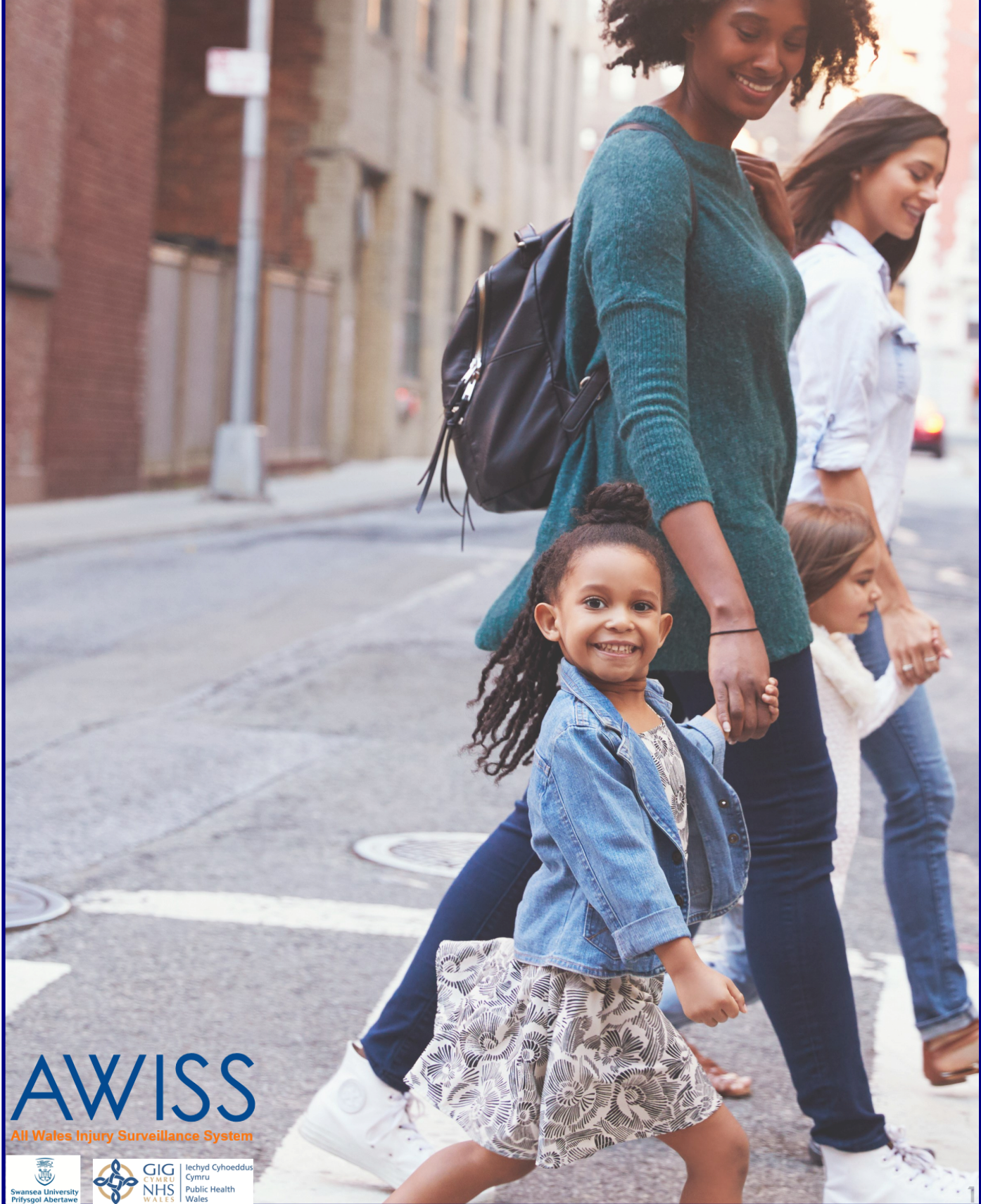


THE ALL WALES INJURY SURVEILLANCE SYSTEM

INJURY INDICATORS FOR WALES REPORT 2020



AWISS
All Wales Injury Surveillance System

 <p>Swansea University Prifysgol Abertawe</p>	 <p>GIG CYMRU NHS WALES</p>	<p>Iechyd Cyhoeddus Cymru Public Health Wales</p>
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ACKNOWLEDGEMENTS

The authors would like to thank Angharad Walters for her support developing the initial indicator algorithms, and everyone who took part in the consultation and reviewed/commented on the report.

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AWISS
All Wales Injury Surveillance System

CONTENTS

Glossary.....	4
Executive Summary	5
1. Introduction	6
2. Summary Findings	8
3. All-Cause Injuries.....	9
4. Home and Leisure Injuries	10
5. Falls in Older Adults	11
6. Road Traffic Injuries.....	12
7. Pedestrian and Cycling Injuries: 0-16 years.....	13
8. Poisoning Related Injuries	14
9. Self-Harm Injuries and Fatalities: 10-24 years.....	15
10. Assaults	16
11. Conclusions and Recommendations.....	17
12. References	18
13. Metadata	20

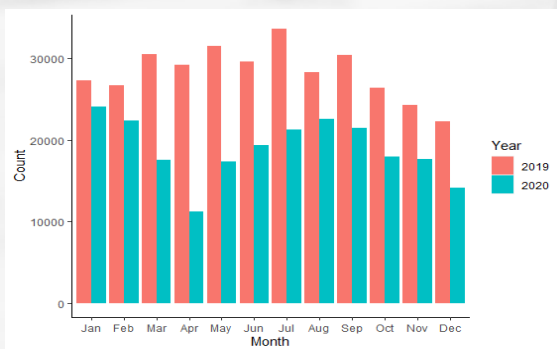
GLOSSARY

AWISS	All Wales Injury Surveillance System
DALY	Disability Adjust Life Years
DHCW	Digital Health and Care Wales
ED	Emergency Department
EDDS	Emergency Department Data Set
HER	Electronic Health Records
GP	General Practice
HB	Health Board
ICD	International Classification of Disease
IP	Inpatient
LSOA	Lower-layer Super Output Area
NHS	National Health Service
ONS	Office for National Statistics
PEDW	Patient Episode Database for Wales
PHW	Public Health Wales
PTHB	Powys Teaching Health Board
RTI	Road Traffic Injury
SAIL	Secure Anonymised Information Linkage
TRE	Trusted Research Environment
WDS	Welsh Demographic Service Dataset
WHO	World Health Organisation
WIMD	Welsh Index of Multiple Deprivation

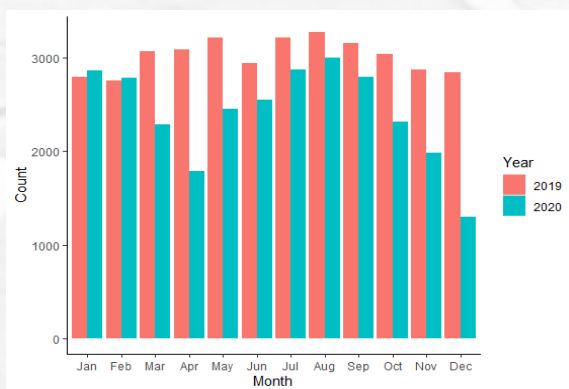
EXECUTIVE SUMMARY

We are pleased to present the AWISS injury indicators for the period 2010-2020. Since the beginning of the pandemic last year, COVID-19 has had a devastating effect on people's lives. Every year in Wales there are, on average, 1,130 injury fatalities, 38,355 injury admissions, and 350,769 injury-related Emergency Department (ED) visits (2010-2020). However, in 2020, there were 596 injury fatalities, 30,442 injury admissions, and 227,077 injury-related ED visits.

