

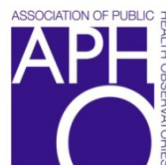
North West ChiMatters

Child and Maternal Health Intelligence Briefing



Children with long-term conditions in the North West: Emergency hospital admissions for asthma, diabetes and epilepsy 2008/09

March 2011



Authors

Lynn Deacon, Clare Perkins and Mark Bellis

Acknowledgements

We would like to thank Robert Kyffin of the South East Public Health Observatory for calculating the confidence intervals that are presented in the charts within the report.

We would also like to acknowledge the valuable contributions towards the production of this report from colleagues within the North West Public Health Observatory, including Jenny Mason, Jane Harris and Linda Mason for proofreading, and Lee Tisdall for cover image design.

Summary reports

Summary reports for each North West PCT area are available at www.nwpho.org.uk/childLTCs

Key Messages

- The North West has very high rates of child emergency hospital admissions for long-term conditions compared with national averages. The rates of admission for asthma and epilepsy are the highest in England, while the rate for diabetes is the second highest in the country.
- Child emergency hospital admission rates for asthma, diabetes and epilepsy vary substantially between primary care trust (PCT) areas in the North West. For example, the emergency hospital admission rate for asthma is 3.5 times higher in Knowsley than it is in Warrington.
- There is a significant relationship between deprivation and child emergency hospital admissions for both asthma and epilepsy across England: as deprivation increases, admission rates increase. However, there is no such relationship between deprivation and child emergency hospital admissions for diabetes.
- A number of North West PCT areas have child emergency hospital admission rates for long-term conditions that are significantly worse, or better, than their most similar PCT area. This may highlight opportunities to learn from, or share, good practice.
- For all three conditions, there are PCT areas in the North West that have relatively high child emergency hospital admission rates, but relatively short average lengths of stay in hospital. The reasons for this need to be explored further by local areas. There may be better ways of managing these conditions, and caring for children who are affected, without the need for an emergency admission.
- If the high child emergency hospital admission rates for asthma, diabetes and epilepsy across the North West were reduced to the England average, potentially £1.6 million could be saved: £1.1 million for asthma, £181,000 for diabetes and £355,800 for epilepsy.
- The Disease Management Information Toolkit available from the Child and Maternal Health Observatory (ChiMat) at www.chimat.org.uk, together with support from ChiMat's local specialists, can provide local areas with detailed information on their child emergency hospital admissions for asthma, diabetes and epilepsy, highlighting opportunities for improvement.

Contents

1. Introduction.....	5
2. Findings	7
2.1 Asthma	7
2.1.1 Emergency hospital admission rates	7
2.1.2 Comparison to most similar PCTs.....	10
2.1.3 Comparison to 2003/04 emergency hospital admission rates.....	12
2.1.4 Emergency bed days	14
2.1.5 Admission rates compared with average length of stay	15
2.1.6 Potential cost savings.....	16
2.2 Diabetes	17
2.2.1 Emergency hospital admission rates	17
2.2.2 Comparison to most similar PCTs.....	20
2.2.3 Comparison to 2003/04 emergency hospital admission rates.....	21
2.2.4 Emergency bed days	23
2.2.5 Admission rates compared with average length of stay	24
2.2.6 Potential cost savings.....	25
2.3 Epilepsy	26
2.3.1 Emergency hospital admission rates	26
2.3.2 Comparison to most similar PCTs.....	29
2.3.3 Comparison to 2003/04 emergency hospital admission rates.....	30
2.3.4 Emergency bed days	32
2.3.5 Admission rates compared with average length of stay	33
2.3.6 Potential cost savings.....	34
3. References.....	35
4. Appendices.....	36
4.1 Methodology	37
4.2 Notes on Hospital Episode Statistics.....	37

1. Introduction

This report presents information on emergency hospital admissions for asthma, diabetes and epilepsy for children aged 0 to 18 years in the North West of England. It utilises data included in the Disease Management Information Toolkit (DMIT)ⁱ produced by the Child and Maternal Health Observatory (ChiMat) to highlight variations in emergency hospital admission rates, bed days and lengths of stay for these long-term conditions at a primary care trust (PCT) area level. This will inform the commissioning process for children's services by identifying opportunities for reducing emergency hospital admissions for children with asthma, diabetes and epilepsy; allowing PCTs to benchmark themselves against other PCTs, and identify better performing organisations from which they can learn. Better management of the conditions in the community could reduce the number of emergency admissions, which in turn has the potential for substantial cost savings.

Asthma is the most common long-term condition among children, and the UK has one of the highest prevalence of asthma symptoms among children worldwide. An estimated 1.1 million children in the UK have asthma (around one in 11 children, or two children in every classroom).ⁱⁱ Asthma UK estimates that one child is admitted to hospital in the UK every 17 minutes because of their asthma, but that 75% of admissions for asthma are preventable.¹ In addition, the estimated annual cost of treating a child with asthma is higher than the cost per adult with asthma. There are also potential savings to be made by reducing lengths of stay in hospital following admission.

Research undertaken by the Royal College of Paediatrics and Child Health (RCPCH) on behalf of the Department of Health in 2009² revealed that at least 22,947 children aged 0-17 years in England have diabetes.ⁱⁱⁱ This figure is 60% higher than that estimated in the Department of Health 2007 report *Making Every Young Person with Diabetes Matter*,³ and equates to a prevalence of diabetes of any type in children and young people of at least 209 per 100,000 population. The research report highlights the need for PCTs and local authorities to be aware of the need to provide proper support for children in school to manage their condition, and also that a national diabetes register in England would help the NHS in planning the delivery of services.

Epilepsy is the most common serious neurological condition and affects 48,000 children under the age of 18^{iv} in England.⁴ In total, it is estimated that 69,000 people of all ages experience recurrent seizures due to poor management and treatment of their condition.⁵ A study carried out by Epilepsy Action⁴ to assess current provision for people with epilepsy found that key clinical priorities for providing an effective epilepsy service (as set out in National Institute for Health and Clinical Excellence [NICE] guidelines^{6,7}) were unlikely to be available in many PCTs and acute trusts (ATs). For example, only 28% of ATs employed a specialist epilepsy nurse for children. In addition, only 18% of PCTs knew how many children in their area had epilepsy, raising questions about what information is being used to plan and commission local epilepsy services.

The intelligence within this report will primarily be of use to PCTs, GP consortia and commissioners of children's health and social care services, although those working with children with long-term conditions at all levels may also find the information of interest, including:

- Strategic Health Authority (SHA) / PCT Chief Executives and Directors of Public Health
- Informatics staff
- PCT commissioners

ⁱ Available at: www.chimat.org.uk. Individual support in utilising the DMIT tool is available from ChiMat's network of local specialists, who can be contacted via this website.

ⁱⁱ Asthma UK figures: www.asthma.org.uk

ⁱⁱⁱ Of the children that have diabetes, 97% have Type 1 diabetes, with Type 2 making up 57% of the non-Type 1 cases.

^{iv} 382,000 people of all ages are affected.

- Practice based commissioners
- SHA / PCT long-term conditions / children's leads
- Other healthcare professionals working with people with long-term conditions
- Children's Trust commissioners

Information on methodology is contained within the appendices (section 4.1).

“Children with complex needs or long-term conditions, such as asthma, epilepsy, diabetes or palliative care, may receive specialist community nursing care. The focus is on helping children to lead a normal life to the greatest extent possible. Nurses co-ordinate clinical care, as well as supporting others, including professionals from outside the health services such as teachers, parents and carers, in providing care for the child. Children who would previously have been cared for either in hospital or full time at home are supported to stay in school and play a full part in school life. They are therefore given the opportunity to achieve their potential alongside their peers and are given the best chance of becoming independent as adults.”

Getting it right for children and young people: Overcoming cultural barriers in the NHS so as to meet their needs. A review by Professor Sir Ian Kennedy. September 2010.

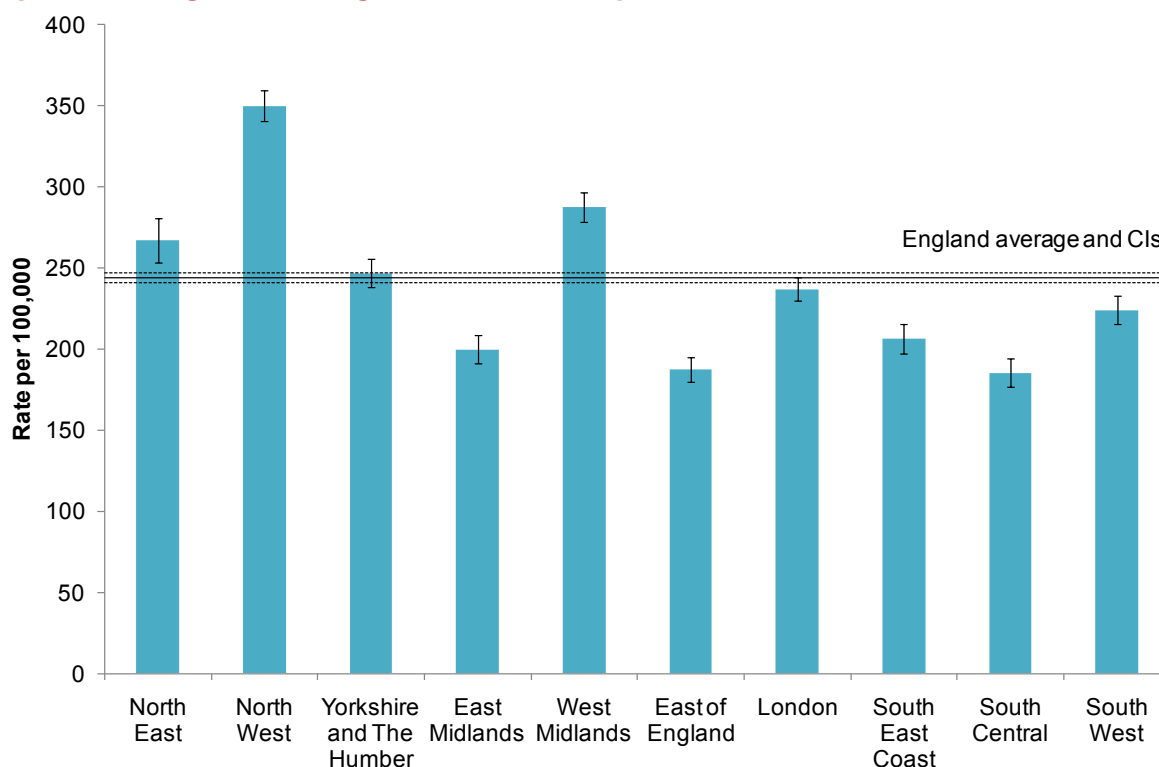
2. Findings

2.1 Asthma

2.1.1 Emergency hospital admission rates

There were 5,590 emergency hospital admissions of 0-18 year olds for asthma in 2008/09 across the North West Strategic Health Authority (SHA) area, equating to an emergency hospital admission rate of 350.8 per 100,000 population. This is the highest SHA rate in England, significantly higher than all other SHA rates, and is 1.4 times higher than the England rate of 243.7 per 100,000 (Figure 1). The gap between the North West and England is greater than for diabetes or epilepsy.

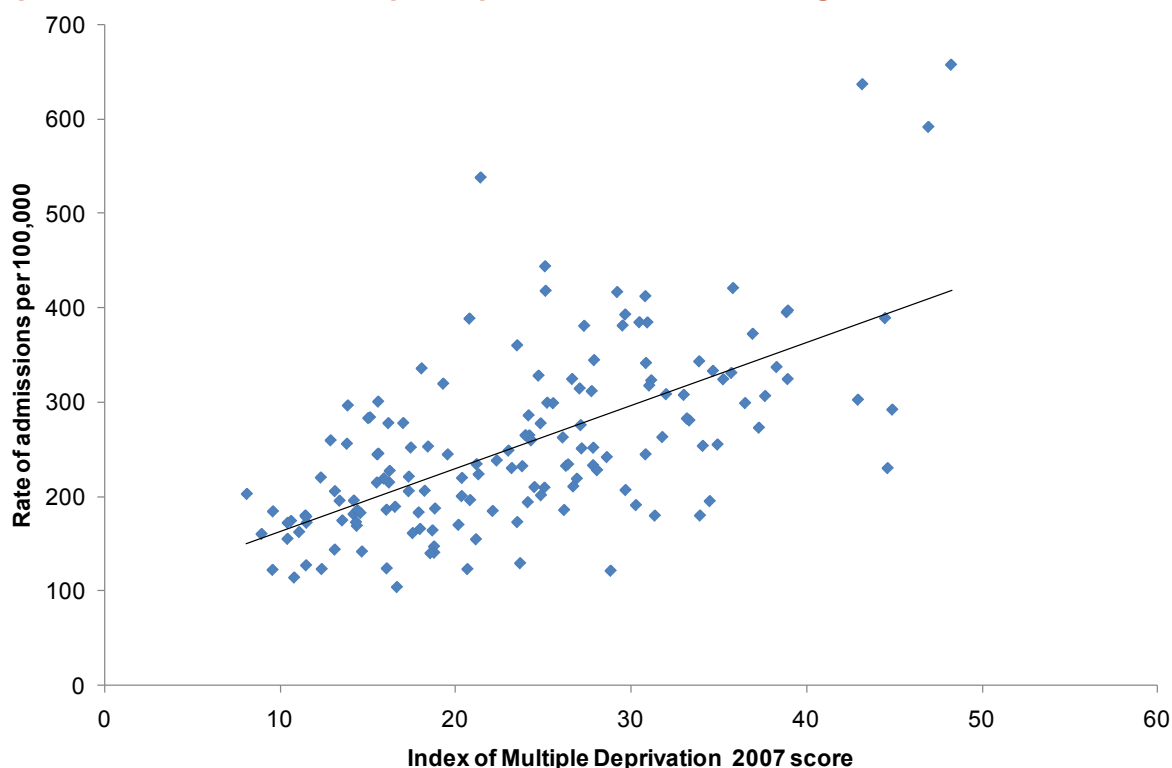
Figure 1: Rate of emergency hospital admission for asthma (0-18 years) per 100,000 population. England Strategic Health Authority areas, 2008/09.



