



**Trauma and Injury Intelligence Group**

**Situational analysis of accident and emergency  
department data collection in Cumbria**

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## **I. Introduction**

### **I.1 Background**

In 2007 a meeting was held with representatives from Cumbria health services to discuss the need and potential benefits of the establishment of an injury surveillance system (ISS) in the Cumbria area. As a result of this meeting, and subsequent discussions with public health practitioners from Cumbria, agreement and funding was provided by Cumbria Primary Care Trust (PCT) to set up an ISS in Cumbria. The ISS will collect depersonalised data specifically from local accident and emergency departments (AEDs), modelled on the Trauma and Injury Intelligence Group (TIIG) ISS already established in Merseyside.

TIIG was established to develop a system of routinely collecting injury data from a range of agencies, and specifically AEDs. The purpose of the TIIG ISS is to allow systematic data collection and sharing for the purposes of monitoring intentional and unintentional injury, targeting resources towards at-risk populations and evaluating preventive interventions. Furthermore, TIIG works with data providers to promote the consistent collection of good quality injury data and to improve comparability of data between injury data sources. Covering all age groups, the TIIG ISS has been developed to allow all types of injury to be assessed, whilst developments to local injury datasets are encouraged to allow better data collection, analysis and interpretation of injury data.

### **I.2 Trauma and Injury Intelligence Group: Cumbria project**

Cumbria PCT has commissioned the Centre for Public Health at Liverpool John Moores University (LJMU) to set up and develop a TIIG-based ISS for Cumbria. The TIIG Cumbria is a three year project, commencing in January 2008. The primary focus of this project will be to develop a system of routinely collecting injury data from all AEDs located in Cumbria. The objectives of the project are to: enhance the quality and consistency of NHS data collection at AEDs; analyse and disseminate data on both intentional and unintentional injuries; promote the use of injury data across agencies; and inform public health interventions, partnership working and commissioning across Cumbria.

### **I.3 Purpose of this report**

The aim of this report is to assess:

- Data collection procedures and systems in each of the AEDs in Cumbria;
- The type of data that are collected at each AED and its quality; and,
- Current injury levels in Cumbria based on AED data.

## **2. Methodology**

Over the last twelve months TIIG project officers have contacted and liaised with AED managers, consultants and information managers from University Hospitals of Morecombe Bay NHS Trust (UHMBNT) and North Cumbria University Hospitals NHS Trust (NCUHNT). Over this period information on current AED data collection procedures and IT systems were collected for the purposes of this report as well as the development of the TIIG Cumbria project.

Data sharing protocols have been developed and are currently being signed by Caldicott Guardians at the UHMBNT and NCUHNT. A sample dataset of emergency attendance data were extracted by the information departments for AEDs covered by the two trusts for the month of June 2008. All the captured fields in the dataset were requested to provide a comprehensive overview of current collection fields, however, to maintain patient confidentiality, patient identifiable data was removed or aggregated with, for example, postcode of residence converted to Lower Super Output Area (LSOA).

An assessment of the type of data that are collected and its quality was conducted for each hospital trust, followed by a review of AED-based injury levels in Cumbria. Crude rates for all trauma attendances to AEDs in Cumbria have been mapped by Middle Super Output Area (MSOA) of residence. MSOAs in Cumbria were also assigned a quintile of multiple deprivation based on LSOA weighted average scores of multiple deprivation for 2007. The crude rate and 95% confidence intervals for trauma attendances resident in each quintile of multiple deprivation was also calculated. Quintile one contains MSOAs in Cumbria with the lowest score of multiple deprivation (i.e. the least deprived areas); and quintile five contains MSOAs in Cumbria with the highest scores of multiple deprivation (i.e. the most deprived areas).

### 3. Data collection at AEDs in Cumbria

#### 3.1 University Hospitals of Morecombe Bay NHS Trust (UHMBNT)

The trust comprises three hospitals with AEDs: Furness General Hospital; Westmorland General Hospital; and Royal Lancaster Infirmary. The trust has agreed in principle to participate in the project and subsequently a sample of data for all three AEDs has been provided.

##### 3.1.1 Current data collection

The trust currently collects a slightly expanded version of the national minimum accident and emergency attendance commissioning dataset type (NHS Connecting for Health). Most of these data are captured at the reception desk on a patient's arrival at the AED. Over the sample time period the trust received 9,216 AED attendances. After reviewing the data sample provided it is evident that the completion levels are high across most of the mandatory fields (Table 1). The source of referral field has been expanded and includes the additional categories 'by foot' and 'helicopter/air ambulance'; likewise the attendance disposal field includes the additional category 'restore to ward'.

**Table 1. University Hospitals of Morecombe Bay NHS Trust AED data fields; including completion rates [Data sample June 2008]**

Data fields	Field categories	Completion (%)	Notes
Arrival date	DD:MM:YYYY	100	
Arrival time	HH:MM:SS	100	
Sex	1. Male 2. Female 3. Unknown	100	
Age	YY	100	
Ethnic group		0	
Area of residence	Lower Super Output Area	98	
Arrival mode	1. Brought in by ambulance 2. By foot 3. Helicopter/air ambulance 4. Other	100	Other = 1%
Referral source	1. Unknown 2. Educational establishment 3. Emergency services 4. General medical practitioner 5. Health care provider: same or other 6. Local authority – social services 7. Other 8. Police 9. Self-referral 10. Work 11. General dental practitioner 12. Community dental service	100	
Incident date	DD:MM:YYYY	0	
Incident time	HH:MM:SS	0	
Incident location	1. Home 2. Work 3. Educational establishment 4. Public place 5. Other	100	Other location = 27%
Patient group (injury type)	1. Road traffic accident 2. Assault 3. Deliberate self-harm 4. Sports injury 5. Firework injury	100	Other accident = 30% Other than above = 63%

Data fields	Field categories	Completion (%)	Notes
	6. Other accident 7. Brought in dead 8. Other than above		
Attendance category	1. First accident and emergency attendance 2. Follow-up accident and emergency attendance – planned 3. Follow-up accident and emergency attendance – unplanned	100	
First diagnosis	Coding specific to UHMBNT <sup>1</sup>	97	
Attendance disposal	1. Admitted to hospital bed/became a lodged patient of the same health care provider 2. Discharged – follow-up treatment to be provided by general practitioner 3. Discharged – did not require any follow up treatment 4. Referred to A&E clinic 5. Referred to fracture clinic 6. Referred to other out-patient clinic 7. Transferred to other health care provider 8. Died in department 9. Referred to other health care professional 10. Left department before being treated 11. Left department having refused treatment 12. Restore to ward 13. Other	100	Other = 0.5%

### 3.2 North Cumbria University Hospitals NHS Trust (NCUHNT)

The trust comprises two hospitals with AEDs: Cumberland Infirmary and West Cumberland Hospital. TIIG project officers have been in contact with NCUHNT since July 2008. The trust has agreed in principle to participate in the project and subsequently a sample of data for the two AEDs has been provided.

#### 3.2.1 Current data collection

The trust currently collects an expanded version of the national minimum accident and emergency attendance commissioning dataset type (NHS Connecting for Health). Most of these data are captured at the reception desk on a patient's arrival at the AED. Over the sample time period the trust received 5,920 AED attendances. After reviewing the data sample provided it is evident that the completion levels are high across most of the mandatory fields (Table 2).

