

Assaults in Merseyside: an analysis of emergency department and ambulance data, January 2007 to December 2009

This report provides an indication of the burden of assaults on emergency departments (EDs), the ambulance service and residents of Merseyside over the three-year period January 2007 to December 2009. It uses data on assault call outs from the North West Ambulance Service and from all EDs in Merseyside, supplemented by assault data from Merseyside residents receiving treatment in Cumbria and Lancashire EDs.

Numbers of assault cases and trends

Over the three-year period, a total 34,934 assault attendances were recorded at Merseyside EDs. Of these, 30,217 were residents of Merseyside. A further 324 Merseyside residents with assault injuries attended EDs in Lancashire and Cumbria, meaning a total of 30,541 Merseyside residents were treated for assaults over the three-year period across Merseyside, Cumbria and Lancashire¹. The number of ED assault attendances made by Merseyside residents decreased by 20% over the three-year period, from 11,524 in 2007 to 9,208 in 2009.

Figure 1 shows three-year trend data by local authority area of residence. The largest decreases were seen in residents of Liverpool (28%) and St Helens (11%). Over the same period there were 22,938 ambulance call outs for assaults² in Merseyside. The number of ambulance call outs for assault decreased by 10% between 2007 and 2009, from 8,262 to 7,397. This decrease was most pronounced in Wirral (15%) (**Figure 2**).

Age and gender of assault patients

In 2009 the largest proportions of ED assault attendances by Merseyside residents were aged 25-59 (51%) and for all age groups the majority of assault attendances were male (70%). There were more ED assault attendances (39%) by Liverpool residents, followed by Wirral (22%) (**Table 1**). The highest number of ambulance call outs was in Liverpool (46%).

Box 1: Case Study TKAP Merseyside

In July 2009, the Department for Health put together a national bidding programme to provide funding for partners in the government's Tackling Knives Action Programme (TKAP) priority areas to enhance or improve the sharing of data between EDs and local partners. In the North West, TKAP priority areas were Liverpool, Preston and Manchester. On behalf of Government Office North West and local partners, the Centre for Public Health at Liverpool John Moores University successfully bid and secured funds to enhance ED datasets and develop faster, routine data sharing between EDs and community safety partnerships across the North West. The first stage of the project was to engage with Merseyside area EDs to assess their potential to collect the nationally recommended violence dataset from assault patients (e.g. location, time and date of incident and assault type [e.g. weapon of use]) (see: [College of Emergency Medicine](#)). All EDs in Merseyside have agreed to collect additional information. By March 2010 Arrowse Park, Royal Liverpool University Hospital, University Hospital Aintree and Southport District General Hospital were all collecting the additional information.

¹ All EDs is used throughout and refers to all EDs in Merseyside, Lancashire and Cumbria.

² Assaults refer to those coded as assault/rape or stab/gunshot.

Location and type of assault

The vast majority of ED assault attendances by Merseyside residents occurred in a public place (43%) or the home (14%), however this figure changes for residents of Wirral (public place 74%; home 16%) (Table 2 and Figure 3). Of all ambulance assault call outs, 9% were for stab/gunshot incidents. However, in Knowsley 13% of assault call outs were stab/gunshot incidents. To improve the evidence base on the circumstances associated with an assault, enhanced data collection is occurring at EDs across the North West (see Box 1).

Time of ED attendances and ambulance call outs

The majority of ED assault attendances by Merseyside residents occurred on Saturdays, Sundays and Mondays (56%) between the hours of 00:00 and 3:59 (27%). However, most assault attendances to Southport District General Hospital (61%) and Whiston Hospital (50%) occurred on Fridays, Saturdays and Sundays. Most ambulance call outs for assaults occurred on Fridays, Saturdays and Sundays (58%) between the hours of 00:00 and 3.59am (37%). However, in Wirral (38%), assault call outs were most common between 22:00 and 1:59.

Patient disposal

The disposal of a patient gives an indication of the severity of the injuries sustained. Most ED assault

attendees from Merseyside were discharged (49%), whilst 20% had a follow-up/referral, and 14% were admitted to hospital. More ED assault attendances from St Helens were admitted (22%) (Table 3).