Source: NWPHO from Disease Management Information Toolkit (DMIT).

Across England, there is a significant relationship between emergency hospital admission rates for asthma and deprivation;^v that is, emergency admission rates increase as deprivation increases (Figure 2).

Figure 2: Rate of emergency hospital admission for asthma (0-18 years) per 100,000 population and Index of Multiple Deprivation 2007 score. England PCTs, 2008/09.



Source: NWPFO from DMIT.

Within the North West, there is a large variation between PCT areas in the rate of admission, from 182.6 per 100,000 in Warrington to 636.4 in Knowsley, a ratio of one to 3.5.

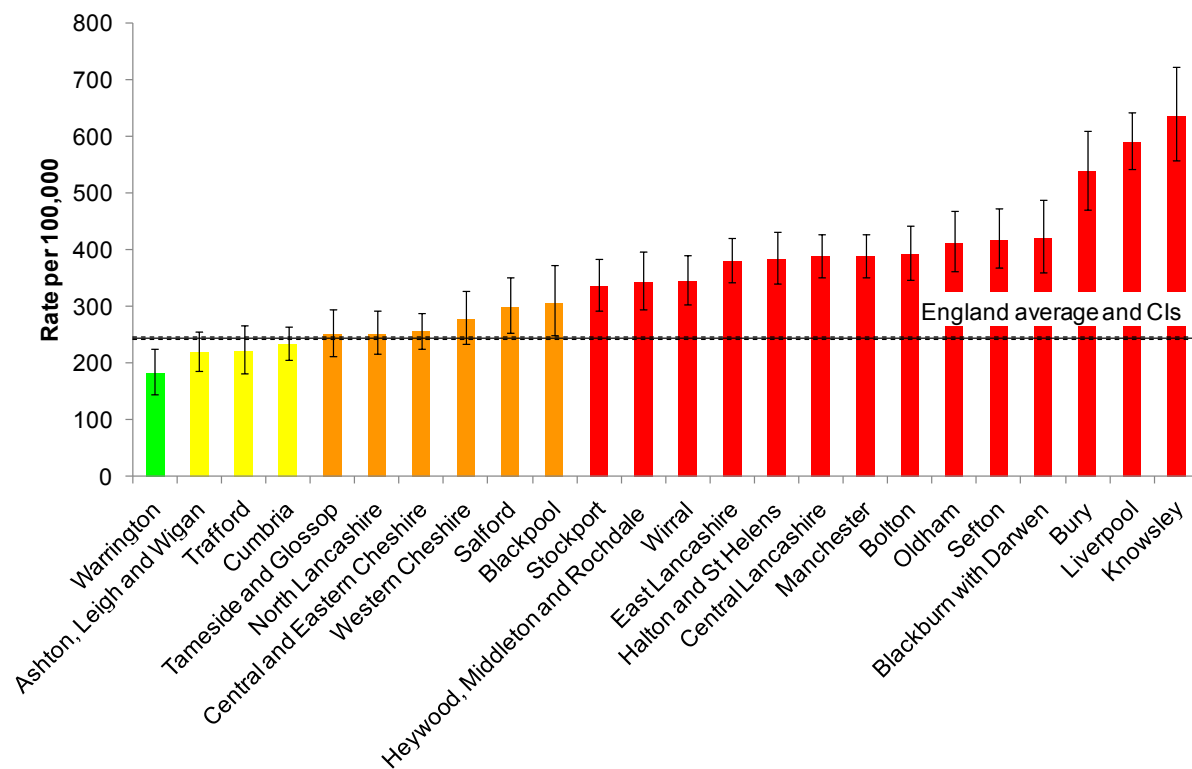
Figure 3 shows the admission rates for PCTs in the North West, colour coded by national ranking. Only Warrington has a rate that falls within the lowest 25% nationally, while 14 PCTs (58% of those in the North West) have rates that are within the highest 25% in England.

A number of North West PCTs have rates that are among the very highest (top 10%) nationally: Knowsley (151st out of 152 PCTs), Liverpool (150th), Bury (149th), Blackburn with Darwen (147th), Sefton (146th), Oldham (144th), Bolton (141st), Manchester (140th), Central Lancashire (139th) and Halton and St Helens (137th).

'Frequent fliers' (children who are admitted to hospital as an emergency on multiple occasions within a twelve-month period) may be an issue in some areas, including Stockport, Liverpool and Knowsley. For example, around a quarter of Stockport children who were admitted as an emergency for asthma were admitted more than once during 2008/09.

^v Spearman's rho = 0.630, P<0.01

Figure 3: Rate of emergency hospital admissions for asthma (0-18 years) per 100,000 population. North West PCTs, 2008/09.



Source: NWPCHO from DMIT. Note: Colour coding: green = lowest quartile nationally; yellow = second lowest quartile; orange = second highest quartile; red = highest quartile.

2.1.2 Comparison to most similar PCTs

Some PCTs have emergency admission rates for asthma that are significantly different from their most similar PCT^{vi} (Figure 4). Identifying and sharing 'what works' may help improve admission rates. Those areas with a significantly higher rate than their most similar PCT are:

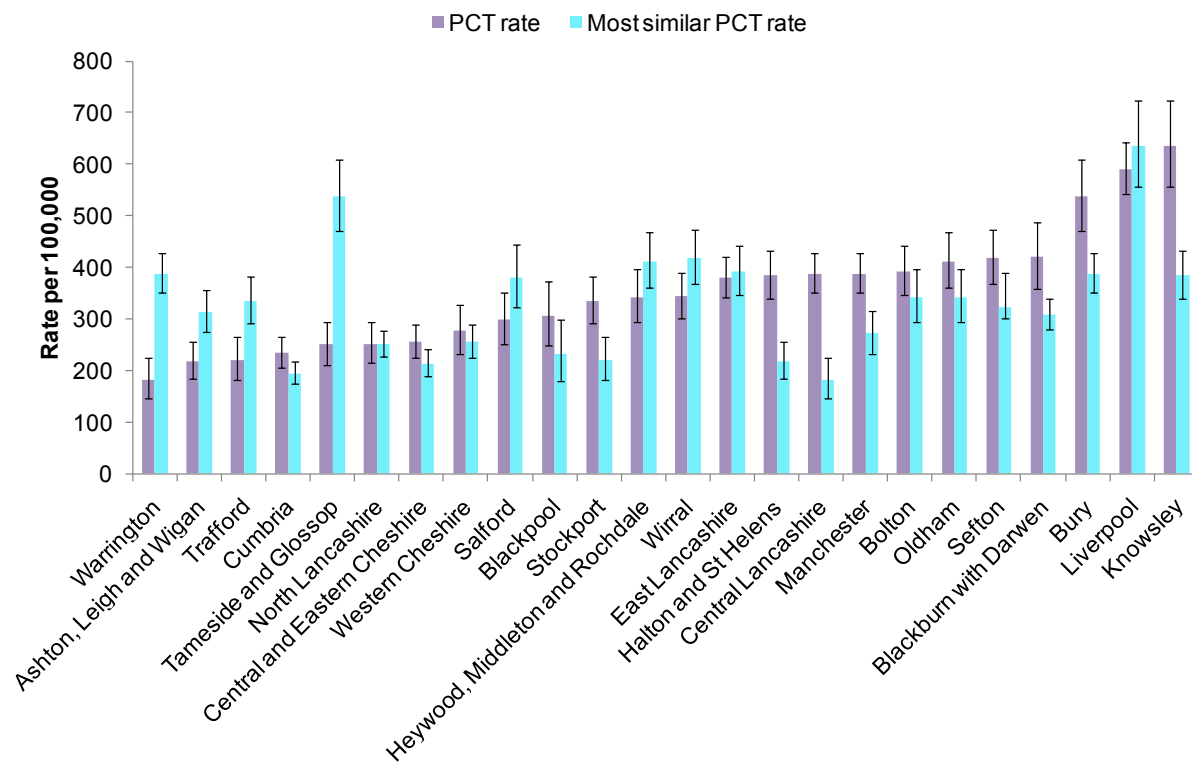
- Knowsley in comparison to Halton and St Helens (636.4 and 384.0 per 100,000 population respectively);
- Bury in comparison to Central Lancashire (537.6 and 388.0 per 100,000 population respectively);
- Blackburn with Darwen in comparison to Bradford and Airedale (420.4 and 307.9 per 100,000 population respectively);
- Manchester in comparison to Nottingham City (388.5 and 272.4 per 100,000 population respectively);
- Central Lancashire in comparison to Warrington (388.0 and 182.6 per 100,000 population respectively);
- Halton and St Helens in comparison to Ashton, Leigh and Wigan (384.0 and 218.4 per 100,000 population respectively); and
- Stockport in comparison to Trafford (335.2 and 220.5 per 100,000 population respectively).

Areas that have significantly lower rates than their most similar PCT are:

- Warrington in comparison to Central Lancashire (182.6 and 388.0 per 100,000 population respectively);
- Ashton, Leigh and Wigan in comparison to Wakefield (218.4 and 314.0 per 100,000 population respectively);
- Trafford in comparison to Stockport (220.5 and 335.2 per 100,000 population respectively); and
- Tameside and Glossop in comparison to Bury (250.4 and 537.6 per 100,000 population respectively).

^{vi} Most similar PCT based on National Statistics 2001 Area Classification of Health Areas. For information on the classification see: www.statistics.gov.uk/about/methodology_by_theme/area_classification/ha/default.asp

Figure 4: Rate of emergency hospital admission for asthma (0-18 years) compared to the rate for the most similar PCT. North West PCTs, 2008/09.



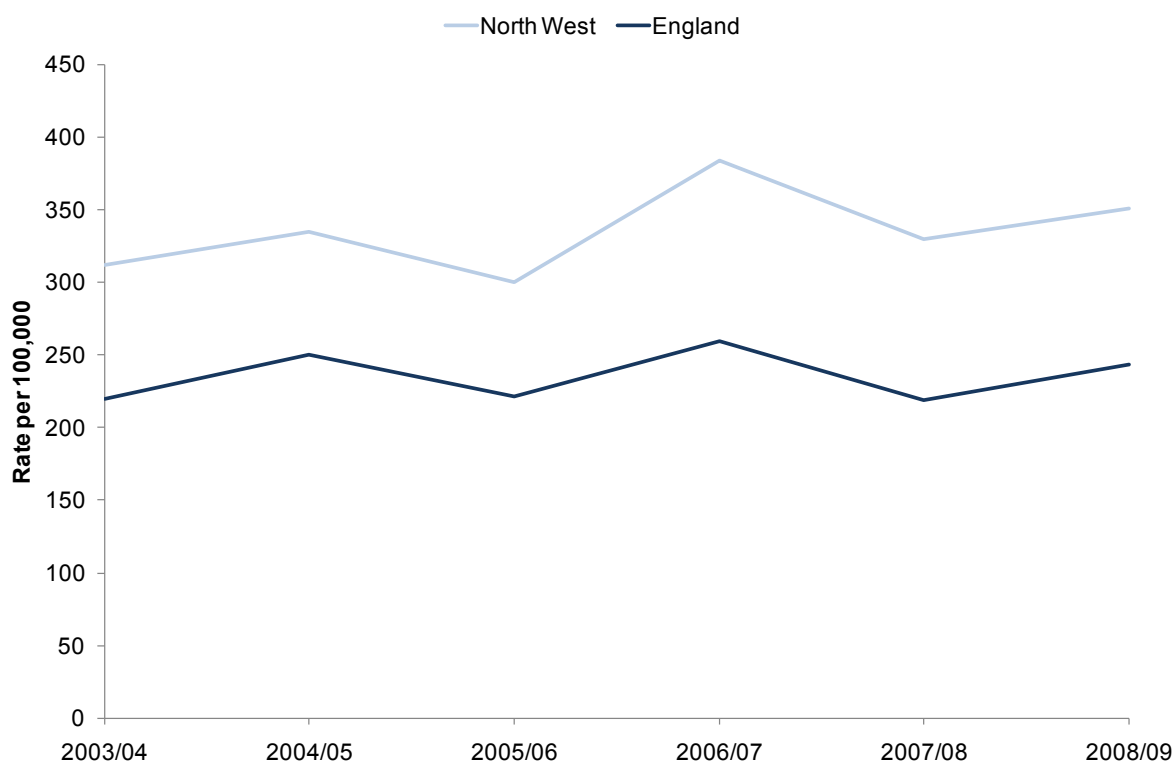
Source: NWPCHO from DMIT.

2.1.3 Comparison to 2003/04 emergency hospital admission rates

The 2008/09 rate of emergency hospital admission for asthma in the North West is 12.6% higher than the 2003/04 rate (350.8 compared with 311.5 per 100,000 population), while the 2008/09 rate in England is 10.8% higher than it was in 2003/04. However, rates have fluctuated in both the North West and England over the last five years (Figure 5).