Patient group is one of the fields that has been expanded from the national minimum dataset to include: other accident – falls; other accident – domestic accident; other accident – industrial accident; other than above; other – dental patient; other – lodged patient; other – medical patient; other – surgical patient; and other – referred to specialty. Arrival mode has also been expanded to include: other – walking; other – private transport; and other public – transport.

**Table 2. North Cumbria University Hospitals NHS Trust AED data fields; including completion rates [Data sample June 2008]**

Data fields	Field categories	Completion (%)	Notes
Arrival date	DD:MM:YYYY	100	
Arrival time	HH:MM:SS	100	
Sex	1. Male 2. Female 3. Unknown	100	
Age	YY	100	

<sup>1</sup> First diagnosis codes and descriptions for UHMBNT are available on request.

Data fields	Field categories	Completion (%)	Notes
Area of residence	Lower Super Output Area	94	
Arrival mode	<ol style="list-style-type: none"> <li>1. Brought in by ambulance (including helicopter/air ambulance)</li> <li>2. Other</li> <li>3. Other – walking</li> <li>4. Other – public transport</li> <li>5. Other – private transport</li> </ol>	100	Other = 0.5%
Referral source	<ol style="list-style-type: none"> <li>1. General medical practitioner</li> <li>2. Self-referral</li> <li>3. Local authority social services</li> <li>4. Emergency services</li> <li>5. Work</li> <li>6. Educational establishment</li> <li>7. Police</li> <li>8. Health care provider: same or other</li> <li>9. Other</li> <li>10. General dental practitioner</li> <li>11. Community dental service</li> <li>12. Healthcare provider – NHS direct</li> </ol>	100	Other = 0.5%
Incident date	DD:MM:YYYY	0	
Incident time	HH:MM:SS	0	
Incident location	<ol style="list-style-type: none"> <li>1. Home</li> <li>2. Work</li> <li>3. Educational establishment</li> <li>4. Public place</li> <li>5. Other</li> </ol>	100	Other = 8%
Patient group (injury type)	<ol style="list-style-type: none"> <li>1. Road traffic accident</li> <li>2. Assault</li> <li>3. Deliberate self-harm</li> <li>4. Sports injury</li> <li>5. Firework injury</li> <li>6. Other accident</li> <li>7. Other accident – falls</li> <li>8. Other accident – domestic accident</li> <li>9. Other accident – industrial accident</li> <li>10. Brought in dead</li> <li>11. Other than above</li> <li>12. Other – dental patient</li> <li>13. Other – lodged patient</li> <li>14. Other – medical patient</li> <li>15. Other – surgical patient</li> <li>16. Other – referred to specialty</li> </ol>	99	<p>Other accident = 26%</p> <p>Other than above = 11%</p>
Attendance category	<ol style="list-style-type: none"> <li>1. First accident and emergency attendance</li> <li>2. Follow-up accident and emergency attendance – planned</li> <li>3. Follow-up accident and emergency attendance – unplanned</li> </ol>	100	
First diagnosis	NHS Choosing Health. Accident and emergency attendance commissioning dataset type	83	
Attendance disposal	<ol style="list-style-type: none"> <li>1. Admitted to hospital bed/became a lodged patient of the same health care provider</li> <li>2. Discharged – follow-up treatment to be provided by general practitioner</li> <li>3. Discharged – did not require any follow-up treatment</li> <li>4. Referred to A&amp;E clinic</li> <li>5. Referred to fracture clinic</li> </ol>	100	Other = 0.5%

Data fields	Field categories	Completion (%)	Notes
	6. Referred to other out-patient clinic 7. Transferred to other health care provider 8. Died in department 9. Referred to other health care professional 10. Left department before being treated 11. Left department having refused treatment 12. Other		

### 3.3 Next key steps

This situational analysis has identified a number of key steps for the TIIG Cumbria project to achieve in the new year:

- Data protocols to be signed by all the relevant parties.
- Establish regular data exchange (monthly) from the information department to TIIG via the secure NHS email address at LJMU.
- Conduct a thorough area analysis of intentional and unintentional injuries in Cumbria using a two-year AED dataset and other data sources where available.
- Set up an area consultation meeting with key stakeholders to highlight current injury trends and at-risk groups, to establish what injury data are of the greatest benefit to public health intelligence in Cumbria and agree the structuring and focus of routine TIIG reports.

## 4. Injury levels in Cumbria

### 4.1 Trauma attendances to University Hospitals of Morecombe Bay NHS Trust (UHMBNT)

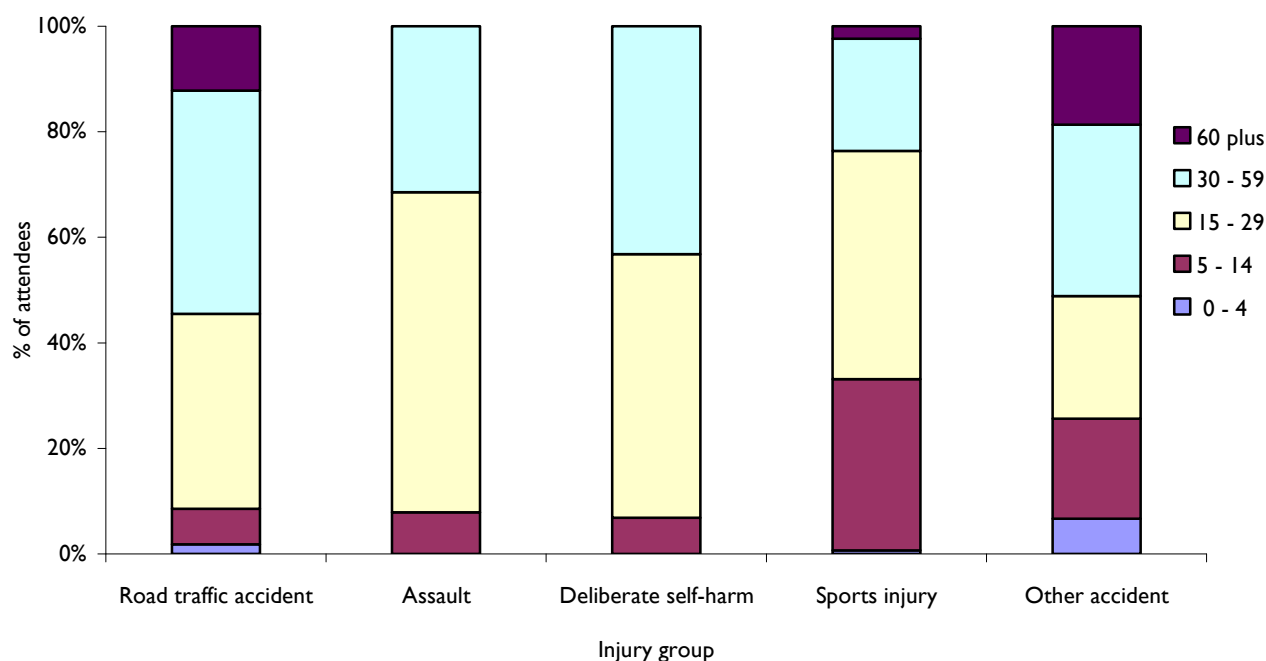
The AEDs within UHMBNT received 3,396 trauma attendances<sup>2</sup> during June 2008 (Table 3). Eight in ten (81%) of these attendances were identified as other accident and 9% were identified as a sports injury. Table 3 shows the injury group of trauma attendances by sex, overall more attendances were male (57%). The large majority of sports injury attendances (79%) and assaults (76%) were male. However, female attendances accounted for 68% of deliberate self-harm attendances.

