Havering Joint Strategic Needs Assessment 2011/12

Keeping people out of hospital

NHS

Outer North East London

Havering
LONDON BOROUGH

Keeping People Out of Hospital

SUMMARY

What is the Level of Need in Havering?

- Emergency admissions account for nearly two thirds of hospital bed days in England and are costly compared to other types of care
- Some of these admissions could be avoided, for example admissions which are due to ambulatory care sensitive (ACS) conditions which may be avoided with appropriate management of the health condition in the community (e.g. by a GP, community service or at home)
- Other emergency admissions may also be avoidable e.g. admissions due to falls
- In Havering, there were 21,214 emergency admissions in 2010/11, at a cost of nearly £43million
- Rates of emergency hospital admission in Havering are significantly lower (better) than the average for England (89.0) and London but are increasing
- A&E attendances in Havering are significantly below the national average and lowest for any borough in London. Attendance rates have also declined in recent years
- ACS conditions accounted for 4.9% of all hospital admissions and 15.5% of emergency hospital admissions in 2010/11
- This equates to 6,728 admissions due to ACS conditions, at a cost of nearly £15 million per year (or more than £2,000 per condition)
- Benchmarking exercises suggest that reductions of about 20% in such admissions are possible
- The main health conditions responsible for ACS admissions in Havering were chronic obstructive pulmonary disease (16.5% of all avoidable admissions), influenza and pneumonia (15.1%) and dehydration and gastroenteritis (11.3%)
- There are pockets across the Borough with high rates of avoidable hospital admissions. There is a cluster of high rates around Brooklands and Romford Town as well as some areas within Rainham and Wennington, Heaton, South Hornchurch and Harold Wood
- There are wide variations between Havering GP practices in avoidable hospital admissions, ranging from 7 per 1000 population to 32 per 1000 population
- In 2009/10, there were 2329 readmissions within 1 month of discharge for Havering residents which represents 12.1% of all patients discharged that year, compared with a national average of 11.4%
- Readmission rates in Havering have risen more than 4% over the last 10 years in line with national trends
- However, when emergency readmissions are analysed by age, Havering has consistently had a significantly higher (worse) percentage of older people (aged 75+) who are readmitted to hospital in an emergency within 28 days of discharge, compared with England
- 52% of those with a long term health condition in Havering feel they have had enough support from local services or organisations in managing their condition (England 55%; London 52%)

Current Service Provision in Havering

- As part of Havering's Adults' Transformation Programme, a number of projects are being delivered which support individuals to stay out of hospital. These include telehealth and rehabilitation for those with chronic obstructive pulmonary disease, rapid response telecare, integrated case management, falls prevention projects, help not hospital, information and advice services and reablement and rehabilitation
- Projects are taking place across the whole of Outer North East London around urgent care and out of hospital care. These include a NHS 111 telephone service and rapid response community services

Gaps in Knowledge and Service Provision in Havering

- Scope for further urinary tract infections to be treated in the community
- Need for an intermediate care service (supported by senior nurses/clinicians) that GPs can refer to if an individual needs further support but is not unwell enough for hospital care
- Need for models which assess an individual's care needs in the community (rather than being assessed at A&E and then referred to the community for treatment)
- Health for North East London (H4NEL) identified a number of ways in which urgent care could be improved such as having a consistent urgent care model across the whole of North East London
- A clinical audit in 2011 concluded that there was potential to reduce emergency admissions across Barking, Havering and Redbridge University Trust Hospitals if pathways for key conditions across the primary and secondary emergency care pathways were developed

Keeping People Out of Hospital: for decision makers and commissioners to consider:

- Implement Havering prevention strategy for older people and people with a disability
- This will include actions such as expanding the use of integrated care management, telemedicine and chronic obstructive pulmonary disease rehabilitation in 2012/13
- In partnership, develop a dementia strategy for Havering to improve outcomes for those with dementia
- Continue plans to implement the Outer North East London (ONEL) model of urgent care, as part of the ONEL primary care strategy
- Consider undertaking a local audit of the reasons for delayed discharge from hospital and the reasons for the high rate of re-admissions of very elderly Havering residents to hospital in an emergency
- Explore further opportunities to promote social inclusion among the elderly and vulnerable e.g. through services such as luncheon clubs and drop in centres for the elderly or those with learning disabilities
- Continue to work with partners to implement improved real-time information sharing in order to improve coordination and avoid breaks in care
- Monitor and improve general clinical management of LTCs in primary care e.g. COPD, flu immunisation to over 65s and at risk groups
- Ensure robust monitoring and evaluation of interventions takes place to influence future commissioning decisions

1. Emergency Hospital Admissions in Havering

- **Introduction**

An emergency hospital admission can be defined as an "admission that is not predicted and happens at short notice because of perceived clinical need" (1).

Emergency admissions account for nearly two thirds of hospital bed days in England and are costly compared to other types of care. Such admissions can interfere with elective care e.g. inpatient waiting lists and can also disrupt the lives of those admitted (1).

Identifying Those at Risk of Emergency Admissions and Level of Need

Considering who is at most at risk of emergency admissions is important as it allows commissioners and service providers to target services and interventions to those who are most likely to need them. There are a number of risk factors related to emergency admissions, with risk factors including:

Those at Risk

Age

Babies and very young children and older people have a higher risk of emergency admissions and of avoidable emergency admissions (ambulatory care sensitive conditions). However, it should be noted that large numbers of emergency admissions also take place for those below the age of 65 with only those aged 5 to 14 having a low risk of emergency admission (1, 12).

In Havering there are estimated to be 41,500 residents aged 65 and older, making up 17.5% of the population. This is greater than the proportion of those aged 65 and older in London (11.5%) or England (16.4%) (2).

In Havering there are estimated to be 14,100 residents aged 0-4 years, making up 5.9% of the population. A smaller proportion of the population are aged 0-4 in Havering than in England or London overall (London 7.4%, England 6.2%) (2).

Further information on the demographics of Havering's population can be found in the demographics chapter of the JSNA or on Havering Data Intelligence Hub at www.haveringdata.net.

Socio-economic Status

Evidence suggests that individuals living in areas of socio-economic deprivation have higher rates of emergency admissions, even once other risk factors are taken into consideration. These individuals are also more likely to be admitted to hospital in an emergency for ambulatory care sensitive conditions (conditions that may have been able to have been prevented with better management of the condition in primary care) (1, 12).

According to the Indices of Multiple Deprivation 2010, the following wards in Havering have the highest levels of deprivation overall: Gooshays followed by Heaton, South Hornchurch and Havering Park (3).

MOSAIC customer insight information splits Havering's population into groups of residents with similar characteristics. This can then be used to target services and communications more effectively to residents' needs (4). MOSAIC identifies the following groups of residents as most at risk of *attending* accident and emergency departments. These three groups are also most likely to attend A&E multiple times in a year (more than three):

Group	Description	% of Havering's Households
12	Many of this group are pensioners, with low incomes and many with long term health conditions e.g. diabetes, fractures which may require hospitalisation and long stays in hospital. They like to be communicated with face to face and by local newspapers. Hospital admissions due to falls are high in this group and there is high demand for adult social care.	5.82%
10	This group is largely young to middle aged (up to 40). Many of this group have low incomes and poor health (particularly health problems related to alcohol and mental health). They like to be communicated with by newspapers and face to face. Many of this group are heavy smokers and often have poor diets and high consumption of alcohol. There is high demand for adult social care.	3.8%
7	This group are young to middle aged (up to age 45), many have very low incomes, many of them are adult social care recipients, levels of benefits are high. Some long term conditions are beginning to emerge in this group related to heavy smoking and poor diet. Mental health issues are also experienced by some in this group. Use of A&E for non-emergency matters is high in this group.	8.44%

For inpatient *admissions* to hospital, groups 11 and 12 are most at risk of being admitted. Group 12 is described above. Group 11 are retired couples with modest incomes. They tend to have poor health (as a result of age rather than lifestyle). Long term conditions such as heart disease and cancer are common and many of them are admitted to hospital due to a fall. Many of this group live alone and use social care services such as home care and equipment and adaptations.

Area of Residence
Evidence suggests that people who live in urban areas have higher rates of emergency hospital admission than those in rural areas. It is unclear whether this is due to better management of conditions in the community or differences in access to services (1). Defra (2009) classify Havering as being a "major urban" area (5).

Ethnicity
There is limited information available about how ethnicity affects risk of emergency admission. However, minority ethnic groups have a higher risk of emergency admission (1). Havering is less ethnically diverse than London overall. However, Havering is estimated to become more diverse in future, with the number of Black and Minority Ethnicities estimated to increase by 21% by 2016 (6). The demographics section of the JSNA includes further information on Havering's population.

Long Term Conditions
Higher levels of morbidity (illness) in a population are associated with more emergency admissions (1). Some key points about long term conditions in Havering are summarised below. Further information about morbidity in Havering can be found elsewhere in the JSNA e.g. in the cancer, dementia and cardiovascular disease sections.