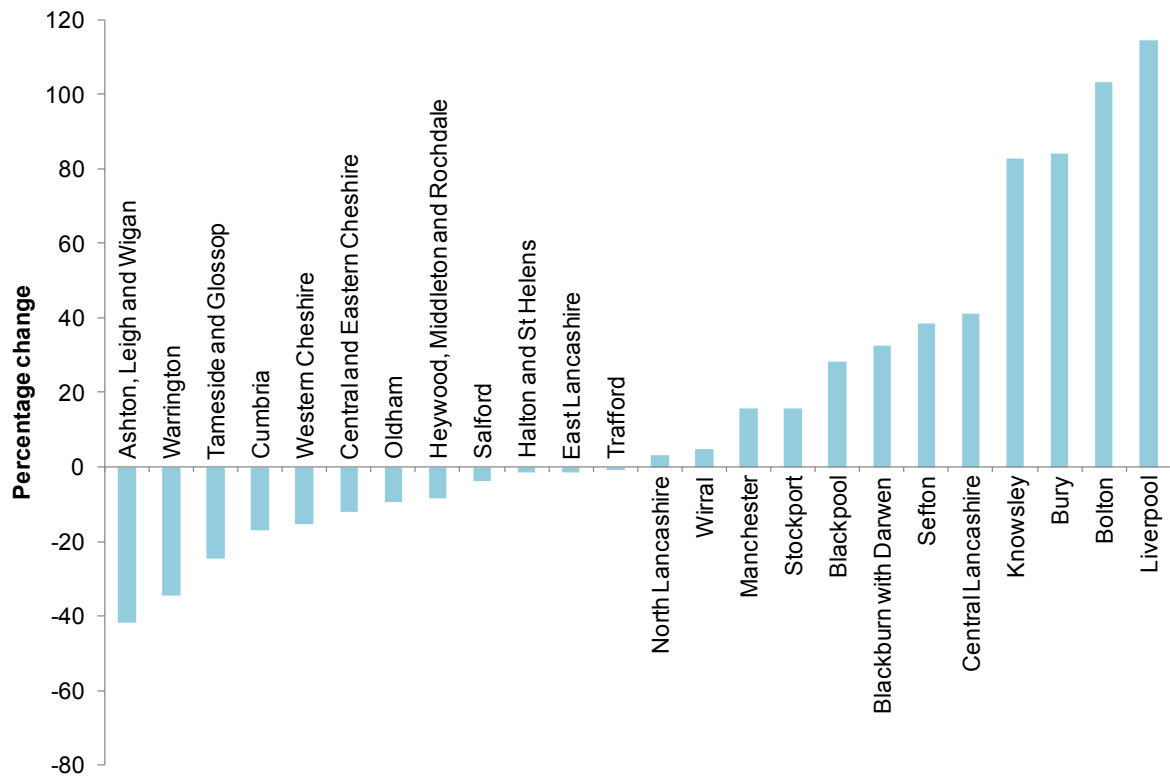
Within the region, the percentage change in emergency hospital admission rates for asthma between 2003/04 and 2008/09 varies from -41.8% in Ashton, Leigh and Wigan to +114.6% in Liverpool (Figure 6). The 2008/09 rates in Liverpool, Bolton, Bury, Knowsley, Central Lancashire and Sefton are significantly higher than the 2003/04 rates. However, the 2008/09 rates in Ashton, Leigh and Wigan and Warrington are significantly lower than those in 2003/04.

Figure 5: Rate of emergency hospital admission for asthma (0-18 years), 2003/04 to 2008/09.



Source: NWPHO from DMIT.

Figure 6: Percentage change in rate of emergency hospital admission for asthma (0-18 years). North West PCTs, 2003/04 to 2008/09.



Source: NWPCHO from DMIT.

2.1.4 Emergency bed days

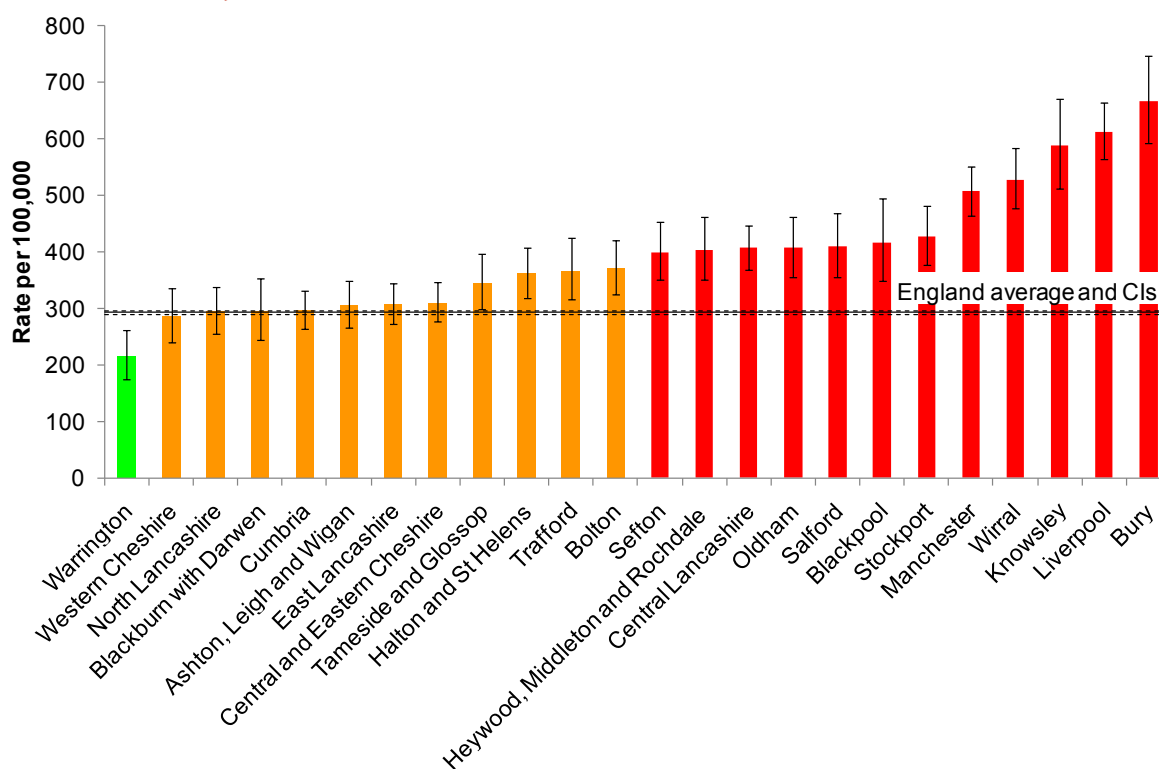
There were 6,298 emergency bed days for asthma for 0-18 year olds in the North West in 2008/09, equating to an emergency bed day rate of 395.3 per 100,000 population (2008/09), 1.3 times higher than the England rate of 293.0. This rate is also significantly higher than those for all other SHA areas.

Within the North West, the rate of emergency bed days varies from 215.6 per 100,000 in Warrington to 665.8 in Bury, a ratio of one to 3.1.

Only Warrington has a rate that falls within the lowest 25% (and 50%) nationally, while 12 PCTs (50% of those in the North West) have rates that are within the highest 25% in England (Figure 7).

A number of North West PCTs have rankings that are among the very highest (top 10%) nationally: Bury (152nd of 152 PCTs), Liverpool (150th), Knowsley (148th), Wirral (143rd) and Manchester (142nd).

Figure 7: Rate of emergency bed days for asthma (0-18 years) per 100,000 population. North West PCTs, 2008/09.



Source: NWPCHO from DMIT. Note: Colour coding: green = lowest quartile nationally; yellow = second lowest quartile; orange = second highest quartile; red = highest quartile.

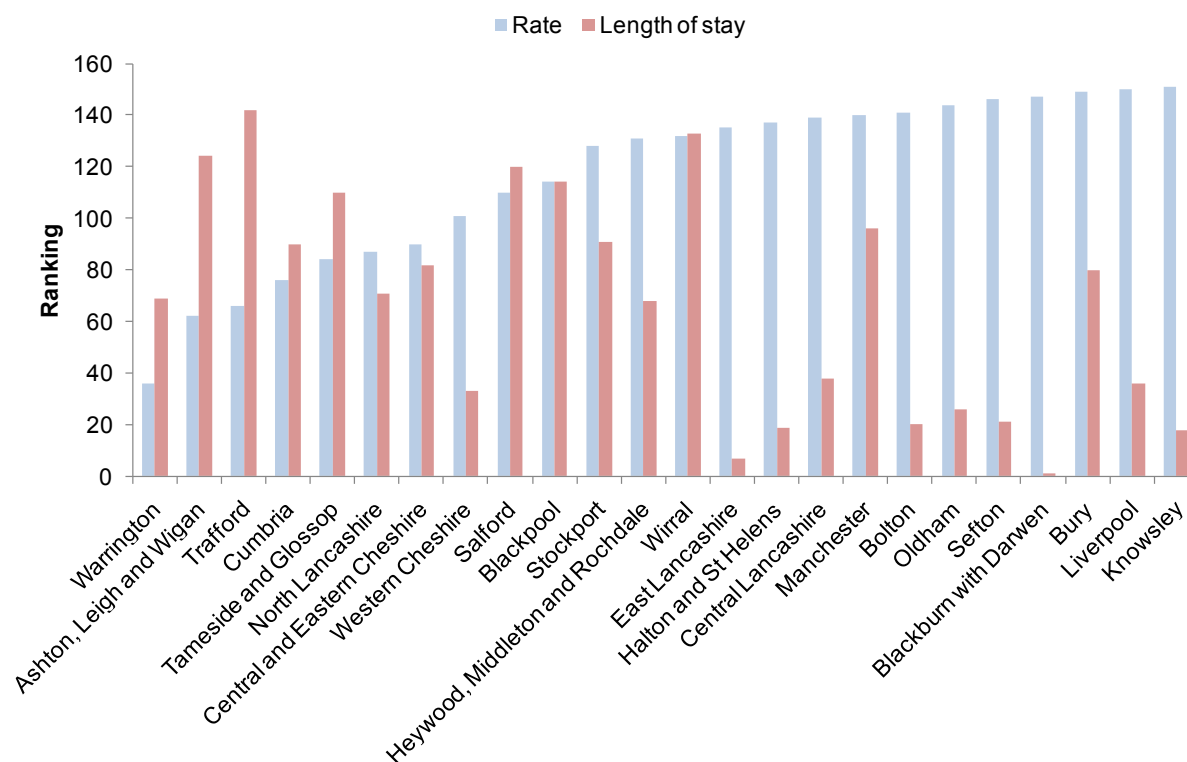
2.1.5 Admission rates compared with average lengths of stay

Many of the PCTs that have emergency hospital admission rates for asthma that are in the highest 25% nationally have particularly low average lengths of stay (Figure 8). The most extreme example of this is Blackburn with Darwen PCT, where the admission rate is ranked 147th out of 152 PCTs, but the average length of stay is 1st (lowest) in England. Other PCTs with large differences in rankings between admission rates and average lengths of stay include:

- Knowsley: 151st for admissions, 18th for average length of stay;
- East Lancashire: 135th for admissions, 7th for average length of stay;
- Sefton: 146th for admissions, 20th for average length of stay;
- Bolton: 141st for admissions, 20th for average length of stay;
- Halton and St Helens: 137th for admissions, 19th for average length of stay;
- Oldham: 144th for admissions, 26th for average length of stay; and
- Liverpool: 150th for admissions, 36th for average length of stay.

The reasons behind these variations need to be explored further.

Figure 8: National ranking for rate of emergency hospital admission per 100,000 population and average length of stay for asthma (0-18 years). North West PCTs, 2008/09.



Source: NWPCHO from DMIT.

Note: For the rate of emergency admissions, a rank of 1 represents the lowest rate in England and a rank of 152 the highest rate. For average length of stay, a rank of 1 represents the shortest length of stay in England and a rank of 152 the longest.

2.1.6 Potential cost savings

Information on potential cost saving in the DMIT toolkit is based on the 2008/09 non-elective NHS National Tariff for asthma or wheezing i.e. Healthcare Resource Group (HRG) code P01. The 2008/09 tariff for emergency hospital admissions for asthma is £625 per admission.

The potential cost savings across the North West, if emergency admissions for asthma are reduced, are shown in Table 1. The potential cost savings per 100,000 population illustrate the relative distance of each PCT's rate from the England average, while the cost savings based on actual population indicate the real impact a reduction in the emergency admission rate could have. In total, there is potential for a saving of £1.1 million in the North West if emergency admission rates for asthma were reduced to the England average (Table 1).

Table 1: Potential cost savings: if the rate of emergency hospital admission for asthma (0-18 years) in North West PCTs with an above average admission rate were reduced to the national average.

PCT	Potential cost savings per 100,000 population £	Potential cost savings based on actual population £
Ashton, Leigh and Wigan	N/A	N/A
Blackburn with Darwen	110,511	44,691
Blackpool	39,023	12,370
Bolton	93,006	60,919
Bury	183,753	81,697
Central and Eastern Cheshire	7,430	7,564
Central Lancashire	90,307	93,088
Cumbria	N/A	N/A
East Lancashire	85,520	80,936
Halton and St Helens	87,749	61,477
Heywood, Middleton and Rochdale	61,981	32,431
Knowsley	245,534	91,437
Liverpool	217,244	206,165
Manchester	90,587	95,134
North Lancashire	5,549	3,759
Oldham	105,130	60,765
Salford	34,325	17,135
Sefton	108,709	65,878
Stockport	57,290	36,402
Tameside and Glossop	4,291	2,536
Trafford	N/A	N/A
Warrington	N/A	N/A
Western Cheshire	21,114	10,734
Wirral	62,783	45,078
Total		£1,110,317

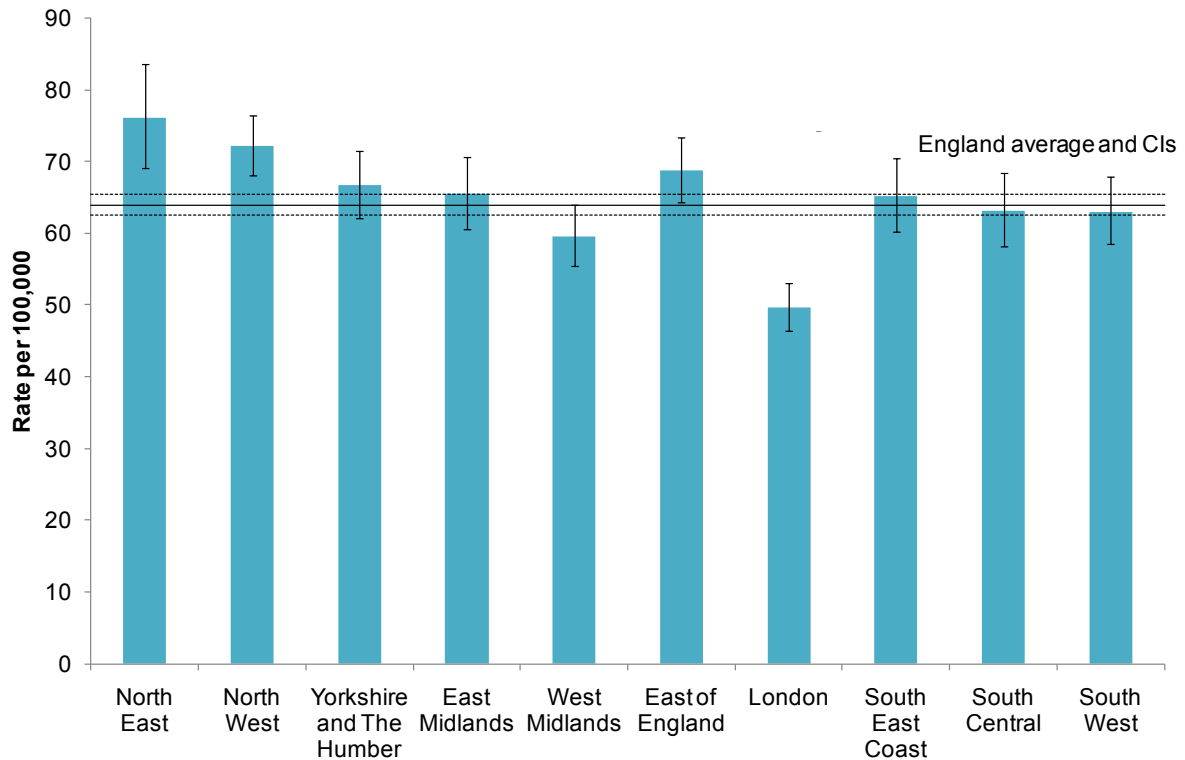
Source: NWPFO from DMIT. Note: further examples of potential cost savings for areas with lower than average admission rates are given in those areas' summary reports.

