

Interim
2013



The Burden of Injury in Wales

Interim report 2013
Road Traffic Crashes



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CAPIC
Collaboration for Accident
Prevention and Injury Control

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Glossary

AWISS	All Wales Injuries Surveillance System
BOI	Burden of Injury
CAPIC	Collaboration for Accident Prevention and Injury Control
CI	Confidence Intervals
DALY	Disability Adjusted Life Year
EASR	European Age-Standardised Rates
ED	Emergency Department
EDDS	Emergency Department Data Set
FCE	Finished Consultant Episodes
GBDI	Global Burden of Disease and Injury
HB	Health Board
HIRU	Health Information Research Unit
IP	Inpatient
JAMIE	Joint Action on Monitoring Injuries in Europe
LA	Local Authority
LSOA	Lower Super Output Area
MDS	Minimum Data Set
MVTC	Motor Vehicle Traffic Collision
MYE	Mid Year Estimate
NWIS	NHS Wales Information Service
ONS	Office for National Statistics
OR	Odds Ratio
PEDW	Patient Episode Database for Wales
QALY	Quality Adjusted Life Year
RR	Relative Risk
SAIL	Secure Anonymised Information Linkage
SES	Socio-Economic Status
WIMD	Welsh Index of Multiple Deprivation
YLD	Years Lived with Disability
YLL	Years of Life Lost

1 Summary

This report follows on from the 2012 Wales Burden of Injuries (BOI) report. It is an interim report focussing only on data updates in one of four key areas; Road Traffic Crashes (RTCs). Subsequent reports will focus on the other three key areas: poisonings, falls and assaults.

Additional data are now included for 2011 and 2012, as well as more detailed socio-economic profiles.

There are still a number of data completeness and coding issues and some of the differences reported here may reflect variations in data quality. Nevertheless, the best way to improve data quality is to use the data and stimulate interest in the results.

1.1 Main findings

Despite some improvements in the quality of coding of emergency department data there are still considerable problems with all sources of information on injury, including mortality data. These issues are so substantial that they could distort local authority and health board comparators.

The following findings may be influenced by data quality issues but should still be reported.

The main findings are as follows:-

Road traffic crash fatalities, in-patient admission rates and emergency department attendance rates are falling, but analysis by road user type was not possible.

Male RTC injury rates are consistently higher than those for females, especially from the age of 15 years onwards.

For males and females, the highest RTC in-patient injury rates are amongst 15 to 24 and 80+ year olds.

RTC related mortality is generally highest in rural areas.

RTC related mortality and morbidity is generally highest in the most deprived areas.

Amongst 15 to 29 year old males, the burden of RTCs is similar to that for all females combined and this age group accounts for half of the total burden of years of life lost for males.

1.2 Recommendations

There are three major recommendations from the entire Wales Burden of Injuries series.

- 1. Injury data collection in emergency departments needs to be improved. This will require action from policy makers, Health Board executives and managers, ED staff and the general public.*
- 2. Injury prevention in Wales needs to be more collaborative and cross-sectoral so that there are greater benefits and the burden of injuries on health is reduced more quickly and more effectively.*
- 3. Injury prevention should be recognised as a key public health priority, with greater commitment and capacity to support the implementation of evidence based injury prevention and control initiatives.*

Specific recommendations coming out of this report are:-

- 1. Interventions to address the issue of road traffic crashes need to be targeted at the most at risk road users*

2 Introduction

This report follows on from the 2012 Wales Burden of Injuries report. It is an interim report focussing only on data updates in one of four key areas; road traffic crashes (RTCs). Subsequent reports will focus on the other three key areas: poisonings, falls and assaults.

The background and methods chapters, for the most part, replicate the previous report and so are not repeated here. The only change of note is that the calculations of the burden of disease, in terms of years of life lost (YLL) and years lived with disability (YLD), are now made using the updated Global Burden of Disease (GBD) methodology. This means that there is discounting and age weighting are no longer included. This also means that a simple comparison of the 2009 burden with the 2011 burden is not sensible.

The full report will be updated in late 2014. This will include an update of the background information, accounting for the new GBD estimates, and the evidence reviews in each section.

Additional data have been included for 2011 and 2012 (except for mortality data), as well as more detailed socio-economic profiles.

Data for 2010 are not included because of time constraints, but 2009 data, as used in the 2012 report, are presented to provide a baseline for comparison.

Emergency Department (ED) data are included in this report, but data quality issues mean that considerable care should be taken with interpretation. As in the previous report, it is believed that all of the injury groups discussed in this report are substantially under-reported. These data should therefore be regarded as under estimates of the true picture. Adoption of the Joint Action on Monitoring Injuries in Europe (JAMIE) Minimum Data Set would substantially improve the robustness and reliability of ED data across Wales.

3 Road traffic crash injuries

Road traffic crash injuries cover injuries to pedestrians, vehicle drivers and occupants and motorcycle and bicycle users. They affect road users of all ages, but the most vulnerable age groups vary according to the road user type; the young and the old are the most vulnerable pedestrians, but teenagers and young adults are the most vulnerable car drivers and car occupants.

3.1 Epidemiology

3.1.1 Rates – sex

Road traffic crash fatalities fell between 2009 and 2011 for both males and females (figure 1). This is consistent with UK national police crash data (STATS 19) showing that injury rates were at their lowest ever during 2010 and 2011. In-patient (IP) admission rates also appear to have fallen for both males and females (figure 2). Emergency department attendances for RTCs show no overall trend and may be increasing, but given data quality issues, it is not known how accurate this trend is (figure 3).

Figure 1: RTC related fatality rates by sex, 2009, 2011 (data not available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

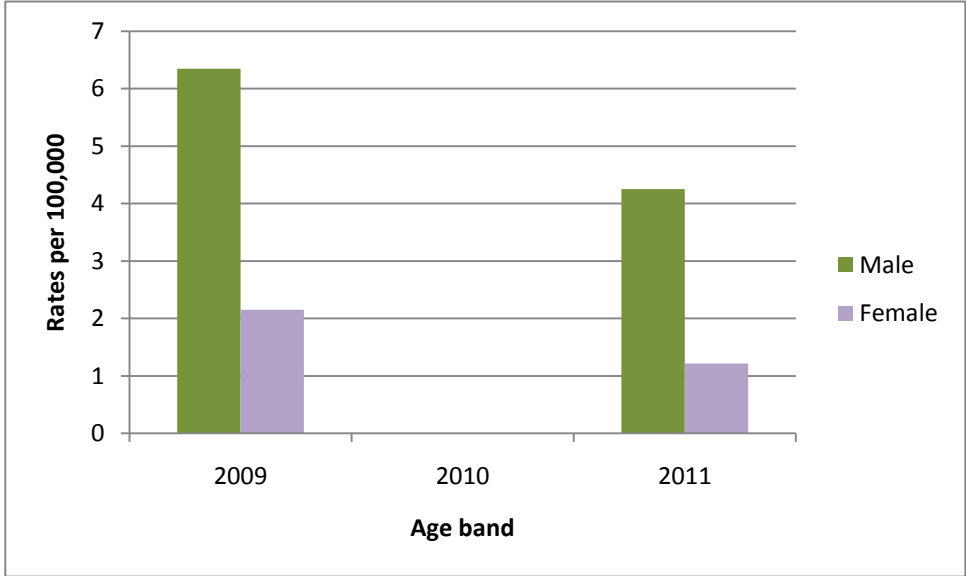


Figure 2: RTC related in-patient admission rates by sex, 2009, 2011, 2012 (data not available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