Below are graphs representing monthly injury-related ED attendances and hospital admissions for 2019 and 2020. As these show, numbers for 2020 were significantly reduced compared with 2019, especially for April and December.



Monthly injury-related ED attendances, 2019-2020



Monthly injury-related hospital admissions, 2019-2020

The updated figures for 2020's injury indicators must therefore be interpreted with caution, as they may not represent a true reduction in injuries, rather a change in the way that people have engaged with health services during this last year and also in how health services have recorded their data.

The following report presents a summary of the key findings. It is designed to convey the scale of the injury problem in Wales since 2010 and to support groups in targeting and evaluating injury prevention strategies and activities.

To access results on all indicators by year, age, sex, Local Authority (LA), Health Board (HB) and area level deprivation, please visit the interactive indicator tool on the AWISS website (www.awiss.org.uk). Results and graphs are available to download from this website.

AWISS
All Wales Injury Surveillance System



Iechyd Cyhoeddus
Cymru
Public Health
Wales

1. INTRODUCTION

1.1 Overview

AWISS provides data to support policy development and evidence-based decision making to reduce injuries in Wales. Every year in Wales there are, on average, 1130 injury fatalities, 38,355 injury admissions, and 350,769 injury-related Emergency Department (ED) visits (2010-2020). These come at a great cost to the Welsh population and NHS Wales; therefore, it is imperative that we identify the highest risk groups to target interventions effectively.

To achieve this, after consultation, AWISS and Public Health Wales decided on 25 injury indicators to summarise the impact of injuries on Wales. These are quantifiable measures presented here as rates per 100,000 of the population, and are available by year, age, sex, Local Authority (LA), Health Board (HB), and small-area level deprivation. They are updated annually and publicly available via the AWISS website (www.awiss.org.uk) and this report.

The main aim of this report is to provide an overview for each of these indicators. A summary results table is followed by a brief discussion on the key findings. For more details and to download the full results, please visit the online interactive tool available on the AWISS website.

1.2 Injury Indicators for Wales

- 1) All cause injuries – fatalities
- 2) All cause injuries – emergency hospital admissions
- 3) All cause injuries – emergency department attendances
- 4) All cause injuries – Disability adjusted life years

- 5) Home and leisure injuries in all age groups – emergency department attendances
- 6) Home and leisure injuries in all age groups – emergency hospital admissions
- 7) Unintentional injuries in the home in 0-7 year age group – emergency department attendances
- 8) Burns and scalds in 0-4 year age group – emergency hospital admissions
- 9) Falls in 65+ years – emergency hospital admissions
- 10) Road traffic injuries in all age groups – emergency department attendances
- 11) Road traffic injuries in all age groups – emergency hospital admissions
- 12) Road traffic injuries in young adults aged 17-24 years – fatalities
- 13) Road traffic injuries in young adults aged 17-24 years – emergency hospital admissions
- 14) Pedestrian and cycling injuries in 0-16 year age group – emergency hospital admissions
- 15) Poisoning in all age groups – emergency department attendances
- 16) Poisoning in all age groups – emergency hospital admissions
- 17) Poisoning in children and young people aged 0-24 years – emergency department attendances
- 18) Poisoning in children and young people aged 0-24 years – emergency hospital Admissions
- 19) Self-harm in young people aged 10-24 years – fatalities
- 20) Self-harm in young people aged 10-24 years – emergency hospital admissions
- 21) Assault in all age groups – emergency hospital admissions
- 22) Public Health Outcome Framework (PHOF): Hip fractures among older people, analysis lead by Public Health Wales
- 23) PHOF: Injury related deaths, analysis lead by Public Health Wales
- 24) PHOF: Road Traffic injury deaths, analysis lead by Public Health Wales
- 25) PHOF: Suicide, analysis lead by Public Health Wales

Results for the PHOF indicators can be accessed on the PHOF website:

<http://www.publichealthwalesobservatory.wales.nhs.uk/phof>

1. INTRODUCTION

1.3 How does AWISS work?

AWISS is a population-scale, multi-source injury surveillance system, which collects and analyses data on injury risk factors, severity, outcomes and costs. It is funded by Public Health Wales, an NHS organisation that provides professional, independent advice and services to protect and improve the health and wellbeing of the people of Wales.

AWISS is based at Swansea University and uses data available within the Secure Anonymised Information Linkage databank (<http://www.saildatabank.com/>) (SAIL) [1]. SAIL is a trusted research environment (TRE) that allows large-scale health, educational, and social data to be linked anonymously at an individual, household and area level for use in the public good. It is one of the leading data linkage systems worldwide, in terms of its ability to anonymise and link data at multiple levels.



1.4 Data source

We used four population-scale routine electronic health record (EHR) data sources in SAIL to generate the injury indicators: the Welsh Demographic Service Dataset (WDSD) (to obtain population estimates), the Office for National Statistics (ONS) mortality data, the Patient Episode Database for Wales (PEDW), and the Emergency Department Dataset (EDDS).

1.5 Meta-data

Meta-data providing further information about how indicators were calculated can be found in the appendix, pages 20-23.