**Table 3. Injury group of trauma attendances to AEDs covered by University Hospitals of Morecombe Bay NHS Trust, by sex, June 2008<sup>3</sup>**

Injury group	Males		Females		Total	
	N	%	N	%	N	%
Other accident	1485	54.1	1260	45.9	2745	80.8
Sports injury	234	79.1	62	20.9	296	8.7
Road traffic accident	125	56.3	97	43.7	222	6.5
Assault	68	76.4	21	23.6	89	2.6
Deliberate self-harm	14	31.8	30	68.2	44	1.3
Total	1926	56.7	1470	43.3	3396	100.0

A third (32%) of all trauma attendances were aged between 30-59 years old, however as figure one demonstrates this varies between injury groups. For example, six in ten (61%) assault attendances are aged 15-29, whereas the majority (55%) of road traffic accidents occurred in the over 30s.

**Figure 1. Injury group of trauma attendances to AEDs covered by University Hospitals of Morecombe Bay NHS Trust by age group, June 2008**



For all trauma attendances to AEDs covered by UHMBNT, public place was the most common location for the incident (29%), followed by home (28%) and other (26%). The home was the primary location of incident for deliberate self-harm (59%) and other accident (33%) attendances. Public place was the primary location of incident for road traffic accident (64%) and assault (52%) attendances.

<sup>2</sup> Trauma refers to all AED attendances presenting as a result of an intentional or unintentional injury. For AEDs covered by UHMBNT trauma includes the patient group categories: road traffic accident; assault; deliberate self-harm; firework injury; sports injury; and other accident.

<sup>3</sup> Percentages in all tables may not add up to 100% due to rounding.

Half of all trauma attendances to AEDs covered by UHMBNT occurred on Monday, Tuesday and Wednesday and on these days the peak hours were between 10am and 2pm. Table 4 presents the peak days and times of attendance by injury group. There are wide variations in peak attendance days and times between injury groups. For example, road traffic accident attendances peaked between 4pm and 8pm on Monday, Wednesday and Friday, whereas sports injury attendances were at their highest in the morning of Sunday, Monday and Wednesday.

**Table 4. Peak times on the busiest days for trauma attendances to AEDs covered by University Hospitals of Morecombe Bay NHS Trust, by injury group, June 2008**

Injury group	Peak days	Peak hours
Assault	Saturday, Sunday and Monday (64%)	33% between 12am and 4am
Deliberate self-harm	Sunday, Wednesday and Thursday (63%)	39% between 10pm and 2am
Other accident	Monday, Tuesday and Wednesday (52%)	30% between 4pm and 8pm
Road traffic accident	Monday, Wednesday and Friday (49%)	30% between 4pm and 8pm
Sports injury	Sunday, Monday and Wednesday (49%)	29% between 8am and 12pm
All trauma	Monday, Tuesday and Wednesday (50%)	30% between 10am and 2pm

The most common source of referral for trauma attendances to AEDs covered by UHMBNT was self-referral (79%) (Table 5).

**Table 5. Source of referral for trauma attendances to AEDs covered by University Hospitals of Morecombe Bay NHS Trust, June 2008**

Source of referral	N	%
Self-referral	2687	79.1
Emergency services	290	8.5
Other	267	7.9
General practitioner	62	1.8
Educational establishment	40	1.2
Work	23	0.7
Police	23	0.7
Health care provider: same or other	<5	0.1
Unknown	<5	0.1
Total	3396	100.0

For the majority (97%) of trauma attendances it was their first accident and emergency attendance for that incident (Table 6), and nine out of ten (88%) attendances had arrived at the AED by a mode other than ambulance (Table 7).

**Table 6. Attendance category of trauma attendances to AEDs covered by University Hospitals of Morecombe Bay NHS Trust, June 2008**

Attendance category	N	%
First accident and emergency attendance	3309	97.4
Follow-up accident and emergency attendance planned	18	0.5
Follow-up accident and emergency attendance unplanned	69	2.0
Total	3396	100.0

**Table 7. Arrival mode of trauma attendances to AEDs covered by University Hospitals of Morecombe Bay NHS Trust, June 2008**

Arrival mode	N	%
Other	2975	87.6
Brought in by ambulance	421	12.4
Total	3396	100

Table 8 shows the disposal method for trauma attendances to AEDs covered by UHMBNT. For all trauma attendances 41% were discharged without requiring any follow up and 27% were discharged but required follow up from a general practitioner. Of those patients admitted to a hospital bed/became a lodger patient the majority (39%) were aged 60 plus.

**Table 8. Method of disposal of all trauma attendances to AEDs covered by University Hospitals of Morecombe Bay NHS Trust, June 2008**

Method of disposal	N	%
Discharged – did not require any follow-up treatment	1388	40.9
Discharged – follow-up treatment to be provided by general practitioner	908	26.7
Referred to fracture clinic	472	13.9
Admitted to hospital bed/became a lodger patient of the same health care provider	238	7.0
Referred to A&E clinic	152	4.5
Referred to other out-patient clinic	68	2.0
Referred to other health care professional	66	1.9
Left department before being treated	54	1.6
Transferred to other health care provider	33	1.0
Other	10	0.3
Left department having refused treatment	6	0.2
Unknown	1	0.0
Total	3396	100.0

#### 4.2 Trauma attendances to North Cumbria University Hospitals NHS Trust (NCUHNT)

The AEDs within the trust received 3,779 trauma<sup>4</sup> attendances during June 2008 (Table 9), and four in ten (40%) of these attendances were identified as other accident and 31% were falls. Table 9 shows the injury group of trauma attendances by sex, overall more attendances were male (57%). The majority of sports injury attendances (81%), industrial accidents (78%) and assaults (75%) were male. However female attendances accounted for 56% of fall attendances.