Area of residence of ED assault attendances

Figure 4 shows crude rates of ED assault attendance by Merseyside residents by Middle Super Output Area (MSOA), January 2007 to December 2009 combined. However, care should be taken when interpreting this data. It cannot be used to compare incidence of injuries in Merseyside residents as individuals may attend EDs outside Cumbria, Lancashire and Merseyside. This particularly affects authorities on county borders. Crude rates were greatest for residents of MSOAs Liverpool 28 (n=456 [1,970.95 per 100,000 population]), Wirral 16 (n=402 [1,934.46 per 100,000 population]), and Liverpool 18 (n=332 [1,932.7 per 100,000 population]).

Location of ambulance call outs

Crude rates for ambulance call outs for assaults were significantly higher in Liverpool 33 (n=2,638 [7,942.67 per 100,000 population]) than any other MSOA in Merseyside. Liverpool 33 covers the central nightlife area of Liverpool City Centre. Wirral 16 was the next highest with 712 call outs (3,426.21 per 100,000 population) (Figure 5).

Table 1: Number of ED assault attendances by age and gender, January to December 2009³

	Age group and gender												Total**	
	0-9		10-17		18-24		25-59		60+					
	F	M	F	M	F	M	F	M	F	M	F	M		All
Total Merseyside ED attendances	51	75	374	902	837	2394	1633	3877	207	275	3102	7525	10627	
Total ED attendances: Merseyside residents only*	39	69	354	859	733	2025	1441	3279	181	224	2748	6456	9208	
Location of ED attended														
<i>Merseyside</i>	37	67	339	837	730	2012	1430	3254	180	224	2716	6394	9114	
<i>Cumbria and Lancashire</i>	***	***	15	22	3	13	11	25	***	***	32	62	94	
Local authority of residence														
<i>Knowsley</i>	12	15	48	103	91	209	170	400	61	49	382	776	1158	
<i>Liverpool</i>	6	12	132	343	293	838	544	1329	18	62	993	2584	3577	
<i>Sefton</i>	***	***	68	144	129	390	286	671	15	31	500	1242	1744	
<i>St Helens</i>	18	31	20	39	43	82	136	205	76	58	293	415	708	
<i>Wirral</i>	***	***	86	230	177	506	305	674	11	24	580	1439	2021	

* To all EDs in Merseyside, Lancashire and Cumbria

**Totals may not add up as some age and gender fields have been recorded as blank or unknown

³ Please note that all numbers less than five have been suppressed in line with patient confidentiality and if there is only one number less than five in a category then two numbers will be suppressed at the next level (e.g. <6) in order to prevent back calculations from totals.

Figure 1: Merseyside residents: number of assault attendances to all EDs by local / unitary authority of residence and year, January 2007 to December 2009