AWISS
All Wales Injury Surveillance System

2. SUMMARY FINDINGS

Injury Area	Indicator	Overview (trends by age, sex, locality, deprivation and time)
1.All cause injuries	Fatalities	Drop in injury fatalities for 2020. 85+ age group at highest risk.
2.All cause injuries	Emergency hospital admissions: all ages	Decrease in attendances compared to previous years. Peak in males aged 0-4 years, for females aged 15-19. Sharp increase at ages 80+.
3.All cause injuries	ED attendances: all ages	Peaks in the 0-4 age group. Higher % of males aged 0-4 attend ED compared with females (55% vs 45%). Increased risk of injury in children living in the most deprived areas.
4.All cause injuries	Disability Adjusted Life Years (DALYs): all ages	In 2020, DALYs were calculated at 178,302 years.
5.Home and leisure injuries	Emergency hospital admissions: all ages	Peaks at age groups 0-4 and over 75+.
6.Home and leisure injuries	ED attendances: all ages	Highest rate of home and leisure injury ED attendances in the 0-4 and 85+ age groups. Caution advised when interpreting these results due to the poor quality of the data.
7.Unintentional injuries in the home	ED attendances: 0-7	Males more likely to attend ED with an injury than females. The risk increases for areas of higher deprivation.
8.Burns and scalds	Emergency hospital admissions: 0-4	Burns admissions dropped in 2020. Males at greater risk than females.
9.Falls	Emergency hospital admissions: 65+	Admissions dropped in 2020 and women over 1.5 times more likely to fall than men in 2020. Increased risk with increasing levels of deprivation.
10.Road traffic injuries	Fatalities: 17-24	Males at higher risk than females. Numbers have been dropping since 2010 but remained constant since 2019.
11.Road traffic injuries	Emergency hospital admissions: all ages	Peaks at ages 15-29. Males at greatest risk across age groups.
12.Road traffic injuries	Emergency hospital admissions: 17-24 years	Peaks at ages 15-29. Males at greatest risk across age groups. Decreasing over time for both sexes.
13. Road traffic injuries	ED attendances: all ages	Peaks in 15-29 age group. Risk of RTI ED attendances increases with deprivation.
14.Pedestrian and cycling injuries	Emergency hospital admissions: 0-16 years	Downward trend since 2010. Males at higher risk than females.
15.Poisoning	Emergency hospital admissions: all ages	Peaks at 15-19. Females four times as likely to be admitted as males.
16.Poisoning	ED attendances: all ages	Peak at age 15-19. Females in this age group are over four times as likely to attend ED for poisoning as males.
17.Poisoning	Emergency hospital admissions: 0-24 years	Decreasing trend in males since 2010. Rate in females consistently higher.
18.Poisoning	ED attendances: 0-24 years	Females in this age group more likely to attend ED than males. Risk of attendance increases with deprivation.
19. Self-harm	Fatalities: 10-24 years	Dropped by over half in 2020 compared with 2019.
20.Self-harm	Emergency hospital admissions: 10-24 years	Females four times as likely to be admitted to hospital for self-harm than males. Risk increases with deprivation.
21.Assault	Emergency hospital admissions: all ages	Peaks at 35-39 for females, 20-24 for males. Increases with deprivation especially for males in this age group.

3. ALL CAUSE INJURIES

Last year's report found that 1 in every 3 Emergency Department (ED) attendances include either an injury diagnosis code or an injury-related treatment code. Of these injury ED attendances, 12% result in an admission to hospital for further treatment [2]. However, due to incompleteness of diagnosis fields in the EDDS, using only injury diagnosis codes or injury-related treatment codes to define injury attendances is likely to grossly underestimate the true numbers of injuries presenting at EDs across Wales. In an attempt to correct this, a decision was made to add the following codes to this definition: an injury 'Attendance Group' and an injury related 'Mechanism of Injury', or a 'Road Traffic Collision' recorded in the 'Activity at the Time of Injury' field. For more details see 'Amendments to the AWISS Injury Indicators' [3]. However, diagnosis coding completeness improved in 2020 compared with 2019.

These all cause injuries form the first four AWISS injury indicators (see all indicators page 6): fatalities, emergency hospital admissions, ED attendances and Disability Adjusted Life Years (DALYs). DALYs are a measure of overall disease burden expressed as the number of years lost due to ill health, disability, or early death [4]. In 2020, this was 178,302 years.

Injury fatalities dropped by half in 2020 (20 per 100,000) compared to 2019 (40 per 100,000). People aged 85+ were at highest risk during this year for both men and women (354 per 100,000 and 276 per 100,000, respectively).

Emergency hospital admissions dropped in 2020 compared to previous years (1,019 per 100,000 in 2020).

Figure 1 shows the rate of injury-related hospital admissions per 100,000 of the population for this year, by age group and sex. In the younger age groups, males aged 0-4 (1,572 per 100,000) were at highest risk of injury-related admissions; for females, this risk was highest aged 15-19 (1,476 per 100,000). At ages 80-84, there was a sharp increase in injury-related admissions for both sexes and this trend continued for ages 85+. In general, males were at highest risk in the younger age groups and females at highest risk for age groups over 65.

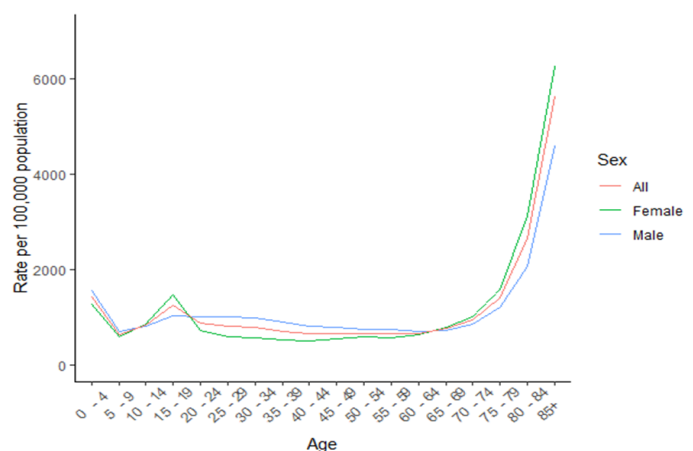


Figure 1 Rate of injury related hospital admissions per 100,000 population by age and sex, 2020

Last year saw a substantial drop in injury-related attendances ; from 11,286 per 100,000 in 2019 to 7,598 per 100,000 in 2020. **Figure 2** presents the rate of injury-related attendances in 2020 by age and sex. The risk of attending ED with an injury in the younger age groups for this year was at its highest for ages 0-4 (13,384 per 100,000). This finding differs from previous years, where the highest attendances have commonly been for the 10-14 age group (10,773 per 100,000 in 2020). More males in the 0-4 age group (14,814 per 100,000) than females (11,892 per 100,000) attended ED with an injury during this year.

3. ALL CAUSE INJURIES

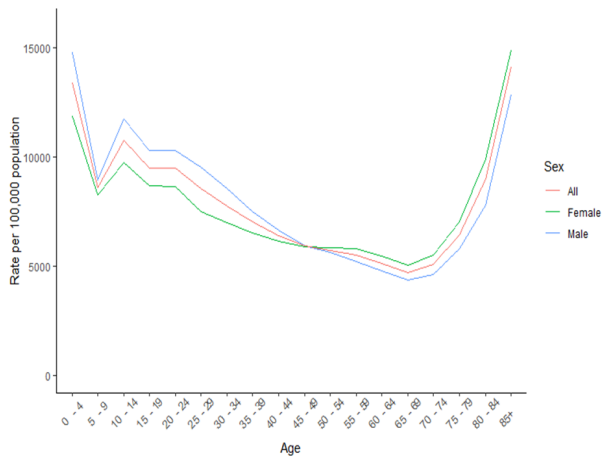


Figure 2 Rate of injury-related ED attendances per 100,000 population by age and sex, 2020

Injury-related attendances in 0-4 year olds increased with deprivation (Figure 3). In 2020, there were 19% more attendances by those living in the most deprived areas compared with those living in the least deprived areas (14,188 vs 11,904 per 100,000 population). This pattern persists across all age groups.