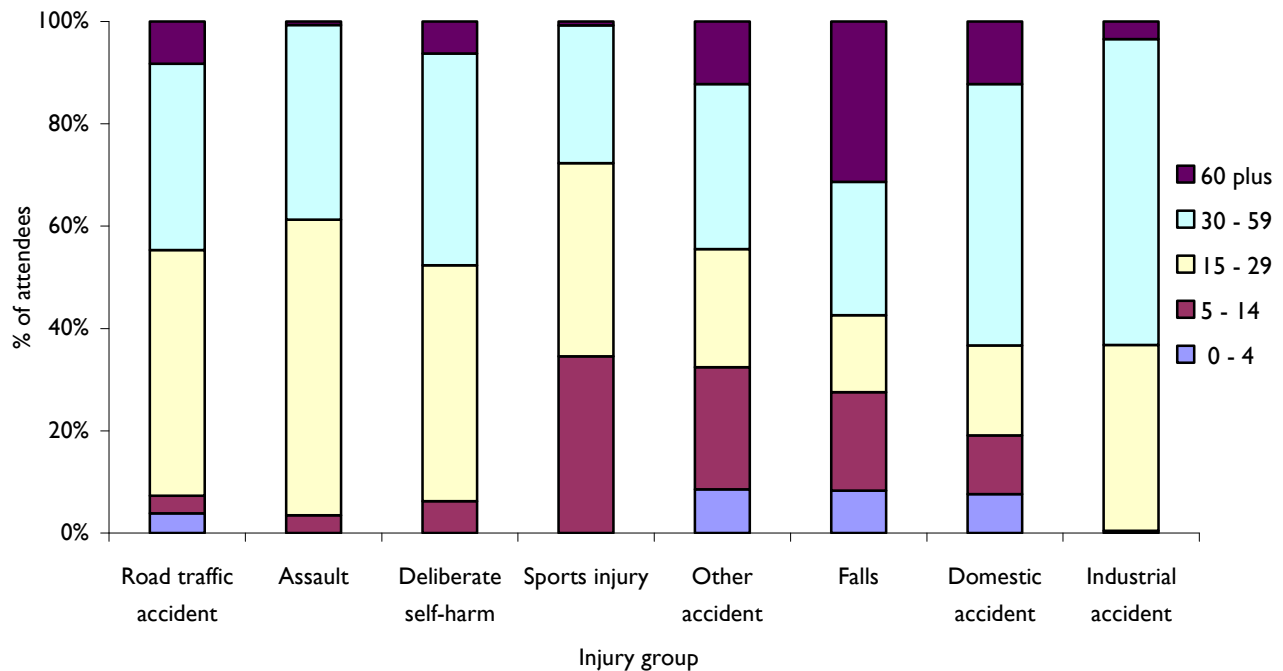
**Table 9. Injury group of trauma attendances to AEDs covered by North Cumbria University Hospitals NHS Trust, by sex, June 2008**

Injury group	Males		Females		Unknown	Total	
	N	%	N	%		N	N
Other accident	866	57.4	640	42.4	2	1508	39.9
Other accident – falls	514	44.5	641	55.5	0	1155	30.6
Sports injury	226	81.3	51	18.3	1	278	7.4
Other accident – industrial accident	181	78.4	50	21.6	0	231	6.1
Road traffic accident	121	58.7	85	41.3	0	206	5.5
Assault	107	75.4	34	23.9	1	142	3.8
Other accident – domestic accident	85	64.9	46	35.1	0	131	3.5
Deliberate self-harm	63	49.2	65	50.8	0	128	3.4
Total	2163	57.2	1612	42.7	4	3779	100.0

<sup>4</sup> Trauma refers to all AED attendances presenting as a result of an intentional or unintentional injury. For AEDs covered by NCUHNT trauma covers the patient group categories: road traffic accident; assault; deliberate self-harm; sports injury; firework injury; other accident; other accident – falls; other accident – domestic accident; and other accident – industrial accident.

A third (33%) of all trauma attendances were aged between 30-59 years old, however as figure two demonstrates this varies between injury groups. For example, three in ten (31%) fall attendances are aged 60 or above, whereas the majority (63%) of industrial accidents occurred in the over 30s.

**Figure 2. Injury group of trauma attendances to AEDs covered by North Cumbria University Hospitals NHS Trust by age group, June 2008**



For all trauma attendances to AEDs covered by NCUHNT, public place was the most common location for the incident (41%), followed by home (37%) and work (10%). Public place was the primary location of incident for road traffic accident (95%), sports injury (76%) and assault (69%) attendances. The home was the primary location of incident for deliberate self-harm (65%) and fall (43%) attendances.

Half of all trauma attendances to AEDs covered by NCUHNT occurred on Sunday, Monday and Tuesday and on these days the peak hours were between 2pm and 6pm. Table 10 presents the peak days and times of attendance by injury group. There are wide variations in peak attendance days and times between injury groups. For example, fall attendances peaked between 10am and 2pm on Saturday, Sunday and Monday, whereas sports injury attendances were at their highest in the evening of Sunday, Monday and Tuesday.

**Table 10. Peak times on the busiest days for trauma attendances to AEDs covered by North Cumbria University Hospitals NHS Trust, by injury group, June 2008**

Injury group	Peak days	Peak hours
Assault	Saturday, Sunday and Monday (71%)	39% between 10pm and 2am
Deliberate self-harm	Sunday, Monday and Wednesday (54%)	29% between 10pm and 2am
Other accident – domestic accident	Sunday, Monday and Friday (61%)	34% between 8am and 12pm
Other accident – falls	Saturday, Sunday and Monday (51%)	30% between 10am and 2pm
Other accident – industrial accident	Monday, Tuesday and Thursday (54%)	34% between 10am and 2pm
Other accident	Sunday, Monday and Thursday (50%)	32% between 4pm and 8pm
Road traffic accident	Saturday, Sunday and Monday (54%)	42% between 4pm and 8pm
Sports injury	Sunday, Monday and Tuesday (57%)	30% between 6pm and 10pm
Total	Sunday, Monday and Tuesday (50%)	28% between 2pm and 6pm

The most common source of referral for trauma attendances to AEDs covered by NCUHNT was self-referral (67%) (Table 11).

**Table 11. Source of referral for trauma attendances to AEDs covered by North Cumbria University Hospitals NHS Trust, June 2008**

Source of referral	N	%
Self-referral	2529	66.9
Emergency services	565	15.0
Health care provider: same or other	230	6.1
General practitioner	220	5.8
Work	114	3.0
Educational establishment	71	1.9
Police	33	0.9
Other	10	0.3
Healthcare provider – NHS direct	<5	0.1
Local authority social services	<5	0.1
Total	3779	100.0

For the majority (89%) of trauma attendances to NCUHNT AEDs it was their first accident and emergency attendance for that incident (Table 12), and eight out of ten (81%) attendances had arrived at the AED by private transport (Table 13).

**Table 12. Attendance category of trauma attendances to AEDs covered by North Cumbria University Hospitals NHS Trust, June 2008**

Attendance category	N	%
Unknown	2	0.1
First accident and emergency attendance	3368	89.1
Follow-up accident and emergency attendance planned	246	6.5
Follow-up accident and emergency attendance unplanned	163	4.3
Total	3779	100.0

**Table 13. Arrival mode of trauma attendances to AEDs covered by North Cumbria University Hospitals NHS Trust, June 2008**

Arrival mode	N	%
Private transport	3066	81.1
Brought in by ambulance	608	16.1
Public transport	46	1.2
Walking	32	0.8
Other	25	0.7
Unknown	2	0.1
Total	3779	100

Table 14 shows the disposal method for trauma attendances to AEDs covered by NCUHNT. For all trauma attendances 57% were discharged without requiring any follow up, and 11% were referred to the fracture clinic. Of those patients admitted to a hospital bed/became a lodger patient, the majority (35%) were aged 60 and above.

