All Wales Injury Surveillance System (AWISS)

End of Year Report for 2015/16 Financial Year

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Summary

The primary purpose of AWISS is to support efforts to measure and reduce the burden of injury in Wales. Our aim is to continually improve the ability of the system to meet these goals. This involves influencing the development, or redevelopment, of data sets, integrating datasets to give a more complete picture, analysing data, and working with a large number of groups to disseminate results and influence policy and practice.

During 2015/16 AWISS has continued to operate as an integrated injury surveillance system, comprising injury related Emergency Department (ED), inpatient, outpatient, burn treatment, mortality and road traffic accident records. Expert analyses of these datasets provides a valuable resource in satisfying requests for injury intelligence from a range of public health organisations and associated research, and as such operates as an important vehicle in disseminating expertise and supporting service developments.

Some of the major AWISS outputs in 2015/16 so far have been: the production of an AWISS paper for Injury Prevention (http://injuryprevention.bmj.com/content/early/2015/12/09/injprev-2015-041814.full), agreement for the new BRIDGE-Health MDS dataset to be implemented in a new national ED data collection system, development of new methods to populate missing fields in EDDS, implementation of a SAIL linkable School Travel and Child Safety Survey in NPT Council, development of a ICD-10 Trauma Mortality Prediction Model, collaborative analyses with the Welsh Burns Centre, and the development of improved disability weights for the calculation of DALYs as part of the Injury-VIBES project. In addition, AWISS data are increasingly being used as part of NHS or funded research projects and project application bids that make use of the Secure Anonymised Information Linkage (SAIL) databank. AWISS staff assist with the scoping of injury and unscheduled care projects and analyses.

In 2012 AWISS staff (seconded part-time) took over responsibility for collecting and quality appraising all injury records submitted to the EU Injury Database (IDB - http://ec.europa.eu/health/data_collection/databases/idb/index_en.htm) as part of the EU Joint Action on Monitoring Injuries in Europe (JAMIE) project. During 2013 it was agreed at a European injury management meeting that this role would be extended with AWISS staff now being responsible for leading the entire data collection process across Europe. In addition to liaising with each of the participating countries and ensuring their data extracts are delivered on time and contain no erroneous data entries or formats, this new role involves conducting detailed analyses of the European IDB data records. This increased involvement in European injury data collection has improved the skills of AWISS staff in dealing with the injury records collected in Wales, via, for example, an enhanced knowledge of how other countries deal with missing data items and how they work with health colleagues to ensure a timely/reliable submission of injury records in their country. Wales now provides leadership of the Injury Surveillance Platform of EU’s BRIDGE-
Health project that will develop the blueprint of a new European Health Information system.

AWISS staff have also been working with colleagues at Morriston Hospital on an enhanced injury surveillance project with the aim to improve data entry forms and the collection of free text records at the ED, initially funded as part of the JAMIE project. It is hoped this work will make it possible to develop algorithms to populate missing values in categorical fields and ultimately improve the data quality/completeness of the Emergency Department Data Set (EDDS) across Wales.

**Progress Report contents:**

Emergency Department data quality, new minimum level injury surveillance dataset and enhanced injury surveillance project at Morriston……………Page 4

Analyses undertaken for PHW, health boards and local authorities ……Page 6

Injury research collaborations……………………………………………………Page 8

Future plans for AWISS…………………………………………………………Page 17

Financial report……………………………………………………………………….Page 20

Appendix ……………………………………………………………………………….Page 21
Emergency Department Data Set: Improving data quality, new minimum level injury surveillance dataset and enhanced injury surveillance project at Morriston Hospital.

EDDS data quality has continued to improve since April 2009. In April 2009 it was mandatory for all major emergency departments in Wales (24-hour, consultant led) to submit data to EDDS. Between 2009 and 2012 minor units began submitting data in a piecemeal fashion, and since April 2012, all major and minor units have submitted data to EDDS.

Although the number of missing/unspecified values that are submitted has fallen year on year, data incompleteness remains an issue. The two main causes for these issues are:

1. The complexity of current data collection systems in operation in EDs across Wales. The high number of data fields and numerous data items to choose from within each field can make data entry an extremely complicated and time consuming task for reception staff. This inevitably results in certain data fields either being ignored altogether or effectively made void by the entry of ‘unknown’ values.

2. Ineffective cross-mapping from local ED systems into the standardised EDDS format, resulting in high proportions of unspecified fields.