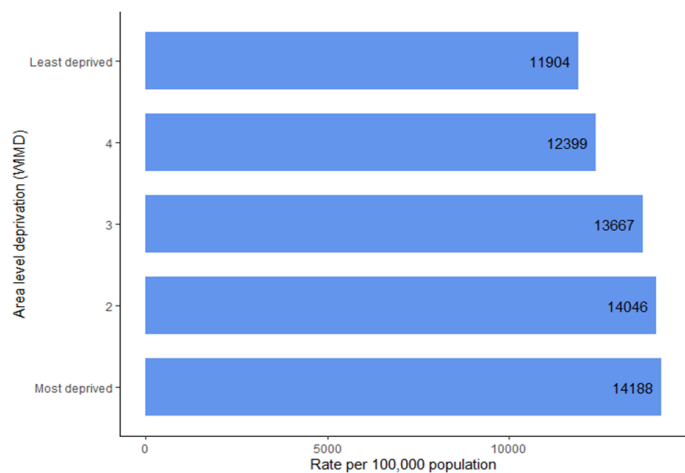


Figure 3 Rate of injury related ED attendance per 100,000 population by area level deprivation (WIMD) in the 0-4 age group, 2020

4. HOME AND LEISURE INJURIES

AWISS Indicators (5-7) refer to injuries occurring in the home and at leisure. People aged 0-4 and 85+ were at highest risk of ED attendances of these injuries in 2020.

Location and activity information at the time of injury is not well captured, especially for ED data. Due to this, ED home and leisure indicators (5 & 7) are calculated using two methods: the first providing a likely under-estimate of the true scale, and the second an over-estimate. ED attendance rates for these injuries were 2,084 and 7,157 per 100,000 (methods 1 & 2, respectively).

Without improvements in data capture and enhanced mapping of local hospital codes to national standardised datasets, it impossible to know the true number and impact of home and leisure injuries across Wales.



5. FALLS IN OLDER ADULTS

Our 9th Indicator measures falls related-admissions in the 65+ age group. In the UK, around 1 in 3 adults over 65 years old will experience at least one fall a year and this can lead to serious injury, even death—falls are the most common cause of death in this age group [6]. Interventions such as home assessment and modification have been found to be effective in reducing these falls, and the National Institute for Health and Care Excellence (NICE) have recommended that all older people living in the community at an increased risk of falls should be considered for these interventions [7].

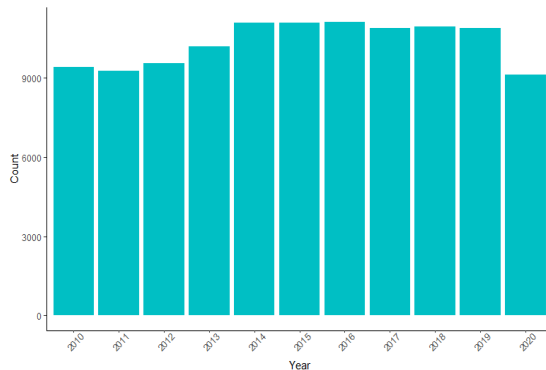


Figure 4 Number of falls in the 65+ age group per year, 2010-2020

We found that, on average, there are nearly 30 falls-related admissions per day (2010-2020). In 2020, of the 11,434 emergency admissions for the 65+ age group, 9130 were for falls and females were over 1.5 times more likely to fall than males. This dropped by almost a sixth compared to 2019 (**Figure 4**).

6. ROAD TRAFFIC INJURIES

Indicators 10-13 focus on road traffic injuries (RTIs). These are a leading cause of non-fatal injury and death in children and young people worldwide [8]. Two of these indicators refer to ED attendances and admissions across all age groups (a European Core Health Indicator) and the remaining two refer to RTI-related admissions and fatal injuries in young people (17-24 years).

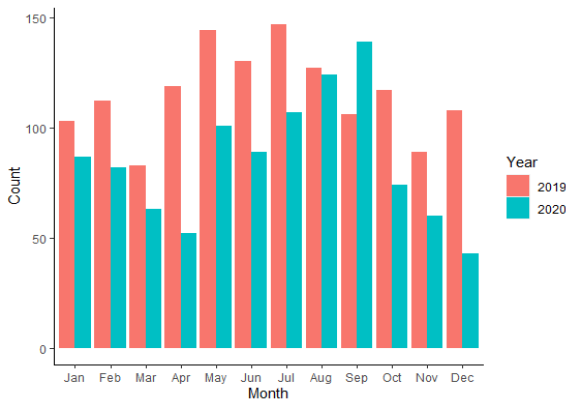


Figure 6 Number of RTI-related hospital admissions per month, 2019-2020

Overall, RTI-related injury admissions have been falling since 2014. In 2020, there were 34 per 100,000 of these admission types in total. Initiatives to improve road safety in Wales, such as speed cameras and community based road safety interventions, are likely to have contributed to this reduction [9]. **Figure 5** shows how the number of monthly RTI-related hospital admissions have varied in 2020 compared with 2019.

Figure 6 gives the rate of RTI-related hospital admissions per 100,000 of the population in 2020 by age group and sex. Similarly to previous years, the highest rates for ages 15 and 29 years. Males are more likely to be admitted to hospital than females across all age groups.

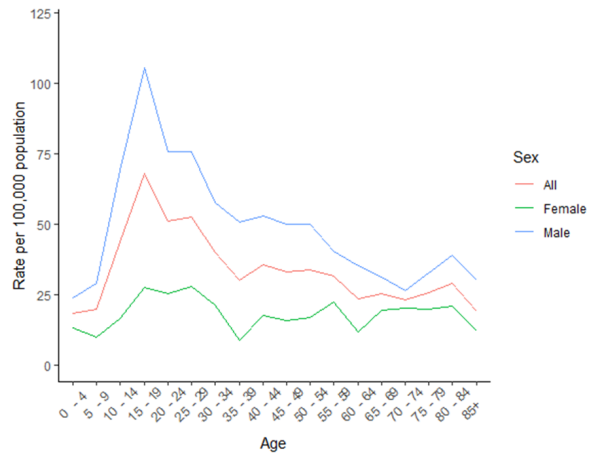


Figure 6 Rate of RTI-related hospital admissions per 100,000 population by age and sex, 2020

Figure 7 gives the admission rates for RTI-related injuries in 17-24 year olds (2010-2020). Rates of these admissions in this group have decreased during this period for both sexes: by 47% in males and 48% in females.

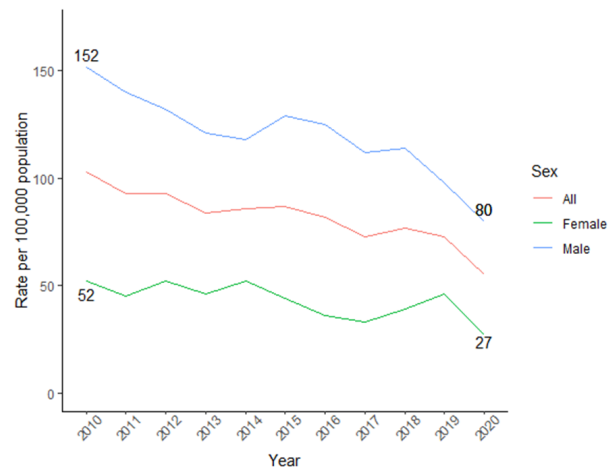


Figure 7 RTI related admissions for 17-24 year olds per 100,000 population, 2010-2020



7. PEDESTRIAN AND CYCLING INJURIES: 0-16 YEARS

The 14th AWISS indicator measures pedestrian and cycling related admissions in 0-16 year olds. In 2020, there were 328 of these admissions in total, which equates to 60 per 100,000 of the population. In general, admission rates have followed a decreasing trend since 2011 (**Figure 8**).