- 17.1% of Havering residents have a long term limiting illness (38,477 people). This compares to 15.5% of people in London and 19.9% of people in England (7)
- 52% of those with a long term health condition in Havering feel they have had enough support from local services or organisations in managing their condition, compared to an England figure of 55% and a London figure of 52% (8)
- It is estimated that there are 7,742 Havering residents aged 65 or older who have a long term limiting illness and live alone (9).

Level of Need

Emergency Hospital Admissions for All Causes
In Havering, there were 21,214 emergency admissions in 2010/11, at a cost of nearly £43million. This equates to an age standardised rate of 79.7 per 1000 people. Rates of emergency hospital admission in Havering are significantly lower (better) than the average for England (89.0) and London (82.7) (10).

A lower than average rate of emergency admissions in Havering could mean a number of things, such as a lower level of morbidity (illness) in the population than in London or England, or that there is effective management in primary care or good access to primary care in Havering (10).

Figure 1: Emergency Admissions per 1,000 Population, 2010/11

Area	Total Count	Crude Rate	Standardised Rate	LCL	UCL	% Difference	Total Cost	Standardised Cost	% Difference
Havering	21,214	83.0	79.7	78.6	80.8	-10.5	42,882,597	156,988.4	-2.4
London	657,740	74.3	82.7	82.5	82.9	-7.1	1,182,071,171	161,539.1	0.5
England	4,904,414	89.0	89.0	89.0	89.1	0.0	8,857,029,404	160,796.5	0.0

Source: NHS Comparators

However, the rate of emergency hospital admissions in Havering is increasing. Between 2008/09 and 2009/10, the emergency admission rate increased significantly from 73.5 to 77.8 per 1,000 population. Between 2009/10 and 2010/11, the rate of emergency admissions also increased in Havering to 79.7 per 1,000 population (however the increase was not significant) (10). Both the number (up 27%) and cost (up 18%) of emergency admissions have increased steadily in the 3 years 2008/9 – 2010/11.

Figure 2: Change in Emergency Admissions per 1,000 Population, Havering, 2008/09 - 2010/11

Year	Period	Total Cost £'000s	% Increase	Total Count	% Increase	Crude Rate	SAR	LCL	UCL
2008/09	Q1	9,532	0%	4429	0%	17.6	17	16.5	17.5
	Q2	9,463	-1%	4819	9%	19.2	18.5	18	19
	Q3	10,468	10%	5046	14%	20	19.3	18.7	19.8
	Q4	10,270	8%	4940	12%	19.6	18.8	18.3	19.4
2009/10	Q1	10,727	13%	5029	14%	19.9	19.2	18.7	19.7
	Q2	10,246	7%	4883	10%	19.3	18.6	18.1	19.1
	Q3	11,037	16%	5329	20%	21	20.2	19.7	20.8
	Q4	10,828	14%	5246	18%	20.7	19.8	19.3	20.4
2010/11	Q1	10,625	11%	5112	15%	20.1	19.3	18.8	19.8
	Q2	10,781	13%	5213	18%	20.4	19.6	19.1	20.2
	Q3	10,205	7%	5284	19%	20.7	19.9	19.3	20.4
	Q4	11,271	18%	5605	27%	21.9	21	20.5	21.6

Source: NHS Comparators

Accident and Emergency Attendances

The great majority of emergency admissions follow from an A&E attendance. Avoiding the use of A&E services wherever possible and appropriate would go some way to reducing avoidable hospital admissions. In 2010/11, there were 63,964 attendances at accident and emergency by Havering residents. The indirectly age standardised rate of A&E attendance for Havering in 2010/11 was 252 per 1,000 population; significantly below the national average (387) and lowest for any borough in London. Moreover, attendance rates in Havering have declined over the last 3 years whereas rates have increased nationally (11).

Which/How Many Emergency Admissions are Avoidable?

All unplanned admissions are to some extent undesirable. Most attention has focused on those that are considered avoidable in some way. An admission can be viewed as 'avoidable' on the grounds that:

- The cause was an Ambulatory Care Sensitive (ACS) condition
- It was an unplanned re-admission
- It resulted from the absence of a more appropriate, community-based, model of care

a) Emergency Admissions due to Ambulatory Care Sensitive Conditions (ACS)

Ambulatory Care Sensitive conditions (ACS) are those where it is suggested that health care outside of hospital could prevent or manage this condition and avoid the need for an emergency hospital admission. A full list of conditions that are considered to be ASC can be found in Appendix 1.

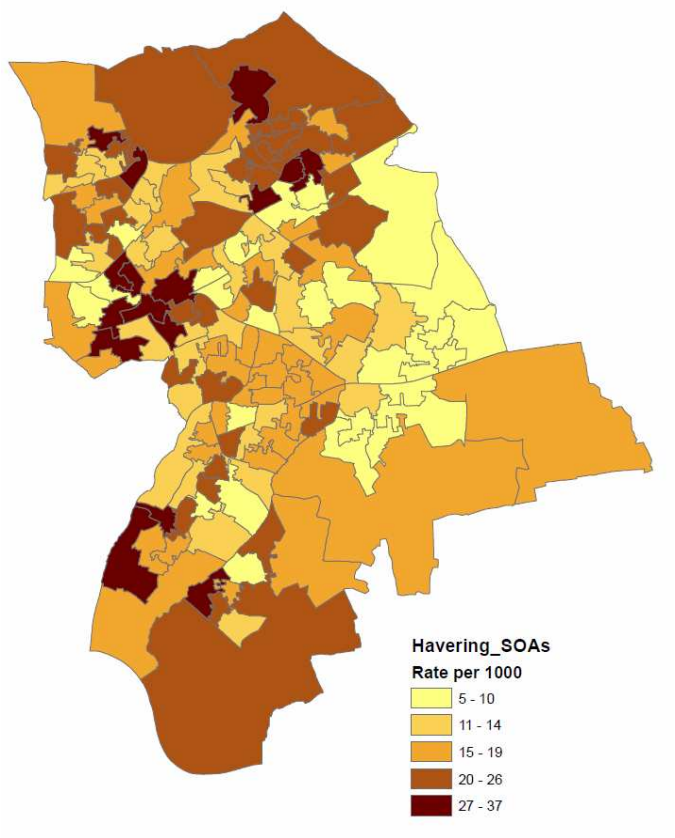
ACS conditions can be categorised as:

- A chronic condition, where effective care can prevent exacerbations that need admission. These are primarily a problem for older people e.g. affected by COPD, heart failure and angina
- An acute condition, where early intervention can prevent or slow progression. Children are predominantly admitted with acute conditions, particularly ear, nose and throat infections. Gastroenteritis and association dehydration is a particular risk to older people
- A preventable condition, where immunisation and other interventions can prevent illness. Both children and older people can benefit from the protection afforded by immunisation.

Nationally, ACS admissions account for 1 in 6 of all emergency admissions and a high level of admissions for ambulatory care sensitive conditions can point to "poor co-ordination between different parts of the healthcare system, particularly between primary and secondary care, and is a sign of the poor overall quality of care" (12). In Havering in 2010/11, ACS conditions accounted for 4.9% of all hospital admissions and 15.5% of emergency hospital admissions (11).

This equates to 6,728 avoidable emergency admissions in Havering (ambulatory sensitive) in 2010/11. This was a rate of 19 per 1000 population, with the total cost of these admissions being nearly £15 million. This equates to a cost of more than £2,000 for each avoidable emergency admission (10). Benchmarking exercises suggest that reductions of about 20% in ACS admissions are possible. A number of authors have attempted to estimate the extent to which ACS admissions might realistically be reduced.

Figure 3: Ambulatory Care Sensitive Episode Rate 2010-11, Havering Neighbourhoods



The NHS Institute for Innovation and Improvement report the number and cost of ACS admissions that might be avoided if a given PCT reduced their rate to the average for PCTs at or above the stated percentile of PCTs nationally as part of the NHS Better Care, Better Value Indicators set (13). Based on this analysis, Havering would avoid 406 admissions and save £826K per quarter if ACS admissions could be reduced to the average of PCTs in the best quartile.

Figure 3 illustrates which areas of the borough have the highest rates of emergency admissions for ACSs (based on where individuals live). Although there are pockets across the Borough with high rates of admission, there is a cluster of high rates around Brooklands and Romford Town. Some areas within Rainham and Wennington, Heaton, South Hornchurch and Harold Wood also have high rates of admission.

One way of reducing rates of ASC admission in Havering would be to tackle the variation in admission rates between populations within Havering. As an example, rates of ASC admission vary more than 4 fold (from 7 to 32 per 1,000 head of population) between GP practices serving the borough (14). The authors of a recent Kings Fund report (12) reported a nearly 3 fold variation in ACS admissions rates (9.2 – 24.5 per 1000 population) between English local authorities in 2009/10, after standardising for differences in age, sex and deprivation. Admission rates in Havering were 14.9 per 1000, putting the PCT in the 3rd (the middle) quintile of local authorities in England. Using a variety of benchmarks, the authors suggest that ACS admission rates could be reduced by between 8 – 18% nationally.