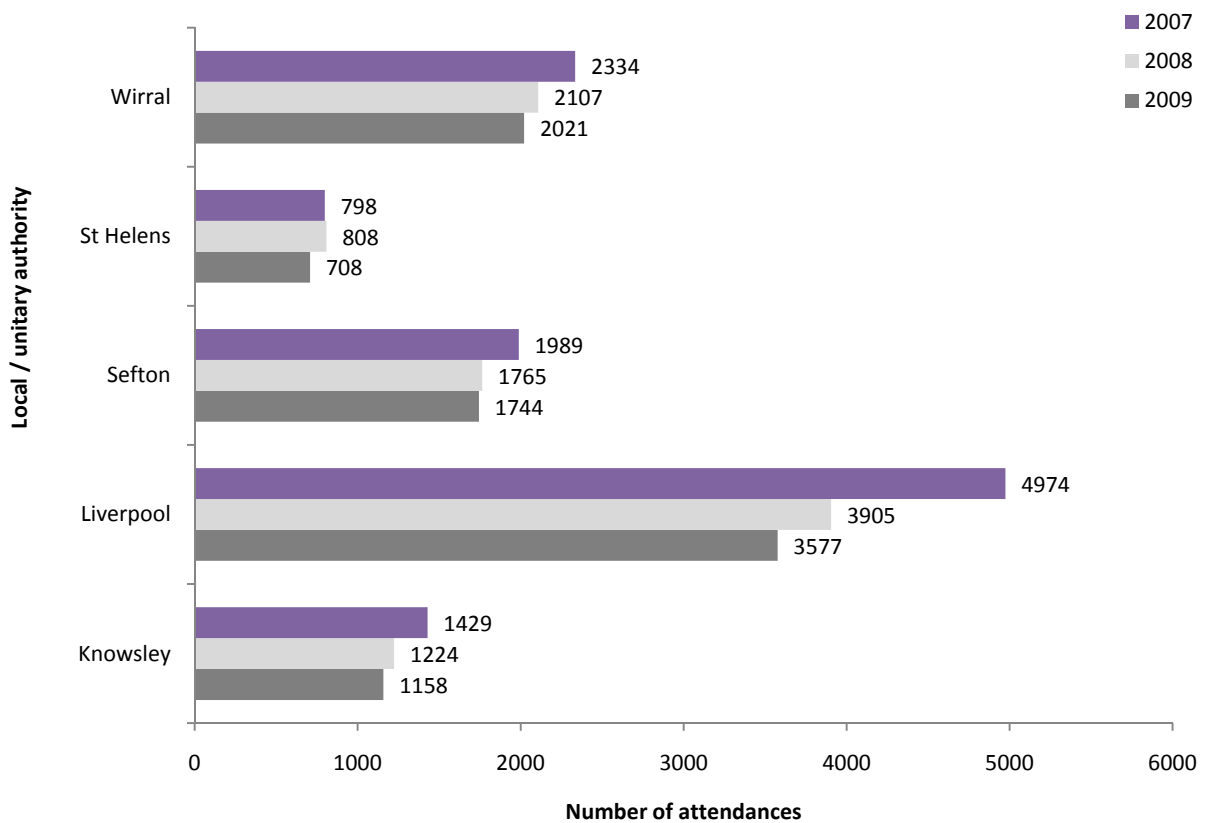


Figure 2: Number of ambulance assault calls by local / unitary authority of call out and year, January 2007 to December 2009