**Table 14. Method of disposal of trauma attendances to AEDs covered by North Cumbria University Hospitals NHS Trust by age group, June 2008**

Method of disposal	N	%
Discharged – did not require any follow-up treatment	2154	57.1
Referred to fracture clinic	396	10.5
Admitted to hospital bed/became a lodged patient of the same health care provider	347	9.2
Discharged – follow-up treatment to be provided by general practitioner	336	8.9
Referred to A&E clinic	309	8.2
Left department before being treated	93	2.5
Referred to other out-patient clinic	65	1.7
Referred to other health care professional	29	0.8
Transferred to other health care provider	18	0.5
Left department having refused treatment	17	0.5
Other	9	0.2
Unknown	<10	0.0
Died in department	<5	0.0
Total	3779	100.0

### 4.3 Trauma attendances to all AEDs in Cumbria

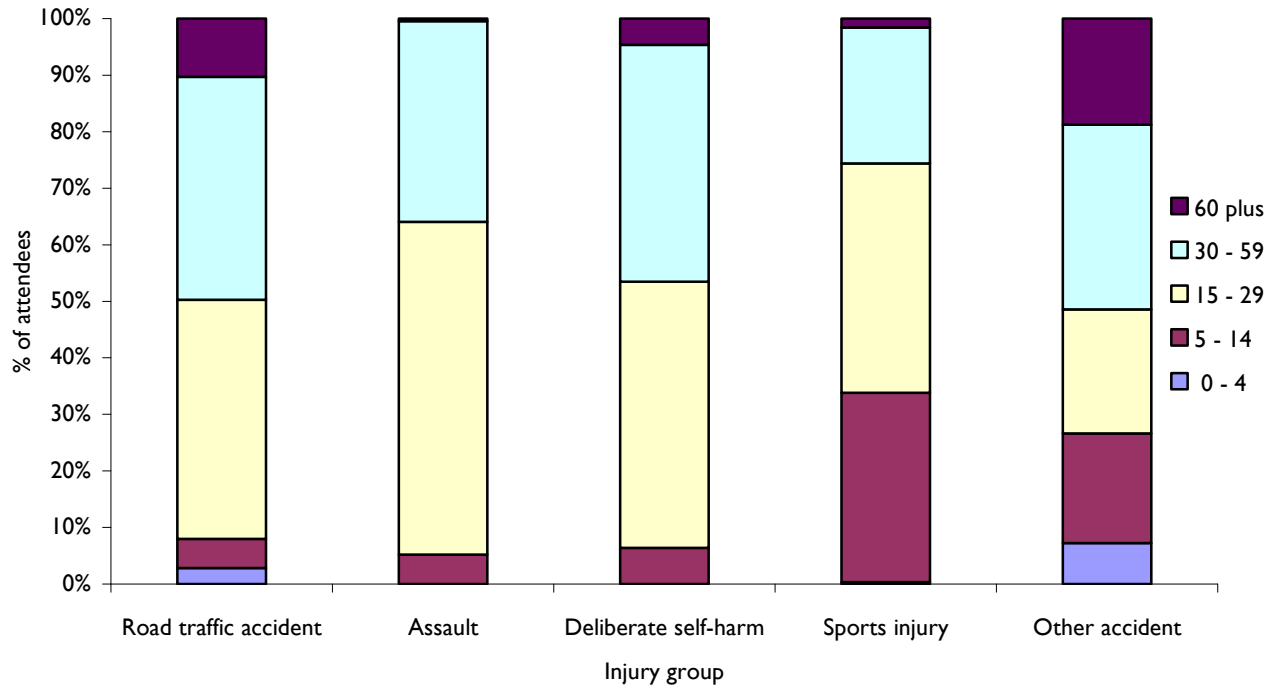
Accident and emergency trauma attendances for all AEDs have been aggregated to provide an overview of the AED injury burden in Cumbria. AEDs within Cumbria received 7,175 trauma attendances during June 2008 (Table 15). Eight in ten (80%) of these were identified as other accident and 8% as a sports injury. Table 15 shows the injury group of trauma attendances by sex. Overall more attendances were male (57%), with 80% of sports injury attendances being male. However, female attendances accounted for 55% of deliberate self-harm attendances.

**Table 15. Injury group of trauma attendances to all AEDs in Cumbria by sex, June 2008**

Injury group	Males		Females		Unknown	Total	
	N	%	N	%		N	%
Other accident	3131	54.3	2637	45.7	2	5770	80.4
Sports injury	460	80.1	113	19.7	1	574	8.0
Road traffic accident	246	57.5	182	42.5	0	428	6.0
Assault	175	75.8	55	23.8	1	231	3.2
Deliberate self-harm	77	44.8	95	55.2	0	172	2.4
Total	4089	57.0	3082	43.0	4	7175	100.0

A third (33%) of all trauma attendances were aged between 30-59 years old, however as figure five below shows, the age group of trauma attendances differs between injury group. Six in ten (59%) assault attendances were aged between 15-29 years, and for each injury group less than 10% of attendances were aged 60 and above, except for other accident (19%).

**Figure 5. Injury group of trauma attendances to all AEDs in Cumbria by age group, June 2008**



For all trauma attendances to AEDs in Cumbria, public place was the most common location for the incident (35%), followed by home (33%) and other location (16%). Public place was the primary location of incident for road traffic accident (79%), sports injury (67%) and assault (62%) attendances. The home was the primary location of incident for deliberate self-harm (63%) and was also the location for 18% of assaults.

Half of all trauma attendances to AEDs in Cumbria occurred on Sunday, Monday and Wednesday and on these days the peak hours were between 4pm and 8pm. Table 16 presents the peak days and times of attendance by injury groups. There are wide variations in peak attendance days and times between injury groups. For example, road traffic accidents peaked between 4pm and 8pm on Monday, Friday and Saturday, whereas sports injury attendances were at their highest in the evening of Sunday, Monday and Tuesday.

**Table 16. Peak times on the busiest days for trauma attendances to AEDs in Cumbria, by injury group, June 2008**

Injury group	Peak days	Peak hours
Assault	Saturday, Sunday and Monday (69%)	36% between 12am and 4am
Deliberate self-harm	Sunday, Monday and Wednesday (56%)	28% between 10pm and 2am
Other accident	Sunday, Monday and Tuesday (49%)	30% between 10am and 2pm
Road traffic accident	Monday, Friday and Saturday (51%)	34% between 4pm and 8pm
Sports injury	Sunday, Monday and Tuesday (52%)	30% between 4pm and 8pm
Total	Sunday, Monday and Wednesday (49%)	28% between 4pm and 8pm

The most common source of referral for trauma attendances to AEDs in Cumbria was self-referral (73%) (Table 17).

**Table 17. Source of referral for trauma attendances to all AEDs in Cumbria, June 2008**

Source of referral	N	%
Self-referral	5216	72.7
Emergency services	855	11.9
General medical practitioner	282	3.9
Other	277	3.9
Health care provider: same or other	232	3.2
Work	137	1.9
Educational establishment	111	1.5
Police	56	0.8
Healthcare provider – NHS direct	<5	0.1
Local authority social services	<5	0.0
Unknown	2	0.0
Total	7175	100.0

For the majority (93%) of trauma attendances to AEDs in Cumbria it was their first accident and emergency attendance for that incident (Table 18), and 86% of trauma attendances had arrived at the AED by a mode other than ambulance (Table 19).