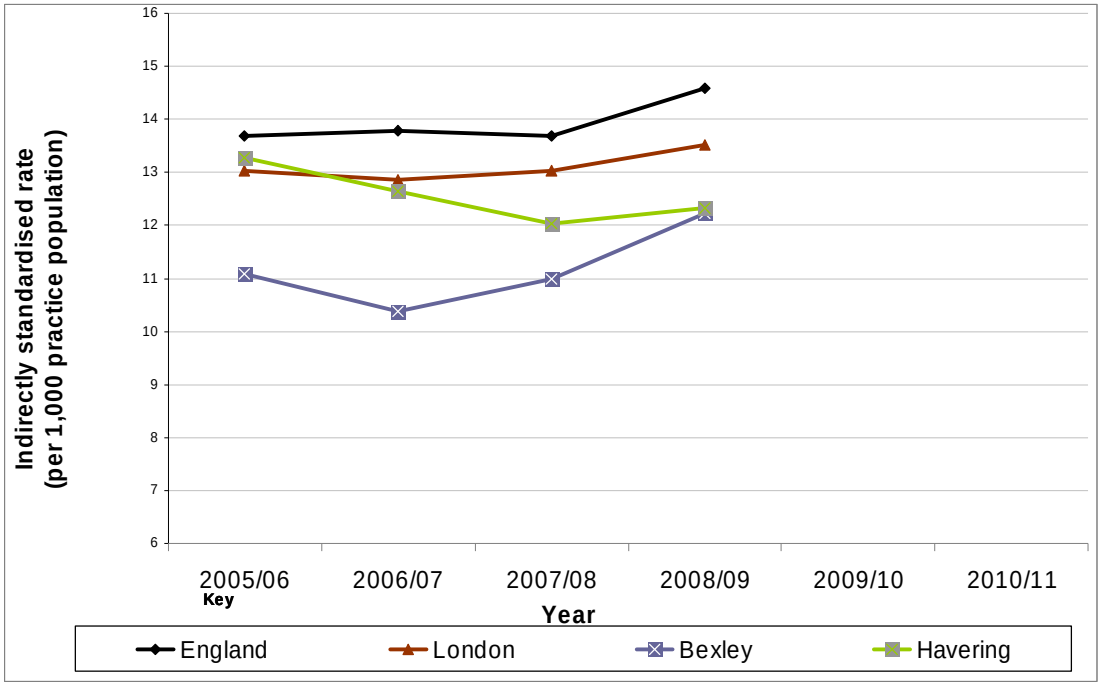
Figure 4: Variation between Havering GP Practices in Ambulatory Care Sensitive Emergency Episode Rates, 2010-11 (shows a selection only)

		Ambulatory Sensitive Admissions	Ambulatory Sensitive Admission Rate	Ambulatory Sensitive Costs (£m)	Ambulatory Sensitive cost per head (£)
	Havering PCT	5197	19	7.1	26
F82002	Haiderian Med Ctr	76	14	0.11	20
F82006	Dahs/Humberstone Sgy	95	8	0.09	7
F82007	Gubbins Ln/Ardl Gr Sgy	251	17	0.34	24
F82008	Maylands Health Care	321	21	0.44	29
F82009	North Street Med Care	257	18	0.35	25
F82010	Petersfield Sgy	156	26	0.19	32
F82011	Mawney Med Ctr	240	24	0.30	30
F82013	Western Road Med Ctr	288	17	0.33	20
F82014	Kucchai	169	23	0.25	35
F82016	Kakad	180	27	0.24	35
F82019	Dr Hamilton-Smith	141	21	0.20	31
F82020	Dr Mahmood	62	16	0.09	22
F82021	The New Med Ctr	177	17	0.25	24
F82022	Rosewood Med Ctr	214	19	0.32	28
F82028	Wood Lane Sgy	77	15	0.06	12
F82030	Lynwood Med Ctr	317	28	0.35	30
F82031	Dr Beheshti	89	20	0.10	22
F82033	Dr VM Patel	46	13	0.08	22
F82039	P & S Poologanathan	66	22	0.09	29
F82045	Chowdhury	83	20	0.12	30
F82052	Dr SJ Haskell	47	15	0.06	18
F82053	Baig	34	11	0.05	16
F82055	Hornchurch Healthcare	68	18	0.07	19
F82607	Dr Jawad	65	22	0.12	40
F82608	Kwan	15	7	0.05	23
F82609	Dr PM Patel	103	21	0.15	30
F82610	Dr Gupta	37	13	0.05	16
F82614	Dr S Subramaniam	41	16	0.05	18
F82618	Dr Jaiswal	36	16	0.11	47
F82619	Dr K Subramanian	40	17	0.05	21
F82624	Upminster Bridge Sgy	68	18	0.05	14
F82627	Dr Abdullah	99	24	0.16	40
F82630	Chase Cross Med Ctr	96	23	0.15	36
F82638	Modern Med Ctr	99	26	0.14	36
F82639	Dr Joseph	38	16	0.04	19
F82641	Dr Gillett-Waller	32	16	0.07	32
F82643	Chopra	22	10	0.03	14
F82646	Dr Uberoy	129	23	0.20	36

Source: Emergency Admissions in 2010/11: Evidence from SUS Data and NHS Comparators, NHS Havering, 2011.

A clinical audit which took place in 2011 in Barking, Havering and Redbridge hospitals also concluded that a number of emergency admissions were avoidable and could be avoided if pathways for key conditions across the primary and secondary emergency care pathways were developed (15).

Figure 5: Indirectly Standardised Rates (ISR) per 1,000 Practice Population for Emergency Hospital Admissions due to Ambulatory Care Sensitive Conditions, 2005/06 to 2008/09 Financial Years - England, London, Statistical Neighbour (Bexley) and Havering



Past trends and comparison data with England (only available up until 2008/09), indicate that the rate of avoidable emergency admissions in Havering was 12.3 (per 1,000 practice population) in 2008/09. This was significantly lower than England (14.6). The rate in Havering reduced in the period 2005-2008 but increased slightly (but not significantly) between the years 2007/08 and 2008/09.

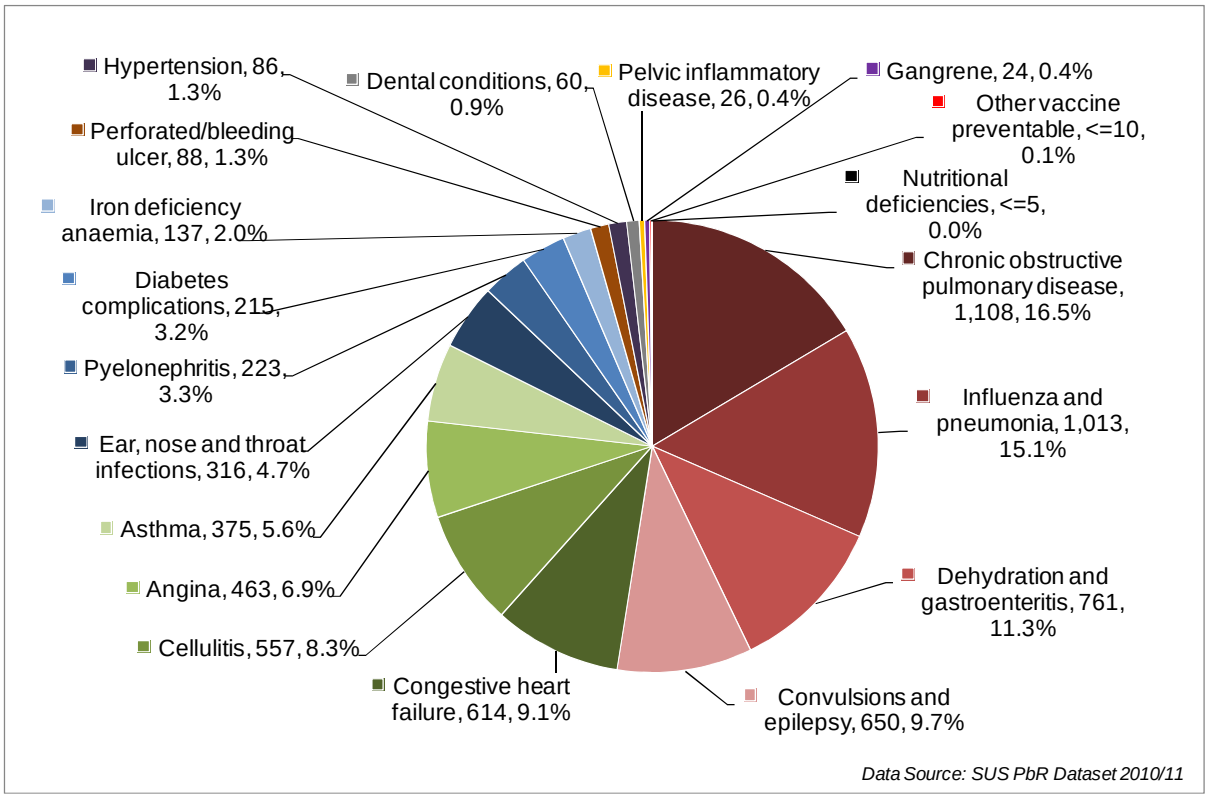
In addition, Havering's indirectly standardised rate of avoidable emergency admissions has been significantly lower than England's from the 2006/07 financial year. By comparison, both the rates for London and Bexley (with similar population structure to Havering) were also significantly lower than England's rate from 2005/06 to 2008/09 (10).