2.2 Diabetes

2.2.1 Emergency hospital admission rates

In 2008/09, across the North West SHA area there were 1,252 emergency hospital admissions of 0-18 year olds for diabetes, a rate of 72.2 per 100,000 population (Figure 9). This is the second highest SHA rate in England, and is 12.8% higher than the England rate of 64.0 per 100,000 population. However, the gap between the North West and England is smaller than for asthma and epilepsy.

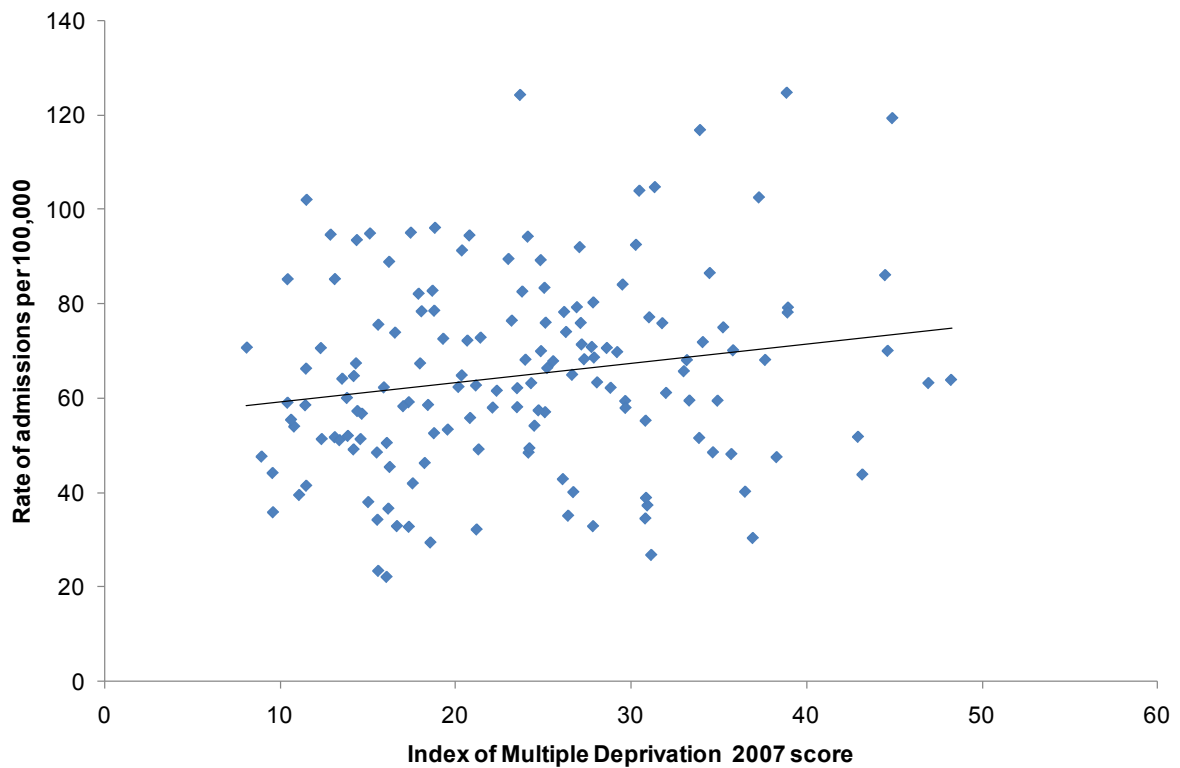
Figure 9: Rate of emergency hospital admissions for diabetes (0-18 years) per 100,000 population. England Strategic Health Authority areas, 2008/09.



Source: NWPHO from DMIT.

Across England, there is no significant relationship between emergency admission rates for diabetes and deprivation;^{vii} that is, unlike asthma and epilepsy, there is no evidence that emergency admission rates increase as deprivation increases (Figure 10).

Figure 10: Rate of emergency admissions for diabetes (0-18 years) per 100,000 population and Index of Multiple Deprivation 2007 score. England PCTs, 2008/09.



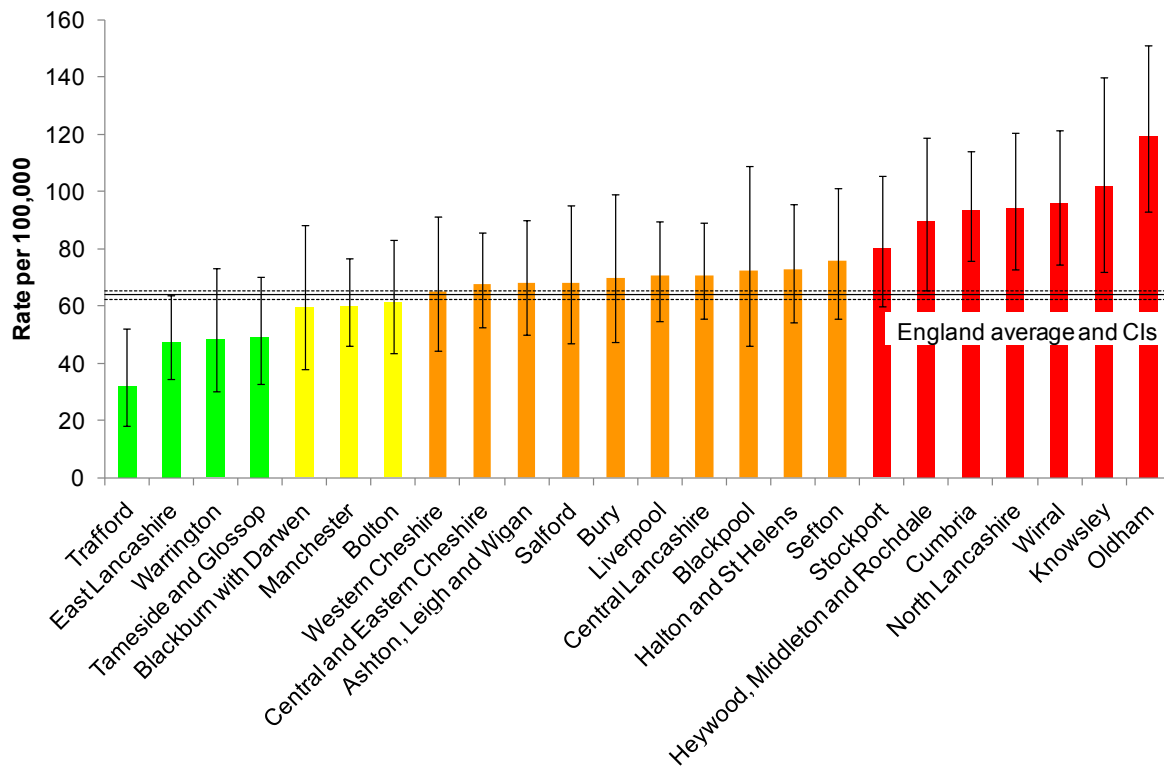
Source: NWPFO from DMIT.

Within the North West, the rate of emergency admissions for diabetes ranges from 32.1 per 100,000 in Trafford to 119.4 in Oldham, a ratio of one to 3.7.

Trafford, East Lancashire, Warrington and Tameside and Glossop have rates that fall within the lowest 25% nationally, while seven PCTs have rates that are within the highest 25% nationally (Figure 11). Of these seven PCTs, five have rankings that are among the very highest (top 10%) in England: Oldham (150th of 152 PCTs), Knowsley (145th), Wirral (144th), North Lancashire (140th) and Cumbria (138th).

^{vii} Spearman's rho = 0.036

Figure 11: Rate of emergency hospital admission for diabetes (0-18 years) per 100,000 population. North West PCTs, 2008/09.



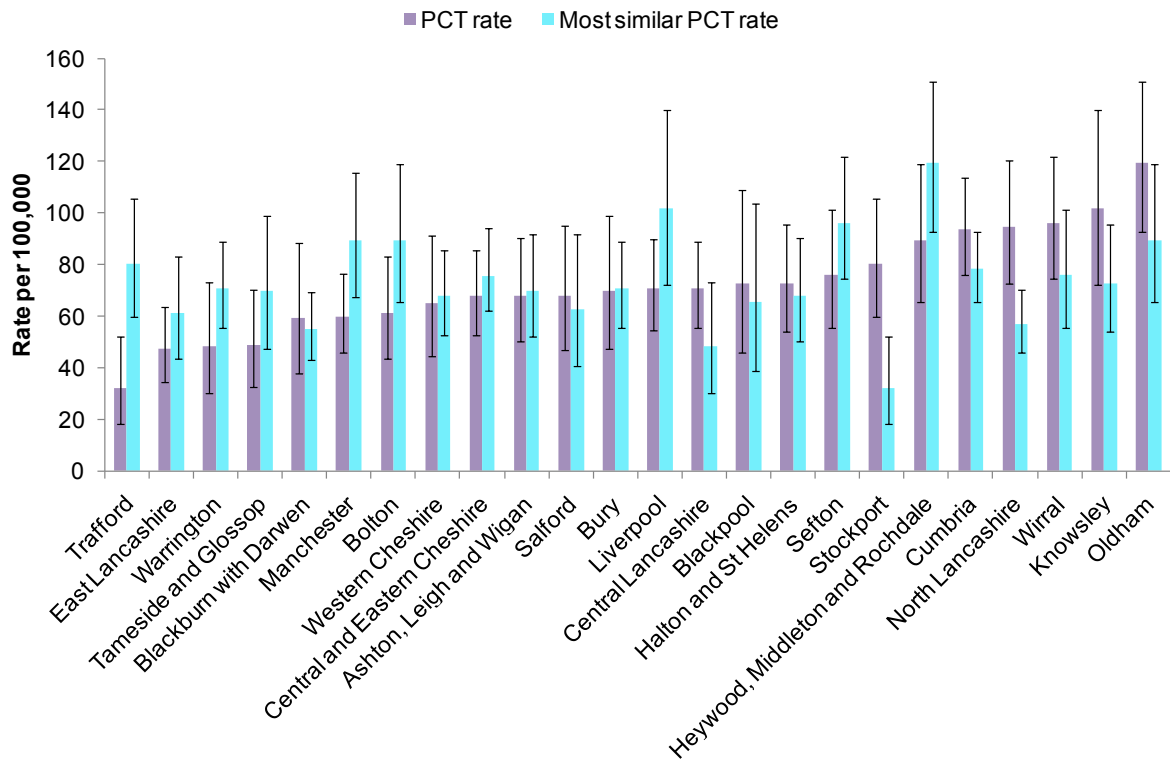
Source: NWPCHO from DMIT. Note: Colour coding: green = lowest quartile nationally; yellow = second lowest quartile; orange = second highest quartile; red = highest quartile.

2.2.2 Comparison to most similar PCTs

Some PCTs have emergency admission rates for diabetes that are quite different from their most similar PCT (Figure 12). However, due to relatively large confidence intervals, this difference is only significant for three areas:

- Stockport in comparison to Trafford (80.3 and 32.1 per 100,000 population respectively) *and vice versa*; and
- North Lancashire in comparison to Devon (94.5 and 57.2 per 100,000 population respectively).

Figure 12: Rate of emergency hospital admission for diabetes (0-18 years) compared to the rate for the most similar PCT. North West PCTs, 2008/09.