**Table 18. Attendance category of trauma attendances to all AEDs in Cumbria, June 2008**

Attendance category	N	%
Unknown	2	0.0
First accident and emergency attendance	6677	93.1
Follow-up accident and emergency attendance planned	264	3.7
Follow-up accident and emergency attendance unplanned	232	3.2
Total	7175	100.0

**Table 19. Arrival mode of trauma attendances to all AEDs in Cumbria, June 2008**

Arrival mode	N	%
Brought in by ambulance	1029	14.3
Other	6144	85.6
Unknown	2	0.0
Total	7175	100.0

Table 20 shows the disposal method for trauma attendances to AEDs in Cumbria. For all trauma attendances 49% were discharged without requiring any follow up, and 17% required follow up treatment from a general practitioner. Of those patients admitted to a hospital bed/became a lodger patient the majority (37%) were aged 60 plus.

**Table 20. Method of disposal of all trauma attendances to all AEDs in Cumbria, June 2008**

Method of disposal	N	%
Discharged – did not require any follow-up treatment	3542	49.4
Discharged – follow-up treatment to be provided by general practitioner	1244	17.3
Referred to fracture clinic	868	12.1
Admitted to hospital bed/became a lodged patient of the same health care provider	585	8.2
Referred to A&E clinic	461	6.4
Left department before being treated	147	2.0
Referred to other out-patient clinic	133	1.9
Referred to other health care professional	95	1.3
Transferred to other health care provider	51	0.7
Left department having refused treatment	23	0.3
Other	19	0.3
Unknown	<10	0.1
Died in department	<5	0.0
Total	7175	100.0

Figures four to six show the crude rate of trauma attendances to AEDs in Cumbria per 10,000 population for MSOAs, which are split into quintiles running from the lowest crude rate (1) to the highest (5). Tables 21 to 23 illustrate the five MSOAs with the highest crude rates for: all; male; and female trauma attendances.

**Table 21. Top five Middle Super Output Areas of residence for all trauma attendances to AEDs in Cumbria, crude rate per 10,000 population, June 2008**

MSOA code	General area	Crude rate/10,000
E02003994	Carlisle area: Longsowerby, Newton, Morton	205.27
E02003997	Carlisle area: Harraby, Botcherby	189.61
E02004000	Parton, Howgate, Lowca, Common End	189.03
E02003995	Carlisle area: Newtown and Morton	187.67
E02004002	Whitehaven area: Harras, Hensingham	178.22

**Table 22. Top five Middle Super Output Areas of residence for male trauma attendances to AEDs in Cumbria, crude rate per 10,000 population, June 2008**

MSOA code	General area	Crude rate/10,000
E02003995	Carlisle area: Newtown and Morton	242.83
E02003994	Carlisle area: Longsowerby, Newton, Morton	237.48
E02003997	Carlisle area: Harraby, Botcherby	219.29
E02004003	Cleator Moor, Ennerdale Fell, Ennerdale Bridge, Kinniside Common	208.64
E02004000	Whitehaven area: Parton, Howgate, Lowca, Common End	208.25

**Table 23. Top five Middle Super Output Areas of residence for female trauma attendances to AEDs in Cumbria, crude rate per 10,000 population, June 2008**

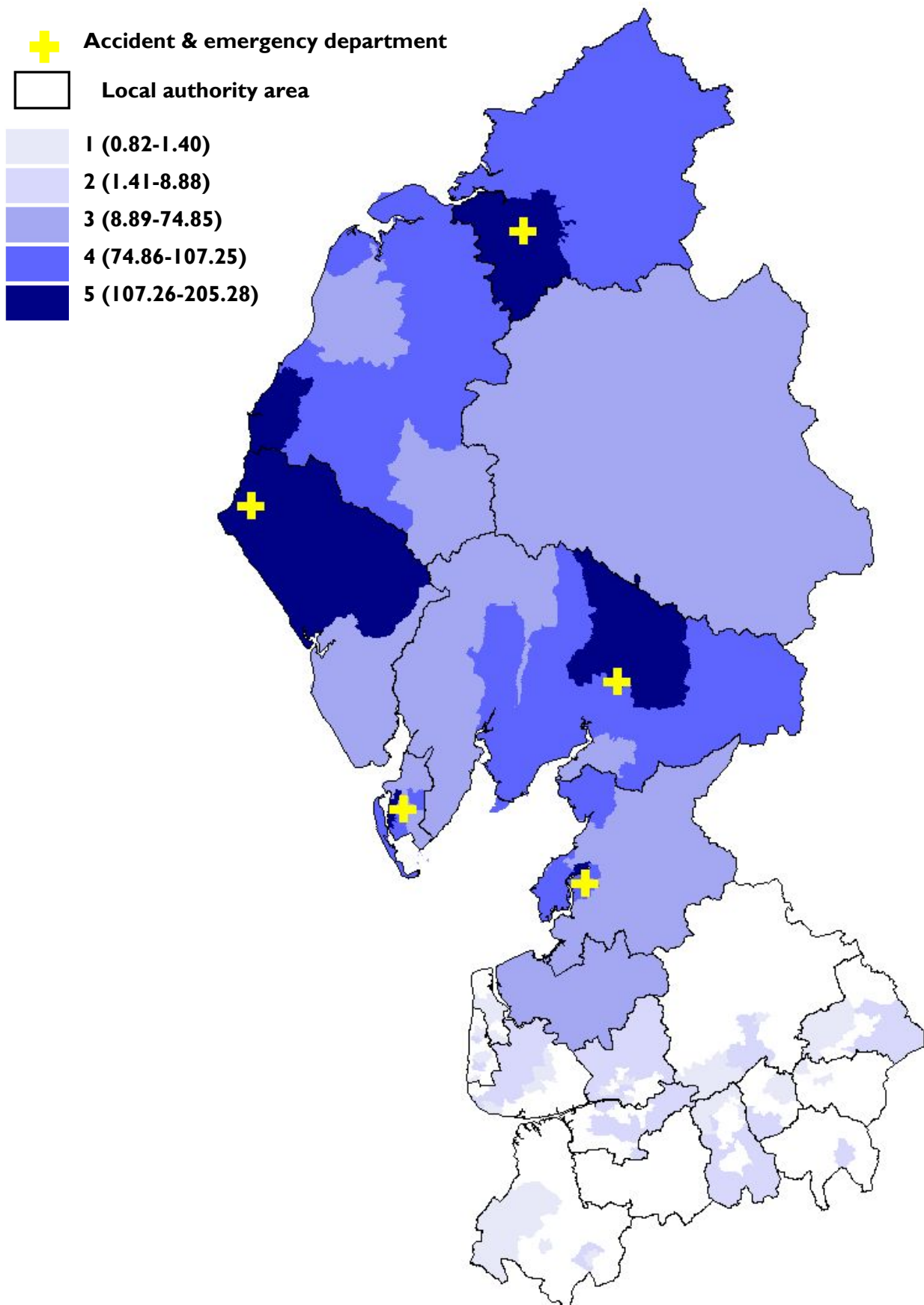
MSOA code	General area	Crude rate/10,000
E02004002	Whitehaven area: Harras, Hensingham	176.14
E02003994	Carlisle area: Longsowerby, Newton, Morton	176.12
E02004000	Parton, Howgate, Lowca, Common End	170.90
E02003997	Carlisle area: Harraby, Botcherby	162.67
E02005232	Lancaster area: Scale Hall	162.05

Table 24 shows the crude rates of trauma attendances to all AEDs in Cumbria during June 2008 for multiple deprivation quintiles. The two most deprived quintiles had significantly higher crude rates of AED trauma attendances compared to the three least deprived quintiles. The table also splits trauma attendances by injury group, showing that crude rates for assault attendances were significantly higher in the two most deprived quintiles compared to the three least deprived quintiles, and crude rates for road traffic accidents were significantly higher in the most deprived quintile compared to the two least deprived quintiles. Crude rates for self-harm were significantly higher in the most deprived quintile compared to the three least deprived quintiles and crude rates for other accidents were significantly higher in the two most deprived quintiles compared to the three least deprived quintiles. There was no significant difference in the crude rate of sports injury attendances between quintiles of multiple deprivation.