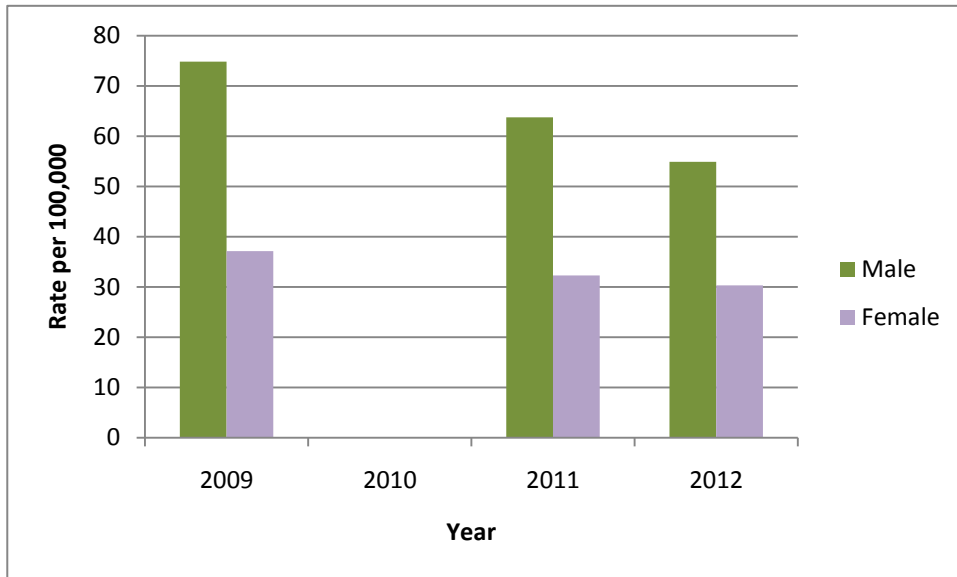
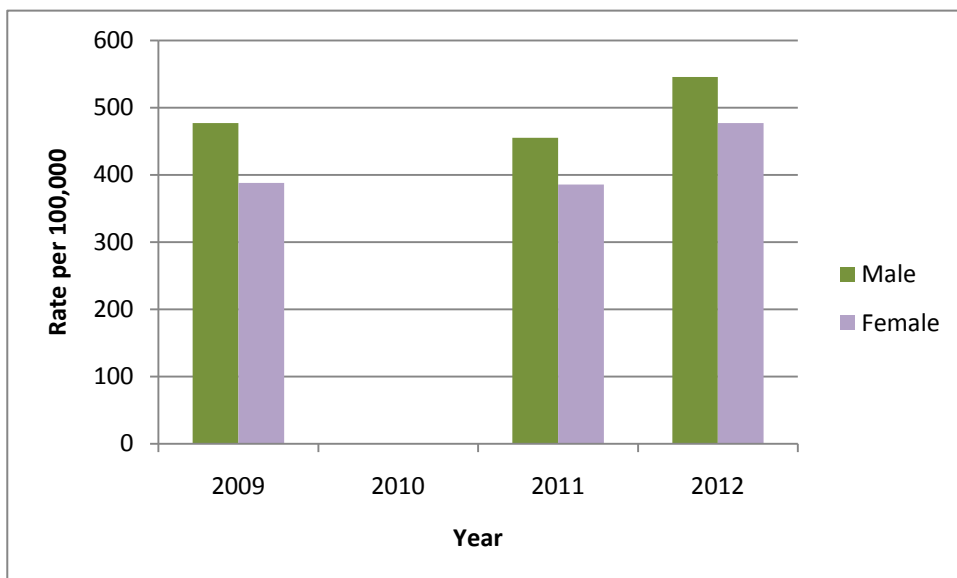


Figure 3: RTC related emergency department attendance rates by sex, 2009, 2011, 2012 (data not available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)



3.1.2 Rates – age and sex

Road traffic crash related mortality is consistently higher in males (figure 4) than females (figure 5) and affects all ages, particularly from 15 years onwards. The road user type is likely to vary with age group, with the rates amongst the 15 to 24 year old males due to deaths as car drivers and passengers.

Figure 4: RTC related mortality rates males, 2009, 2011 (data not available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

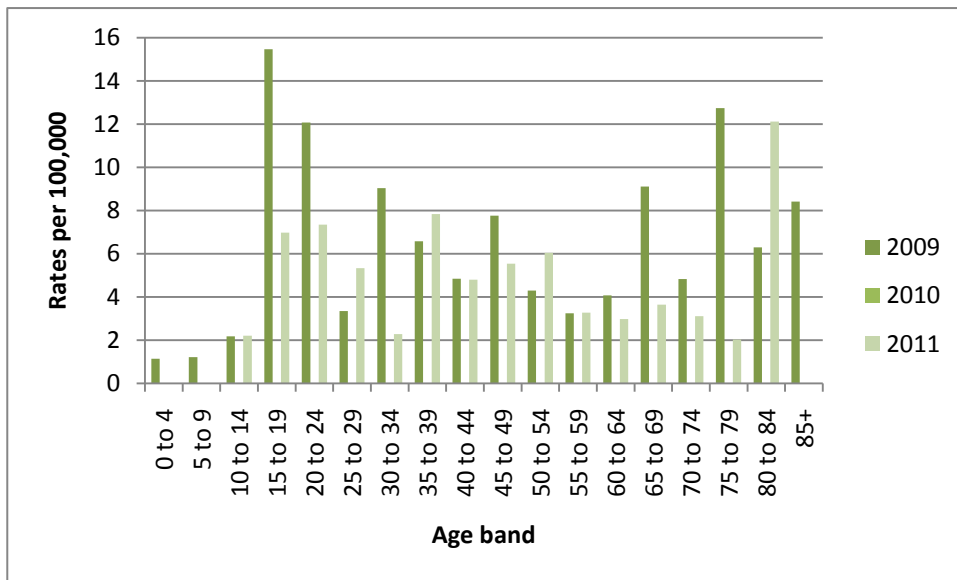
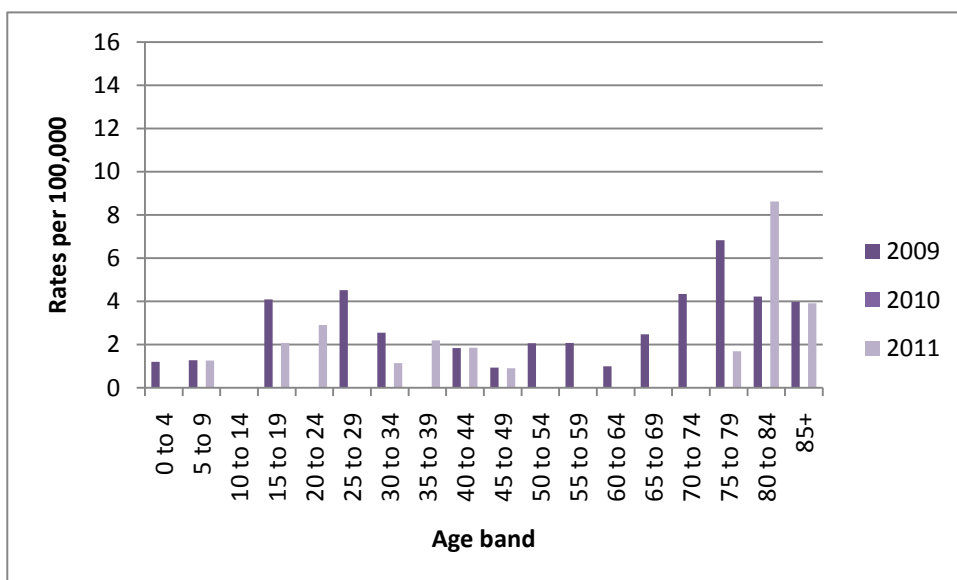


Figure 5: RTC related mortality rates females, 2009, 2011 (data not available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)



In-patient admissions for RTCs show high rates for teenaged and young adult males, with decreasing rates over time, as is consistent with STATS19 (figure 6). Males have two distinct 'peaks' in RTC admissions; in young and late adulthood. Females are similar, but while the young adult peak is more prominent for males, for females, the greater peak is in late adulthood (figure 7). Young adult male IP rates are around two to three times higher than those of females, but IP rates amongst those aged 70+ years are similar for males and females.