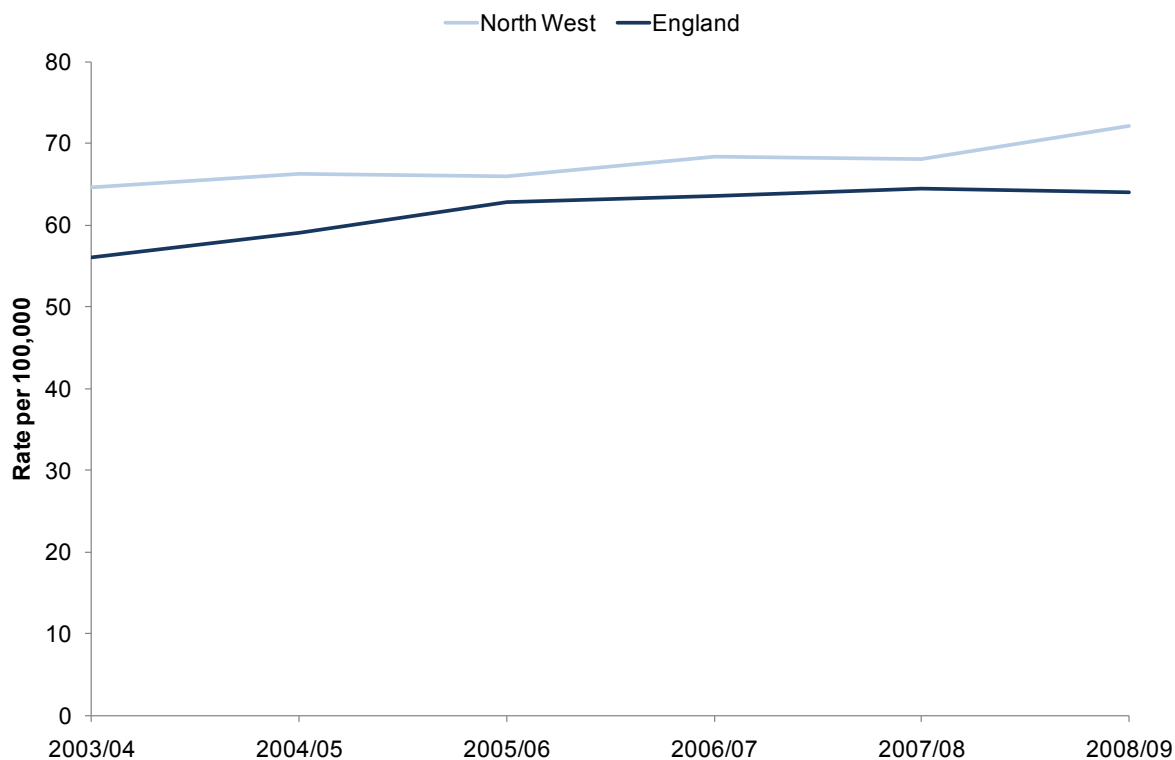
Source: NWPHO from DMIT.

2.2.3 Comparison to 2003/04 emergency hospital admission rates

The 2008/09 rate of emergency hospital admission for diabetes in the North West is 11.7% higher than the 2003/04 rate (72.2 compared with 64.6 per 100,000 population), while the 2008/09 rate in England is 14.2% higher than it was in 2003/04 (Figure 13).

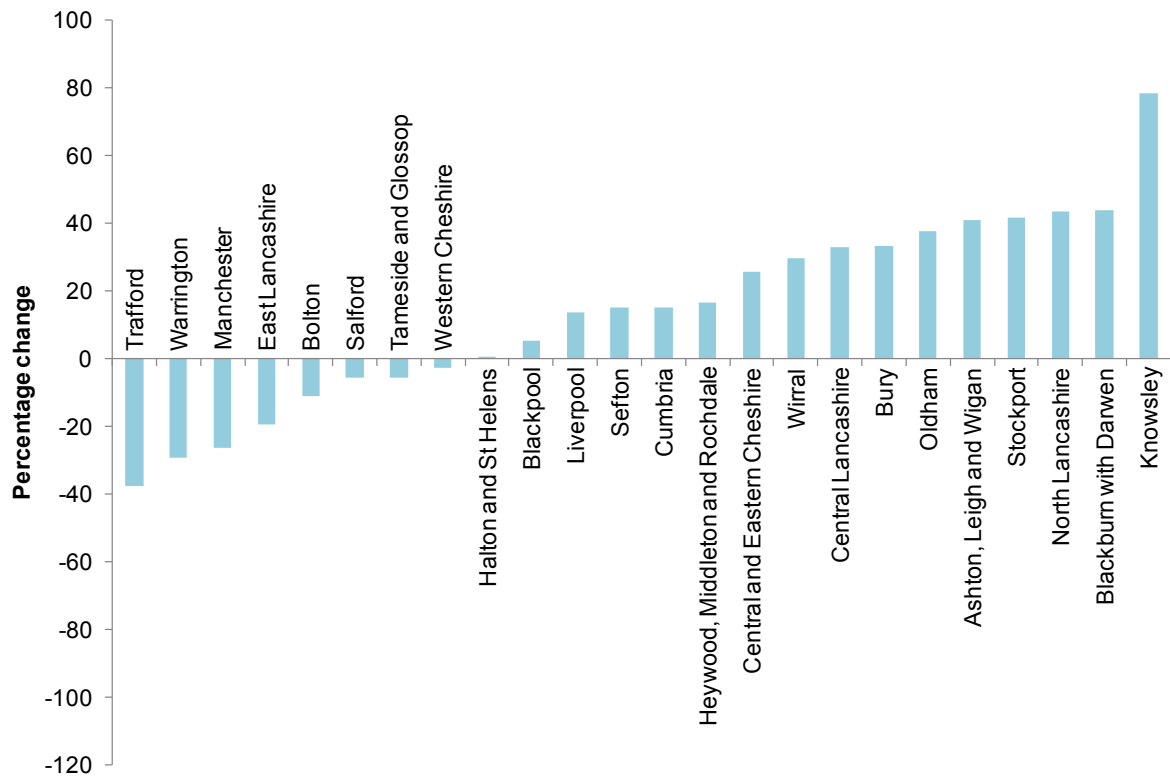
Across the North West, the percentage change in emergency admission rates for diabetes between 2003/04 and 2008/09 varies from -37.8% in Trafford to +78.3% in Knowsley (Figure 14). However, confidence intervals are relatively large, and so it is not possible to identify any areas where there has been a significant change in the emergency admission rate between 2003/04 and 2008/09.

Figure 13: Emergency admission rate for diabetes (0-18 years), 2003/04 to 2008/09.



Source: NWPHO from DMIT.

Figure 14: Percentage change in rate of emergency hospital admissions for diabetes (0-18 years). North West PCTs, 2003/04 to 2008/09.



Source: NWPCHO from DMIT.

2.2.4 Emergency bed days

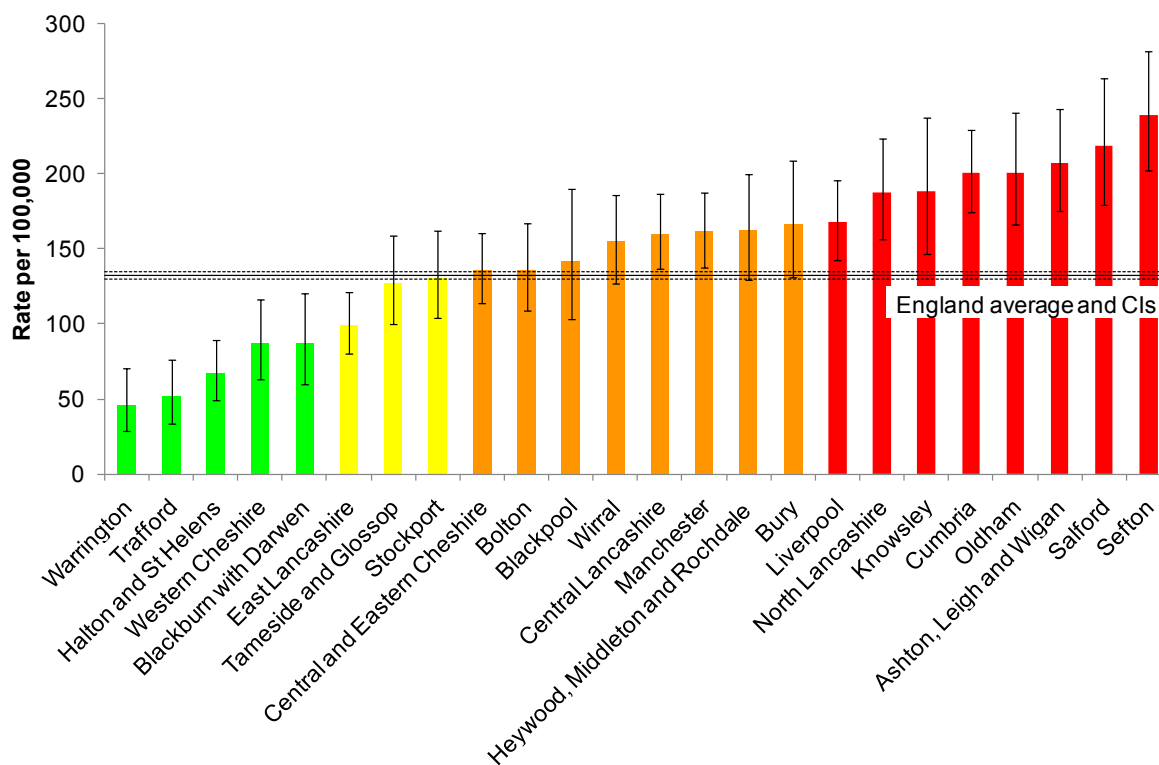
There were 2,383 emergency bed days for diabetes for 0-18 year olds in the North West in 2008/09, equating to a rate of 149.6 per 100,000 population (2008/09), 13.1% higher than the England rate of 132.3. The gap between the North West and England is less than for asthma and epilepsy.

Within the North West, the rate of admission varies from 46.2 per 100,000 in Warrington to 239.3 in Sefton, a ratio of one to 5.2.

Five PCTs (21% of those in the North West), Warrington, Trafford, Halton and St Helens, Western Cheshire and Blackburn with Darwen, have rates that fall within the lowest 25% nationally, while 8 PCTs (one-third of those in the North West) have rates that are within the highest 25% in England (Figure 15).

Three North West PCTs have rankings that are among the very highest (top 10%) nationally: Sefton (144th of 152 PCTs), Salford (140th) and Ashton, Leigh and Wigan (139th).

Figure 15: Rate of emergency bed days for diabetes (0-18 years) per 100,000 population. North West PCTs, 2008/09.



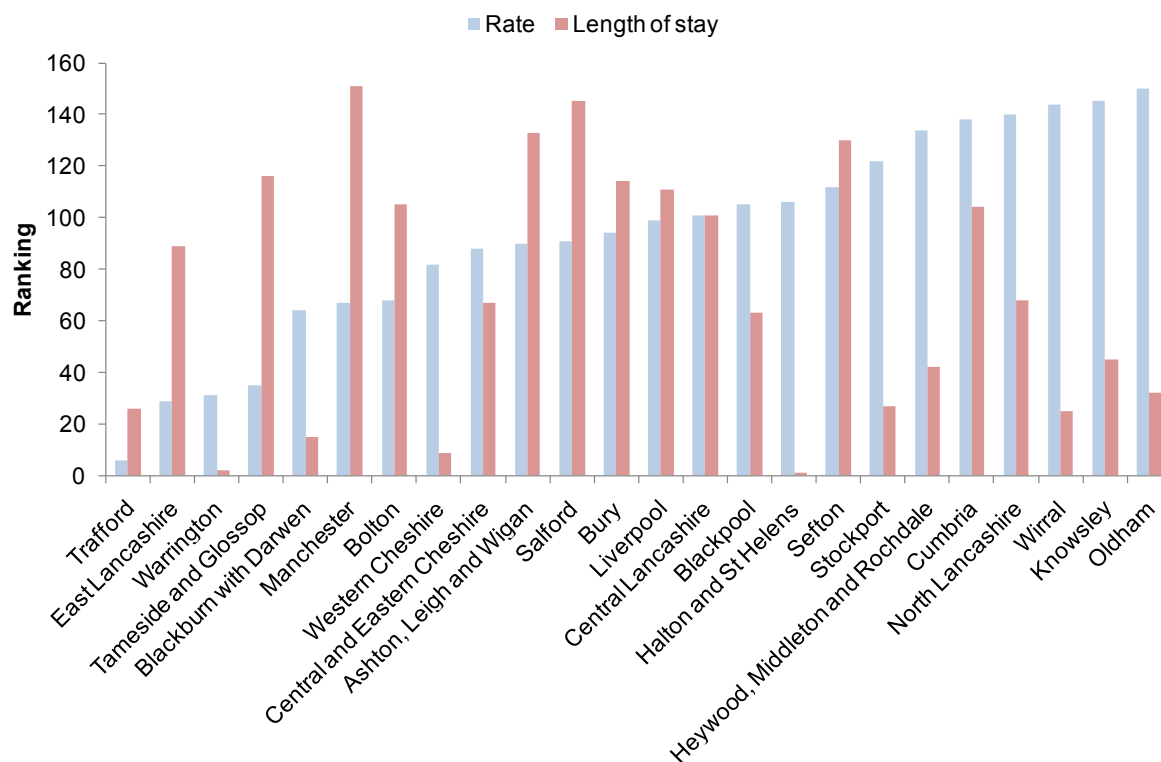
Source: NWPHO from DMIT. Note: Colour coding: green = lowest quartile nationally; yellow = second lowest quartile; orange = second highest quartile; red = highest quartile.

2.2.5 Admission rates compared with average lengths of stay

Some of the PCTs that have emergency admission rates for diabetes that are in the highest 25% nationally have far lower rankings for average lengths of stay (Figure 16):

- Wirral: 144th for admissions, 25th for average length of stay;
- Oldham: 150th for admissions, 32nd for average length of stay;
- Halton and St Helens: 106th for admissions, 1st for average length of stay; and
- Knowsley: 145th for admissions, 45th for average length of stay.

Figure 16: National ranking for rate of emergency hospital admissions per 100,000 population and average length of stay for diabetes (0-18 years). North West PCTs, 2008/09.



Source: NWPCHO from DMIT.

Note: For the rate of emergency admissions, a rank of 1 represents the lowest rate in England and a rank of 152 the highest rate. For average length of stay, a rank of 1 represents the shortest length of stay in England and a rank of 152 the longest.

2.2.6 Potential cost savings

Estimated cost savings across the North West, if emergency admissions for diabetes were reduced to the England average in the areas where admissions are higher than the national average, could equate to over £181,000 (Table 2).