Regarding the first issue, to make the data collection process within EDs more simplistic and less time consuming, thus easing the data entry burden on receptionists and clinicians, and improving the completeness of the data records collected; AWISS staff devised and developed a new injury surveillance dataset as part of the EU funded JAMIE project (now funded by BRIDGE-Health – discussed later). The simplified JAMIE minimum level dataset (MDS) contains only the most useful codes for the most important injury prevention variables. Although this means the dataset will not meet all the needs for detailed information on all permutations of intent/activity/mechanism and location, it will provide high level data to allow enumeration of injuries in the home, home and leisure (combined), during work, and due to road traffic, falls, sports or burns/scalds, and resulting from unintentional injuries, self-harm or assaults (reflecting the main focus of prevention strategies across the world).

At present, despite continued discussions with ED information managers across Wales, the ED screens developed by AWISS staff have yet to be formally introduced. However, these are now included in the specification for a new all-Wales ED software system, due to commence roll-out in autumn 2015. The new ED system will be implemented in NPT in April 2016 and Morriston in May 2016. It will then be further rolled out to all hospitals across Wales during 2016/17. Although it has not been possible to insert the exact original MDS specifications into the new ED system; we are working closely alongside the project leads who are keen to ensure the new ED system meets the requirements of the MDS. This has
involved extensive discussions with Dr Thomas Hughes, ED consultant at Oxford and Royal College of Emergency Medicine lead for the development of the UK Emergency Care Data Sets and with RoSPA. The ECDS will enable the JAMIE MDS to be populated.

Concerning cross-mapping issues in certain ED departments, we are currently in discussions with various Health Boards to see whether we can:

a) Improve the quality of ED data collected by certain EDs
b) Obtain permission for historic ED records to be sent directly to AWISS/SAIL (rather than via hospital IT departments) to see whether improvements can be made to the cross-mapping process. **We are in discussions with Morriston Hospital and are planning to import ED records directly from Morriston Hospital into SAIL via SAIL's split file approach.**

Additionally, we are involved in an enhanced injury surveillance project in collaboration with Morriston Hospital and Clinithink (partially funded by the JAMIE/BRIDGE-Health project). We are attempting to utilise Clinithink's algorithms (which are designed to convert unstructured clinical narrative into rich structured data) to improve the data quality/completeness of EDDS, by extracting information on the how, where and why an injury occurred from the narrative ‘presenting complaint’ field in EDDS. If it is possible to extract accurate and valid information from the presenting complaint field, it will then be possible to populate missing values in categorical fields in EDDS, as well as validate completed categorical fields. **Work is ongoing – an abstract was recently submitted to the Population Data Linkage conference which will be held in Swansea in August 2016.**

We have also explored the potential to link EDDS data to inpatient and outpatient data, to improve our estimates of injury incidence across Wales. Currently inpatient and outpatient data are of much higher quality than the data in EDDS. Thus, we have explored the potential to use inpatient and outpatient data to estimate the proportion of injuries in ED (where data is missing/unspecified) For example, recent analyses demonstrated that whilst 334,007 ED cases (Welsh residents) were recorded as having an injury diagnosis in 2013, a further 171,984 cases had a code suggestive of an injury (attendance due to accidents, assault, self harm, undetermined and intent withheld), but with missing or null diagnostic codes, indicating poor data collection at source or poor mapping of local to national codes. The individual linkage system enabled ED attendances to be mapped to hospital inpatient data, identifying 32,324 emergency admissions on the same or next day, of which 8,509 had a primary injury diagnosis on discharge coding (26.3%). Thus this suggests that in 2013, the ED system may currently be underestimating injuries by an estimated 45,273 cases (13.6% of the total). There seems to be confusion about the completion of the intent field within EDDS, and it appears that in some hospitals attendances due to medical conditions are being mapped to ‘unintentional (accidental) injuries’ due to systems that provide aetiology fields for all attendances and not just injuries.
Analyses undertaken for PHW, health boards and local authorities

We continue to provide analyses of the AWISS extract to a range of public health organisations. In this way AWISS acts as a valuable resource able to satisfy multiple requests for injury information, plus it operates as an important vehicle in disseminating injury knowledge and supporting service developments.

We have commenced the development of an AWISS website, which will provide injury prevention practitioners and policy makers with easy access to AWISS analyses and reports to support informed decision making. We have experienced technical delays and the website is currently in the early stages of development (https://awiss2.wordpress.com/). The final website will appear at the following address and will contain information relating to AWISS projects, AWISS publications and reports, access to injury analyses, and an online service to request data: www.awiss.org.uk. We will also set up a twitter account to notify interested parties about latest injury related findings and developments.

Below are examples of the type of data requests AWISS analysts have provided since the previous Progress Report:

- AWISS staff are currently undertaking analyses for the 3rd edition of the Wales Burden of Injuries (WBOI) report in collaboration with colleagues from Public Health Wales – the 3rd edition is due for release mid-2016. This edition will contain an additional EDDS data quality section, highlighting the key data quality issues effecting certain ED departments.