Figure 6: RTC related in-patient admission rates males, 2009, 2011, 2012 (data not available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

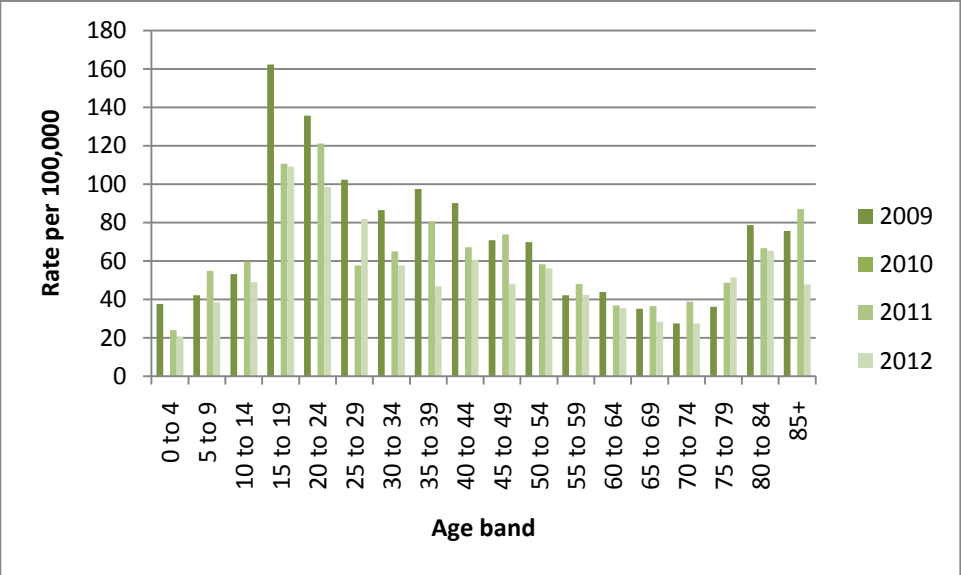
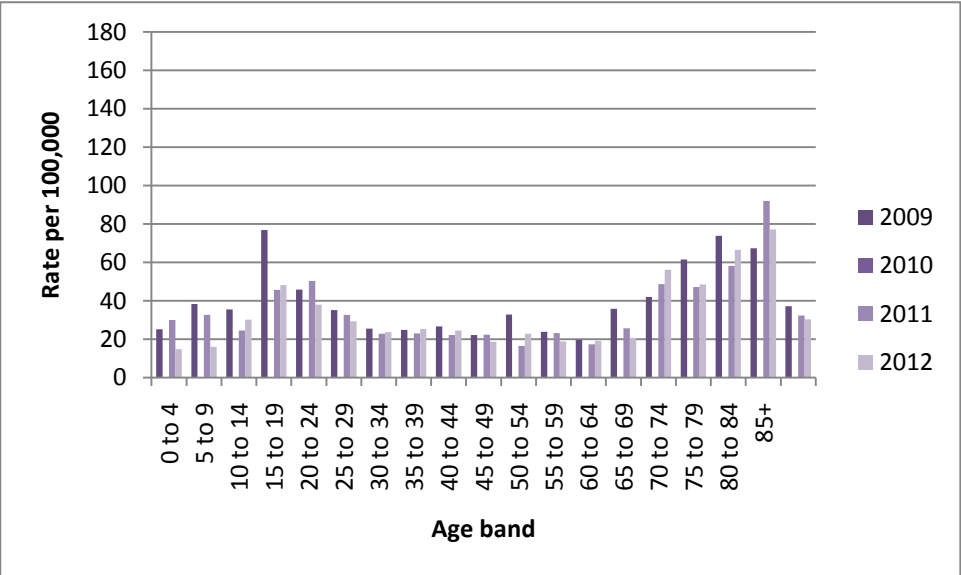


Figure 7: RTC related in-patient admission rates females, 2009, 2011, 2012 (data not available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)



The ED attendance rates following RTCs show a single 'peak' for both young adult males and young adult females (figures 8, 9). However, as stated previously, there are concerns over the ED data quality.

Figure 8: RTC related emergency department attendance rates males, 2009, 2011, 2012 (no data available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

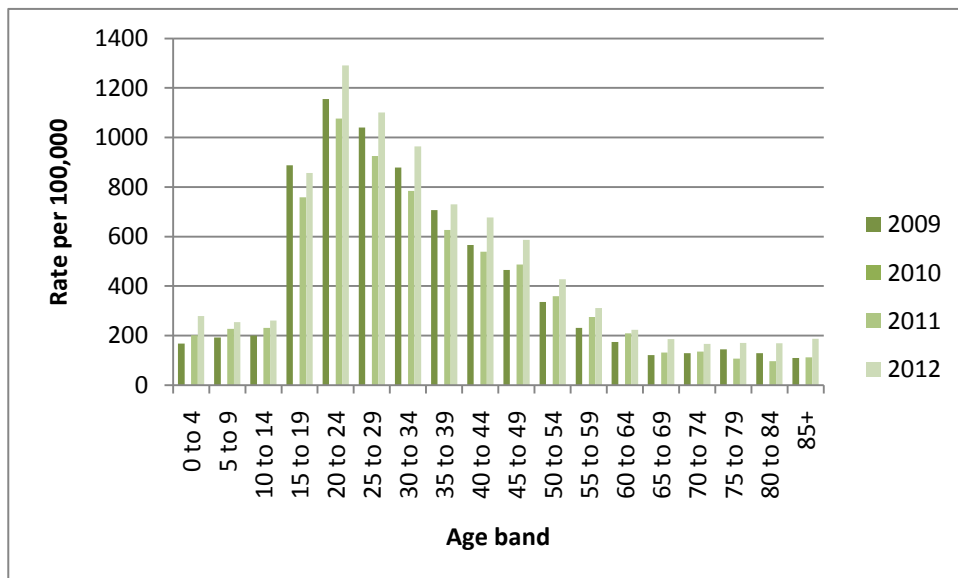
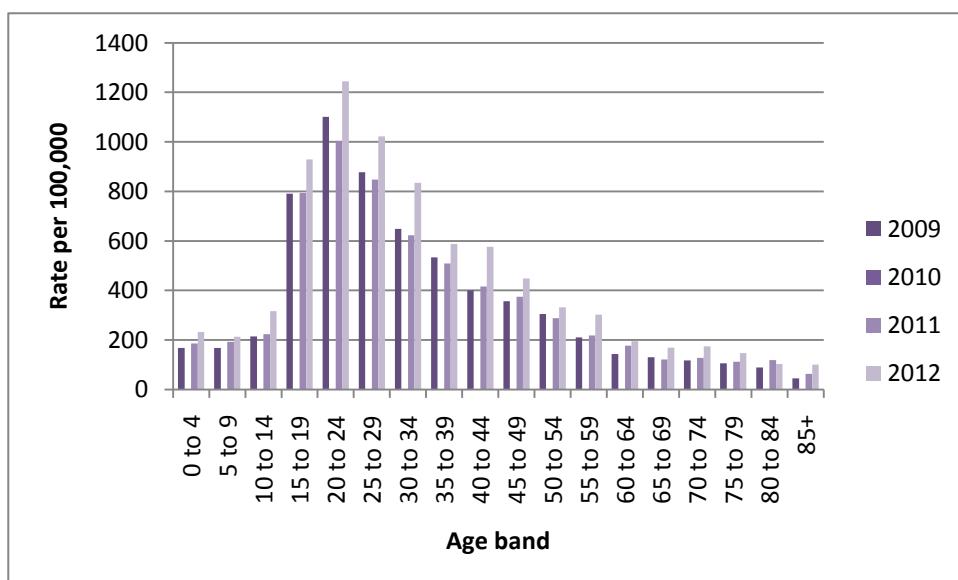


Figure 9: RTC related emergency department attendance rates females, 2009, 2011, 2012 (no data available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)



3.1.3 Health Board mortality rate profiles

Due to small numbers of cases, mortality rate profiles are only possible at Health Board (HB) level and across all ages.