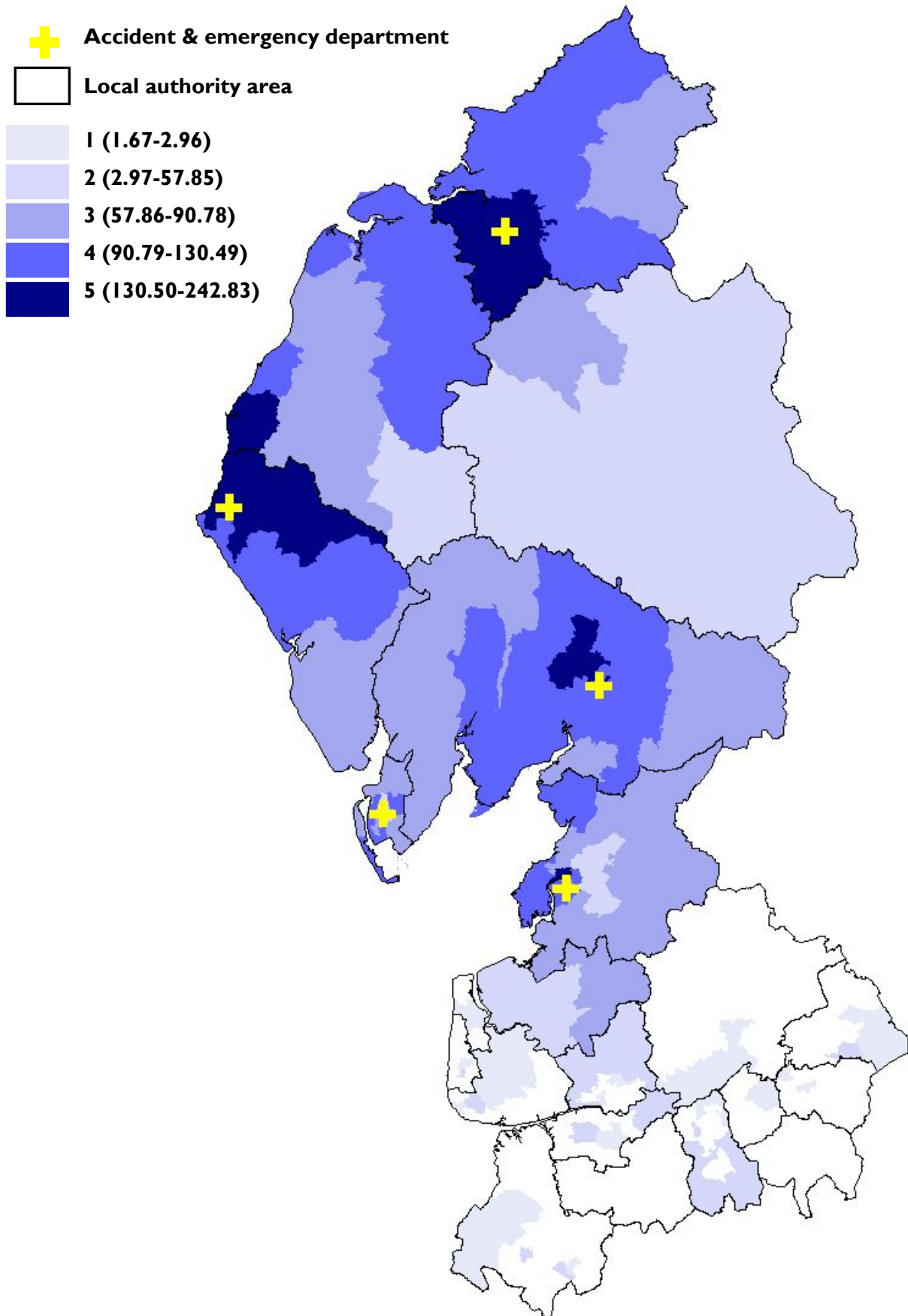
**Table 24. Crude rate per 10,000 population for trauma attendances to AEDs in Cumbria by residential quintile of multiple deprivation and injury group, June 2008**

Deprivation quintile	Crude rate (+- 95% confidence intervals)					
	Road traffic accident	Assault	Deliberate self-harm	Sports	Other accident	All trauma
1 (Least)	3.29 (2.28 – 4.60)	2.03 (1.26 – 3.11)	1.45 (0.81 – 2.40)	8.03 (6.40 – 9.96)	73.96 (68.8 – 79.39)	88.77 (83.11 – 94.7)
2	4.35 (3.14 – 5.85)	2.12 (1.31 – 3.24)	0.81 (0.35 – 1.59)	8.29 (6.59 – 10.29)	68.02 (62.98 – 73.36)	83.59 (77.99 – 89.48)
3	6.17 (4.73 – 7.91)	2.19 (1.37 – 3.32)	2.49 (1.61 – 3.67)	7.77 (6.14 – 9.69)	69.6 (64.54 – 74.96)	88.22 (82.51 – 94.23)
4	6.72 (5.24 – 8.49)	5.18 (3.89 – 6.76)	4.32 (3.15 – 5.78)	10.08 (8.24 – 12.2)	96.16 (90.30 – 102.30)	122.46 (115.83 – 129.37)
5 (Most)	8.66 (6.85 – 10.81)	6.88 (5.28 – 8.82)	6.77 (5.18 – 8.70)	9.77 (7.84 – 12.04)	103.36 (96.83 – 110.22)	135.45 (127.96 – 143.27)
All Cumbria residents	5.78 (5.13 – 6.48)	3.62 (3.11 – 4.19)	3.1 (2.63 – 3.63)	8.77 (7.97 – 9.64)	81.88 (79.38 – 84.44)	103.15 (100.35 – 106.01)