- AWISS staff will be providing figures towards a Public Health Wales funded ‘Child Injuries Prevention in Wales Needs Assessment’ report, which aims to establish what works in child injury prevention, what resources and service are already in place across Wales, and ultimately inform future commissioning about effective measures, services and practices, and where they are required most. The report will be sent to PHW in March/April 2016

- We are working in collaboration with the Rugby Football Union (RFU) to develop a better understanding of concussion injuries in rugby and their impact on future health and educational attainment. As part of this project, were are also working with Sports Wales, who have agreed to include additional questions in their ‘Sport Wales School Sports Survey’ to enable the results from this survey to be included in the SAIL database. This will enable sports participation data to be linked with concussion attendances and admissions in SAIL.
Swansea University are working in collaboration with Neath Port Talbot Council to develop an online 'School Travel and Child Safety Survey'. This survey was initially developed and piloted as part of the European Eurosafe TACTICS project (http://www.childsafetyeurope.org/tactics/). The survey has subsequently been implemented on NPT’s systems, and will be piloted in schools in April 2016. NPT Council plan to roll the survey out to all schools in NPT at end of 2016 academic year/ start of the 2017 academic year. The survey has been designed to enable the results to be both analysed spatially by the council (e.g. identify areas with high and low active travel rates) and also to be incorporated anonymously into the SAIL database. The implementation of this survey will enable the evaluation of medium and long term effectiveness of child safety/active travel interventions, and it’s incorporation into the SAIL database will allow associations between child behaviour, health and educational outcomes to be explored.

AWISS Staff are currently in discussions with the Mid and West Wales Fire and Rescue Service, to discuss the evaluation of a collaborative project between the FRS, Hywel Dda Health Board, WAST (Welsh Ambulance Service Trust) and Dyfed Powys Police. The project aims to deliver joint home visits to vulnerable individuals, in an attempt to reduce the risk of fire, crime, abuse and the fear of crime as well as to reduce the risk of falls and their consequences. AWISS are currently developing a proposal to support the evaluation of this project. Housing and Health is a PHW priority. PHW and Community Housing Cymry recently signed an MOU on joint working.
Injury research collaborations

Increased knowledge on the causes and consequences of injury are required to inform policy and practice in relation to injury control. Hence, AWISS is designed to support both service developments and injury prevention and control research. In addition to the data requests from public health organisations, the NHS and Welsh Government, AWISS staff also work on more detailed analyses which form part of larger collaborative research projects and which demonstrate Welsh leadership in this field. Research engagement informs the development of the system for both service and academic uses. Scientific outputs involving AWISS staff are listed in the appendix. The following provides a brief overview of research collaborations.

Involvement with projects using the Secure Anonymised Information System (SAIL)

EDDS data are increasingly being used as part of funded research projects and project application bids that make use of the SAIL databank. Current projects utilising AWISS expertise include: NIHR funded evaluations of natural experiments on housing interventions (Carmarthenshire Housing Regeneration Project and the evaluation of the ARBED intervention); Global and European burden of disease studies on injuries and also other conditions e.g. Multiple Sclerosis and Ankylosing Spondylitis; an ESRC funding bid to explore the impact of the school travel environment on child health and education; MPH exploring the secondary prevention of osteoporotic fractures; SidCymru project facilitating a series of case-control studies to support suicide research; CHERISH – ‘Understanding Suicide Clusters through ExploRing Self Harm Behaviours’ project; Evaluation of the Welsh Emergency Medicine Transport and Retrieval Service (EMRTS); Development of an ICD-10 trauma mortality prediction model; and the UK Burden of Falls Project.

Joint Action for Monitoring Injuries in Europe (JAMIE) – recently changed to BRIDGE-Health (BRidging Information and Data Generation for Evidence-based Health Policy and Research)

Over the years the European Commission facilitated joint actions working towards an EU-wide information system on injuries, which resulted in development of the European Injury Data Base (IDB - http://ec.europa.eu/health/data_collection/databases/idb/index_en.htm). In the last three years IDB has continued to develop through the Joint Action on Monitoring Injuries in Europe (JAMIE) program. The Commission has now decided that many of its funded informatics orientated activities should be coordinated in a program of activity called BRIDGE-Health. The Injury Surveillance Platform (ISP) is one of twelve work packages in BRIDGE-Health and is comprised of the network of national IDB-centres (includes partners from 26 countries, of whom 23 are EU Member States and 3 candidate countries), academic and third sector partners. These centres fulfil a core role
in implementing a programme of continuous improvement in injury data gathering within their countries. Data are currently being provided from 22 countries and this is expected to expand to at least 30 countries. Professor Ronan Lyons leads the ISP supported by Samantha Turner and Simon Thompson (Swansea University) and by Wim Rogmans and Rupert Kisser from EuroSafe (http://www.eurosafe.eu.com/).