Highest male RTC rates were seen in Powys HB (10.6 per 100,000; table 1). This is likely to be linked to the rurality of the area, meaning that when crashes do occur they tend to be more serious, but also the large distances mean that arrival of emergency services and then transfers for medical care often takes a considerable length of time. Female RTC mortality rates showed less variation across the HBs.

Table 1:- RTC related mortality rates (per 100,000), all males and females, 2011, by Health Board

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

	Male	Female
Betsi Cadwaladr	4.4	1.4
Powys	10.6	0
Hywel Dda	3.2	1
Abertawe Bro Morgannwg	3.9	1.5
Cardiff Vale	0.9	0.8
Cwm Taf	6.3	0.7
Aneurin Bevan	5.3	1.7

3.1.4 Local Authority and Health Board in-patient admission profiles

Powys also has, along with Hywel Dda, the highest IP rates for RTCs in Wales for both males and females (table 2). As for Powys, rurality of the Hywel Dda area is likely to have contributed to these rates. Conversely, Cardiff and the Vale HB, a much more urban area, consistently has lowest IP rates for RTCs.

Table 2:- RTC related crude in-patient admission rates (per 100,000), all males and females, 2009, 2011, 2012, by Health Board (no data available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

	Male			Female		
	2009	2011	2012	2009	2011	2012
Betsi Cadwaladr	79	64	52	37	35	33
Powys	72	84	59	56	36	64
Hywel Dda	97	68	71	51	43	45
Abertawe Bro Morgannwg	75	70	63	34	26	30
Cardiff and Vale	47	41	27	23	20	14
Cwm Taf	70	73	65	38	34	29
Aneurin Bevan	81	64	58	38	37	25
Wales	75	64	55	37	32	42

Analysis at the local authority (LA) level is difficult because of the small numbers of cases (table 3). However, amongst the young adult age bands, where IP rates for RTCs were highest, Anglesey and Blaenau Gwent LAs were consistently amongst the highest IP rates, with Cardiff amongst the lowest. Ceredigion had rates that were amongst both the lowest and highest.

Table 3:- Highest and lowest in-patient admission rates by Local Authority, 2009, 2011, 2012 (no data available for 2010)

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

	Male						Female					
	2009		2011		2012		2009		2011		2012	
	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest
15 to 19	Ceredigion	Anglesey	Flint	Anglesey	Flint	Carm'shire	--	Caerphilly	--	Anglesey	--	Powys
20 to 24	Cardiff	Flint	Ceredigion	Mon'shire	--	Mon'shire	Cardiff	Pembs	--	Pembs	--	Gwynedd
25 to 29	Bridgend	Ceredigion	--	Anglesey	Cardiff	Merthyr Tydfil	--	Merthyr Tydfil	--	Anglesey	--	Denbigh
30 to 34	--	Blaenau Gwent	--	Powys	--	Ceredigion	--	Blaenau Gwent	--	Blaenau Gwent	--	Ceredigion
Total	Vale / Cardiff	Anglesey	Cardiff	Powys	Cardiff	Ceredigion	Mon'shire	Pembs	Vale	Ceredigion	Cardiff	Powys

Analysis of LA data in HB groups found that:-

- Betsi Cadwaladr (appendix 5.1)
 - Anglesey generally had high IP rates, for both males and females, Wrexham had low rates.
- Powys (appendix 5.2)
- Hywel Dda (appendix 5.3)
 - IP rates were generally higher in Carmarthen for males, lower for females.
- Abertawe Bro Morgannwg (ABMU; appendix 5.4)
 - Neath Port Talbot has higher male IP rates; female IP rates tend to be highest in Bridgend amongst 15 to 24 year olds.
- Cardiff and the Vale (appendix 5.5)
 - Vale of Glamorgan tends to have highest IP rates, Cardiff the lowest.
 - Cardiff has higher admissions for 15 to 24 year old females.
- Cwm Taf (appendix 5.6)
 - RCT has lower rates of IP RTC admission than Merthyr Tydfil, except amongst 15 to 19 year olds.
- Aneurin Bevan (appendix 5.7)
 - IP RTC admission rates vary with age and sex across the HB.

3.1.5 Deprivation profiles

Deprivation profiles were only available for all-Wales and RTC related mortality amongst the most deprived was around 80% higher than for the least deprived (table 4).

Table 4:- RTC related mortality rates (per 100,000), and rate ratio, by deprivation fifth, 2011

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

	Rate per 100,000
Least deprived	2.1
Next least deprived	2.7
Middle	2.0
Next most deprived	3.5
Most deprived	3.8
Total	2.8
<i>Ratio (most deprived to least deprived)</i>	1.8

In-patient RTC rates were also highest amongst the most deprived, at 50% greater than the least deprived (table 5).

Table 5:- RTC related in-patient admission rates (per 100,000), and rate ratio, by deprivation fifth, 2011

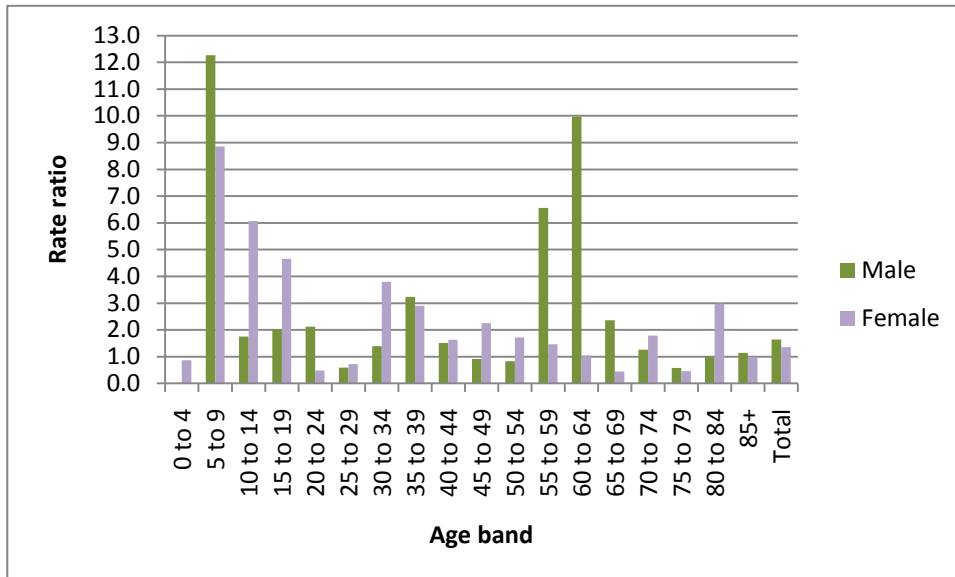
Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

	Rate per 100,000
Least deprived	36.7
Next least deprived	47.1
Middle	48.8
Next most deprived	58.0
Most deprived	56.3
Total	49.4
<i>Ratio (most deprived to least deprived)</i>	1.5

Analysis of these data by age and sex and calculation of rate ratios for the most compared with least deprived found substantial inequalities. Amongst 5 to 9 year olds, IP rates among the most deprived were 8.9 times higher than the most affluent for females and 12.3 times higher for males (figure 10, appendix 5.8). For 10 to 14 year olds, the most deprived females had IP RTC rates 6.1 times higher than the least deprived, compared with 1.8 times for males. Similarly, amongst 15 to 19 year olds, female most deprived rates were 4.7 times the least deprived, compared with 2.0 times for males. Although inequalities in RTC injury rates amongst children are well known, the rate ratios seen here are greater than usual. However, with just one year of data, rather than a standard three-year aggregation, these findings are likely to be influenced by small numbers of cases.