b) Health Conditions Resulting in Avoidable Emergency Admissions

2010/11

Figure X below looks at health conditions in Havering which caused emergency hospital admissions which may have been avoidable had the health condition been managed in primary care (e.g. by GPs or in the community). The biggest proportion of this type of admission was for chronic obstructive pulmonary disease (COPD) which accounted for 16.5% of all avoidable admissions at a cost of £2.8 million. Influenza and pneumonia (15.1% of avoidable admissions) and dehydration and gastroenteritis (11.3% of avoidable admissions) were the next biggest causes of avoidable emergency admissions. The cost of avoidable admissions for these conditions was £3 million influenza and pneumonia) and £1.4 million (dehydration and gastroenteritis) (11)

Figure 6: Distribution of Havering PCT Avoidable Emergency Hospital Admissions (Spells) in 2010/11 Financial Year by Ambulatory Care Sensitive Conditions



2011/12

More recent information about emergency admissions for ACS is available for the first two quarters of 2011/12 (up to October 2011). Information from the most recent quarter is shown in the below table. This suggests that the ACS conditions with the biggest potential for savings in Havering (should emergency admissions due to these conditions be avoided) are influenza and pneumonia, congestive heart failure and dehydration/gasteroenteritis. However, this data should be treated with caution as it is not a full year's data and could be influenced by seasonal variations (e.g. more cases of influenza at certain times of year).

Figure 7: Rate of Ambulatory Care Sensitive Admissions, Havering PCT, Q2 2011/12 and Number / Cost of Admissions Avoided if Rate Reduced to that in Stated Percentile of PCTs nationally

			50th percentile		25th percentile		10th percentile	
Condition	**Admissions / 100,000 population**	**Rank**	**Financial Opp.**	**Volume Opp.**	**Financial Opp.**	**Volume Opp.**	**Financial Opp.**	**Volume Opp.**
Influenza and pneumonia	76.37	122	£99,267	27	£198,354	56	£283,125	82
Congestive heart failure	39.16	132	£55,801	22	£96,968	37	£132,946	51
Dehydration / gastroenteritis	44.86	126	£40,204	27	£71,391	32	£100,118	44
Iron deficiency anaemia	15.49	151	£37,168	17	£70,462	46	£97,393	64
Perforated / bleeding ulcer	5.43	131	£32,251	11	£59,548	38	£92,637	43
Diabetes complications	30.59	95	£31,773	15	£53,262	25	£92,537	51
Gangrene	6.05	122	£31,039	6	£48,394	9	£67,780	12

			50th percentile		25th percentile		10th percentile	
Condition	Admissions / 100,000 population	Rank	Financial Opp.	Volume Opp.	Financial Opp.	Volume Opp.	Financial Opp.	Volume Opp.
Cellulitis	34.18	107	£29,761	23	£46,325	21	£53,698	24
COPD	49.15	98	£23,744	11	£42,349	15	£50,344	53
Pyelonephritis	10.93	109	£21,029	11	£35,466	38	£45,432	16
Convulsions and epilepsy	42.85	112	£17,926	20	£29,426	17	£33,612	28
Other vaccine preventable	2.28	110	£7,939	5	£21,908	19	£31,948	19
Hypertension	5.00	131	£7,511	9	£10,153	12	£16,181	19
Angina	19.57	54	£6,466	5	£9,679	11	£13,605	20
Dental conditions	5.45	98	£5,696	5	£9,386	9	£12,576	11
Asthma	16.18	49	£4,285	5	£9,085	6	£10,153	12
PID	3.26	119	£3,245	4	£7,636	11	£9,085	6
ENT	16.23	25	£2,813	4	£5,865	5	£8,746	6
Nutritional deficiencies	0.00	2	£0	0	£0	0	£0	0
			£457,919	225	£825,656	406	£1,151,916	560

COPD = chronic obstructive pulmonary disease, PID = pelvic inflammatory disease, ENT = ear, nose and throat.
Source: Better Care Better Value Indicators
http://www.productivity.nhs.uk/Indicator/610/For/RF4/And/25th/Percentile

c) Emergency Admissions for Chronic Conditions

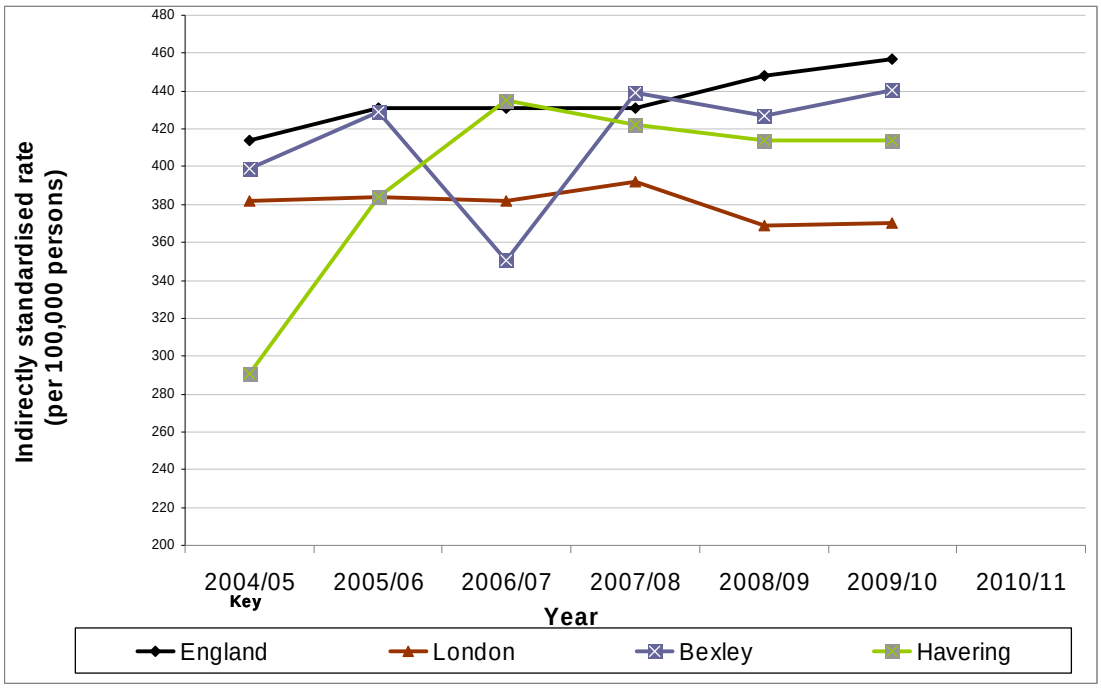
Some emergency admissions are for chronic conditions such as asthma and diabetes. Some of these admissions may be able to be avoided by better management of these conditions in primary care (e.g. in the community such as at GP Practices). There were 358 emergency admissions for chronic conditions usually managed in primary care in Havering in 2009/10. This equates to a standardised rate of 151.8 per 100,000 people (16). This is significantly lower than the England rate of 181.8 but not significantly different from the London rate of 166.5.

d) Emergency Admissions for Acute Conditions

Some emergency admissions are for acute conditions such as heart failure, ear, nose and throat infections or kidney infections. Some of these admissions may be able to be avoided by better management of these conditions in primary care (e.g. in the community such as at GP Practices). There were 1027 emergency admissions for acute conditions usually managed in primary care in Havering in 2009/10. This equates to an indirectly standardised rate of 413.9 per 100,000 persons, which is significantly lower than the England rate of 457.2 per 100,000 persons (16). The Havering rate significantly increased from 2004/05 to 2005/06 but since that spike, the year on year rate from 2005/06 to 2009/10 financial year has neither been significantly reduced nor increased.

However, with the exception of 2 consecutive years (2006/07 and 2007/08), the Havering rate was actually significantly lower every year from 2004/05 to 2009/10 when compared with England. When also compared with England, Bexley rate of admissions for conditions usually managed in acute care was significantly lower only in 2006/07 but the London rate has been significantly lower every year from 2004/05 to 2009/10 (11).