AWISS do not have access to exposure data e.g. information on how much children walk and cycle. Without this data, and the ability to calculate exposure based rates, it is difficult to know whether increases/reductions in cycling and pedestrian admission rates are due to changes in safety or changes in exposure. The slight increase in recent years, associated with initiatives designed to increase active travel e.g. the Active Travel Act, 2014, would be expected. Changes from 2019 to 2020 are relatively small. Further work is required on determining how much the COVID-19 pandemic starting in March 2020 in Wales changed walking and cycling exposures across the age spectrum.

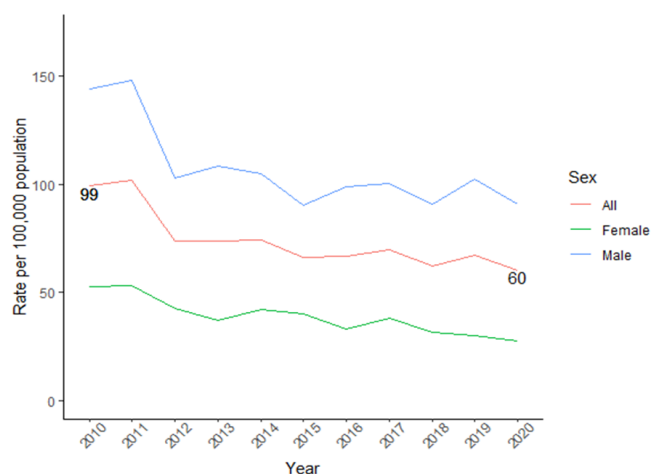


Figure 8 Rate of pedestrian and cycling related hospital admissions in 0-16 years per 100,000 population, 2010-2020



Individualised/small-group training focussing on dash-out prevention, crossing at parked cars, and selecting safe routes, appears to be effective at improving children's pedestrian safety [10]. Community based pedestrian safety interventions are effective at reducing child pedestrian injuries, with "the degree of success being cumulative depending on the complexity of individual strategies employed" [11]. Whilst bicycle education and skills training may increase knowledge of cycling safety; this effect does not appear to translate into a reduction in cycling injuries. Experts still recommend that cycle training is offered to children, based on the improvements to knowledge and riding skills [12].

Although it was recommended by a European child safety policy document to place 20mph zones around every primary school [13], the Road Safety Framework for Wales highlighted that the majority of child pedestrian collisions take place away from schools [9].

8. POISONING RELATED INJURIES

AWISS Indicators 15-18 focus on poisoning related ED attendances and hospital admissions in all age groups, as well as in the 0-24 years specifically.

Figure 8 presents the rate of poisoning related admissions across Wales per 100,000 population in 2020 by age and sex. From this, we can see that unintentional poisonings are common in 0-4 year olds (189 per 100,000 admissions in 2020). Young children are particularly susceptible to poisoning incidents, due to their inquisitive nature and lack of awareness about the consequences of ingesting substances [14].

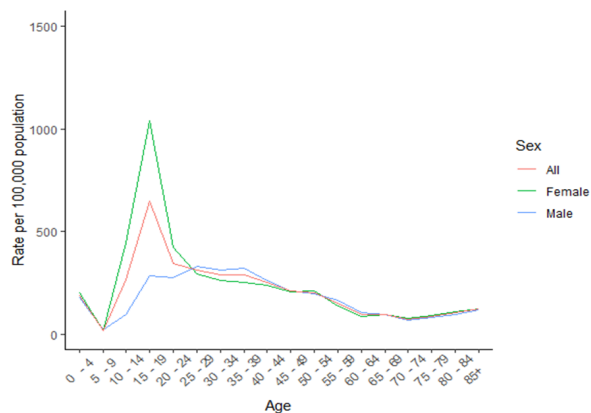


Figure 8 Rate of poisoning-related admissions per 100,000 population by age and sex, 2020

Figure 9 compares the number of monthly emergency department poisoning-related attendances in the 0-4 year old age group in 2019 and 2020. At the beginning of the pandemic in April and May 2020, numbers were increased slightly compared with 2019, possibly due to children spending more time at home. After that, numbers dropped compared with 2019 quite significantly.



Figure 9 Number of poisoning-related attendances per month in 0-4 year olds., 2019-2020

The European Injury Data Base (EU-IDB [15]), a standardised injury data system collecting data on injuries across Europe, indicates that the most common poisoning agents in this age group are: cleaning agents, paracetamol, ibuprofen, antidepressants, nail polish, fuel and alcohol/cigarettes.

Figure 10 presents poisoning related admissions in 0-24 year olds by sex (2010-2020). There has been a decreasing trend for these admissions in males since 2010. Poisoning admissions for females have remained constant and are consistently higher than for males during this period. In addition, there are more admissions of this type for people living in the more deprived areas.

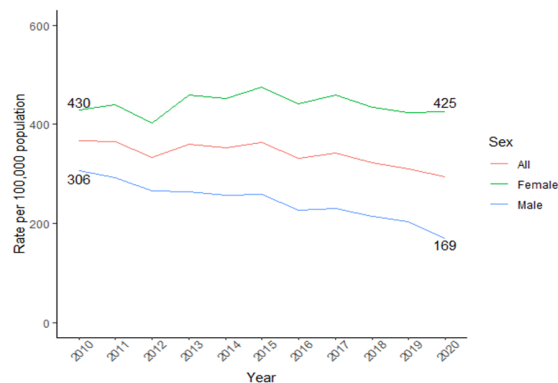


Figure 10 Poisoning related admissions in 0-24 year olds by sex, 2010-2020

9. SELF-HARM INJURIES & FATALITIES: 10-24 YEARS

Indicators 19 and 20 focus on self harm related hospital admissions and fatalities in children and young adults aged 10-24 years. Self-harm is usually defined as intentional self-poisoning or self-injury. This covers a wide range of behaviours, including isolated and repeated events: self-cutting, poisoning, scratching, burning, banging, hitting, hair pulling and interfering with wound healing [16].

In 2020, there was a total of 1,939 self harm related hospital admissions. This corresponds with a rate of 387 per 100,000 of the population. **Figure 11** shows the rate of self harm related admissions by sex for 2010 -2020. The difference in rates between sexes has been increasing year on year—culminating in a rate three times higher for females than males in 2020.

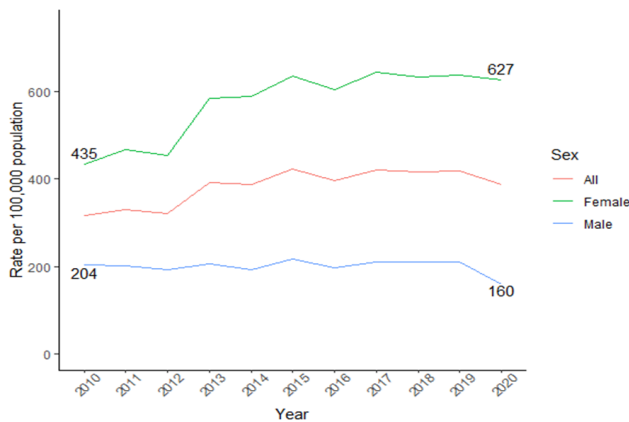


Figure 11 Self harm related hospital admissions in 10-24 year olds by sex, 2010-2020

Figure 12 compares the number of monthly self harm related hospital admissions between 2019 and 2020. From March onwards, admissions in 2020 were consistently lower than in 2019.