Figure 10: RTC related in-patient admissions by deprivation fifth; rate ratios (most deprived to least deprived) by age and sex

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

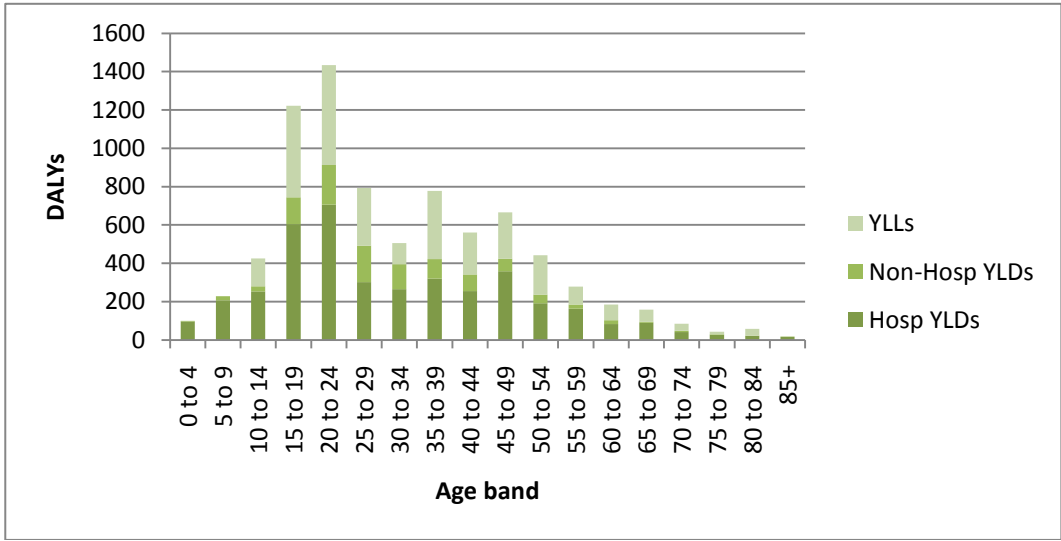


3.2 Burden

The total burden of RTC injuries in Wales in 2011 was 11,551 DALYs, 69.1% of which were suffered by males.

Much of the burden of male RTCs falls on 15 to 29 year olds (figure 11, appendix 5.9). The total DALY burden on this group is 3,448, similar to the total burden for all females (3,569). In addition, the total years of life lost (YLL) amongst 15 to 29 year males (1,299) is almost half (44.8%) the total for all males (2,903) and around 70% higher than for all females combined (756). The proportion of the burden accounted for by YLL decreased with increasing age.

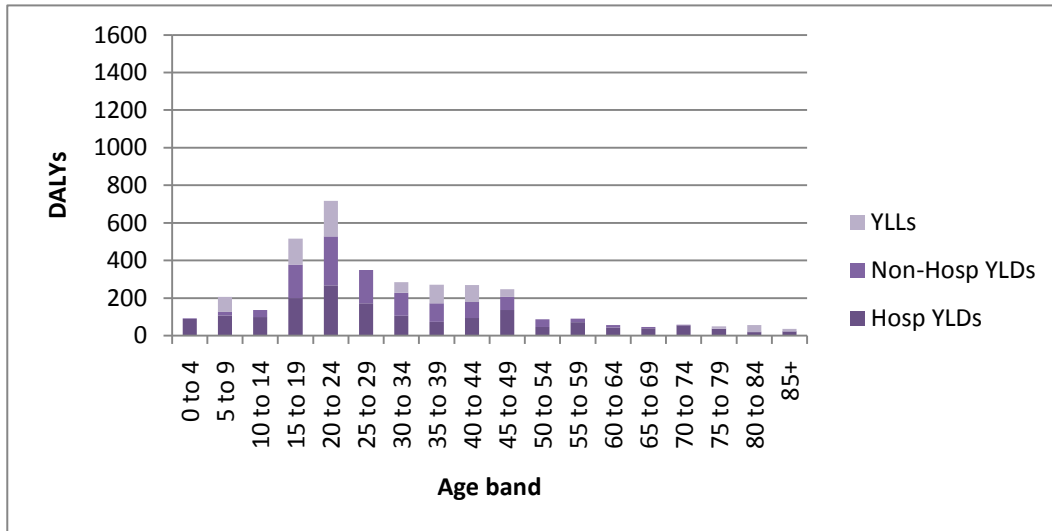
Figure 11: Burden of RTCs by age group, males
 Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)



Female burden of RTCs was also greatest in the 15 to 29 year age group, but with less of the burden associated with YLL than for males (figure 12, appendix 5.9).

Figure 12: Burden of RTCs by age group, females

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)



3.2.1 Burden of RTCs by Health Board and Local Authority

The greatest burden of RTCs was in Abertawe Bro Morgannwg HB, lowest in Powys, but Powys has the greatest proportion of the burden accounted for by YLL (52.2% v 31.7% all Wales, figure 13, table 6). Cardiff and Vale has the lowest proportion of the burden accounted for by YLL (16.7%). Calculations of burden, in DALYs, per head of population show that Abertawe Bro Morgannwg also has the highest DALY rate (5.5 per 1000 population), followed by Cwm Taf (4.8)