Figure 8: Indirectly Standardised Rates (ISR) per 100,000 Persons for Emergency Admissions, Acute Conditions Usually Managed in Primary Care, 2004/05 to 2009/10 Financial Years - England, London, Statistical Neighbour (Bexley) and Havering



Source: Local Analysis of SUS data, NHS Havering, 2012.

e) Emergency Admissions Due to Falls and Strokes

The risk of requiring admission due to a number of other conditions, outside the group of those defined as ambulatory care sensitive, can be significantly reduced and therefore admissions for these conditions might also be viewed as potentially avoidable. For example, the risk of conditions such as cancer and cardiovascular disease can be greatly reduced by healthy living. Such an approach would result in a comprehensive but unwieldy strategy containing elements that would not yield results, in terms of reduced admissions, for 10 – 20 years. There are a number of problems that would yield a more immediate return in terms of reduced admissions if tackled effectively. These include falls in the elderly and the secondary prevention of stroke in patients with atrial fibrillation (AF) or a history of transient ischaemic attack (TIA).

In 2010/11, there were 1500 admissions of Havering residents aged 65 or older following a fall. Age standardised rates were higher, but not significantly higher, than the national average and at least 20% higher than PCTs in the best performing quartile.

Table 9: Hospital Admissions due to Falls (Directly Age-Sex Standardised Rate per 100,000 Population), Persons Aged 65 and over, 2010/11

Area	Number of Admissions	Resident Population	Rate	Lower 95% CI	Upper 95% CI	Significance Compared to England
England	281,250	8,606,319	2475.3	2465.6	2485.1	
London	34,266	902,272	2849.7	2817.5	2882.2	worse
25th centile	564	20,976	2063.9	1886.9	2252.4	better
LBH	1,500	41,498	2567.6	2428.9	2711.8	none

Further details provided at: www.injuryprofiles.org.uk

More information about falls in Havering can be found in the Havering falls needs assessment.

More than 300 Havering residents were admitted to hospital following a stroke in 2009/10. Rates of admission for stroke in Havering were very similar to the national average.

Table 10: Emergency Hospital Admissions: Stroke; Indirectly Age and Sex Standardised Rates, 2009/10.

Area	Number of Admission Continuous Inpatient Spells	Indirectly age and sex standardised rate per 100,000	Lower limit of 95% confidence interval	Upper limit of 95% confidence interval
England	64,046	120.28	119.35	121.21
London	6,602	111.82	109.14	114.55
25th centile	138	104.07	87.43	122.95
Havering LB	312	119.93	106.99	134.01

Source: Compendium of Population Health Indicators (indicators.ic.nhs.uk)

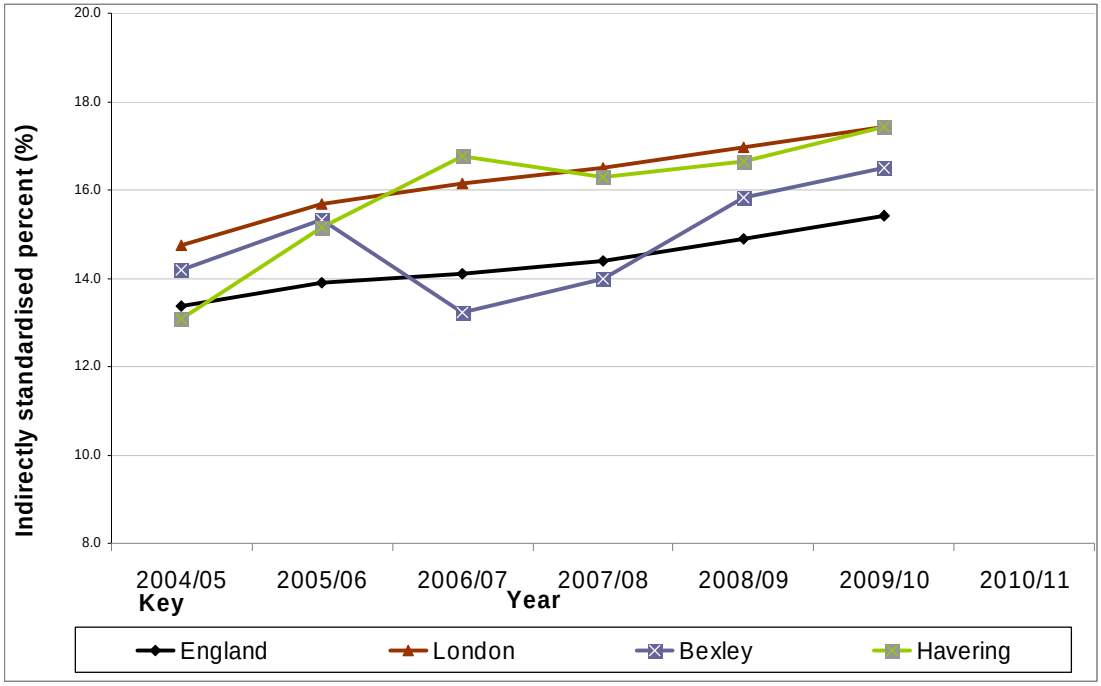
f) Unplanned Re-Admissions

Unplanned readmissions are admissions that occur as an emergency within a short time (data are available for readmissions within 2 and 4 weeks) of an initial admission. The readmission may be due to an entirely unrelated problem but a potentially avoidable proportion are due to a complication of the initial surgery, a failure in discharge planning or the implementation of that plan.

In 2009/10, there were 2329 readmissions within 1 month of discharge for Havering residents (16). This represents 12.1% of all patients discharged that year, compared with a national average of 11.4%. Moreover, readmission rates in Havering have risen more than 4% over the last 10 years in line with national trends.

However, when emergency readmissions are analysed by age, Havering has consistently (from 2005/06 to 2009/10) had a significantly higher (worse) percentage of older people (aged 75+) who are readmitted to hospital in an emergency within 28 days of discharge, compared with England. This was also the case in London over the same time period. However in Bexley (which has a similar demographic to Havering), the percentage of older people who are readmitted to hospital in an emergency was not in general significantly higher (worse) than in England (11).

Figure 11: Indirectly Standardised Percentages (ISP) of Emergency Hospital Readmissions within 28 days of Discharge from Hospital, Old People Aged 75 Years and Above, 2004/05 to 2009/10 Financial Years - England, London, Statistical Neighbour (Bexley) and Havering



Given the high rate of readmission for Havering residents, it is unsurprising that BHRUT, as the local acute hospital, also has a high readmission rate (6.5%) relative to the national average (5.5%) and acute Trusts serving similar populations. NB. Readmissions for acute providers are assessed at 14 rather than 28 days.

Excluding cancer treatment, the specialties with the high rate of readmission are geriatric medicine; general medicine and general surgery, with the latter two providing the greatest opportunity for improvement due to their higher level of activity.

The likelihood of readmission increases with clinical complexity and discharge to nursing homes. Between 15 and 20% of readmissions to hospital are likely to be avoidable.

Figure 12: The Number of Emergency Admissions to any Hospital within 14 days of Previous Discharge from BHRUT as a Percentage of the Total Number of Admissions to BHRUT and the Saving Opportunity (Financial and Admissions Avoided per Quarter) if Readmissions were Reduced that Achieved by Trusts in Best Performing Quartile of Acute Trusts,. Quarter 2 2011/12

Component Name	Latest Value	Financial Opportunity	Volume Opportunity	Rank
General Medicine	12.32	£575,057	224	101
General Surgery	6.98	£221,447	95	94
Gastroenterology	1.69	£163,222	41	65
Trauma & Orthopaedics	4.11	£118,514	38	141
Urology	3.13	£115,184	61	102
Accident & Emergency (A&E)	8.49	£108,281	111	68
Geriatric Medicine	28.07	£68,559	17	138
Stroke Medicine	12.03	£60,104	14	7
Neurosurgery	2.72	£50,941	7	20
Clinical Oncology	19.11	£38,982	11	103
Ear, Nose & Throat (ENT)	3.92	£34,887	22	91

Component Name	Latest Value	Financial Opportunity	Volume Opportunity	Rank
Cardiology	3.14	£33,716	13	49
Paediatric Medical Oncology	13.16	£26,831	16	30
Gynaecology	3.23	£22,600	15	85
Clinical Haematology	20.21	£17,896	11	145
Paediatrics	7.08	£16,060	13	56
Other		£71,173	28	
Total		£1,743,454	737	

Source: Better Care Better Value Indicators
http://www.productivity.nhs.uk/Indicator/610/For/RF4/And/25th/Percentile

g) Admissions due to shortage of more appropriate community based solution

Some emergency admissions may not appear to be avoidable as there is little that can be done clinically to alter the course of disease. However, admission may reflect the (non)availability of more appropriate forms of community based care.

For example, dementia may be a cause or more often, a complicating factor, in many admissions of older people. These admissions might have been avoided had services in the community been better able to cope with the additional needs of people with dementia.

Similarly, although almost three quarters of people say they would prefer to die at home, a majority continue to die in hospital. Admissions ending in death are the biggest single cause of complaint against hospitals, demonstrating how difficult it is to meet the needs of patients and their families for end of life care in an acute setting. Although the proportion of people dying at home has crept up in Havering over the last 3 years, it is still only 35% compared with a national average of more than 40%. The great majority of the remaining deaths (1309 in the 12 months Q3 2010/11 – Q2 2011/12) would have occurred in hospital at considerable cost (18). Further information about end of life care in Havering can be found in the JSNA chapter on supporting vulnerable adults and older people.