The Minimum Data Set (MDS) developed as part of JAMIE provides an opportunity to implement a common low cost injury surveillance system for Europe to support policy development and prevention. The MDS will be used by the EU and EuroStat for a number of requirements, including compiling the European Community Health Indicator 29b – incidence of home and leisure injuries.

As part of this project AWISS staff lead the coordination of the IDB data collection and quality appraisal process. A data call is sent out to participating countries annually, and the next call is due in June 2016.

AWISS are currently working towards a paper demonstrating the coverage and application of the MDS dataset. AWISS are also in the process of undertaking a hip fracture analyses (e.g. comparing admitted hip fractures in IDB samples to national hospital discharge statistics) to correct for errors in extrapolations of data samples. Lastly, we are also in the process of developing a publicly accessible analysis tool, which will allow interested parties to identify injury incidence rates, and the burden of injury in specific countries and for Europe as a whole.

This increased involvement in European injury data collection will serve to improve the skills of AWISS staff in dealing with the injury records collected in Wales, via, for example, an enhanced knowledge of how other countries deal with missing data items and how they work with health colleagues to ensure a timely/reliable submission of injury records in their country.

Analysis of EU IDB for the ‘Injuries in the European Union’ report and Clearing House


Together with undertaking analyses of the EU IDB for the ‘Injuries in the European Union’ report, seconded AWISS staff are also responsible for running the IDB Clearing House. This involves responding to detailed information requests made by organisations from all over Europe.
Analysing the EU IDB not only provides AWISS staff with an increased knowledge of the injury burden across Europe, thereby helping to put into context the situation in Wales, but also enhances local data analysis skills and increases opportunities for Welsh participation in international studies.

Below are examples of European IDB data requests AWISS analysts have processed since the previous progress report:

- Product related burn and head injuries in children, requested by Brandenburg University.
- Clothing related burn injuries requested by the European Commission.
- Incidence rates and causes of falls in the elderly, requested by Eurosafe.
- Broad range of analyses, summarising the causes and types of injuries occurring across Europe, to be presented on the Eurosafe website.

**Wales Burden of Injury study (WBOI)**

AWISS staff are currently undertaking analyses for the 3rd edition of the **WBOI report** which is due for release mid 2016.

The WBOI reports helps estimate the extent of the injury burden in Wales and enable costs to the NHS to be computed. The ultimate goal of these reports is to act as a driver for greater injury control focused activity at national, health board and local authority levels.

**Global Burden of Diseases (GBD)**

GBD represents the most influential policy relevant research endeavour globally. It is run from the Institute of Health Metrics and Evaluation at the University of Washington, Seattle and is largely funded by the Bill and Melinda Gates foundation. Its reports are largely published in the Lancet and are used by policy makers to evaluate and target national health policies, including by PHE/DH in England. AWISS expertise is being used to carry out analyses using linked data to supplement knowledge of the incidence of injuries, both for the UK GBD study and also for the global study.
International Collaborative Effort on Injury Statistics and Methods (Injury ICE)

Injury ICE is a global collaborative working on comparability of injury statistics and methods. Its secretariat is supplied by the US National Centre for Health Statistics, a component of the Centres for Disease Control and prevention (CDC). The Steering Committee is drawn from experts across the world, including the World Health Organization. Professor Lyons has chaired the ICE Steering Committee since 2012. ICE has an established work programme using parallel and linked datasets to support the development of methodologies that underpin national and international efforts at injury control.

At a recent ICE meeting, it was agreed AWISS would support the development of a ICD-10 ‘Trauma Mortality Prediction Model’ in collaboration with ICE members Professors Osler (University of Vermont) and Professor Cook (University of Arizona). This work aims to replicate the trauma mortality prediction model which was developed by Osler et al. using ICD 9 data. Currently there are no easy to use, or affordable tools available to measure the severity of injuries using ICD-10 in UK and across the world. If an ICD10 version of the ICD9 based trauma mortality prediction model (TMPM), developed by Osler et al, could be developed it would have considerable functionality within the NHS, including facilitating: evaluation and continuous quality improvement of trauma care; evaluation of the population impact of reorganization of trauma systems; evaluation of preventive strategies, e.g. has the road safety strategy reduced the severity of injuries. This work is currently underway; the datasets have been created and the modelling process has begun.