NICE guidelines recommend that all under 16 year olds presenting with self-harm should be admitted for psychosocial assessment [16]. Some of the observed increase in self-harm related admissions may, therefore, be linked to improved health care management.

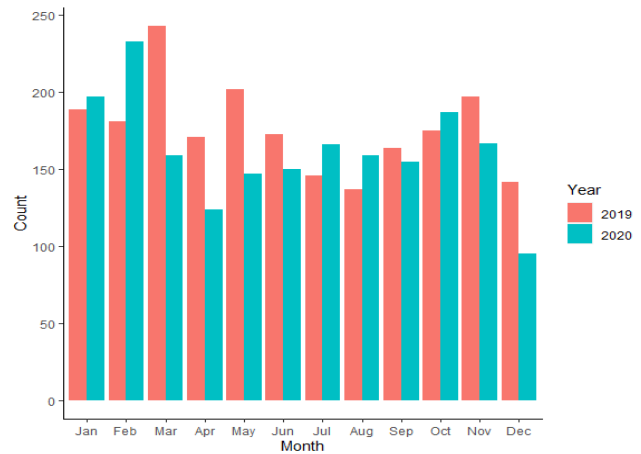


Figure 12 Number of self harm admissions per month, 2019-2020

There is also a marked disparity in admissions between different levels of deprivation. **Figure 13** shows the percentage of admissions for each year that are in either the most deprived (quintile 1) and the least deprived (quintile 5). In 2020, admission rates from the most deprived areas (462 per 100,000) were almost twice as high compared with the least deprived areas (246 per 100,000). This pattern has persisted since 2010, although the gap between areas of least and most deprivation seems to be closing.

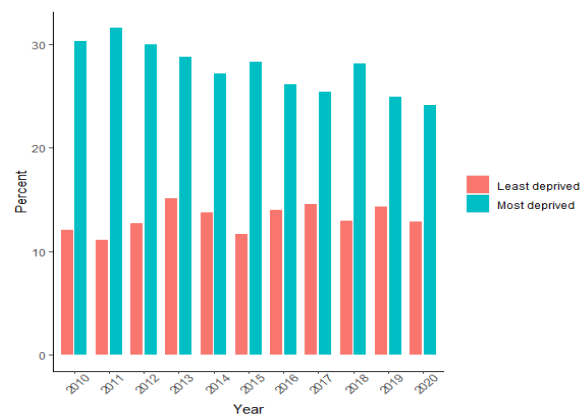


Figure 13 Percentage self harm related admissions in the least and most deprived areas, 2010-2020.

10. ASSAULT

Our final indicator focuses on assault related admissions across all age groups. In 2020, there were 572 admissions of this type (19 per 100,000). This rate has dropped 58% since 2010. For 2020, the highest rates for females were in the 35-39 age group (15 per 100,000); for males, this was for 20-24 year olds (106 per 100,000) (see **Figure 14**). Males in this age group from more deprived areas are nearly twice as likely to be admitted for assault-related injuries than those from least deprived areas (104 per 100,000 vs 59.74 per 100,000). This trend is consistent across all age groups.

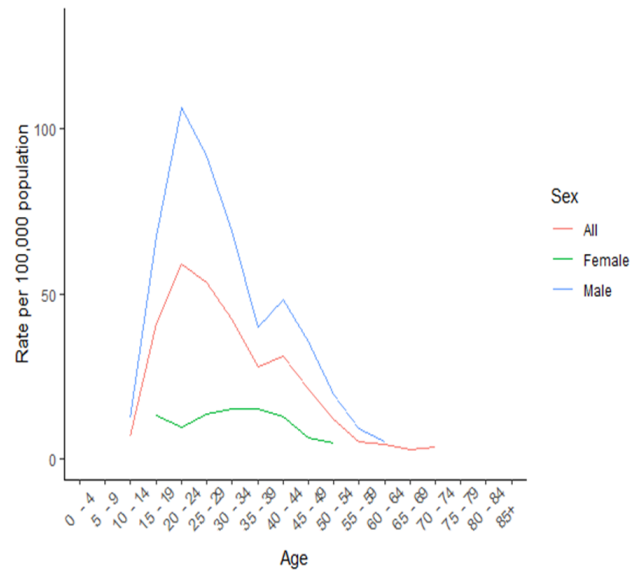


Figure 12 Rate of assault related hospital admissions per 100,000 population by age and sex, 2020

11. CONCLUSIONS AND RECOMMENDATIONS

Every year in Wales there are, on average, 1,130 injury fatalities, 38,355 injury admissions, and 350,769 injury-related Emergency Department (ED) visits (2010-2020). These injuries and deaths come at a great cost to the Welsh population and NHS Wales.

All injury-related fatalities, admissions, and ED attendances fell in 2020. This is consistent across all indicators overall. However, poisonings and self harm admissions remained constant for females, and this is concerning. There still remains an inequity for injuries with regard to the more deprived areas in Wales, particularly for poisonings, self harm and assault.

The true effect of COVID-19 will not be evident for many years. However, we do know that the pandemic has had an effect on how people engage with health services. ED attendances have dropped due, at least in part, to people's fear of contracting the virus. Hospitals have avoided admissions where possible for the same reason, and also due to the overwhelming burden the virus had had on staff. Caution must be taken, therefore, when interpreting this drop in injuries; there may well have been a true reduction, but this could represent a change in the way we have used health services and their operation during 2020.

The four data sources used to generate our Injury Indicator estimates were: the Welsh Demographic Service Dataset (WSDS); the ONS mortality data which is complete and accurate but can be behind in the case of pending coroner inquest outcomes; hospital inpatient data set (PEDW) which is generally well coded but subject to variation in admission thresholds between hospitals;

and ED data from the EDDS which suffers from poor data quality and completeness. As such, the majority of estimates presented in this report are likely to be underestimates of the true scale of injuries across Wales.

High quality data on injuries is key to making the right decisions in Wales. Poor data can lead to poor decisions, and so data quality plays a crucial role in the reduction of injuries across Wales. As such, the improvement of injury aetiology data in Wales should be made a priority.

Recommendations:

- More research is needed to investigate further into how the COVID-19 pandemic has affected injuries, how people have engaged with health services.
- More attention should be paid to the capture of injury aetiology in EDs .
- The Emergency Department Data Set (EDDS) should be updated to reflect the new College of Emergency Department dataset which contains more detailed information on types of injury and other categories of disease.
- A government-led ED data quality initiative would be welcomed to set standards around ED data collected in hospitals throughout Wales.
- Wales should continue to engage with the International Collaborative Effort on Injury Statistics and the Injury VIBES consortia to standardise the measurement of the burden of injury and facilitate international comparisons.

12. REFERENCES

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13. METADATA

META DATA FOR INJURY FATALITY FIGURES

DATA SOURCE: The [Office for National Statistics \(ONS\) mortality data](#) were analysed in the All Wales Information Surveillance System (AWISS), within the [Secure Anonymised Information Linkage \(SAIL\) Databank](#).