Table 2: Potential cost savings: if the rate of emergency hospital admission for diabetes (0-18 years) in North West PCTs with an above average admission rate were reduced to the national average.

PCT	Potential cost savings per 100,000 population £	Potential cost savings based on actual population £
Ashton, Leigh and Wigan	4,032	2,843
Blackburn with Darwen	N/A	N/A
Blackpool	8,391	2,660
Bolton	N/A	N/A
Bury	5,644	2,509
Central and Eastern Cheshire	3,754	3,822
Central Lancashire	6,705	6,912
Cumbria	28,722	30,106
East Lancashire	N/A	N/A
Halton and St Helens	8,624	6,042
Heywood, Middleton and Rochdale	24,835	13,043
Knowsley	37,022	13,787
Liverpool	6,493	6,162
Manchester	N/A	N/A
North Lancashire	29,679	20,105
Oldham	53,855	31,128
Salford	4,074	2,034
Sefton	11,646	7,057
Stockport	15,877	10,088
Tameside and Glossop	N/A	N/A
Trafford	N/A	N/A
Warrington	N/A	N/A
Western Cheshire	967	492
Wirral	31,253	22,440
Total		£181,230

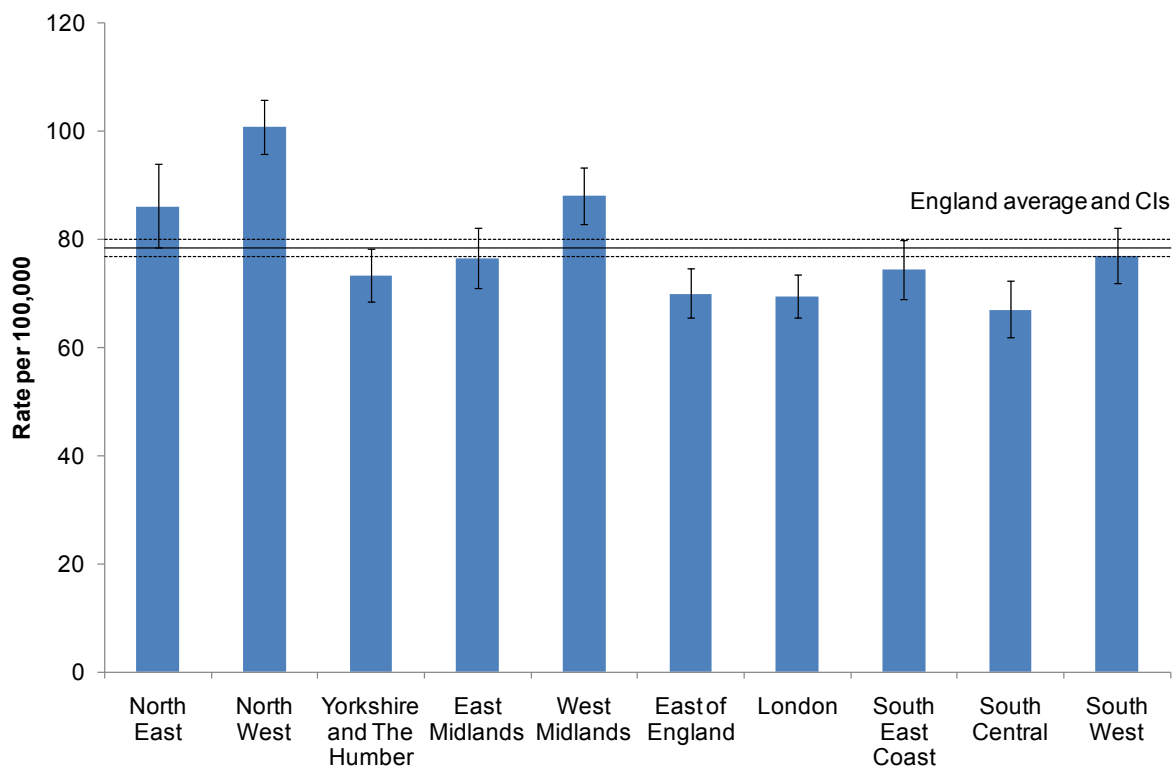
Source: NWPCHO from DMIT. Note: The 2008/09 non-elective NHS National Tariff for diabetes was £971 per admission. Further examples of potential cost savings for areas with lower than average admission rates are given in those areas' summary reports.

2.3 Epilepsy

2.3.1 Emergency hospital admission rates

In 2008/09, there were 1,604 emergency admissions of 0-18 year olds in the North West for epilepsy, a rate of 100.7 per 100,000 population. This is 1.3 times higher than the England rate of 78.4 per 100,000, and is the highest SHA rate in England (Figure 17).

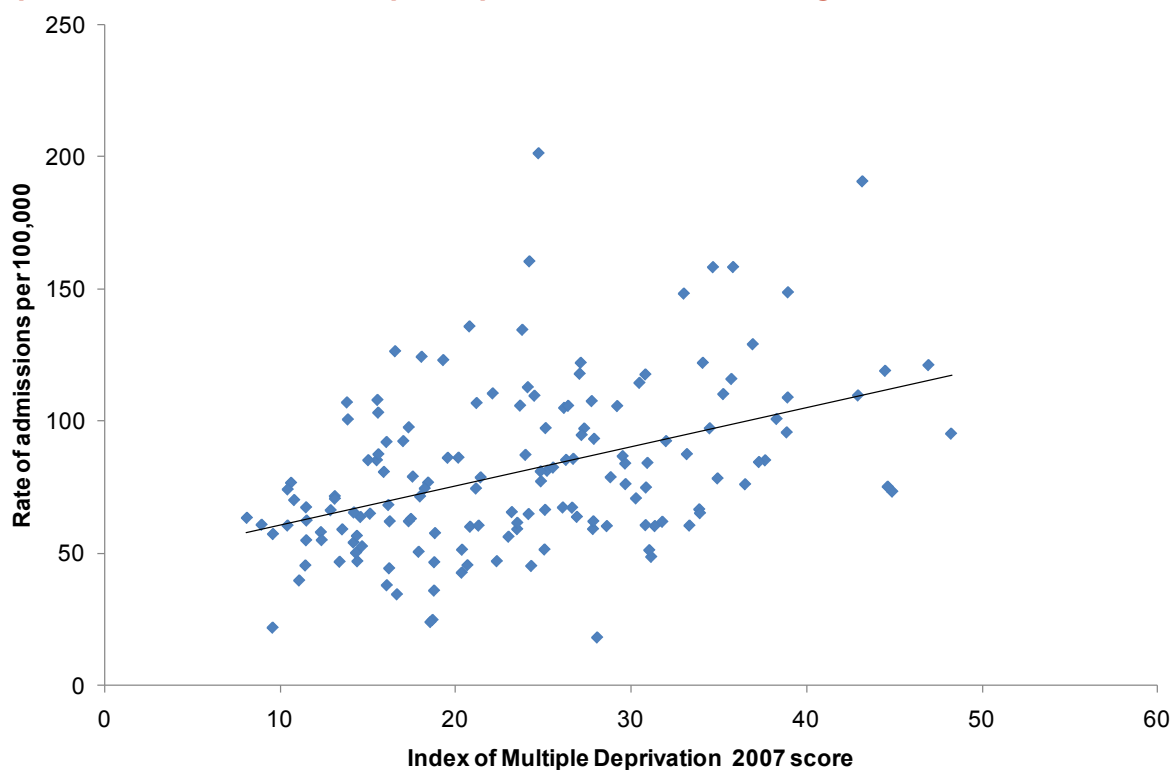
Figure 17: Rate of emergency hospital admission for epilepsy (0-18 years) per 100,000 population. England Strategic Health Authority areas, 2008/09.



Source: NWPHO from DMIT.

There is a significant relationship between emergency hospital admission rates for epilepsy and deprivation across England,^{viii} meaning that admission rates increase as deprivation increases (Figure 18).

Figure 18: Rate of emergency admissions for epilepsy (0-18 years) per 100,000 population and Index of Multiple Deprivation 2007 score. England PCTs, 2008/09.



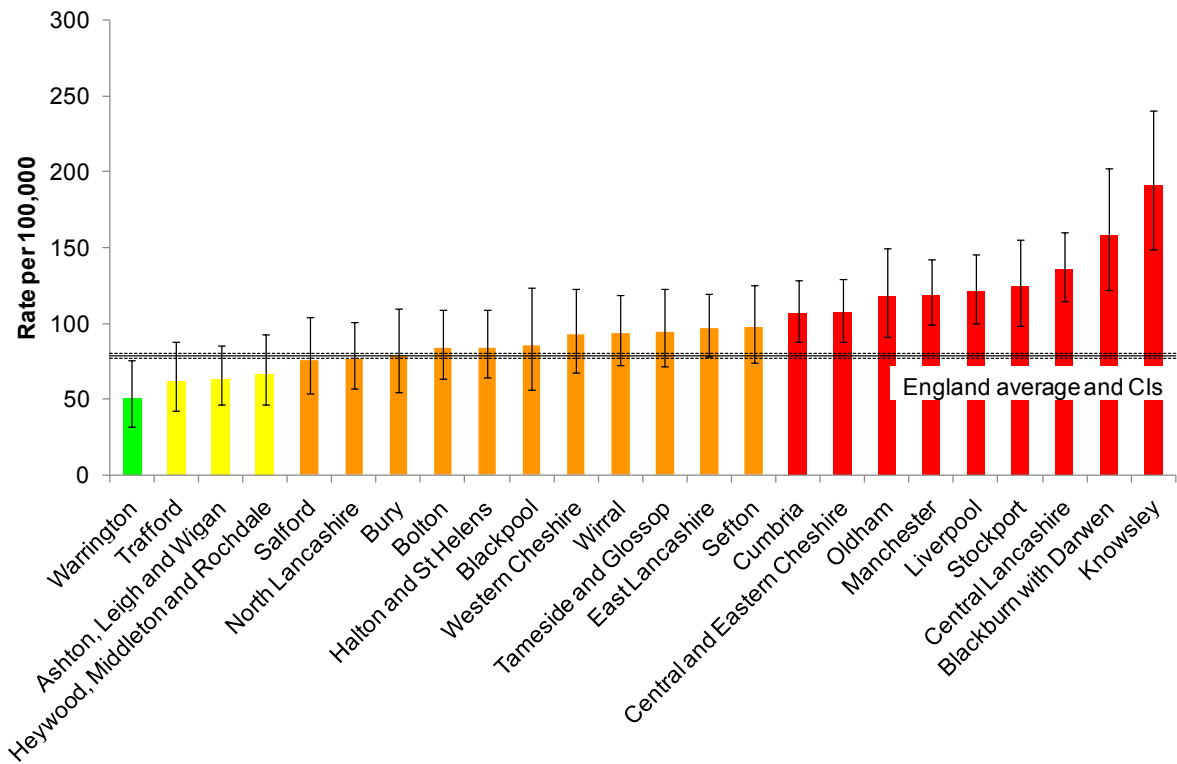
Source: NWPHO from DMIT.

The rate of admissions in the North West varies from 50.6 per 100,000 in Warrington to 190.7 in Knowsley, a ratio of one to 3.8.

Only Warrington has an emergency hospital admission rate for epilepsy that falls within the lowest 25% nationally, while nine PCTs have rates that are within the highest 25% nationally (Figure 19). A number of North West PCTs have rankings that are among the very highest (top 10%) nationally: Knowsley (151st of 152 PCTs), Blackburn with Darwen (149th), Central Lancashire (145th), Stockport (141st) and Liverpool (137th).

^{viii} Spearman's rho=0.432, P<0.01

Figure 19: Rate of emergency hospital admission for epilepsy (0-18 years) per 100,000 population. North West PCTs, 2008/09.



Source: NWPHO from DMIT. Note: Colour coding: green = lowest quartile nationally; yellow = second lowest quartile; orange = second highest quartile; red = highest quartile.

2.3.2 Comparison to most similar PCTs

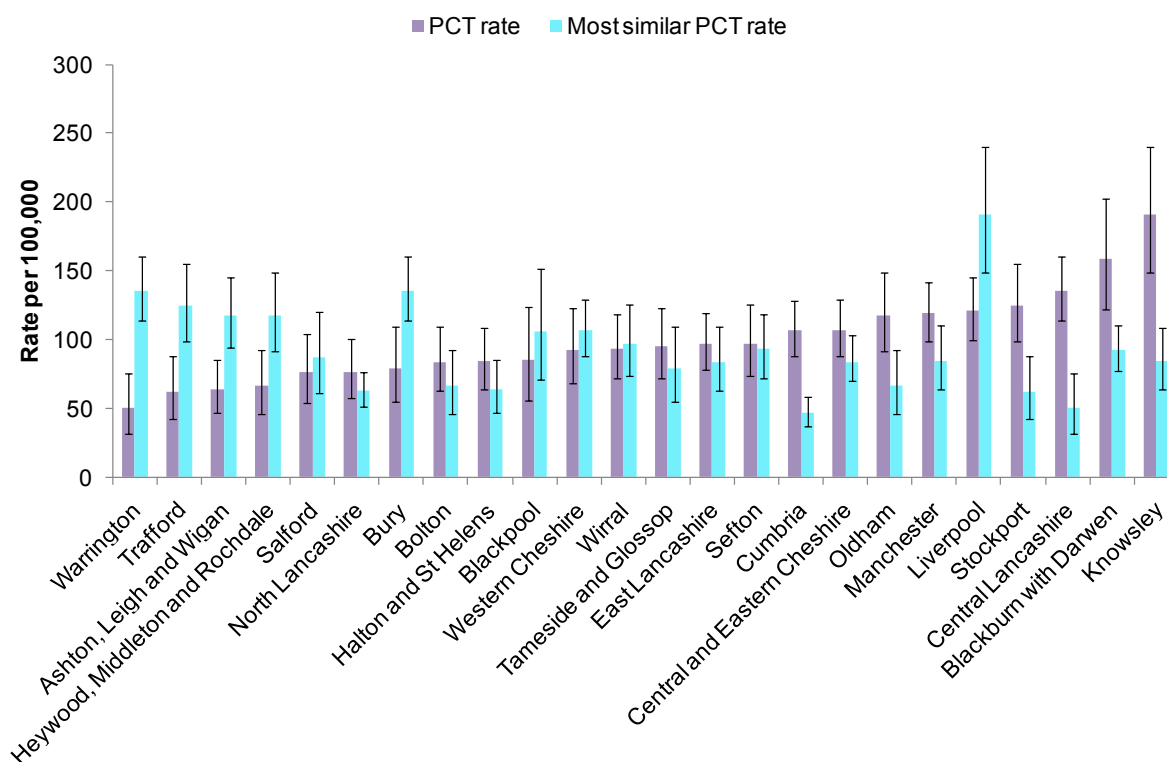
A number of PCTs have emergency hospital admission rates for epilepsy that are significantly different from their most similar PCTs (Figure 20). Those PCTs with significantly worse rates than their most similar PCTs are:

- Knowsley in comparison to Halton and St Helens (190.7 and 84.2 per 100,000 population respectively);
- Blackburn with Darwen in comparison to Bradford and Airedale (158.3 and 92.4 per 100,000 population respectively);
- Central Lancashire in comparison to Warrington (135.8 and 50.6 per 100,000 population respectively);
- Stockport in comparison to Trafford (124.3 and 62.1 per 100,000 population respectively); and
- Cumbria in comparison to North Yorkshire and York (106.8 and 46.8 per 100,000 population respectively).