Only a handful of admissions each year are recorded as being the result of a lack of social care (less than 5 in 2010/11). Nonetheless, there is anecdotal evidence from GPs that lack of social support can lead to admission e.g. where illness affecting a key carer leaves another vulnerable adult unsupported. It is clear that an increasing proportion of older people live alone; many carers are themselves elderly and frail; and fewer older people can rely on the support of an extended family living nearby.

Socially isolated individuals are at risk of depression, self neglect and functional decline which care predispose to crises in physical health and unplanned hospital admission e.g. with dehydration, pneumonia etc.

Delayed Transfers of Care and Post Discharge Care

Delayed transfers of care occur when a person is ready for transfer from acute care, but is still occupying a bed designated for such care. A person is ready for transfer when:

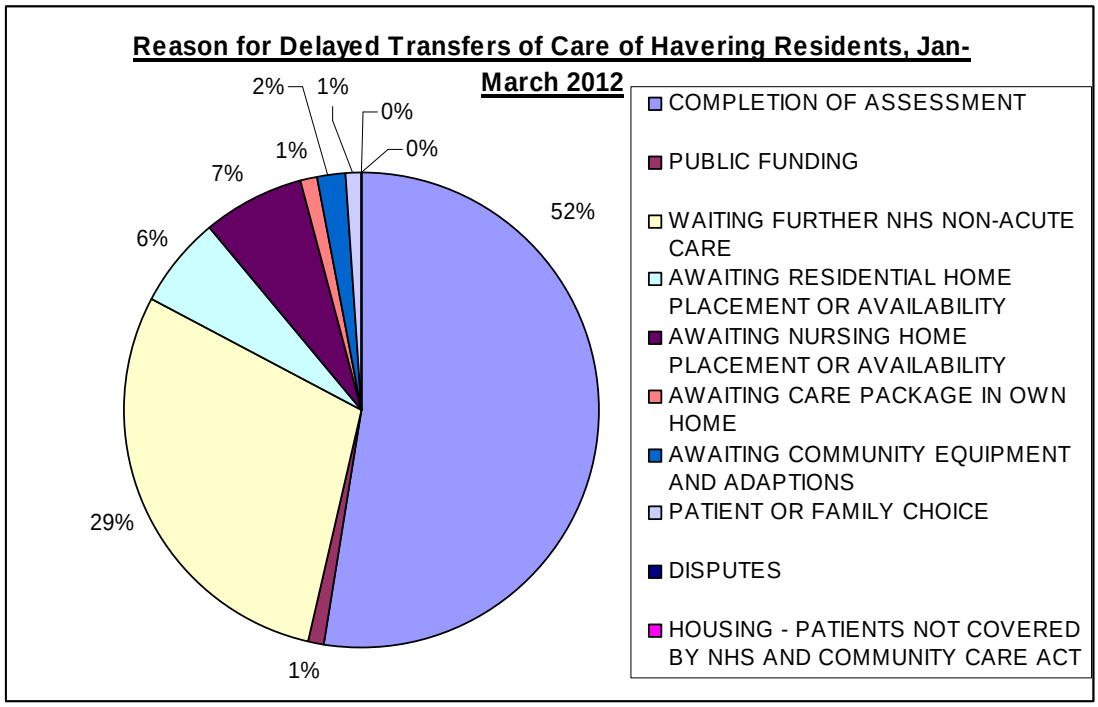
- A clinical decision has been made that person is ready for transfer **AND**
- A multi-disciplinary team (health and social care) decision has been made that the person is ready for transfer **AND**
- The person is safe to discharge/transfer

Delays attritutable to social care have been consistently low during 2012. Delays attributed to the Primary Care Trust (health) have also been reducing during 2012. There were 83 delayed transfers of care of Havering residents in the period January to March 2012. In this period, more than half of delayed transfers of care were due to completion of

assessment being awaited, with a further 29% being due to further NHS non acute care being awaited (19).

Anecdotally, the main reason stated for Havering residents having delayed transfers from hospital is medical assessments not being completed in a timely manner. The second main reason stated for these delays is that there are very few reablement "beds" available (e.g. for individuals for whom being discharged home for reablement is not appropriate as they are not able to stand etc). Therefore these individuals stay in hospital beds rather than being discharged to non acute "beds".

Figure 13: Reason for Delayed Transfers of care of Havering Residents, January-March 2012



Source: Department of Health, 2012

A number of actions are currently taking place by partners in Havering with the aim of reducing delayed transfers of care. These include:

- Increase in social work and administration capacity to allow the Council team to work alongside ward based discharge nurses
- Increase in social work capacity to extend the hours that the team is on site at Queens, we will trial a service from 10am to 3pm on Saturdays
- Increase community capacity to support persons to avoid admission, and support discharge (extend ICM and include Rapid Response Team development)
- Putting a primary care presence at the front and back end of A&E to redirect inappropriate attendees
- Enable support for the delivery of electronic section 2 and 5 notices to speed up process
- Conduct evidence based review of delays deemed as a result of decision making, with a commitment to change our process if issues are identified
- Develop and deliver a social care induction for ward discharge staff to help team building and understanding of social care
- Working together to streamline processes and governance to avoid duplication improve efficiency
- Working with other partners (in particular Barking and Dagenham) to share learning, improve efficiency and get consistency in both policy and operational working practices

- Ensuring clear decision pathways and clear accountability to avoid confusion
- Undertake a bottom up review of our arrangements to allow service redesign to optimise our activities
- Scoping an integrated intermediate care model for our social care clients and self funders to enable earlier intervention in the community.

In Havering, the number (per 100,000) of people aged 65+ achieving independence through rehabilitation was lower than the London figure and similar to the England figure in 2010/11 (Havering 420; London 650; England 425). This equates to 175 Havering residents a year aged 65+ who are discharged from hospital and receive intermediate care and rehabilitation following a hospital episode (following assessment of both their health and social care needs). In addition to supporting an individual to regain independence, such care can reduce the need for prolonged stays in acute in patient/community hospital care or permanent admissions to nursing or residential care.

Figure 14: Older People Achieving Independence through Rehabilitation

Year	Number of Clients aged 65+ Achieving Independence through Rehabilitation (Per 100,000 Population)		
	Havering	London	England
2010/11	420 (175 discharges)	650	425
2009/10	1460 (545 discharges)	1495	765
2008/09	455 (260 discharges)	690	445

Source: NASCIS, 2012

2. Current Service Provision for Reducing Avoidable Emergency Admissions in Havering

Communications Campaigns

Not Always A&E Communications Campaign

The Not Always A&E communications campaign has been running across Outer North East London since Christmas eve 2011 and will run until April 2012. The campaign aims to raise awareness of when it is appropriate to attend A&E, and when it might be more appropriate to self treat, attend a walk in centre or visit a pharmacy instead.

Self Management

COPD Telehealth

Telehealth for patients with COPD was introduced in July 2011 and helps self management of a patient's condition as well as helping individuals stay in their own home and therefore helping to reduce avoidable emergency admissions. The service allows individuals to enter details about their health e.g. blood pressure and heart rate at home, which can then be monitored remotely by a health professional who can offer advice or other appropriate services. The service is currently used by 50 individuals with COPD, and is being rolled out to a further 150 individuals with other long term conditions in spring 2012.

Rapid Response Telecare Unit

The Rapid Response Telecare Installation Team are able to install a range of Telecare and Technology based solutions, designed to support elderly or disabled people, being discharged from hospital or identified as 'at risk' within their own home within a 12 hour target following assessment and referral. The aims of the service include reduced stress for carers and reduced delayed discharges and re-admission to hospital services.

COPD Rehabilitation

A COPD rehabilitation programme was introduced in Havering in 2011. The programme includes regular sessions which help individuals to build their strength and stamina and improve their lifestyle.

Case Management

Integrated Case Management for High Risk Individuals

Social workers and community matrons provide support to targeted individuals who have a high risk of emergency hospital admission. The support lasts for three months and helps individuals to develop a capability to support themselves also. This service was started as a pilot with ten GP practices in April 2011, and was extended to all practices in November 2011.

Community Interventions

Falls Prevention

From February 2012, a falls community exercise programme is operating in Havering. Commissioning of the following services is also planned for 2012: falls prevention outreach service to care homes and telecare clients and falls prevention and management training for staff in care homes and telecare staff. The aims of these services include reducing the number of falls and subsequently the resulting demand on health and social care services (e.g. emergency hospital admissions due to falls and fractures).

Reablement and Rehabilitation at Jubilee Court

Self contained accommodation is available at Jubilee Court where individuals who are discharged from hospital are able to stay for a short time after discharge from hospital. During their stay they are provided with support, reablement and rehabilitation to help develop skills so that they are able to live independently when they return to their own homes. Reducing hospital admissions/re-admissions is among the aims of this service. Work is taking place in 2012 to increase the number of reablement accommodation units.