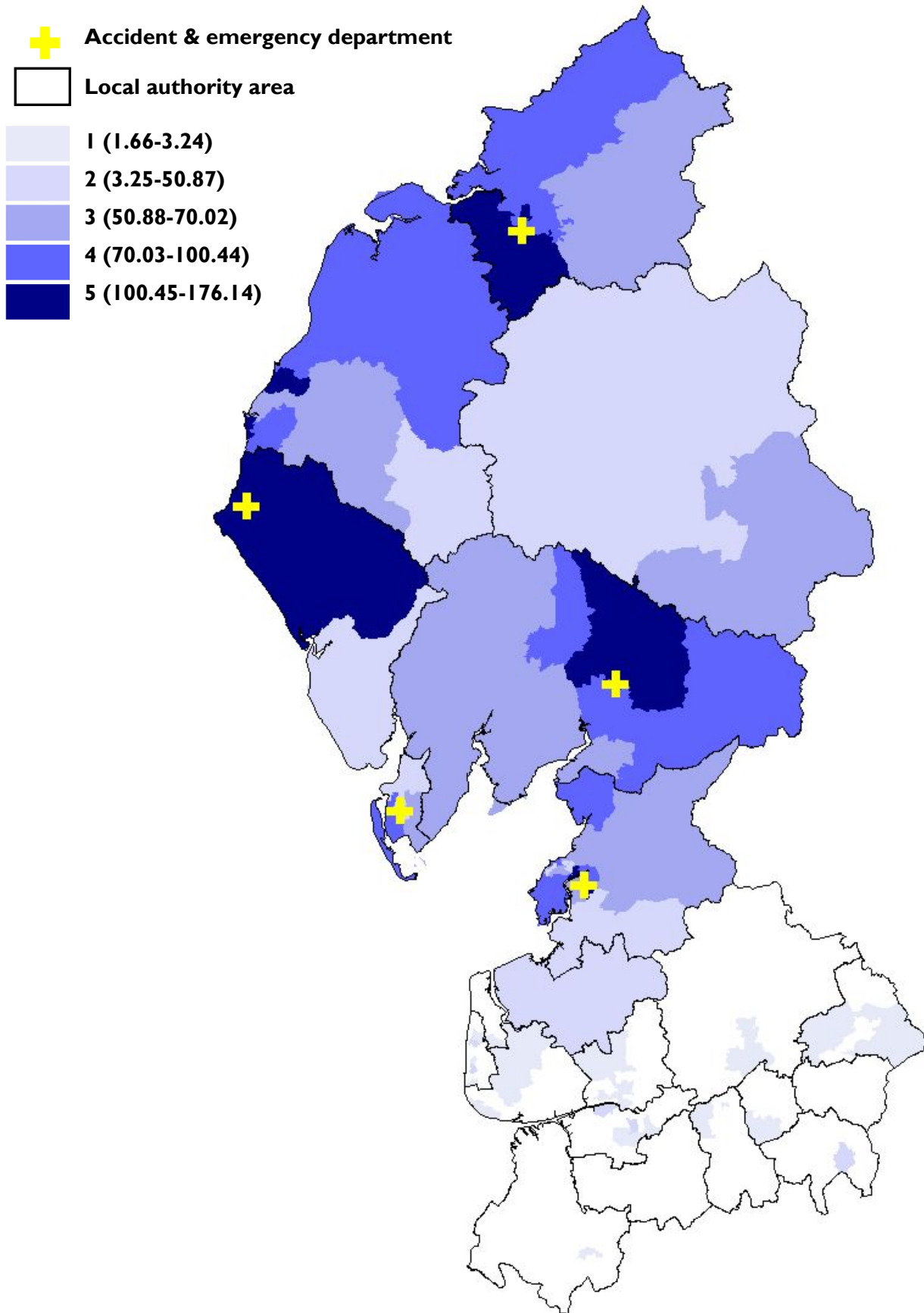
**Figure 4. Middle Super Output Area of residence of all trauma attendances to AEDs in Cumbria, quintiles of crude rate per 10,000 population, June 2008 (Populations: MSOA mid-year 2007)**



**Figure 5. Middle Super Output Area of residence of male trauma attendances to AEDs in Cumbria, quintiles of crude rate per 10,000 population, June 2008 (Populations: MSOA mid-year 2007)**



**Figure 6. Middle Super Output Area of residence of female trauma attendances to AEDs in Cumbria, quintiles of crude rate per 10,000 population, June 2008 (Populations: MSOA mid-year 2007)**



## **5. Summary**

### **5.1 Data collection**

The AEDs covered by UHMBNT and NCUHNT both collect an expanded version of the accident and emergency attendance commissioning dataset. Completion levels for mandatory fields are very high across both trusts. Comparability between the two datasets is generally good, however, there are a few significant differences. The ethnic group field is a non-mandatory field that is present on the UHMBNT dataset but is currently not being filled in. There is no ethnic group category in the NCUHNT dataset but this should be resolved in the new financial year. NCUHNT uses the accident and emergency attendance commissioning dataset type specified first diagnosis category whereas UHMBNT uses their own specific first diagnosis coding. The patient group (injury group) category is also different at each trust: NCUHNT use an expanded version of the mandatory patient group category specified by the accident and emergency attendance commissioning dataset type. The dataset at NCUHNT has been expanded to include the injury group falls, for example; conversely UHMBNT only uses the mandatory patient group category which does not include falls. Consequently, these differences mean that Cumbria area analysis cannot use the extra injury groups collected by NCUHNT and they must be grouped into the other accident injury group. If the two datasets could be expanded so that they collect the same injury groups this would increase the detail and value of a full Cumbria area analysis. Other expansions currently being implemented at a number of AEDs across the North West, include questions covering alcohol consumption and the circumstances surrounding violence-related attendances. It is also worth exploring the use of other emergency services datasets in Cumbria, such as the fire and rescue service and the ambulance service.

### **5.2 Intentional and unintentional injury levels in Cumbria**

Across Cumbria, areas with the greatest risk of a trauma-related AED attendance are in more urban areas outside the Lake District National Park such as Carlisle, Kendal, Whitehaven, Lancaster and Barrow-in-Furness. In terms of demographics, AED data also shows that in the most deprived areas, males (57%) and people aged 30-59 years (33%) in Cumbria are at greatest risk of a trauma-related AED attendance, and this is consistent across the two trusts. The AED data for June 2008 shows that most trauma attendances are coded under the other accident injury group. Where data are coded as a specific injury group, attendances for sports injuries and road traffic accidents are the most frequent across Cumbria. Attendances for falls are recorded separately from other accident at AEDs covered by NCUHNT and account for 30% of attendances, which is second only to other accidents (40%) the leading cause of attendance. The level of attendance for falls to AEDs covered by UHMBNT is currently not accessible through the electronic AED dataset.

### **5.3 Future direction of TIIG Cumbria**

A key stakeholder meeting will be arranged for the new year to present the findings of the thorough area analysis of AED trauma data in Cumbria for the period April 2006 to September 2008. This will help determine the future development of TIIG over the next year and this meeting will inform: the structure and focus of future TIIG-themed reports and regular monthly reports; which agencies these reports should be promoted and distributed to; any potential data collection expansions and reviews; and the possible collection of other emergency services data. TIIG analysts will work with Cumbria AEDs and other agencies to help improve: data collection procedures and systems; the type of data that are collected and its quality; and the availability and use of good quality injury data.

## **6. References**

NHS Connecting for Health. Accident and emergency attendance commissioning dataset type. Available at [http://www.datadictionary.nhs.uk/data\\_dictionary/messages/commissioning\\_data\\_set/accident\\_and\\_emergency\\_attendance\\_cds\\_type\\_fr.asp?shownav=1](http://www.datadictionary.nhs.uk/data_dictionary/messages/commissioning_data_set/accident_and_emergency_attendance_cds_type_fr.asp?shownav=1) [Accessed on 08/12/2008]