INCLUSION CRITERIA:

- Only individuals, living in Wales, with a valid **Anonymised Information Linkage** Field ([ALF PE](#)) in the [SAIL Databank](#) were included. ALF_PEs are a double encrypted version of an individual's NHS number.
- Valid '**registration of death**' between **01/01/2010 – 31/12/2020**
- Only **Welsh residents** (inclusion in the [Welsh Demographic Service Dataset\(WDSD\)](#))
- Valid **sex** code (1=Male, 2=Female)
- **Age <= 110**
- **ICD10 codes** recorded in the '**underlying cause of death**' field in the ONS mortality dataset used to establish injury deaths. Injury ICD10 codes: S%-%, T00-T65, T704, T708, T709, T71, T750, T751, T754, T794, T795, T796, T797, T798, T799, V, W00-W41, W44-W77, W79-W99, X00-X29, X32-X49, X59-X99, Y00-Y05, Y08-Y32, Y35-Y36, F100, F110, F120, F130, F140, F150, F160, F170, F180, F190.

INDICATOR CRITERIA:

Injury categories: Road Traffic Injuries: V01-V06 (fourth character 1, 9), V09 (fourth character 2, 3, 9), V10-V18 (fourth character 4, 5, 9), V19 (fourth character 4, 5, 6, 8, 9), V20-V28 (fourth character 4, 5, 9), V29 (fourth character 4, 5, 6, 8, 9), V30-V38 (fourth character 5, 6, 7, 9), V39 (fourth character 4, 5, 6, 8, 9), V40-V48 (fourth character 5, 6, 7, 9), V49 (fourth character 4, 5, 6, 8, 9), V50-V58 (fourth character 5, 6, 7, 9), V59 (fourth character 4, 5, 6, 8, 9), V60-V68 (fourth character 5, 6, 7, 9), V69 (fourth character 4, 5, 6, 8, 9), V70-V78 (fourth character 5, 6, 7, 9), V79 (fourth character 4, 5, 6, 8, 9), V82 (fourth character 1, 2, 3, 6, 7, 8, 9), V83 (fourth character 0, 1, 2, 3), V84 (fourth character 0, 1, 2, 3), V85 (fourth character 0, 1, 2, 3), V86 (fourth character 0, 1, 2, 3), V87 (fourth character 0, 1, 2, 3, 4, 5, 6, 7, 8, 9), V89 (fourth character 2, 3, 9). **Intentional self-harm:** X60-X84

Age group categories: 0-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+.

Age groups for road traffic fatalities: 17-24 years.

Age groups for self-harm related fatalities: 10-24 years

Area Level Deprivation: based on [Lower-layer Super Output Area\(LSOA\)](#) of individual's address, and 2011 [Welsh Index of Multiple Deprivation \(WIMD\)](#) fifths: 1=Most deprived, 2, 3, 4, 5=Least deprived.

Local Authority and Health Board: based on LSOA code of the patients' address.

POPULATION DATA SOURCE:

[Welsh Demographic Service Dataset \(WDSD\)](#)

The Welsh population was estimated using the WDSD and a reference date of 1st July every year between 2010 and 2017. The WDSD maintains a register of all Welsh residents'. Age was assigned based on the July reference date, and only includes those individuals recorded as having an age<=110. Only those individuals with a valid sex code in the WDSD were included in our population estimates.

DATA PRESENTATION

- Injury fatality rates presented as **rate per 100,000 population**
- WHERE COUNTS WERE <5 FOR A GIVEN INDICATOR, RATES ARE PRESENTED AS NULL TO ADDRESS DISCLOSURE RISKS.

13. METADATA

META DATA FOR HOSPITAL ADMISSIONS

DATA SOURCE: [Patient Episode Database for Wales](#) (PEDW) analysed in the All Wales Information Surveillance System (AWISS) within the [Secure Anonymised Information Linkage \(SAIL\) Databank](#). The PEDW dataset contains all inpatient and day case activity undertaken in NHS Wales plus data on Welsh residents treated in English Trusts

INCLUSION CRITERIA:

- Only individuals, living in Wales, with a valid **Anonymised Information Linkage** Field ([ALF PE](#)) in the [SAIL Databank](#) were included. ALF_PE's are a double encrypted version of an individuals NHS number.
- Valid admission date between **01/01/2010 – 31/12/2020**
- Only **Welsh residents** (inclusion in the [WDS](#))
- Valid **sex** code (1=Male, 2=Female)
- **Age <=110**
- Only patients with the following admission method codes: **21**-A&E or dental casualty department of the health care provider; **22**- GP, after a request for immediate admission has been made direct to a hospital provider by a General Practitioner or deputy; **23**-Bed Bureau; **24**-Consultant clinic of this or another health care provider; **25**-Domiciliary visit by Consultant; **27**-Via NHS Direct Services; **28**-Other means, including admitted from the ED department of another provider where they had not been admitted; **29**-Emergency transfer.
- Only cases where the 1st episode, in the 1st admission within a person super spell, contains the following ICD10 codes: S00-S99, T00-T65, T704, T708, T709, T71, T750, T751, T754, T794, T795, T796, T797, T798, T799, F100, F110, F120, F130, F140, F150, F160, F170, F180, F190
- Specifically we followed the **R/Z rule**. A physical injury ICD10 code was required to either be in primary position in the first episode, or, if not in primary position, then only an R/Z ICD10 code, NULL values, or an external cause code V01 - Y36 could precede the injury code.

INDICATOR CRITERIA:

Injury categories: FALLS: W00-W15, W17-W19. **ROAD TRAFFIC INJURIES:** V01-V06 (fourth character 1, 9), V09 (fourth character 2, 3, 9), V10-V18 (fourth character 4, 5, 9), V19 (fourth character 4, 5, 6, 8, 9), V20-V28 (fourth character 4, 5, 9), V29 (fourth character 4, 5, 6, 8, 9), V30-V38 (fourth character 5, 6, 7, 9), V39 (fourth character 4, 5, 6, 8, 9), V40-V48 (fourth character 5, 6, 7, 9), V49 (fourth character 4, 5, 6, 8, 9), V50-V58 (fourth character 5, 6, 7, 9), V59 (fourth character 4, 5, 6, 8, 9), V60-V68 (fourth character 5, 6, 7, 9), V69 (fourth character 4, 5, 6, 8, 9), V70-V78 (fourth character 5, 6, 7, 9), V79 (fourth character 4, 5, 6, 8, 9), V82 (fourth character 1, 2, 3, 6, 7, 8, 9), V83 (fourth character 0, 1, 2, 3), V84 (fourth character 0, 1, 2, 3), V85 (fourth character 0, 1, 2, 3), V86 (fourth character 0, 1, 2, 3), V87 (fourth character 0, 1, 2, 3, 4, 5, 6, 7, 8, 9) V89 (fourth character 2, 3, 9). **PEDESTRIAN and CYCLIST:** V01 – V19. **BURNS:** T20-T32. **SELF HARM:** X60 – X84. **ASSAULT:** X85- Y05, Y08-Y09. **HOME AND LEISURE:** All injuries minus V01 – V99, X60 – X84, X85- Y05, Y08-Y09. **POISONING:** F100, F110, F120, F130, F140, F150, F160, F170, F180, F190, T36-T65.