Information and Advice Service

As well as contributing to an improved quality of life for people using the service, the service is preventative and also aims to reduce demand for health and social care by providing providing a “pre-front door” service (providing face to face, online and outreach services) leading to a reduction in avoidable contacts. Since January 2011, the information and advice has been expanded to include health information.

Help Not Hospital

This service is planned to begin in autumn 2012 and will provide low level interventions to support people following hospital discharge or to prevent them being admitted. It will complement Integrated Case Management (ICM) and reablement by increasing the likelihood of people sustaining independence and being able to remain in their own homes with a good quality of life. The project will deliver continuity of support to ensure benefits achieved through ICM or reablement are embedded and sustained. It may also run in parallel to these services and reduce the necessity of expensive care professionals undertaking low level interventions. Support offered by this service could include companionship, shopping, help paying bills etc.

Health for North East London – Urgent and Emergency Care

As part of the Health for North East London programme, a number of projects are underway across Outer North East London that will contribute to reducing avoidable hospital admissions. These include:

- Development of an NHS 111 service across Outer North East London (including Havering). This will be launched in October 2012 and will be a single point of telephone contact for all non-emergency care. Call handlers will assess patient need and use a

directory of services to refer patients to the most appropriate and cost effective pathway of care available.

- Agreeing and implementing what urgent care services are available at the "front door" of accident and emergency so there is consistency across North East London. Pilots have taken place in Havering where patients from urgent care centres and polyclinics are re-directed to primary care (e.g. GP appointments), and evaluation of this project is taking place
- Developing emergency care pathways for children and cardiac patients to deliver improved outcomes and quality whereby patients are seen in the most clinically appropriate setting
- A further workstream is focusing on out of hospital care and includes a number of projects relevant to reducing avoidable hospital admissions such as rapid response community services

Social Care Services

In addition to the services listed above, other social care services help to support individuals and as a result reduce unnecessary hospital admissions. The social care assessment and advice team undertake an assessment of an individual's needs so that they can be referred to the appropriate social care service (if they have critical or substantial needs). They may also be given advice or signposted to other services e.g. Age Concern services such as handymen and befriending services if they have less substantial needs that do not require social care.

Social care services that an individual with critical or substantial need may be referred to include rehabilitation services which support individuals to regain confidence and skills to undertake daily activities (service provided free of charge for up to six weeks). An individual may also receive support from community social workers and occupational therapists.

The social care assessment and advice team also provide an assessment of an individual's needs so that they can be referred to the appropriate social care service (if they have critical or substantial needs). They may also be given advice or signposting to other services and agencies that may help e.g. Age Concern services such as handymen and befriending services if they have less substantial needs that do not require social care.

Those with more advanced needs may use other social care services such as:

- Domiciliary care in individuals' homes – for those with more advanced needs e.g. help with feeding, bodily functions etc
- Residential homes (for those with support needs), and nursing homes (for those with medical needs)

3. Evidence of What Works to Reduce Hospital Admissions

The following table (based on Purdy, 2010) identifies interventions which evidence suggests are most likely to reduce hospital admissions.

Figure 15: Interventions Most Likely to Reduce Hospital Admission

Likely to reduce (re)admissions and/or lengths of stay	May reduce (re)admissions and/or lengths of stay	Probably do not reduce (re)admissions and/or lengths of stay
Increased uptake of vaccination	Self management for conditions other than COPD and asthma	Specialist clinics in primary care
Self management of COPD and asthma	Telemedicine for other conditions	Intermediate care
Telemedicine for heart failure	Tele-health	Community based case

Likely to reduce (re)admissions and/or lengths of stay	May reduce (re)admissions and/or lengths of stay	Probably do not reduce (re)admissions and/or lengths of stay
		management (generic conditions)
Case management for heart failure	Hospital case management	Telephone follow up after discharge
Assertive case management in mental health	Rapid response teams	Pharmacist home based medication reviews
Hospital at home	Post discharge follow up through domiciliary visits	Nurse led interventions pre/ post discharge for patients with COPD
Closer integration of primary and social care.	Rehabilitation programmes	
Closer integration of primary and secondary care	GPs in A&E	
Use of observation and assessment wards	Access to social care in A&E	
Senior clinical review in A&E	Larger practice size	
Structured discharge planning and personalised health care programmes reduced readmissions	Improvements in out of hours provision	
High continuity of with a family doctor	Improved LTC management in primary care	
	Crisis resolution teams	

Source: Based on Purdy 2010

However, it should be noted that there is limited evidence on the effectiveness of interventions aimed at reducing unplanned admissions (1). Furthermore, some of the above interventions may have been identified as not effective in reducing hospital admissions; however such interventions listed may still be effective in improving health or patient satisfaction.

The King's Fund make a number of recommendations to commissioners aiming to reduce hospital admissions, based on the evidence. These recommendations are:

- Commissioners need to be clear about which admissions they consider to be avoidable, what proportion of these admissions are avoidable, and how these admissions should be coded and measured
- Policy-makers, commissioners and providers should aim to increase self management among people with long-term conditions where there is evidence of benefit
- Primary care providers should aim to increase continuity of care with a GP
- Commissioners and primary care providers should consider the impact of local out-of-hours primary care arrangements on avoidable admissions
- Commissioners and providers should consider implementing multidisciplinary interventions and telemonitoring for patients with heart failure
- Commissioners and providers should consider implementing assertive case management for people with mental health illnesses
- Commissioners should consider implementing hospital at home
- Commissioners should consider closer integration of primary and social care, and should evaluate the outcomes of any new interventions
- Commissioners should consider closer integration of primary and secondary care, and should evaluate the outcomes of any new interventions
- Commissioners and providers should continue to implement acute assessment units, but should consider the overall impact on number of admissions
- Providers should conduct early senior review in A&E

- Providers should deliver structured discharge planning

4. What Local People Think

A 2010 patient survey was carried out with those attending hospitals managed by Barking, Havering and Redbridge Hospital Trust (Queens' Hospital in Romford and King George's Hospital in Ilford; BHRUT). Some of the key findings about emergency care and discharge from hospital include:

Satisfaction With A&E

- Overall, patients were less satisfied with the accident and emergency department than the average in other hospital trusts
- Patients scored information given about condition and treatment and waiting time to be admitted to a bed on a ward less positively than the average at other hospitals
- Patients scored privacy when being examined or treated in an emergency similarly to the average at other hospitals

Satisfaction With Discharge

When being discharged from hospital, patients from BHRUT scored the following areas less highly than patients in other hospitals:

- Advice for after discharge
- Purpose of medicines
- Being told how to take medicines when at home
- Being told who to contact if they were worried about their treatment or condition after leaving hospital
- Having letters they could clearly understand between their GP and hospital doctors.

For other areas relating to discharge, patients of BHRUT scored similarly to patients in other hospitals. This included areas such as being told what danger signals to look out for when at home, information being given to family about how to look after them and for not being delayed on the day they were discharged from hospital.

Satisfaction with Out of Hours Service

Information from the GP Practice Survey (2010/11) found the following:

- 61% of Havering patients know how to contact the out of hours GP service (similar to the national average of 63%)
- 78% of Havering patients found it easy to contact the out of hours GP service by telephone (similar to the national average of 78%)
- The impression of how quickly care was received from the out of hours service was lower in Havering than nationally (56% Havering, 61% nationally)
- The rating of the care received from the out of hours service was lower in Havering (58%) than nationally (63%).

Figure 16: Selected Results from BHRUT Patient Surveys on Emergency Care and Inpatients, 2010

Question	Score
A & E	
(1) Information For being given enough information on their condition and treatment	7.4
(2) Privacy For being given enough privacy when being examined or treated	8.1
(3) Admission to a ward For not having to wait a long time to be admitted to a bed on a ward	4.5
Leaving hospital	
(b) Discharge	7

Question	Score
for not being delayed on the day they were discharged from hospital	
(c) Advice for after discharge for whether they were given written or printed information about what they should or should not do after leaving hospital	5.3
(d) Purpose of medicines for having the purpose of these explained to them in a way they could understand, when given medicines to take home	7.7
(e) Side effects for being told about the side effects to watch out for, when given medicines to take home	4
(f) Taking medication for being told how to take medication in a way they could understand, when given medicines to take home	7.6
(g) Information about medicines for being given clear written or printed information about their medicines, when given medicines to take home	7.2
(h) Danger signals for being told about any danger signals to watch for after going home	4.3
(i) Information for family and friends for information being given to their family, or someone close, about how to help care for them	5.6
(j) Contact for being told who to contact if they were worried about their condition or treatment after leaving hospital	6.4

Source: BHRUT Patient Survey, 2010

5. Gaps in Knowledge and Service Provision in Havering

- Work in 2010 as part of the "Health for North East London" project identified a number of ways in which unplanned care could be improved across North East London. This included having a consistent urgent care model across the whole of north east London. The full report and recommendations can be found here: http://www.healthfornel.nhs.uk/EasySiteWeb/GatewayLink.aspx?alId=39431
- Feedback from some GPs suggests that there is a need for an intermediate care service that GPs can refer to if an individual needs further support (after seeing their GP) but aren't ill enough to go to hospital. Such a service would need to be to be backed up by experienced nurses/supported by a clinician so that the service feels confident enough to support people without sending them to hospital. It is perceived by GPs that such a service would be likely to reduce the volume of referrals made by GPs to hospital.
- There is scope for a greater number of urinary tract infections to be treated in the community (rather than in hospital) if there was the ability to fit intravenous antibiotics in the community
- Feedback from some GPs suggests that there is a need to develop models to prevent avoidable hospital admissions which assess an individual's care needs in the community, rather than an individual being assessed at accident and emergency and then referred to a GP for treatment
- Anecdotal evidence suggests that GP referrals to residential care exceed supply of such care, and that often there may be appropriate rehabilitation options in the community for such individuals. GP training and support on rehabilitation and post-discharge services available may be beneficial in this area
- Anecdotal feedback suggests that there are not enough services such as luncheon clubs and day opportunities for older people in Havering. Such services may provide valuable social networks for older people and provide an opportunity to identify those who may have emerging health and social care needs so that these can be supported before needs become too severe, sometimes resulting in a hospital admission.

