

The AWISS-SitReps Injury Extrapolation Factor Methodology

Estimating Injuries in Wales

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Methodology

The purpose of this paper is to outline how injury incidence data are provided at a population level for Wales using data collected at a number of participating emergency departments within the All Wales Injury Surveillance System (AWISS).

AWISS is designed to collect anonymised data from injury attendances at all emergency departments in Wales to support research into injury prevention. Despite, its name, AWISS does not yet cover all Wales but should do so after the Emergency Department Data Set (EDDS) is mandated shortly. Because data are currently not available from some departments it is necessary to devise a method of extrapolation to all departments to be able to calculate population based rates. The methodology chosen involves a comparison of limited data collected in all acute hospitals (SitReps) with data in participating AWISS hospitals.

SitReps (Situation Reporting) is an NHS Wales/Welsh Assembly Government scheme for reporting on several aspects of acute hospital activity, including emergency department attendances. Data are published on the NHS intranet site of HOWIS (Health of Wales Information System), although a brief mention of the system can be found on the internet site - <http://www.wales.nhs.uk/>.

As SitReps are collected weekly on a Tuesday and by financial year (April – March) it was decided to find data for a period of a single year starting as close to January 1st as possible so as to be able to compare it to a complete year of AWISS data. Data were

therefore extracted from the 31/12/2002 to 05/01/2004, weeks 109 to 161, from the SitReps and for the same period from AWISS.

As SitRep data came from 20 hospital emergency departments, while AWISS data from 5 hospital emergency departments, these were not directly comparable. It was therefore decided to extract the SitRep data for the same 5 hospitals as those submitting to AWISS.

The number of attendances from SitReps and AWISS were compared for the contributing hospitals. As the number of SitRep attendances was greater than the number of AWISS attendances a correction factor was generated by dividing the number of AWISS attendances by the number of SitRep attendances. The SitReps data are an aggregated data submission. The individual level AWISS data are considered to be more accurate than the aggregate extract produced for SitReps. The total number of SitReps was then multiplied by the correction factor to give an overall estimated number of emergency department attendances in Wales.

This factor allowed the estimation of all attendances in Wales but not the injury attendances. Using the AWISS data the proportion of all attendances that were injuries was calculated at the 5 hospitals. Multiplying the estimated all A&E attendances by this figure produced the estimated number of injuries at all emergency departments. This number was then divided by the number of AWISS injuries to calculate an 'AWISS-SitReps Injury Factor'.

Calculation of an 'AWISS-SitReps Injury Factor'

There were 822,578 attendances between 31/12/2002 and 05/01/2004 at 18 hospital emergency departments according to the SitRep data, while AWISS contained 232,211 from 5 hospital emergency departments. From the same 5 hospitals as those submitting to AWISS SitReps contained 252,972 attendances.

$$\text{SitReps correction factor} = 232,211 / 252,972$$

$$= 0.917931629$$

$$\text{Estimated true SitReps} = 822,578 * 0.917931629$$

$$= 755,070$$

Injuries as a proportion of AWISS attendances

$$\text{AWISS Injuries} = 126,557$$

$$\text{AWISS Attendances} = 232,211$$

$$= 0.545008634$$

$$\text{Estimated number of injuries} = 755,070 * 0.545008634$$

$$= 411,520$$

$$\text{Estimated number of injuries} = 411,520$$

$$/ \text{AWISS Injuries} = 126,557$$

$$\text{AWISS – SitReps Injury} = 3.25165631$$

Extrapolation Factor

This extrapolation factor is then used to calculate population based injury rates using the distribution of injuries and causes of injuries found in participating AWISS hospitals. As more departments supply data to AWISS the extrapolation factor will need to be revised until all departments are reporting. This method assumes that injuries to Welsh people treated in England are balanced by injuries to English people treated in Wales.