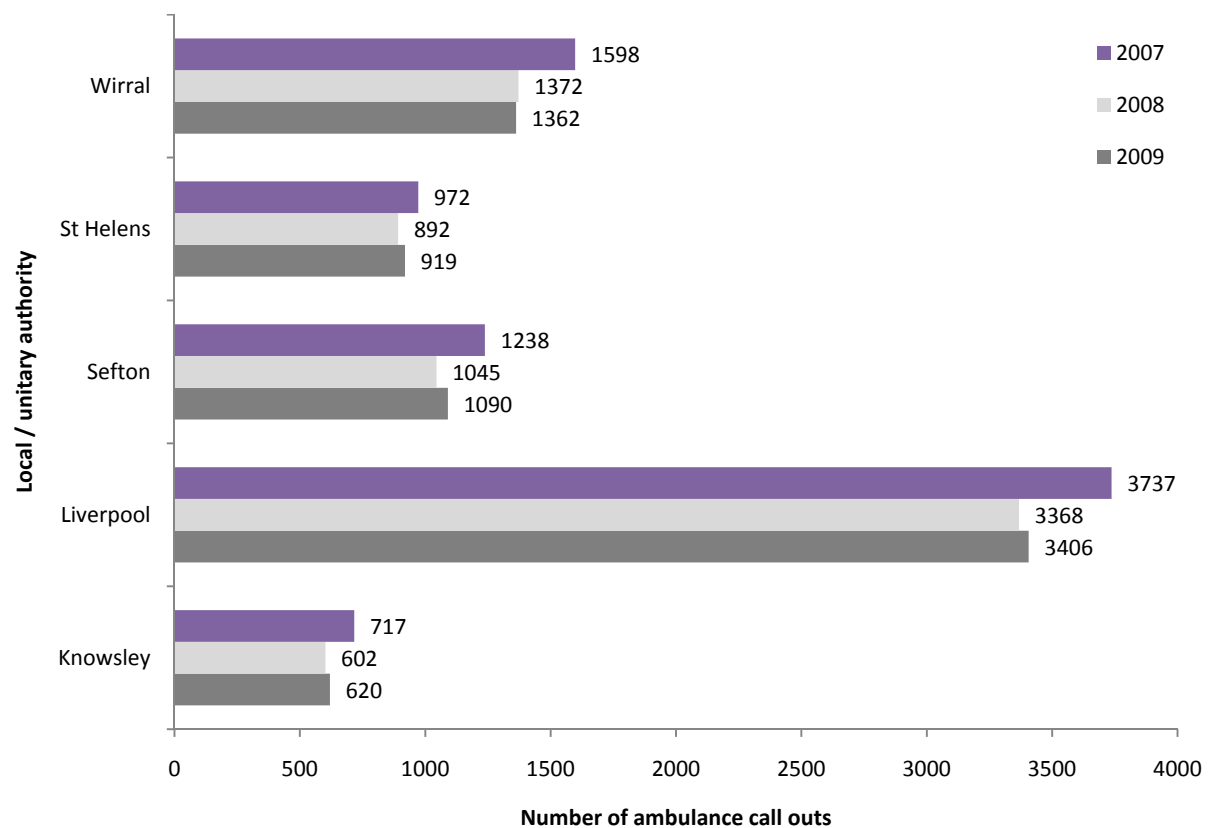


Table 2: Location of assault for assault attendances to all EDs for Merseyside residents and for all Merseyside EDs by age group and gender, January 2007 to December 2009 combined⁴⁵⁶

Location	Age group and gender												Total	All
	0-9		10-17		18-24		25-59		60 plus		F	M		
	F	M	F	M	F	M	F	M	F	M				
All ED attendances: Merseyside residents only														
Educational establishment	***	6%	6%	10%	<1%	<1%	<1%	<1%	0%	0%	1%	2%	1%	
Home	10%	13%	10%	6%	21%	8%	31%	13%	10%	12%	24%	11%	14%	
Other	5%	3%	14%	14%	18%	20%	13%	18%	3%	9%	14%	18%	16%	
Public place	3%	14%	52%	55%	38%	53%	25%	45%	6%	19%	31%	48%	43%	
Work	***	0%	<1%	<1%	2%	1%	5%	4%	2%	2%	3%	2%	2%	
Unknown	80%	64%	18%	14%	20%	17%	25%	20%	79%	59%	28%	20%	22%	
Total number	177	240	1317	3018	2377	6829	4546	10593	651	778	9068	21458	30541	
Alder Hey Children's Hospital														
Educational establishment	***	15%	15%	23%	0%	0%	0%	0%	0%	0%	14%	23%	20%	
Home	52%	36%	10%	7%	0%	0%	***	0%	0%	0%	13%	9%	10%	
Other	24%	11%	19%	13%	0%	0%	***	0%	0%	0%	20%	13%	15%	
Public place	***	38%	55%	54%	0%	0%	0%	0%	0%	0%	51%	53%	52%	
Work	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Unknown	***	0%	2%	3%	0%	0%	0%	0%	0%	0%	2%	3%	2%	
Total number	25	53	362	753	0	0	***	0	0	0	391	806	1197	
University Hospital Aintree														
Educational establishment	0%	0%	3%	5%	<1%	<1%	<1%	<1%	0%	0%	<1%	1%	1%	
Home	***	***	15%	11%	31%	11%	45%	16%	54%	40%	38%	14%	21%	
Other	***	0%	21%	20%	21%	23%	15%	22%	***	21%	17%	22%	21%	
Public place	***	***	60%	64%	45%	64%	33%	56%	30%	36%	39%	59%	54%	