6. Future Actions and Recommendations

- Implement Havering prevention strategy for older people and people with a disability
- This will include actions such as expanding the use of integrated care management, telemedicine and chronic obstructive pulmonary disease rehabilitation in 2012/13
- In partnership, develop a dementia strategy for Havering to improve outcomes for those with dementia
- Continue plans to implement the Outer North East London (ONEL) model of urgent care, as part of the ONEL primary care strategy
- Consider undertaking a local audit of the reasons for delayed discharge from hospital and the reasons for the high rate of re-admissions of very elderly Havering residents to hospital in an emergency
- Explore further opportunities to promote social inclusion among the elderly and vulnerable e.g. through services such as luncheon clubs and drop in centres for the elderly or those with learning disabilities
- Continue to work with partners to implement improved real-time information sharing in order to improve coordination and avoid breaks in care
- Monitor and improve general clinical management of LTCs in primary care e.g. COPD, flu immunisation to over 65s and at risk groups
- Ensure robust monitoring and evaluation of interventions takes place to influence future commissioning decisions

7. Further Information

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NB. Please note throughout the document, percentages may not sum due to rounding.

Appendix 1: Definition of Ambulatory Care Sensitive Conditions

ACS group name	ICD10 codes	Description	OPC S4 codes excluded
Influenza and pneumonia	J10	Influenza due to identified influenza virus	Comment: people under 2 months or with secondary diagnosis of D57 excluded
	J11	Influenza, virus not identified	
	J13	Pneumonia due to Streptococcus pneumoniae	
	J14	Pneumonia due to Haemophilus influenzae	
	J15.3	Pneumonia due to streptococcus, group B	
	J15.4	Pneumonia due to other streptococci	
	J15.7	Pneumonia due to Mycoplasma pneumoniae	
	J15.9	Bacterial pneumonia, unspecified	
	J16.8	Pneumonia due to other specified infectious organisms	
	J18.1	Lobar pneumonia, unspecified	
	J18.8	Other pneumonia, organism unspecified	
Other vaccine preventable	A35	Other tetanus	n/a
	A36	Diphtheria	
	A37	Whooping cough	
	A80	Acute poliomyelitis	
	B05	Measles	
	B06	Rubella [German measles]	
	B16.1	Acute hep B with delta-agent (coinfectn) without hep coma	
	B16.9	Acute hep B without delta-agent and without hepat coma	
	B18.0	Chronic viral hepatitis B with delta-agent	
	B18.1	Chronic viral hepatitis B without delta-agent	
	B26	Mumps	
	G00.0	Haemophilus meningitis	
	M01.4	Rubella arthritis	
Asthma	J45	Asthma	n/a
	J46	Status asthmaticus	
Congestive heart failure	I11.0	Hypertensive heart disease with (congestive) heart failure	K0,K1,K2,K3,K4,K50,K52,K55,K56,K57
	I50	Heart failure	K60,K61,K66,K67,K68,K69,K71
	J81	Pulmonary oedema	
Diabetes complications	E10.0-E10.8	Insulin-dependent diabetes mellitus	
(This covers Diabetes A-C in the ICD9 list)	E11.0-E11.8	Non-insulin-dependent diabetes mellitus	
	E12.0-E12.8	Malnutrition-related diabetes mellitus	
	E13.0-E13.8	Other specified diabetes mellitus	
	E14.0-E14.8	Unspecified diabetes mellitus	
Chronic obstructive	J20	Acute bronchitis	
	J41	Simple and mucopurulent chronic bronchitis	

ACS group name	ICD10 codes	Description	OPC S4 codes excluded
pulmonary disease	J42	Unspecified chronic bronchitis	
	J43	Emphysema	
	J44	Other chronic obstructive pulmonary disease	
	J47	Bronchiectasis	
Angina	I20	Angina pectoris	A,B,C,D,E,F,G,H,I,J,K,L,
	I24.0	Coronary thrombosis not resulting in myocardial infarction	M,N,O,P,Q,R,S,T,V,W,X0,X1,X2,X4,X5
	I24.8	Other forms of acute ischaemic heart disease	
	I24.9	Acute ischaemic heart disease, unspecified	
Iron deficiency anaemia	D50.1	Sideropenic dysphagia	
	D50.8	Other iron deficiency anaemias	
	D50.9	Iron deficiency anaemia, unspecified	
Hypertension	I10	Essential (primary) hypertension	K0,K1,K2,K3,K4,K50,K52,K55,K56,K57
	I11.9	Hypertensive heart disease without (congestive) heart failure	K60,K61,K66,K67,K68,K69,K71
Nutritional deficiencies	E40	Kwashiorkor	
	E41	Nutritional marasmus	
	E42	Marasmic kwashiorkor	
	E43	Unspecified severe protein-energy malnutrition	
	E55.0	Rickets, active	
	E64.3	Sequelae of rickets	
Dehydration and gastroenteritis	E86	Volume depletion	
	K52.2	Allergic and dietetic gastroenteritis and colitis	
	K52.8	Other specified noninfective gastroenteritis and colitis	
	K52.9	Noninfective gastroenteritis and colitis, unspecified	
Pyelonephritis	N10	Acute tubulo-interstitial nephritis	
	N11	Chronic tubulo-interstitial nephritis	
	N12	Tubulo-interstitial nephritis not spec as acute or chronic	
	N13.6	Pyonephrosis	
Perforated/bleeding ulcer	K25.0-K25.2, K25.4-K25.6	Gastric ulcer	
	K26.0-K26.2, K26.4-K26.6	Duodenal ulcer	
	K27.0-K27.2, K27.4-K27.6	Peptic ulcer, site unspecified	
	K28.0-K28.2, K28.4-K28.6	Gastrojejunal ulcer	

ACS group name	ICD10 codes	Description	OPC S4 codes excluded
Cellulitis	L03	Cellulitis	A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,
	L04	Acute lymphadenitis	S1,S2,S3,S41,S42,S43,S44,S45,S48,S49,
	L08.0	Pyoderma	T,V,W,X0,X1,X2,X4,X5
	L08.8	Other spec local infections of skin and subcutaneous tissue	
	L08.9	Local infection of skin and subcutaneous tissue, unspecified	
	L88	Pyoderma gangrenosum	
	L98.0	Pyogenic granuloma	
Pelvic inflammatory disease	N70	Salpingitis and oophoritis	
	N73	Other female pelvic inflammatory diseases	
	N74	Female pelvic inflammatory disorders in diseases EC	
Ear, nose and throat infections	H66	Suppurative and unspecified otitis media	
	H67	Otitis media in diseases classified elsewhere	
	J02	Acute pharyngitis	
	J03	Acute tonsillitis	
	J06	Acute upper respiratory infections multiple and unsp sites	
	J31.2	Chronic pharyngitis	
	J02	Acute pharyngitis	
	J03	Acute tonsillitis	
	J06	Acute upper respiratory infections multiple and unsp sites	
	J31.2	Chronic pharyngitis	
Dental conditions	A69.0	Necrotizing ulcerative stomatitis	
	K02	Dental caries	
	K03	Other diseases of hard tissues of teeth	
	K04	Diseases of pulp and periapical tissues	
	K05	Gingivitis and periodontal diseases	
	K06	Other disorders of gingiva and edentulous alveolar ridge	
	K08	Other disorders of teeth and supporting structures	
	K09.8	Other cysts of oral region, not elsewhere classified	
	K09.9	Cyst of oral region, unspecified	
	K12	Stomatitis and related lesions	
	K13	Other diseases of lip and oral mucosa	
Convulsions and epilepsy	G40	Epilepsy	
	G41	Status epilepticus	
	R56	Convulsions, not elsewhere classified	
	O15	Eclampsia	
Gangrene	R02	Gangrene, not elsewhere classified	