Figure 13: Burden of RTCs by Health Board

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

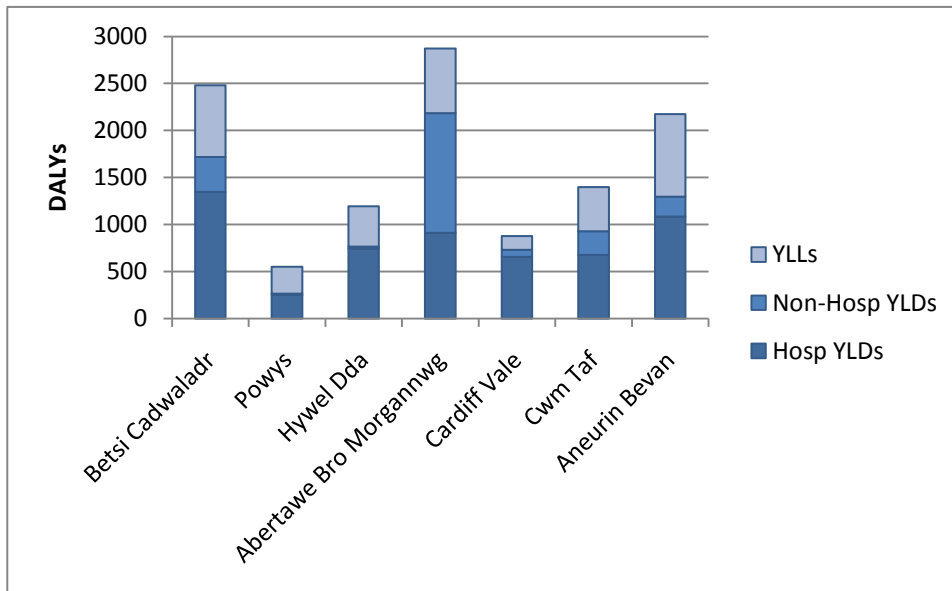


Table 6:- RTC related burden by Health Board

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

	Hosp YLDs	Non-Hosp YLDs	YLLs	DALYs	% YLL	Population	DALYs per 1000 population	DALYs at Cardiff and Vale rate	DALYs Saved	% decrease
Betsi Cadwaladr	1,347	371	763	2,481	30.7%	688.4	3.6	1,308	1,173	47.3%
Powys	252	12	288	552	52.2%	133.1	4.1	253	299	54.2%
Hywel Dda	745	22	428	1,195	35.8%	381.9	3.1	726	469	39.3%
Abertawe Bro Morgannwg	912	1,273	687	2,872	23.9%	518.0	5.5	984	1,888	65.7%
Cardiff Vale	657	75	147	879	16.7%	472.1	1.9	-	-	-
Cwm Taf	677	252	468	1,397	33.5%	293.3	4.8	557	840	60.1%
Aneurin Bevan	1,084	212	879	2,175	40.4%	577.1	3.8	1,096	1,079	49.6%
Total	5,675	2,217	3,659	11,551	31.7%	3,063.9	3.8	5,821	5,730	49.6%

Substantial variations in burden of RTCs exist at the LA level, with Bridgend (1,120) and Rhondda Cynon Taf (1,135) having the highest overall burden (figure 14, table 7). Blaenau Gwent has 62.3% of the DALY burden associated with YLL, followed by Monmouthshire (55.3%). Population DALY rates were highest in Bridgend (8.0 per 1000 population), and Blaenau Gwent (6.9). If Bridgend’s DALY rate was reduced to that of Cardiff (1.7), the saving would be 883 DALYs, a reduction in burden of 78.8%.

Figure 14: Burden of RTCs by Local Authority

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

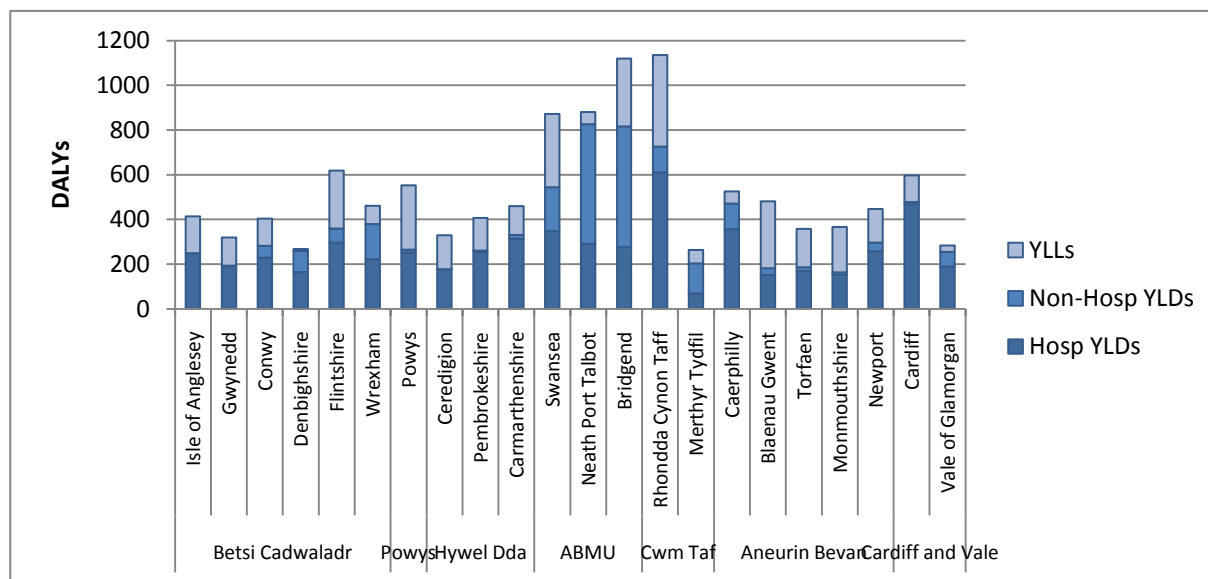


Table 7:- RTC related burden by Local Authority

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

	2011									
	Hosp YLDs	Non-Hosp YLDs	YLLs	DALYs	% YLL	Population	DALYs per 1000 population	DALYs at Cardiff rate	DALYs Saved	% decrease
Isle of Anglesey	248	0	166	414	40.0%	69.9	5.9	119	295	71.3%
Gwynedd	189	3	126	318	39.4%	121.5	2.6	207	112	35.1%
Conwy	229	52	122	403	30.3%	115.3	3.5	196	207	51.3%
Denbighshire	164	94	8	267	3.1%	93.9	2.8	160	107	40.2%
Flintshire	296	63	260	619	42.0%	152.7	4.1	260	359	58.0%
Wrexham	221	158	82	460	17.7%	135.1	3.4	230	231	50.1%
Powys	252	12	288	552	52.2%	133.1	4.1	226	326	59.0%
Ceredigion	177	0	152	329	46.2%	75.3	4.4	128	201	61.0%
Pembrokeshire	255	4	147	407	36.2%	122.6	3.3	208	198	48.7%
Carmarthenshire	313	18	129	460	28.0%	184.0	2.5	313	147	31.9%
Swansea	347	197	328	871	37.6%	238.7	3.7	406	466	53.4%
Neath Port Talbot	290	536	55	880	6.2%	139.9	6.3	238	643	73.0%
Bridgend	275	540	304	1120	27.2%	139.4	8.0	237	883	78.8%
Rhondda Cynon Taff	609	117	409	1,135	36.0%	234.4	4.8	398	736	64.9%
Merthyr Tydfil	68	135	59	262	22.6%	58.9	4.5	100	162	61.8%
Caerphilly	356	114	54	525	10.4%	178.8	2.9	304	221	42.1%
Blaenau Gwent	151	30	299	481	62.3%	69.8	6.9	119	362	75.3%
Torfaen	168	18	171	357	47.9%	91.2	3.9	155	202	56.6%
Monmouthshire	152	12	202	366	55.3%	91.5	4.0	156	210	57.5%
Newport	257	38	151	446	33.9%	145.8	3.1	248	198	44.5%
Cardiff	468	9	119	596	19.9%	345.4	1.7	-	-	-
Vale of Glamorgan	189	66	28	283	9.9%	126.7	2.2	215	67	23.8%
Total	5,675	2,217	3,659	11,551	31.7%	3,063.9	3.8	5,209	6,343	54.9%

3.2.2 Burden of RTCs by deprivation fifth

The burden of falls increased with increasing deprivation (figure 15, table 8) with 1.7 times more DALYs suffered by the most deprived compared with the least deprived. The proportion of the DALY burden that was accounted for by YLL was similar across all deprivation fifths, at around one third of the total burden. The exception was in the middle fifth, where DALYs were lower than would be expected and the proportion due to YLL is 20.5%.