Work	0%	0%	***	<1%	2%	2%	7%	5%	9%	4%	5%	3%	4%	
Unknown	0%	0%	***	<1%	1%	0%	1%	1%	***	0%	1%	1%	1%	
Total number	***	5	201	598	632	1999	1281	3582	54	131	2172	6318	8492	
Arrowe Park Hospital														
Educational establishment	0%	***	3%	11%	<1%	<1%	<1%	<1%	0%	0%	1%	2%	1%	
Home	***	33%	11%	3%	29%	6%	45%	12%	49%	20%	35%	9%	17%	
Other	***	***	***	2%	2%	1%	2%	2%	***	***	2%	2%	2%	
Public place	***	50%	84%	84%	67%	91%	46%	81%	41%	74%	58%	85%	77%	
Work	0%	0%	***	0%	3%	1%	6%	4%	***	***	4%	2%	3%	
Unknown	0%	0%	***	<1%	***	<1%	<1%	<1%	0%	0%	<1%	<1%	<1%	
Total number	5	24	326	790	598	1635	1080	2362	37	74	2046	4885	6936	
Royal Liverpool University Hospital														
Educational establishment	0%	0%	***	***	<1%	0%	0%	<1%	0%	***	<1%	<1%	<1%	
Home	0%	***	16%	11%	14%	8%	25%	12%	17%	14%	20%	10%	13%	
Other	0%	0%	33%	38%	36%	38%	31%	35%	31%	33%	33%	36%	36%	
Public place	***	0%	24%	30%	22%	25%	15%	24%	15%	26%	18%	25%	23%	
Work	0%	0%	***	***	1%	1%	3%	2%	0%	***	2%	2%	2%	
Unknown	***	0%	26%	21%	27%	28%	26%	27%	37%	25%	27%	27%	27%	
Total number	***	***	184	489	868	2804	1228	3889	52	159	2336	7344	9687	
Southport District General Hospital														
Educational establishment	***	***	***	3%	0%	<1%	<1%	<1%	0%	0%	<1%	<1%	<1%	
Home	***	***	12%	10%	21%	11%	41%	19%	64%	41%	33%	15%	20%	
Other	***	***	12%	6%	10%	7%	10%	8%	***	***	10%	7%	8%	
Public place	***	***	74%	81%	66%	80%	38%	68%	***	49%	50%	73%	67%	
Work	***	***	***	0%	3%	2%	11%	5%	***	***	7%	3%	4%	
Unknown	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Total number	***	***	74	161	280	931	462	1234	25	49	841	2376	3226	