Evaluation of Emergency Medicine Transport and Retrieval Service (EMRTS) Cymru

AWISS Staff are supporting the evaluation of the Emergency Medicine Transport and Retrieval Service Cymru (EMRTS Cymru). EMRTS has been operational since April 2015 which has seen Anaesthetists and emergency medicine consultants join Welsh Air ambulance missions. EMRTS is designed to provide patients across Wales with rapid access to consultant led and , time critical specialist l care. The following project is designed to evaluate the impact EMRTS has had on survival rates from major trauma injuries across Wales. Currently, data are being assembled from multi-sourced datasets. Data will be anonymised and made available for research and evaluation through the Secure Anonymised Information Linkage (SAIL) facility. Patients will be interviewed six months and one-year post incident for longer-term functional and quality of life outcomes. Geographic Information System (GIS) techniques will be used in time-saved analyses. Cases from both pre-EMRTS, using historical data, and EMRTS-offline (restricted flying at night/bad weather) will be used as comparators in the evaluation.

Evaluation of ARBED Energy Efficiency Intervention
The following study aims to examine whether improving the energy-efficiency of houses in low-income neighbourhoods can improve physical and mental health of its occupants. AWISS staff are supporting the evaluation of the ARBED intervention, by comparing admission and consultation rates for cardio-respiratory conditions, mental health and injuries for the intervention and comparator groups in the same periods before and after the ARBED intervention.

**Suicide Information Database - SidCymru**

EDDS data will support the SidCymru project, which aims to conduct a series of case-control studies to improve information available on people who commit suicide. 2,664 cases of suicide in Wales have been identified between 2003 and 2011, and each will be matched by age and sex to at least five controls. SidCymru is an ongoing cohort.

**Understanding Suicide Clusters tHrough Exploring Self Harm Behviours (CHERISH)**

AWISS staff are supporting the CHERISH project which aims to explore factors and mechanisms that trigger a suicide cluster, cause it to continue and subside. The unique position Wales is in to carry out this research following the cluster in Bridgend and the expertise available means that this is an opportunity to make a significant contribution to furthering our knowledge of how to prevent and manage clusters of suicides.

**Assessing the Implementation of the NICE Public Health Guidelines 29 and 30 (preventing unintentional injuries in children under 15 years)**

Hospital inpatient data at the LA level has been utilised to support a project assessing the extent to which LAs implemented the NICE PH guidelines 29 and 30 (focused on the prevention of unintentional injuries in children in the home). The project will explore whether implementation of the NICE guidance varies between LAs with lower and higher child injury rates and between LAs with different levels of deprivation.

**Carmarthenshire Housing Regeneration and Health Study**

AWISS staff expertise is being utilised as part of the NIHR funded Housing Regeneration and Health project in Carmarthenshire. This project seeks to evaluate the impact of a mixture of different types of housing improvements to 9,254 social homes in Carmarthenshire occurring between 2009 and 2014 on the health of the residents. By using record linkage of individual routine longitudinal data, including ED, hospital admissions and GP consultations, the study will evaluate the health impact of the interventions on the residents compared with the rest of the population and neighbouring areas without such
interventions. AWISS staff are supporting analyses to determine the health service utilisation amongst the study population associated with falls and burns, together with providing advice on the linkage of the longitudinal data. The study team includes involvement of PHW trainees and consultants. http://www.nets.nihr.ac.uk/projects/phr/09300602

Potential for Secondary Prevention of Osteoporotic Fractures (Llion Davies MPH)

AWISS staff are supporting the creation of a population wide anonymised electronic cohort of patients with osteoporotic fractures by linking EDDS data to inpatient data in SAIL. This cohort was further linked to GP data, to assess the overall survival rates and incidence of second fractures in patients who have receive various interventions including: bone fracture risk assessments, and treatment for the secondary prevention of fractures. Llion Davies has completed his MPH dissertation based on this work. Further analysis will be carried out in 2016. An abstract based on this work has been accepted at the Safety 2016 conference.

Identifying Households at Increased Risk of Experiencing an Unintentional House Fire Incident, Death or Injury

Samantha Turner, as a part of a PhD project, is analysing linked data from the Welsh Fire and Rescue Services to establish types of households in Wales which are at increased risk of experiencing an unintentional house fire incident, death or injury. 6943 case households from across Wales have been matched to 347,150 control households (case control ratio 1:50). Conditional Logistic regression will be performed to identify household level factors associated with an increased risk of experiencing a FRS attended unintentional fire. Samantha has also undertaken a systematic review of the risk factors associated with unintentional house fire incidents, injuries and deaths. A report has been provided to PHW summarising the findings, and a scientific paper will be published shortly. An abstract based on this work has been accepted at the Safety 2016 conference.