Age group categories: 0-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+. **Falls:** 65+ years. **Road traffic injury:** 17-24 years. **Pedestrian and Cyclist:** 0 – 16 years. **Burns:** 0-4 years. **Self Harm:** 10-24 years. **Poisoning:** 0 – 24 years.

Area Level Deprivation: based on [Lower-layer Super Output Area](#)(LSOA) of individuals address, and 2011 [Welsh Index of Multiple Deprivation \(WIMD\)](#) fifths: 1=Most deprived, 2, 3, 4, 5=Least deprived.

Local Authority and Health Board: based on LSOA code of the patients' address.

13. METADATA

POPULATION DATA SOURCE: [WDS](#)

The Welsh population was estimated using the WDS and a reference date of 1st July every year between 2010 and 2020. The WDS maintains a register of all Welsh residents'. Age was assigned based on the July reference date, and only includes those individuals recorded as having an age<=110. Only those individuals with a valid sex code in the WDS were included in our population estimates.

DATA PRESENTATION

- Hospital admission rates presented as **rate per 100,000 population**. Population figures obtained from WDS.
- WHERE COUNTS WERE <5 FOR A GIVEN INDICATOR, RATES ARE PRESENTED AS NULL TO ADDRESS DISCLOSURE RISKS.

META DATA FOR EMERGENCY DEPARTMENT ATTENDANCES

DATA SOURCE: Data in the [Emergency Department Data Set](#) (EDDS) were analysed in the All Wales Information Surveillance System (AWISS), within the [Secure Anonymised Information Linkage \(SAIL\) Databank](#). The Emergency Department Data Set for Wales (EDDS) captures all activity at Accident and Emergency (A&E) departments and Minor Injury Units (MIU) in NHS Wales hospitals.

INCLUSION CRITERIA:

- Only individuals, living in Wales, with a valid **Anonymised Information Linkage** Field ([ALF PE](#)) in the [SAIL Databank](#) were included. ALF_PE's are a double encrypted version of an individuals NHS number.
- Valid attendance date between **01/01/2010 – 31/12/2020**
- Only **Welsh residents** (inclusion in the [WDS](#))
- Valid **sex** code (1=Male, 2=Female)
- **Age <= 110**
- Only new attendances included (e.g. follow-up attendances excluded)
- **Either**, an injury diagnosis code present in diagnosis positions 1-6 (EDDS codes or ICD10 codes as defined below) or treatment codes in positions 1-6 as defined below.

Diagnosis codes in positions 1-6:

01A – LACERATION

01B - CONTUSION

01C - ABRASION

01D - SOFT TISSUE INFLAMMATION

01Z - WOUND, OTHER OR UNSPECIFIED

02A - GLASGOW COMA SCORE 15

02B - GLASGOW COMA SCORE<15

02C - DENTAL INJURY

02Z - HEAD INJURY, OTHER OR UNSPECIFIED

03A - OPEN FRACTURE

03B - CLOSED FRACTURE

03C - FRACTURE DISLOCATION

03Z - FRACTURE, OTHER OR UNSPECIFIED

04A - SPRAIN

04B - DISLOCATION

04C - SUBLUXATION

13. METADATA

04Z - JOINT INJURY, OTHER OR UNSPECIFIED
05Z - AMPUTATION, OTHER OR UNSPECIFIED
06A - MUSCLE INJURY
06B - TENDON INJURY
06C - NERVE INJURY
06D - VISCERAL INJURY
06E - VASCULAR INJURY
06Z - SOFT TISSUE INJURY, OTHER OR UNSPECIFIED
07A - ELECTRIC
07B - CHEMICAL
07C - RADIATION
07D - SCALD
07E - SUNBURN
07H - FROSTBITE
07Z - BURNS, SCALDS AND THERMAL CONDITIONS, OTHER OR UNSPECIFIED
08A - INGESTED FOREIGN BODY
08Z - FOREIGN BODY, OTHER OR UNSPECIFIED
09A - NEEDLE STICK INJURY
09B - HUMAN BITE
09C - ANIMAL BITE
09D - INSECT BITE OR STING
09Z - PUNCTURE WOUNDS, OTHER OR UNSPECIFIED
10A - ALCOHOL
10B - PRESCRIBED DRUG
10C - NON-PRESCRIBED/PURCHASED DRUG
10D - ILLICIT DRUG
10Z - POISONING OR OVERDOSE, OTHER OR UNSPECIFIED
11A - NEAR DROWNING
11Z - DROWNING, OTHER OR UNSPECIFIED
OR ICD10 codes: S00-S99, T00-T65, and T71, X49

Treatment codes in positions 1-6:

03Z - WOUND CLOSURE
04Z - REMOVAL FOREIGN BODY
06Z - MANIPULATION

Attendance category:

1 - NEW ATTENDANCE
01 - NEW ATTENDANCE

Or, an injury 'Attendance Group' (11-15) and an injury related 'Mechanism of Injury' (1-12),

Or, a 'Road Traffic Collision' recorded in the Activity at the Time of Injury' field.

13. METADATA

INDICATOR CRITERIA

- Injury categories

Poisonings: ICD10 codes T36-T65, X40-X49, Y10-Y19, X20-X29, X60-X69, X85-X90, EDDS codes 10A, 10B, 10C, 10D, 10Z or Mechanism of Injury = 1.

Unintentional injuries in the home method 1: Attend group = 11 (accidental injuries) and location of injury in own home, others home or residential institution

Unintentional injuries in the home method 2: Attend group = 11 (accidental injuries) and activity at time of injury was not during work (1, 01), education (2, 02), sports (including during education) (3, 03) or road traffic collision (6, 06)

Home and leisure method 1: Activity at time of injury = 3, 03, 4, 04, 5, 05, 7, 07 (sport, leisure or play, home, DIY, gardening activities, being taking care of)

Home and Leisure method 2: Attend group not equal to 12 (assault), attend group not equal to 13 (self-harm) and injury was not a road traffic collision (activity at time of injury was not equal to 6, 06)

Road traffic injuries: Activity at time of injury =6 or 06 (road traffic collision)

Age group categories: 0-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85+. Unintentional injuries in the home: 0 – 7. Poisoning: 0-24 years.

Area Level Deprivation: based on [Lower-layer Super Output Area \(LSOA\)](#) of individuals address, and 2011 [Welsh Index of Multiple Deprivation \(WIMD\)](#) fifths: 1=Most deprived, 2, 3, 4, 5=Least deprived.

Local Authority and Health Board: based on LSOA code of the patients' address

POPULATION DATA SOURCE: [WDS](#)

The Welsh population was estimated using the WDS and a reference date of 1st July every year between 2010 and 2020. The WDS maintains a register of all Welsh residents'. Age was assigned based on the July reference date, and only includes those individuals recorded as having an age <=110. Only those individuals with a valid sex code in the WDS were included in our population estimates.

DATA PRESENTATION

Emergency department attendance rates presented as **rate per 100,000 population**. Population figures obtained from WDS.

WHERE COUNTS WERE <5 FOR A GIVEN INDICATOR, RATES ARE PRESENTED AS NULL TO ADDRESS DISCLOSURE RISKS.