The PCTs with significantly better emergency admission rates than their most similar counterparts are:

- Warrington in comparison to Central Lancashire (50.6 and 135.8 per 100,000 population respectively);
- Trafford in comparison to Stockport (62.1 and 124.3 per 100,000 population respectively);
- Ashton, Leigh and Wigan in comparison to Wakefield (63.8 and 117.9 per 100,000 respectively);
- Bury in comparison to Central Lancashire (78.7 and 135.8 per 100,000 population respectively); and
- Liverpool in comparison to Knowsley (121.2 and 190.7 per 100,000 population respectively).

Figure 20: Rate of emergency hospital admission for epilepsy (0-18 years) compared to the rate for the most similar PCT. North West PCTs, 2008/09.



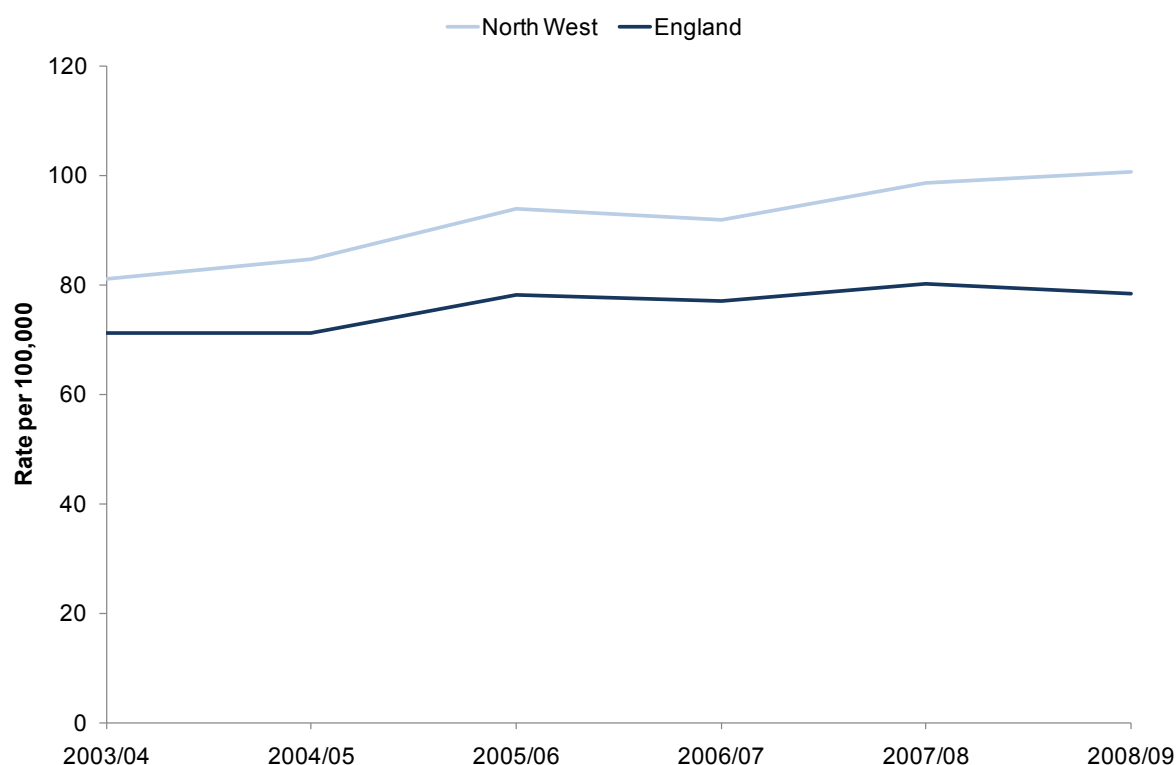
Source: NWPCHO from DMIT.

2.3.3 Comparison to 2003/04 emergency hospital admission rates

The 2008/09 rate of emergency hospital admission for epilepsy in the North West is 24.3% higher than the 2003/04 rate (100.7 compared with 81.0 per 100,000 population), while the rate across England is 10.1% higher than it was in 2003/04 (Figure 21).

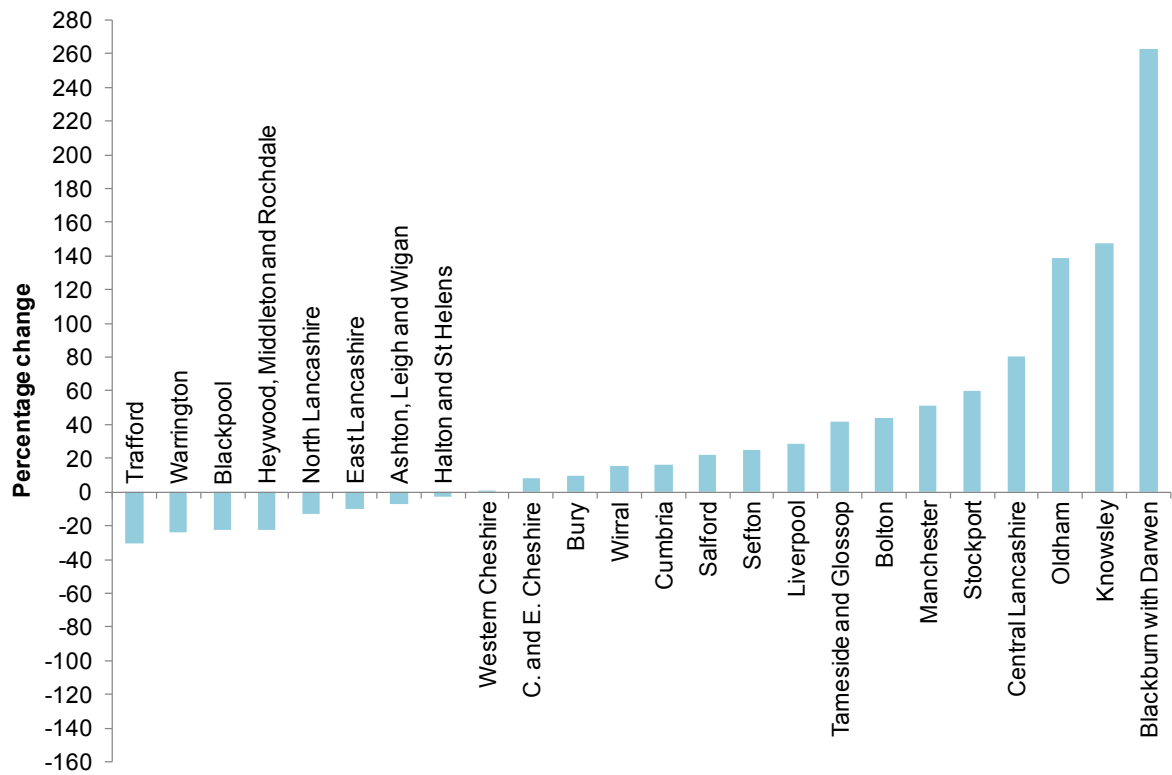
Across the North West, the percentage change in emergency hospital admission rates for epilepsy between 2003/04 and 2008/09 varies from -37.8% in Trafford to +263.0% in Blackburn with Darwen (Figure 22). The 2008/09 admission rates in Blackburn with Darwen, Knowsley, Oldham, Central Lancashire and Manchester are significantly higher than their equivalent rates in 2003/04.

Figure 21: Emergency hospital admission rate for epilepsy (0-18 years), 2003/04 to 2008/09.



Source: NWPHO from DMIT.

Figure 22: Percentage change in rate of emergency hospital admission for epilepsy (0-18 years). North West PCTs, 2003/04 to 2008/09.



Source: NWPFO from DMIT.

2.3.4 Emergency bed days

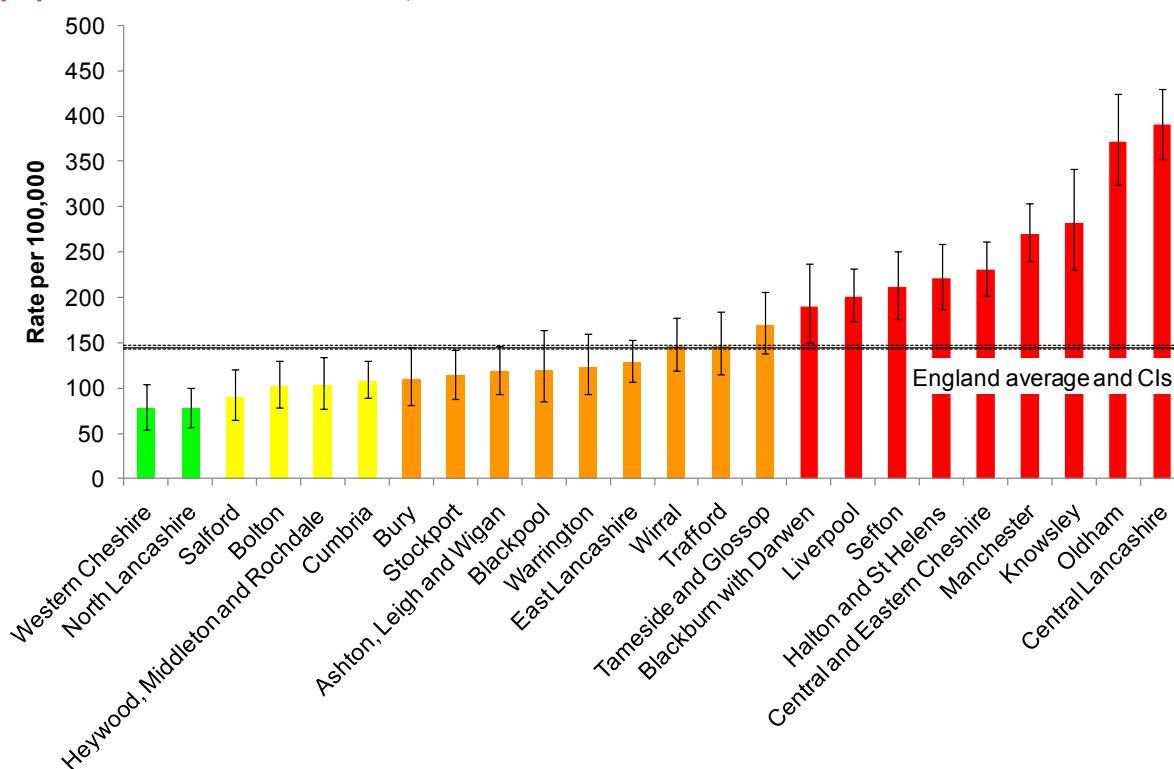
There were 2,860 emergency bed days for epilepsy for 0-18 year olds in the North West in 2008/09, equating to an emergency bed day rate of 179.5 per 100,000 population. This rate is the second highest SHA rate in England, and is 1.2 times higher than the England rate of 144.8 per 100,000.

Within the North West, the rate of admission varies from 76.7 per 100,000 in Western Cheshire to 390.0 in Central Lancashire, a ratio of one to 5.1.

Only Western Cheshire and North Lancashire have rates that fall within the lowest 25% nationally, while nine PCTs (37.5% of those in the North West) have rates that are within the highest 25% in England (Figure 23).

A number of North West PCTs have rankings that are among the very highest (top 10%) nationally: Central Lancashire (151st of 152 PCTs), Oldham (150th), Knowsley (140th) and Manchester (137th).

Figure 23: Rate of emergency bed days for epilepsy (0-18 years) per 100,000 population. North West PCTs, 2008/09.



Source: NWPCHO from DMIT. Note: Colour coding: green = lowest quartile nationally; yellow = second lowest quartile; orange = second highest quartile; red = highest quartile.