Development of an Online School Travel and Child Safety Survey (STCSS)

AWISS Staff are working in collaboration with Neath Port Talbot Council to develop an online ‘School Travel and Child Safety Survey’. This survey was initially developed and piloted as part of the European project TACTICS (http://www.childsafetyeurope.org/tactics/) and includes questions relating to school travel, road, home, water and play related safety. The survey has subsequently been implemented on NPT’s Council’s systems, and is currently being piloted in schools in NPT. NPT Council are planning to roll the survey out to all schools in NPT end of this academic year/start of next academic year. The results from the survey can be analysed both spatially by the council (e.g. identify areas with high and low active travel rates) and also be incorporated anonymously into the SAIL database. The results from this
survey will enable the medium and long term effectiveness of child safety/active travel interventions to be evaluated, and the incorporation of the results into the SAIL database will allow associations between child behaviour, health and educational outcomes to be explored. The STCSS has been included in a recent ESRC bid to explore associations between school travel and health/educational attainment.

**X59: Redistribution using linked data and the impact on YLL calculations**

The ICD-10 X59 cause code (unspecified) is prevalent in mortality datasets. The GBD study used proportional redistribution to allocate deaths coded with the X59 code to other causes by age and gender. Redistribution was performed to allow for these deaths to be included in the calculation of years of life lost (YLL). However, the validity of the redistribution method has not been fully validated.

The aim of this project will be to use linked deaths registry, EDDS and hospital admissions data to establish the prevalence of X59 coding of deaths and, the impact on Years of Life Lost (YLL) estimates resulting from different redistribution methods. Three redistribution methods will be explored:

- Age and gender proportional redistribution
- Secondary cause of death (nature)
- Proportional redistribution by nature of injury

The X59 analysis will be based on both Welsh and English data. The Welsh analyses are complete, but we are currently waiting for updated English data to run the analyses on.

**Change in alcohol outlet density and alcohol-related harm to population health project (CHALICE)**

AWISS supported the CHALICE study which explored the impact of a reduction in the availability of alcohol on community alcohol health-related harm and/or consumption in local communities. The multi-disciplinary team from Cardiff and Swansea Universities developed alcohol outlet density models using GIS, which were then linked to hospital admissions, emergency department attendances, Welsh Health Survey (alcohol use) and alcohol related violent crimes. These data were then analysed using sophisticated statistical and GIS models to explore change in outlet density and health and crime outcomes. An interim paper focussed on alcohol outlet data quality was recently published, and the final results will be made publicly available later this year.

**Welsh Burns Centre Analyses**

AWISS staff have provided initial analysis of the Welsh Burns Centre data held in SAIL. This work involved exploring the trends in treated burns between 2003 and 2012. Further work will be carried out in 2016 to explore the impact
of changing the type of dressings used on healthcare utilisation. An updated data extract from the Welsh Burns Centre will be included in SAIL early 2016.

**Injury-VIBES Project**

Swansea University are supporting the Injury-VIBES project ([http://www.injuryvibes.monash.org.au/](http://www.injuryvibes.monash.org.au/)) which aims to use data from the six largest and most comprehensive cohort studies across five countries to evaluate methods for determining the disability associated with injury, address issues specific to injury and identify improved methods for burden estimates. The results will direct how injury burden is measured for by the Global Burden of Disease (GBD) Study, and for individual country or region-specific studies. This research will improve outcome measurement in ways that are critical for enhanced clinical, public health policy and planning settings.

The disability weights generated by the VIBES project will be applied to the European Injury Database to establish the burden of injury in each of the 28 EU countries, including Wales.

**Family Safety And First aid advice for the Early years (FamilySAFE): a multisite randomised controlled trial of a behaviour change intervention to decrease childhood injuries in the under 5s**

AWISS provided figures relating to child injuries in the home, to support the sample size calculations for the FamilySAFE bid, led from Nottingham University and involving south Wales. Unfortunately, NIHR did not fund the study.

**Exploring the utility of enhancing injury surveillance with data from the Critical Care Minimum Data Set (CCMDS)**

CCMDS was incorporated into SAIL in 2015. Angharad Walters has begun exploring the utility of the data set. Analysis of long term survival following discharge from critical care is currently being carried out. The critical care dataset was linked with PEDW inpatients data to determine if the hospital spell was relating to an injury. The Kaplan Meier curves below show survival rates for injuries compared with non-injuries. Cox regression analysis will be carried out to determine the factors that are associated with increased risk of mortality.
Future plans for AWISS

The primary purpose of AWISS is to support efforts to measure and reduce the burden of injury in Wales. Our aim is to continually improve the ability of the system to meet these goals. This involves influencing the development, or redevelopment, of data sets, integrating datasets to give a more complete picture, analysing data, and working with a large number of groups to disseminate results and influence policy and practice.