Figure 15: Burden of RTCs by deprivation fifth

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

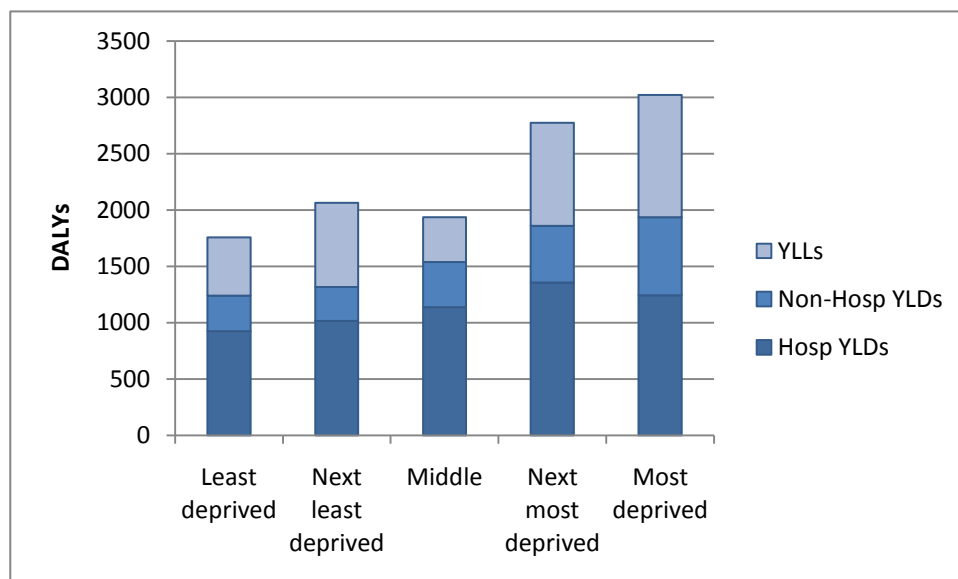


Table 8:- Fall related burden by deprivation fifth

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

	Hosp YLDs	Non-Hosp YLDs	YLLs	DALYs	% YLL
Least deprived	923	317	517	1,757	29.4%
Next least deprived	1,017	301	745	2,063	36.1%
Middle	1,137	401	397	1,935	20.5%
Next most deprived	1,355	505	915	2,775	33.0%
Most deprived	1,242	693	1,086	3,021	35.9%
Total	5,675	2,217	3,659	11,551	31.7%

4 Conclusions and recommendations

4.1 Conclusions

Despite some improvements in the quality of coding of ED data there are still considerable problems with all sources of information on injury, including mortality data. These issues are so substantial that they could distort LA and HB comparators. Nevertheless, the best way to improve the quality of data is to use the data and we have released this interim report to stimulate discussion.

The following findings may be influenced by data quality issues but should still be reported.

The main conclusions are as follows:-

Road traffic crash fatalities, IP admissions and ED attendances are falling, but analysis by road user type was not possible.

Male RTC injury rates are consistently higher than those for females, especially from the age of 15 years onwards.

For males and females, the highest RTC in-patient injury rates were amongst 15 to 24 and 80+ year olds.

RTC related mortality is generally highest in rural areas.

RTC related mortality and morbidity is generally highest in the most deprived areas.

Amongst 15 to 29 year old males, the burden of RTCs is similar to that for all females combined and this age group accounts for half of the total burden of years of life lost for males.

4.2 Recommendations

There are three major recommendations from the entire Wales Burden of Injuries series.

- 1. Injury data collection and coding in emergency departments needs to be improved. This will require action from policy makers, Health Board executives and managers, ED staff and the cooperation of general public.*
- 2. Injury prevention in Wales needs to be more collaborative and cross-sectoral in order to produce greater impact and more quickly reduce burden of injuries on population health and the NHS.*

- 3. Given its scale, injury prevention should be recognised as a key public health priority, with greater commitment producing capacity to support the implementation of evidence based injury prevention and control initiatives.*

Specific recommendations coming out of this report are:-

- 1. Interventions to address the issue of road traffic crashes need to be targeted at the most at risk road users*

5 Appendices

5.1 IP admissions, RTCs, rates – Betsi Cadwaladr

In-patient admission rates per 100,000 by age, sex and local authority for 2009, 2011, 2012, Betsi Cadwaladr HB

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

Shading indicates lowest (Green) and highest (Red) admission rates by sex and age group for all LAs in the HB area.

	Isle of Anglesey						Gwynedd						Conwy						Denbighshire					
	Male			Female			Male			Female			Male			Female			Male			Female		
	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012
15 to 19	524	250	201	95	213	0	163	206	201	116	74	73	167	116	201	31	62	32	97	64	66	33	68	0
20 to 24	53	197	0	111	111	54	188	99	114	82	0	119	111	166	34	42	144	71	185	112	37	87	79	80
25 to 29	176	54	107	0	111	55	63	60	58	32	33	67	74	74	72	42	0	74	83	86	42	136	46	131
30 to 34	63	55	53	0	0	111	107	32	63	0	0	0	42	0	37	40	38	37	174	95	48	0	42	0
Total	117	73	67	48	53	45	75	64	73	34	37	44	74	68	50	38	39	28	75	56	56	48	46	48

	Flintshire						Wrexham						Betsi Cadwaladr					
	Male			Female			Male			Female			Male			Female		
	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012
15 to 19	83	40	21	87	22	22	143	96	167	77	0	0	167	116	135	76	59	25
20 to 24	295	215	108	79	46	24	140	161	46	53	49	25	178	156	69	74	59	63
25 to 29	163	69	91	0	24	93	114	23	23	0	45	0	112	58	62	28	38	65
30 to 34	48	96	0	24	94	0	77	95	0	26	0	0	81	66	27	17	33	16
Total	79	72	40	29	28	26	73	51	37	33	18	16	79	64	52	37	35	33

5.2 IP admissions, RTCs, rates – Powys

In-patient admission rates per 100,000 by age and sex for 2009, 2011, 2012, Powys HB

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

LA Rate	Powys					
	Male			Female		
	2009	2011	2012	2009	2011	2012
15 to 19	136	167	96	98	51	158
20 to 24	194	86	200	80	67	67
25 to 29	71	65	192	40	35	35
30 to 34	71	139	34	37	0	102
Total	72	84	59	56	36	64

5.3 IP admissions, RTCs, rates – Hywel Dda

In-patient admission rates per 100,000 by age, sex and local authority for 2009, 2011, 2012, Hywel Dda HB

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

Shading indicates lowest (Green) and highest (Red) admission rates by sex and age group for all LAs in the HB area.

LA Rate	Ceredigion						Pembrokeshire						Carmarthenshire						Hywel Dda					
	Male			Female			Male			Female			Male			Female			Male			Female		
	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012
15 to 19	63	229	122	97	67	134	359	158	157	132	80	55	283	223	207	55	72	18	252	205	170	89	73	58
20 to 24	143	22	40	26	103	70	267	86	85	154	156	61	200	185	113	143	58	96	197	104	80	106	98	78
25 to 29	412	54	57	48	0	62	107	33	95	77	0	0	111	42	102	63	42	21	167	41	92	63	21	21
30 to 34	167	119	186	0	63	124	200	0	101	0	67	33	73	90	67	22	20	20	128	67	99	11	42	41
Total	115	67	82	28	66	60	103	60	68	66	32	49	86	73	69	51	41	36	97	68	71	51	43	45

5.4 IP admissions, RTCs, rates – Abertawe Bro Morgannwg

In-patient admission rates per 100,000 by age, sex and local authority for 2009, 2011, 2012, Abertawe Bro Morgannwg HB

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

Shading indicates lowest (Green) and highest (Red) admission rates by sex and age group for all LAs in the HB area.

LA Rate	Swansea						Neath Port Talbot						Bridgend						ABMU					
	Male			Female			Male			Female			Male			Female			Male			Female		
	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012
15 to 19	72	75	110	40	13	13	109	89	113	71	24	49	140	67	89	25	25	101	99	77	105	45	19	45
20 to 24	82	73	131	19	31	10	220	250	150	25	0	51	175	263	118	28	25	76	131	151	132	22	23	34
25 to 29	50	74	100	41	41	0	179	135	69	77	23	47	27	23	69	0	25	25	77	77	84	40	32	19
30 to 34	115	54	81	51	0	42	86	92	23	0	0	0	54	70	92	28	0	0	90	68	68	31	0	19
Total	83	61	70	39	27	25	70	75	58	31	24	34	65	81	55	26	26	34	75	70	63	34	26	30

5.5 IP admissions, RTCs, rates – Cardiff and Vale

In-patient admission rates per 100,000 by age, sex and local authority for 2009, 2011, 2012, Cardiff and Vale HB

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

Shading indicates lowest (Green) and highest (Red) admission rates by sex and age group for all LAs in the HB area.