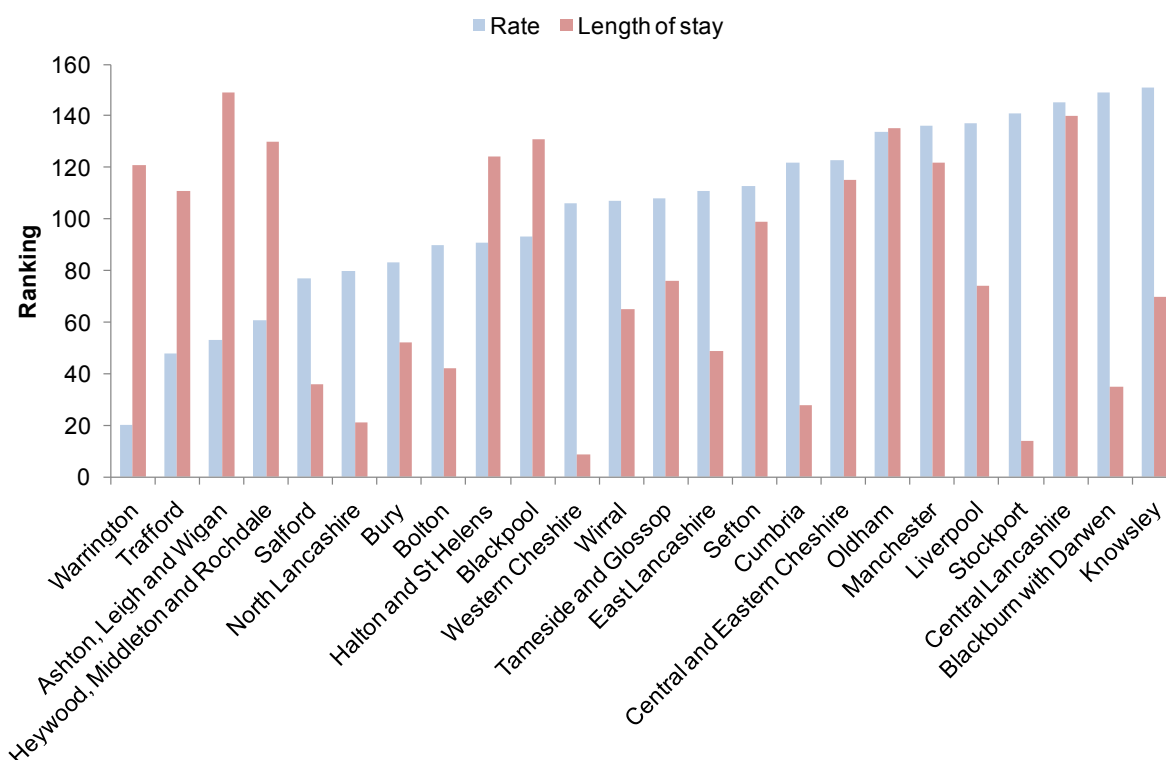
2.3.5 Admission rates compared with average lengths of stay

A couple of PCTs that have emergency admission rates for epilepsy that are in the highest 25% nationally have low rankings for average lengths of stay (Figure 24):

- Blackburn with Darwen: 149th for admissions, 35th for average length of stay; and
- Stockport: 141st for admissions, 14th for average length of stay.

Conversely, Warrington has the 20th lowest rate of admissions, and the 121st longest length of stay.

Figure 24: National ranking for rate of emergency hospital admissions per 100,000 population and average length of stay for epilepsy (0-18 years). North West PCTs, 2008/09.



Source: NWPCHO from DMIT.

Note: For the rate of emergency admissions, a rank of 1 represents the lowest rate in England and a rank of 152 the highest rate. For average length of stay, a rank of 1 represents the shortest length of stay in England and a rank of 152 the longest.

2.3.6 Potential cost savings

If PCTs with above average emergency hospital admission rates for epilepsy could reduce their rates to the national average, potentially nearly £355,800 could be saved across the North West (Table 3).

Table 3: Potential cost savings: if the rate of emergency hospital admissions for epilepsy (0-18 years) in North West PCTs with an above average admission rate were reduced to the national average.

PCT	Potential cost savings per 100,000 population £	Potential cost savings based on actual population £
Ashton, Leigh and Wigan	N/A	N/A
Blackburn with Darwen	72,774	29,430
Blackpool	6,193	1,963
Bolton	5,096	3,338
Bury	316	140
Central and Eastern Cheshire	26,143	26,614
Central Lancashire	52,329	53,941
Cumbria	25,940	27,190
East Lancashire	17,159	16,239
Halton and St Helens	5,319	3,726
Heywood, Middleton and Rochdale	N/A	N/A
Knowsley	102,287	38,092
Liverpool	38,995	37,006
Manchester	37,032	38,891
North Lancashire	N/A	N/A
Oldham	35,776	20,679
Salford	N/A	N/A
Sefton	17,295	10,481
Stockport	41,866	26,602
Tameside and Glossop	14,921	8,818
Trafford	N/A	N/A
Warrington	N/A	N/A
Western Cheshire	12,819	6,517
Wirral	8,475	6,085
Total		£355,752

Source: NWPCHO from DMIT. Note: The 2008/09 non-elective NHS National Tariff for diabetes was £911 per admission. Further examples of potential cost savings for areas with lower than average admission rates are given in those areas' summary reports.

3. References

¹ Asthma UK. Improving Quality, Innovation, Productivity and Prevention of Asthma Services in Local Health Settings. How Asthma UK Can Help to Transform Services and Save Expenditure. Available at: [www.northwest.nhs.uk/document_uploads/CPG/Asthma_UK_Business_Case_+_QIPP_\(2\).pdf](http://www.northwest.nhs.uk/document_uploads/CPG/Asthma_UK_Business_Case_+_QIPP_(2).pdf) [Accessed January 21 2011].

² Royal College of Paediatrics and Child Health (2009). Growing up with Diabetes: children and young people with diabetes in England. Available at: www.rcpch.ac.uk/Research/Research-Activity/Completed-Projects/National-Diabetes-Survey [Accessed January 21 2011].

³ Department of Health (2007). Making Every Young Person with Diabetes Matter. Available at: www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_073675.pdf [Accessed January 21 2011].

⁴ Epilepsy Action (2009). Epilepsy in England: time for change. Available at: www.epilepsy.org.uk/sites/epilepsy/files/images/campaigns/Epilepsy_in_England_-_Time_for_change_report.pdf [Accessed January 21 2011].

⁵ All Party Parliamentary Group on Epilepsy (2007). Wasted money, wasted lives.

⁶ Stokes T, Shaw EJ, Juarez-Garcia A, Camosso-Stefinovic J, Baker R (2004). Clinical Guidelines and Evidence Review for the Epilepsies: diagnosis and management in adults and children in primary and secondary care. London: Royal College of General Practitioners. Available at: www.nice.org.uk/nicemedia/live/10954/29533/29533.pdf [Accessed January 21 2011].

⁷ Implementing NICE guidance. Commissioning guide Service for the accurate diagnosis of the epilepsies in adults. Available at: www.nice.org.uk/media/4F3/C5/Epilepsy_commissioning_guide.pdf

4. Appendices

Table 4: Rates of child emergency hospital admission and bed days for long-term conditions, 2008/09.

PCT/SHA area	Asthma		Diabetes		Epilepsy	
	Emergency admission rate per 100,000 population	Emergency bed days rate per 100,000 population	Emergency admission rate per 100,000 population	Emergency bed days rate per 100,000 population	Emergency admission rate per 100,000 population	Emergency bed days rate per 100,000 population
Ashton, Leigh and Wigan	218.4	304.9	68.1	207.0	63.8	117.7
Blackburn with Darwen	420.4	294.3	59.3	86.5	158.3	190.4
Blackpool	306.0	416.4	72.6	142.0	85.2	119.9
Bolton	392.4	371.0	61.1	135.9	84.0	102.3
Bury	537.6	665.8	69.7	166.4	78.7	110.2
Central and Eastern Cheshire	255.4	309.4	67.8	135.6	107.1	230.8
Central Lancashire	388.0	406.5	70.8	160.1	135.8	390.0
Cumbria	233.7	296.7	93.5	200.3	106.8	107.8
East Lancashire	380.4	307.5	47.5	99.3	97.2	128.9
Halton and St Helens	384.0	361.1	72.8	67.1	84.2	221.2
Heywood, Middleton & Rochdale	342.7	403.7	89.5	161.8	66.6	102.8
Knowsley	636.4	588.1	102.0	188.0	190.7	282.0
Liverpool	591.1	612.2	70.6	167.5	121.2	201.3
Manchester	388.5	506.6	60.0	160.9	119.0	270.4
North Lancashire	252.4	293.8	94.5	187.5	76.8	76.8
Oldham	411.8	406.6	119.4	200.7	117.6	372.0
Salford	298.5	408.7	68.1	218.3	76.1	90.1
Sefton	417.5	399.3	75.9	239.3	97.4	211.2
Stockport	335.2	426.5	80.3	130.6	124.3	113.3
Tameside and Glossop	250.4	345.2	49.1	126.9	94.8	169.2
Trafford	220.5	366.9	32.1	52.1	62.1	146.4
Warrington	182.6	215.6	48.4	46.2	50.6	123.2
Western Cheshire	277.3	285.2	64.9	86.5	92.4	76.7
Wirral	344.0	527.9	96.1	154.6	93.3	146.2
North East	266.8	312.0	76.1	159.5	85.9	153.9
North West	350.8	395.3	72.2	149.6	100.7	179.5
Yorkshire and The Humber	246.8	329.4	66.7	146.5	73.2	132.4
East Midlands	199.7	238.8	65.5	135.0	76.4	197.2
West Midlands	288.1	301.8	59.6	120.1	87.9	141.6
East of England	187.2	213.6	68.8	117.7	69.9	121.2
London	236.8	320.3	49.7	130.3	69.4	140.1
South East Coast	206.1	250.6	65.2	132.1	74.3	110.1
South Central	185.1	221.3	63.2	114.9	66.9	85.8
South West	223.8	284.6	63.0	125.0	76.9	176.1
England	243.7	293.0	63.0	125.0	76.9	176.1

Source: NWPFO from DMIT.

4.1 Methodology

The data in this report were derived from Hospital Episode Statistics (HES) and cover children aged 0 to 18 years inclusive. Data relates to 2008/09 unless specified otherwise. The International Classification of Diseases 10th revision (ICD-10) codes used to identify admissions for these conditions were as follows:

- Asthma: J45 and J46
- Diabetes: E10
- Epilepsy: G40 and G41

Data from HES are restricted to primary diagnoses for these conditions and emergency admission methods. They also exclude well babies and are based on finished in-year admission general episodes for those aged under 19.

Population statistics used to produce rates of admissions and bed days dependent on local populations are from the Office for National Statistics population estimates.

Information on potential cost savings is based on the 2008/09 non-elective NHS national tariff. The 2008/09 tariffs for emergency admissions are £625 per admission for asthma, £971 per admission for diabetes and £911 per admission for epilepsy.

95% confidence intervals (CIs) are presented in charts, displayed as error bars. They illustrate the limits within which we can be 95% confident the true value lies. If one area's confidence intervals do not overlap another area's, the difference between the areas is described as statistically significant.

Note that for strategic health authorities with PCTs that do not fully fall within the region, the whole PCT value has been assigned to the SHA which contains the majority of the PCT population:

- North West SHA total includes the whole of Tameside and Glossop PCT
- South West SHA total includes the whole of Swindon PCT
- South Central SHA total includes the whole of Berkshire East PCT
- East Midlands SHA total includes the whole of Lincolnshire Teaching PCT

4.2 Notes on Hospital Episode Statistics

In-year admissions

An in-year admission is the first period of in-patient care under one consultant within one healthcare provider, excluding admissions beginning before 1 April at the start of the data-year. Periods of care ongoing at the end of the data-year (unfinished admission episodes) are included. Please note that admissions do not represent the number of in-patients, as a person may have more than one admission within the year.

Emergency admission methods

Emergency admissions include Emergency via Accident and Emergency (A&E services, including the casualty department of the provider; Emergency via General Practitioner (GP); Emergency: via Bed Bureau, including the Central Bureau; Emergency: via consultant outpatient clinic; Emergency: other means, including patients who arrive via the A&E department of another healthcare provider.

Length of stay (duration of spell)

Length of stay (LOS) is calculated as the difference in days between the admission date and the discharge date, where both are given. LOS is based on hospital spells and only applies to

ordinary admissions, i.e. day cases are excluded (unless otherwise stated). Information relating to LOS figures, including discharge method/destination, diagnoses and any operative procedures, is based only on the final episode of the spell.

Bed occupancy

Bed-days of finished episodes and bed-days of finished spells include days of bed occupancy during previous years, e.g. a patient discharged in 2003/04 may have been admitted during 2002/03. Conversely, bed-days within the year include only those days falling between 1 April and 31 March of the data year (including unfinished episodes, unless otherwise stated).

Diagnosis (primary diagnosis)

The primary diagnosis is the first of up to 14 (7 prior to 2002-03) diagnosis fields in the HES dataset and provides the main reason why the patient was in hospital. The ICD-10 coding system is used to define individual diagnoses.

Assessing growth through time

HES figures are available from 1989/90 onwards. During the years that these records have been collected by the NHS there have been ongoing improvements in quality and coverage. These improvements in information submitted by the NHS have been particularly marked in the earlier years and need to be borne in mind when analysing time series.

Changes in NHS practice also need to be borne in mind when analysing time series. For example, a number of procedures may now be undertaken in outpatient settings and may no longer be accounted in the HES data. This may account for any reductions in activity over time.

Data quality

Hospital Episode Statistics (HES) are compiled from data sent by over 300 NHS Trusts and primary care trusts in England. The Information Centre for health and social care liaises closely with these organisations to encourage submission of complete and valid data and seeks to minimise inaccuracies and the effect of missing and invalid data via HES processes. Whilst this brings about improvement over time, some shortcomings remain.

Grossing

Figures have not been adjusted for shortfalls in data (i.e. the data are ungrossed).

Copyright

The Hospital Episodes Statistics data used within the Disease Management Information Toolkit is covered by copyright. Copyright © 2007, The Information Centre, HES. All rights reserved. The data remains the sole and exclusive property of The Information Centre and may only be reproduced where there is explicit reference to the ownership of The Information Centre.

North West Public Health Observatory

Centre for Public Health
Research Directorate
Faculty of Health and Applied Social Sciences
Liverpool John Moores University
2nd Floor, Henry Cotton Campus
15-21 Webster Street
Liverpool
L3 2ET

t: +44(0)151 231 4535

f: +44(0)151 231 4552

e: nwpho-contact@ljmu.ac.uk

www.nwpho.org.uk

www.cph.org.uk

www.chimat.org.uk

ISBN: 978-1-908029-54-6 (pdf)

Published March 2011