⁴ Due to a change in IT system location of incident was not collected at the Royal Liverpool University Hospital between July 2008 and February 2009. Whiston Hospital does not collect electronic information on location of incident.

⁵ Please note that where attendance numbers are less than five and can be back calculated from totals they have been suppressed (***). <1% represents cases where attendance numbers were less than five but back calculations are not possible. 0% is used where there were no attendances.

⁶ Please also note percentages might not total one hundred due to rounding.

Figure 3: Merseyside residents: location of assault for assault attendances to all EDs by local authority / unitary authority, January 2007 to December 2009 combined

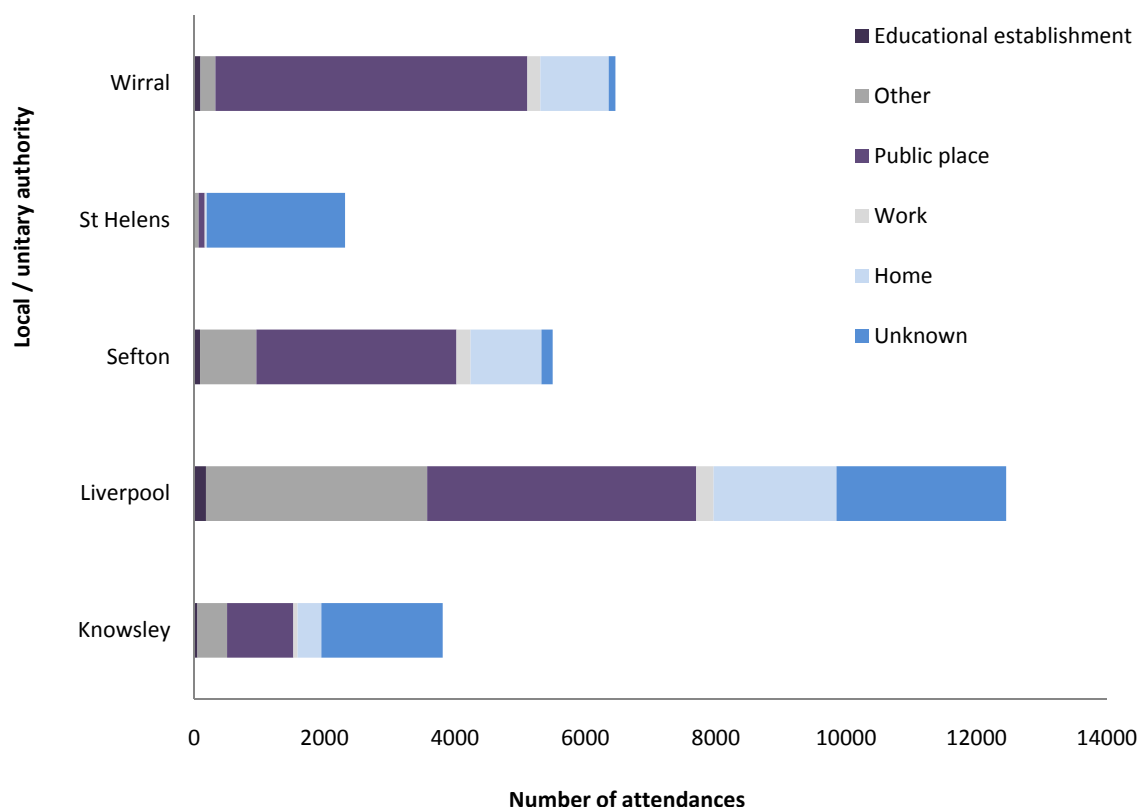


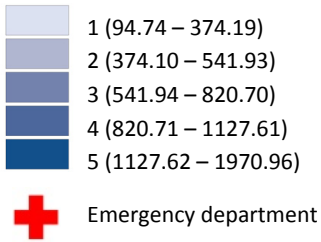
Table 3: Disposal method of assault attendances to all EDs for Merseyside residents and for all Merseyside EDs, January 2007 to December 2009 combined⁷

	Disposal method										
	Admitted		Discharged		Follow-up / referral		Other		Unknown		Total
	n	%	n	%	n	%	n	%	n	%	n
Total Merseyside ED attendances	5042	14	16908	48	7029	20	3123	9	2832	8	34934
<i>Alder Hey Children's Hospital</i>	37	3	803	72	331	26	25	0	***	0	1197
<i>University Hospital Aintree</i>	1897	22	3052	36	2596	31	947	11	***	0	8492
<i>Arrowe Park Hospital</i>	981	14	5955	86	***	0	***	0	***	0	6936
<i>Royal Liverpool University Hospital</i>	770	8	3552	37	1230	13	1305	13	2830	29	9687
<i>Southport District General Hospital</i>	357	11	1460	45	1011	31	397	12	***	0	3226
<i>Whiston Hospital</i>	1000	19	2031	38	1916	36	448	8	***	0	5396
Total ED attendances: Merseyside residents only	4181	14	14972	49	6217	20	2652	9	2519	8	30541
<i>Knowsley</i>	573	15	1507	40	1199	31	363	10	169	4	3811
<i>Liverpool</i>	1491	12	4868	39	2557	20	1420	11	2120	17	12456
<i>Sefton</i>	701	13	2392	44	1664	30	609	11	132	2	5498
<i>St Helens</i>	500	22	776	34	801	35	224	10	13	1	2314
<i>Wirral</i>	916	14	5376	83	49	1	36	1	85	1	6462

⁷ Due to a change in IT system disposal method was not collected at the Royal Liverpool University Hospital between July 2008 and February 2009.

Figure 4: Merseyside residents: crude rate per 100,000 population for assault attendance to all EDs, by MSOA of residence, January 2007 to December 2009 combined, with LA boundaries overlaid

Quintiles of crude rate per 100,000 population



Top five MSOAs

MSOA	MSOA name	n	Crude rate/100,000 (+ 95% confidence intervals [CI])
E02001374	Liverpool 28	456	1970.95 (1794.18-2160.44)
E02001482	Wirral 16	402	1934.46 (1749.95-2133.13)
E02001364	Liverpool 18	332	1932.70 (1730.38-2152.19)
E02001477	Wirral 11	382	1739.76 (1569.65-1923.28)
E02001465	Sefton 37	322	1665.63 (1488.65-1857.86)