LA Rate	Cardiff						Vale of Glamorgan						Cardiff and Vale					
	Male			Female			Male			Female			Male			Female		
	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012
15 to 19	105	50	33	72	24	16	68	47	98	0	25	0	95	49	49	55	24	12
20 to 24	35	62	35	9	15	20	81	135	55	29	0	0	42	74	38	12	13	17
25 to 29	38	13	20	25	27	20	88	110	54	0	30	30	47	31	26	21	27	22
30 to 34	26	31	23	9	16	8	0	27	28	30	0	28	20	30	24	14	12	12
Total	47	41	25	22	21	13	47	42	32	26	17	17	47	41	27	23	20	14

5.6 IP admissions, RTCs, rates – Cwm Taf

In-patient admission rates per 100,000 by age, sex and local authority for 2009, 2011, 2012, Cwm Taf HB

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

Shading indicates lowest (Green) and highest (Red) admission rates by sex and age group for all LAs in the HB area.

LA Rate	Rhondda Cynon Taff						Merthyr Tydfil						Cwm Taf					
	Male			Female			Male			Female			Male			Female		
	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012
15 to 19	175	94	117	66	83	96	200	210	52	158	0	54	180	117	104	84	66	88
20 to 24	136	207	107	12	88	24	158	50	155	105	102	52	140	176	116	30	91	30
25 to 29	80	14	122	13	39	0	59	0	252	235	46	46	76	11	150	54	41	10
30 to 34	94	57	113	76	0	41	67	57	0	0	0	0	89	57	90	63	0	33
Total	66	79	66	32	38	29	85	52	63	63	20	30	70	73	65	38	34	29

5.7 IP admissions, RTCs, rates – Aneurin Bevan

In-patient admission rates per 100,000 by age, sex and local authority for 2009, 2011, 2012, Aneurin Bevan HB

Produced by Public Health Wales and Swansea University, using EDDS (NWIS) & MYE (ONS)

Shading indicates lowest (Green) and highest (Red) admission rates by sex and age group for all LAs in the HB area.

LA Rate	Caerphilly						Blaenau Gwent						Torfaen					
	Male			Female			Male			Female			Male			Female		
	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012
15 to 19	203	52	155	218	0	88	385	173	45	83	43	44	125	130	96	133	67	33
20 to 24	148	55	182	19	94	19	130	132	129	43	0	0	200	71	70	111	36	0
25 to 29	140	185	74	38	17	34	105	0	93	0	0	0	240	110	73	38	0	0
30 to 34	83	75	112	0	35	17	235	101	100	167	101	0	143	80	0	0	76	75
Total	81	68	68	39	32	28	99	58	58	57	25	23	95	68	34	39	38	21

LA Rate	Monmouthshire						Aneurin Bevan					
	Male			Female			Male			Female		
	2009	2011	2012	2009	2011	2012	2009	2011	2012	2009	2011	2012
15 to 19	129	161	32	36	36	108	207	110	99	108	43	59
20 to 24	200	301	253	111	102	0	161	95	160	53	57	11
25 to 29	158	0	153	0	0	54	168	101	100	26	34	23
30 to 34	167	52	51	0	0	0	136	85	79	27	47	17
Total	53	58	60	20	30	30	81	64	58	38	37	25

5.8 IP admissions, RTCs, rates by age, sex and deprivation fifth

2011	Rate per 100,000											Rate ratios	
	Least deprived		Next least deprived		Middle		Next most deprived		Most deprived		Male	Female	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
0 to 4	0.0	22.1	38.9	26.8	23.0	18.3	46.5	65.4	13.7	19.2	--	0.9	
5 to 9	6.6	7.0	13.1	13.6	68.3	26.6	101.9	50.4	81.1	62.3	12.3	8.9	
10 to 14	47.4	6.3	29.2	18.6	51.4	30.4	91.3	29.9	83.2	38.1	1.8	6.1	
15 to 19	56.4	10.9	127.3	59.8	140.1	73.0	140.0	43.0	113.7	50.8	2.0	4.7	
20 to 24	77.5	57.4	73.1	53.0	132.8	74.3	184.8	53.4	164.4	28.0	2.1	0.5	
25 to 29	84.6	38.3	55.5	26.5	77.7	34.8	43.9	43.8	49.6	27.5	0.6	0.7	
30 to 34	57.9	7.0	32.5	38.5	70.2	17.8	90.2	26.8	80.6	26.7	1.4	3.8	
35 to 39	36.5	11.6	118.8	52.1	74.6	11.2	71.5	11.0	117.9	33.6	3.2	2.9	
40 to 44	58.8	18.4	73.8	23.3	58.7	4.7	68.7	38.4	89.0	30.0	1.5	1.6	
45 to 49	111.7	8.8	64.2	35.1	36.8	35.9	68.0	14.2	102.5	19.9	0.9	2.3	
50 to 54	55.0	9.7	65.1	14.3	39.4	19.1	96.1	25.9	45.7	16.6	0.8	1.7	
55 to 59	10.8	25.8	62.7	24.8	73.3	25.1	29.7	5.8	70.9	37.6	6.6	1.5	
60 to 64	4.9	23.1	32.0	22.4	41.9	9.0	66.9	11.0	49.3	24.1	10.0	1.0	
65 to 69	23.6	33.4	44.6	27.0	39.2	32.5	27.4	19.7	55.6	14.8	2.4	0.4	
70 to 74	30.9	48.5	29.0	41.2	49.9	40.0	51.7	39.7	39.0	86.4	1.3	1.8	
75 to 79	67.5	88.8	66.0	41.1	18.5	54.8	58.3	9.2	38.7	40.9	0.6	0.5	
80 to 84	40.9	31.1	42.5	74.1	85.5	50.1	137.7	57.9	40.5	92.9	1.0	3.0	
85+	73.7	87.3	119.4	76.3	115.4	72.7	46.3	151.7	84.2	85.9	1.1	1.0	
Total	46.9	26.8	59.7	34.9	65.1	33.0	81.0	35.8	77.3	36.3	1.6	1.4	

5.9 Burden of RTCs by age and sex

	Male				Female			
	Hosp YLDs	Non-Hosp YLDs	YLLs	DALYs	Hosp YLDs	Non-Hosp YLDs	YLLs	DALYs
0 to 4	96	4	0	100	89	3	0	92
5 to 9	207	21	0	228	108	18	80	206
10 to 14	253	28	145	426	98	38	0	136
15 to 19	604	140	477	1,221	199	180	138	516
20 to 24	706	208	521	1,434	268	260	189	717
25 to 29	302	190	301	793	172	178	0	350
30 to 34	265	131	109	505	106	123	55	285
35 to 39	320	102	356	778	73	99	99	271
40 to 44	255	87	220	561	94	85	91	270
45 to 49	359	66	242	667	136	71	40	246
50 to 54	192	44	206	443	46	41	0	87
55 to 59	163	22	93	279	72	19	0	91
60 to 64	83	19	83	185	42	13	0	56
65 to 69	91	4	64	159	39	7	0	47
70 to 74	42	6	37	84	55	4	0	59
75 to 79	27	2	14	43	35	2	13	50
80 to 84	22	1	35	58	19	1	37	56
85+	16	0	0	17	22	1	13	36
Total	4,002	1,076	2,903	7,982	1,672	1,141	756	3,569