number of deaths but this is of not much practical use because it is heavily influenced by the number of people at risk of dying, therefore mortality is commonly measured as a number of different rates:

- **Crude Death Rate**: Mortality rate calculated from the number of deaths in the year divided by the mid-year estimated total population at risk of dying (usually the mid-year population). Suitable for national comparisons between countries or regions with populations that are similar in size.
- **Direct Age Standardised Death Rate (DASDR)**: The actual death rate is adjusted for the age structure of the population using a standard population age distribution. Suitable for comparing age-specific death rates across populations with different age distributions.
- **Indirect Age Standardised Death Rate (IASDR)**: The actual death rate is adjusted for the age structure of the population using a standard population age distribution. Suitable for comparing age-specific death rates across populations with different age distributions.

Risk Adjusted Mortality Measures

Risk adjusted measures attempt to quantify the number of unexpected deaths but should not be interpreted as the number of avoidable deaths. The risk adjusted mortality measures use logistic regression to predict the probability of a patient’s death.

Population Mortality

Figure 1 shows that crude death rates vary at Health board level (area of residence in Wales from 8.0 per 1,000 (Hywel Dda) to 7.0 (Cardiff and Vale University)).

The crude death rate for England in 2011 was 8.5 per 1,000 (compared to 7.9 in Wales). Wales has a slightly older population than England – 18.5 per cent of the population in Wales in 2011 were aged 65 or over compared with 16.4 per cent in England.

The directly standardised rate for England is 5.3 per 1,000 (compared to 5.6 in Wales). The standardised rates are closer for the two countries than the crude rates as the age structures of the countries have been accounted for.

Hospital Mortality

Patients are sometimes admitted to a hospital in a different health board to the one in which they live.

Figure 2 shows that there is considerable variation between where patients live and the location of the hospital they are admitted to. The effect is largest in Powys where only 4,000 of the 12,000 residents admitted to hospital were treated in Powys. There is no distinct general hospital in Powys (as shown in Figure 3).

About a third of Welsh residents treated in England are emergency admissions, about 60 per cent elective.

Issues affecting the use of Risk Adjusted Measures

There is no gold standard quality of care indicator and no perfect method of deriving it.

SHMI used on its own as a quality of care measure does not have face validity.

Attributing deaths to specific NHS Trusts is complex.

Data quality and coding issues impact on the ability to use SHMI to assess differences over time and between hospitals.

These issues apply to all risk adjusted measures including RAMI in Wales.