AWISS will continue to be used as a valuable resource to assist public health organisations and researchers and in injury related information requests. AWISS staff will continue to assisting colleagues that use EDDS and other injury data as part of larger projects, accessed through the SAIL databank. We are particularly interested in the use of data to target and evaluate interventions in Wales, whether part of service interventions or research into new approaches to prevention, treatment or rehabilitation.

It is not usually possible to predict requests for analyses in advance and our work reflects a mixture of unplanned and planned activities. During the first half of 2016/17 we plan the following activities:

1. Continue supporting the implementation of the IDB Minimum Data Set in the new national ECDS data collection system, to improve the quality and completeness of injury data across Wales

2. Continue to support the development of an enhanced injury surveillance project with colleagues at Morriston Hospital. The additional narrative collected in the presenting complaint field will be analysed to assess the extent to which it can be used to populate the missing values in categorical fields. If proved to be useful the project may be rolled out over a longer period, with the overall aim being to develop by the end of 2016 a standard algorithm for imputing missing values.

3. There are also plans to incorporate ambulance service clinical data when a new digital pen electronic patient clinical record data collection
system becomes operational from September 2015. Together with colleagues from the Health and Care Research Wales NCPHWR and PRIME centres we will explore the utility of using dispatch data from Welsh Ambulance Service Trust to support injury surveillance.

4. SAIL has recently acquired access to the CCMDS which will allow AWISS to utilise additional valuable codes on very severe injuries and follow up patients admitted to intensive care units across Wales.

5. We will continue to support the development and uptake of the School Travel and Child Safety Survey (STCSS) in schools across Wales. The STCSS will improve our understanding of children’s exposure to risk, which is pivotal to understanding whether reductions/increases in injury rates are the result of changes to safety (e.g. reduced speed limits), or changes to exposure (e.g. fewer children walking to school).

6. We will continue the development of an AWISS website, which will provide injury prevention practitioners and policy makers with easy access to AWISS analyses and reports to support informed decision making. final website will appear at the following address: www.awiss.org.uk. We will also set up a twitter account to notify interested parties about latest injury related findings and developments.

7. Support in evaluating preventative interventions. We will continue to use AWISS data to support a number of injury prevention projects. As funding for CAPIC has ceased as is also the case for the CHAPPIE child health injury advocacy and training activities undertaken by Children in Wales, the scale of injury prevention activities in Wales has reduced.

We will continue to seek out interventions that may have an effect on injuries and assist with their evaluations. Improved links with data sets held by local authorities, emergency services and the third sector will be helpful. Discussions have also taken place with South Wales Police and local Substance Misuse services. It is hoped that data sharing agreements can be put in place to enable evaluation of substance misuse interventions to be undertaken, including the effects of injury incidence.

Preliminary analyses have also been undertaken on evaluating Care and Repair Cymru interventions and an outline bid for a full evaluation submitted to NIHR.

Discussions are also underway to evaluate a collaborate intervention led by the Mid and West Wales FRS, designed to deliver joint home visits to vulnerable individuals and reduce the risk of fire, crime, abuse and the fear of crime as well as to reduce the risk of falls and their consequences.

Discussions are at an advanced stage to incorporate data from two relevant national audits that contain detailed data on injury diagnoses and severity that are missing from other datasets, the Trauma Audit
and Research Network (TARN), and the Intensive Care National Audit and Research Centre (ICNARC). TARN and ICNARC data will be used in the EMRTS evaluation. These data sets will allow for follow up of critically ill and injured patients who received specialist care at English and Welsh hospitals (a considerable number from mid and north Wales are transferred to English hospitals by EMRTS Cymru).

8. Supporting redevelopment of hospital trauma services. This year AWISS staff provided data on the epidemiology of fatal and non-fatal injuries across Wales from many datasets which were used to inform the development of thinking by health boards around trauma reconfiguration in south Wales. A major meeting of the South Wales Trauma Collaborative was held in May 2015 and it is envisaged that AWISS data will have a role in the evaluation of new configurations as they are rolled out. Professor Lyons invested his 2014 NISCHR Senior Faculty Award with the Wales Centre of Burns and Interburns charity in piloting a telephone follow up service to measure quality of life following burns. The South Wales Trauma Collaborative has agreed to adopt this model.