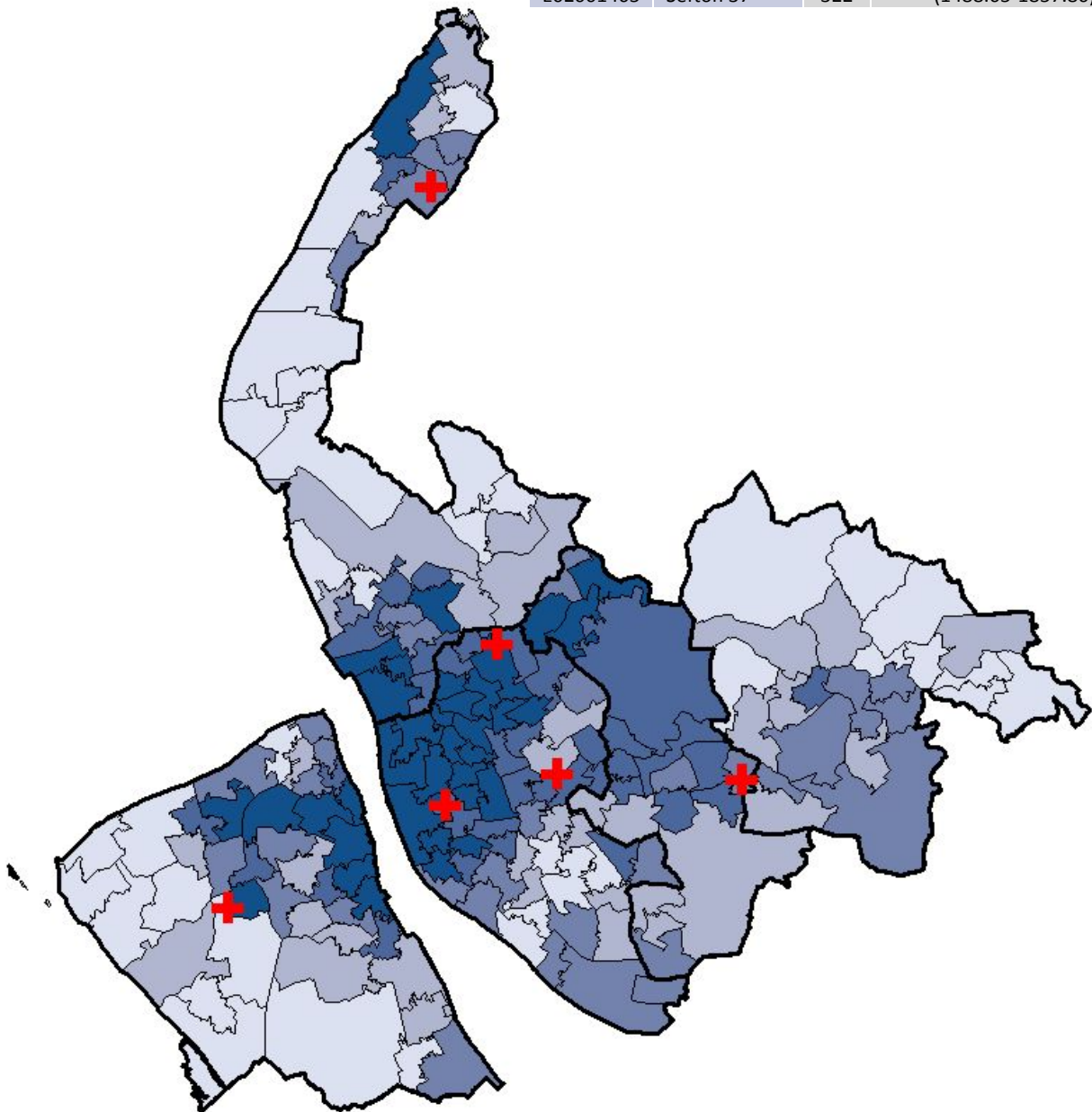
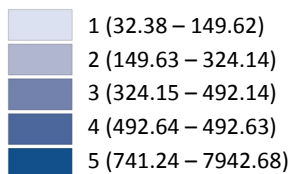