9. International research. AWISS staff will continue to collect, quality appraise and improve the European IDB data delivered as part of BRIDGE-Health project. Professor Lyons leads the EU Injury Surveillance Platform in BRIDGE-Health. We are currently developing new publicly available IDB analysis tools, to provide policy makers with easy access to the burden of injury in European countries and for Europe as a whole. AWISS data will also be used to support the production of papers on the Global Burden of Diseases project and the UK Burden of Disease subcomponent. This leadership role places Wales at the forefront of injury surveillance internationally, increases opportunities to attract resources from the EU, enhances local skills and hence capacity to support injury prevention and control in Wales. Under the auspices of the journal Injury Prevention, the Director of the US National Centre for Injury Prevention and Control, part of the Centres for Disease Control and Prevention issued a call for papers, Injury Surveillance: Next Generation. A paper from the AWISS team is the only paper to be accepted from Europe.

10. Another area we would like to develop is the adoption of different methods to measuring injury severity. A number of tools have been developed by researchers around the world to measure severity. We plan to assess the utility of adopting a number of these, including ICISS, TMPM, and ICD10 to AIS mapping to create ISS scores and incorporating these injury severity scores into AWISS analyses.
Financial Report

The budget from Public Health Wales to support AWISS from April 2015 to March 2016 amounted to £64,366. The amount has been frozen for a number of years and no longer meets the amount needed to fund the two whole time equivalent staff members funded at inception. During 2015/16 Samantha Turner was seconded part time to work on BRIDGE-Health and her time was replaced by Jane Lyons and Angharad Walters.

It is necessary to use the money flexibly over a number of years to keep staff in employment, and to benefit the Welsh economy by attracting funding from UK and European sources, such as BRIDGE-Health. The following shows the breakdown of expenditure from the grant of £64,366 during 2015/16.

<table>
<thead>
<tr>
<th>2015/2016</th>
<th>Budget</th>
<th>Actual</th>
<th>Balance</th>
</tr>
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<tbody>
<tr>
<td>Staff</td>
<td>64,000</td>
<td>64,119.83</td>
<td>119.83</td>
</tr>
<tr>
<td>Consumables</td>
<td>66</td>
<td>7.18</td>
<td>(58.82)</td>
</tr>
<tr>
<td>Travel</td>
<td>300</td>
<td>0.00</td>
<td>(300)</td>
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<tr>
<td>Total</td>
<td>64,366</td>
<td>64,127.01</td>
<td>238.99</td>
</tr>
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</table>
Appendix: presentations and publications

Presentations

THE ‘SCHOOL TRAVEL AND CHILD SAFETY SURVEY’ PROJECT: LINKING RESULTS FROM A SCHOOL BASED SURVEY TO OTHER ROUTINELY COLLECTED DATA Authors: Samantha Turner, Ronan Lyons, Sarah Rodgers, Richard Fry - THE FARR INSTITUTE INTERNATIONAL CONFERENCE 2015: DATA INTENSIVE HEALTH RESEARCH AND CARE

USING ELECTRONIC ROUTINE LINKED HEALTH RECORDS IN ASSESSING INTERVENTIONS IN EMERGENCY CARE Authors: Helen A Snooks, Sarah A Gaze, Ronan A Lyons, Ian T Russell, Alan J Watkins College of Medicine, Swansea University - THE FARR INSTITUTE INTERNATIONAL CONFERENCE 2015: DATA INTENSIVE HEALTH RESEARCH AND CARE

Measuring patient outcomes and reducing population impact. Lyons R. South Wales Trauma Network.


Calculating the burden of injuries. Lyons R. 10th Meeting of EU-Network of IDB National Data Administrators, Lisbon.

Several abstracts have been submitted and accepted for the World Safety 2016 Conference:

- THE EUROPEAN INJURY DATA BASE: SUPPORTING INJURY RESEARCH AND POLICY ACROSS EUROPE
- RISK FACTORS FOR UNINTENTIONAL HOUSE FIRE INCIDENTS, INJURIES AND DEATHS: A SYSTEMATIC REVIEW
- IMPLEMENTATION OF THE ‘SCHOOL TRAVEL & CHILD SAFETY SURVEY’ FOR DATA LINKAGE RESEARCH
Several abstracts have been submitted to the International Population Data Linkage Conference to be held in Swansea in August 2016:

- Codifying unstructured data: A Natural Language Processing approach to extract rich data from clinical letters
- Identifying Household Level Risk Factors for Unintentional House Fire Incidents, Injuries and Fatalities
- Risk of mortality following discharge from Critical Care
- The use of multi-sourced linked datasets in evaluating the Emergency Medical Retrieval and Transfer Service (EMRTS) CYMRU

Publications in 2015/16