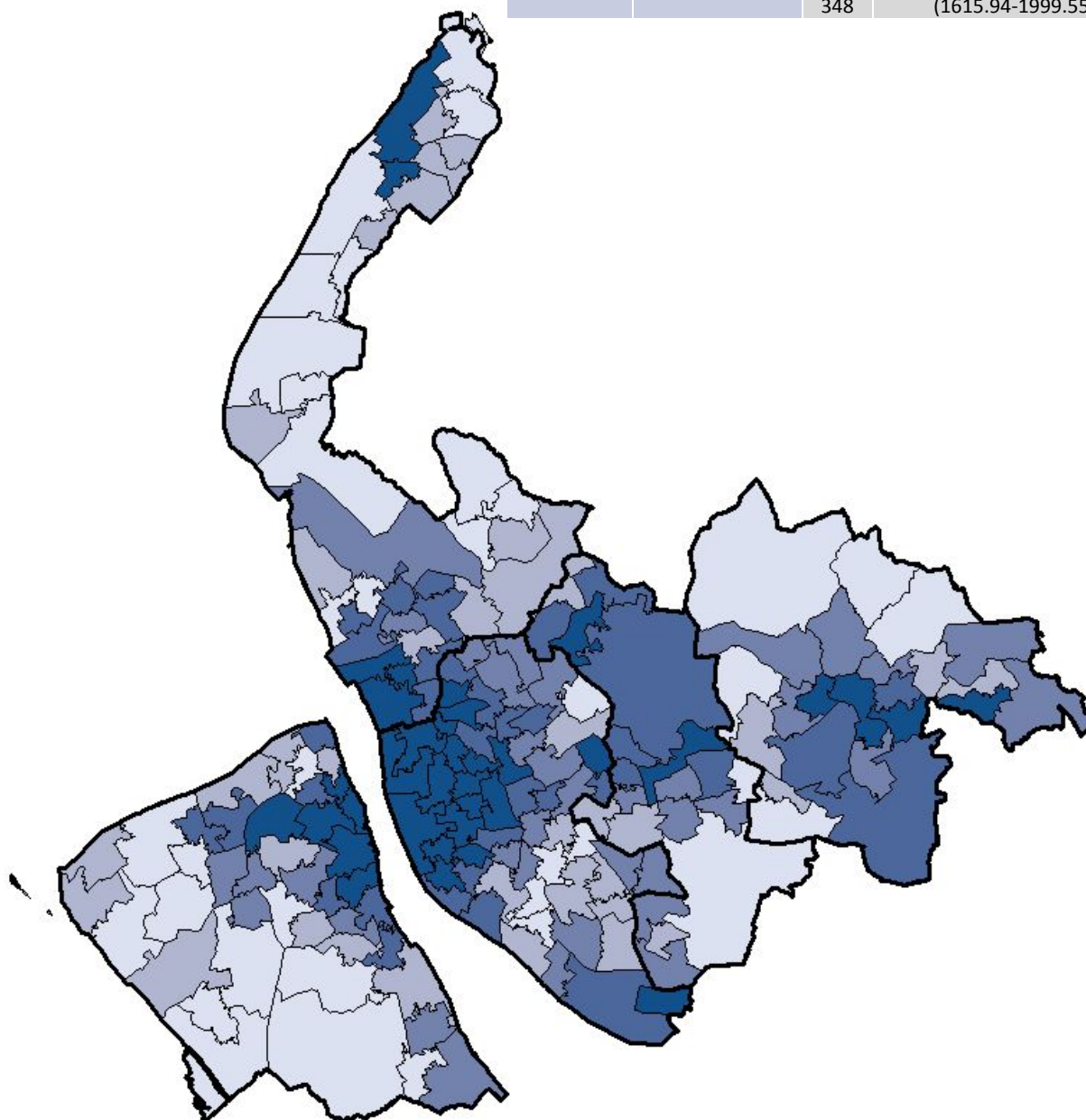
Figure 5: crude rate per 100,000 population for ambulance calls for an assault, by MSOA location of call out, January 2007 to December 2009 combined, with LA boundaries overlaid

Quintiles of crude rate per 100,000 population



Top five MSOAs

MSOA	MSOA Name	n	Crude rate/100,000 (+ 95% CI)
E02001379	Liverpool 33	2638	7942.67 (7642.44-8251.68)
E02001482	Wirral 16	712	3426.21 (3179.13-3687.39)
E02001417	St. Helens 12	622	2864.12 (2643.42-3098.32)
E02001432	Sefton 04	455	1911.6 (1739.97-2095.59)
E02001465	Sefton 37	348	1800.12 (1615.94-1999.55)



This report was produced as part of the North West project to support violence prevention through enhanced ED data sharing.

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Authors

Dan Hungerford, Gayle Whelan and Zara Quigg

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For further information contact:

Dan Hungerford

Centre for Public Health

WHO Collaborating Centre for Violence Prevention

Faculty of Health and Applied Social Sciences

Liverpool John Moores University

5th Floor,

Kingsway House,

Hatton Garden,

Liverpool,

L3 2AJ

Tel: 0151 231 8724

Email: d.j.hungerford@ljmu.ac.uk

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