## 7.19 Stroke

**Contributor:** Dr Behrooz Tavakoly

### Definitions

*Stroke* is defined as a clinical syndrome, of presumed vascular origin, typified by rapidly developing signs of focal or global disturbance of cerebral functions lasting more than 24 hours or leading to death (World Health Organisation 1978)[1]. It affects between 174 and 216 people per 100,000 population in the UK each year[2], and accounts for 11% of all deaths in England and Wales it is accepted that 85% of strokes are due to cerebral infarction, 10% due to primary haemorrhage and 5% due to subarachnoid haemorrhage. The risk of recurrent stroke is 26% within 5 years of a first stroke and 39% by 10 years[3].

*Transient ischaemic attack* (TIA) is traditionally defined as an acute loss of focal cerebral or ocular function with symptoms lasting less than 24 hours and which is thought to be due to inadequate cerebral or ocular blood supply as a result of low blood flow, thrombosis or embolism associated with diseases of the blood vessels, heart, or blood[4]. A definition more recently suggested is: 'an event lasting less than 1 hour without cerebral infarction on a magnetic resonance imaging brain scan', but this requires early scanning. In practice the precise definitions used are not of great importance as however quickly or slowly recovery occurs and whether or not there is evidence of neuronal damage on brain imaging, the investigations and medical treatment will be broadly similar. All cerebrovascular events need to be taken seriously and treated with urgency. TIAs affect 35 people per 100,000 of the population each year and are associated with a very high risk of stroke in the first month after the event and up to 1 year afterwards.

*Subarachnoid haemorrhage* (SAH) is a haemorrhage from a cerebral blood vessel, aneurysm or vascular malformation into the subarachnoid space (ie the space surrounding the brain where blood vessels lie between the arachnoid and pial layers). It is characterised by sudden onset of headache, and vomiting, with or without loss of consciousness. It affects 6–12 people per 100,000 of the population per year and constitutes about 5% of first strokes. Approximately 85% of patients bleed from an intracranial aneurysm, 10% from a non-aneurysmal peri mesencephalic haemorrhage and 5% from other vascular abnormalities including arteriovenous malformation[5]. Clinically the acute presentation is usually different from the presentation of other strokes, specifically because it presents with sudden onset of severe headache, and non-focal neurological symptoms which may include loss of consciousness.

---

[1] Royal College of Physicians - Intercollegiate Stroke Working Party, 2012. 'National clinical guideline for stroke, 4th edition' [Online] available from: https://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf [accessed 24th August 2015]

[2] Mant J,Wade D,Winner S (2004) Health care needs assessment. In: Stevens *et al*, editor. *Health care needs assessment: the epidemiologically based needs assessment reviews*, 2nd edn. Oxford: Radcliffe Publishing.

[3] Mohan KM,Wolfe CDA, Rudd AG, Heuschmann PU, Kolominsky-Rabas PL, Grieve AP (2011) Risk and cumulative risk of stroke recurrence. Stroke 42 (5): 1489–94.

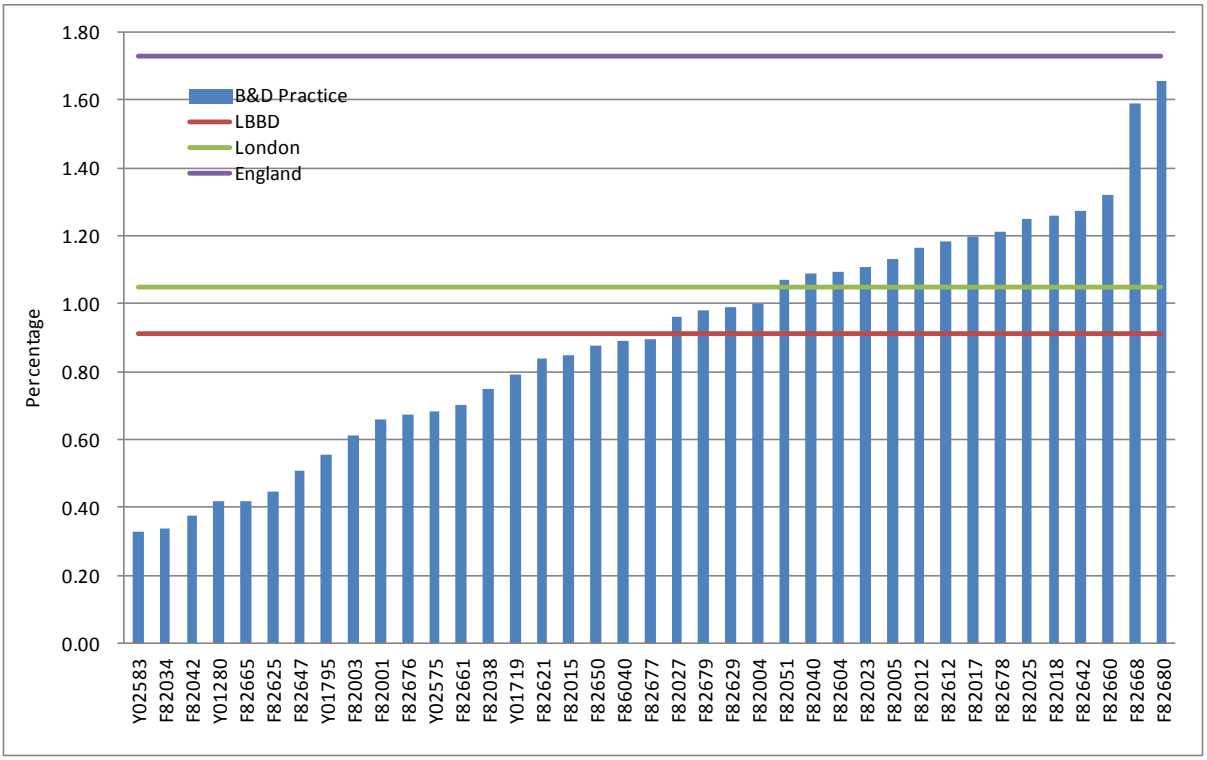
[4] Hankey G,Warlow C (1994) Transient ischaemic attacks of the brain and eye. London: WB Saunders.

[5] Van Gijn J, Rinkel G (2001) Subarachnoid haemorrhage: diagnosis, causes and management. Brain 124: 249–78.

## Prevalence of stroke and TIA in Barking and Dagenham

Latest QOF data indicated that in Barking and Dagenham, 1,899 people were recorded as having a Stroke or TIA. This is a prevalence of 0.91% across Barking and Dagenham (range between practices varies from 0.33% to 1.66%), significantly lower than the national rate of 1.73%. Figure 7.20.1 shows the QOF recorded prevalence of stroke and TIA by GP practices, CCG level, London and England average in 2014/15.

**Figure 7.20.1 Stroke & TIA, QOF recorded prevalence, GP Practices in LBBD, LBBD CCG, London and England average, 2014/15**

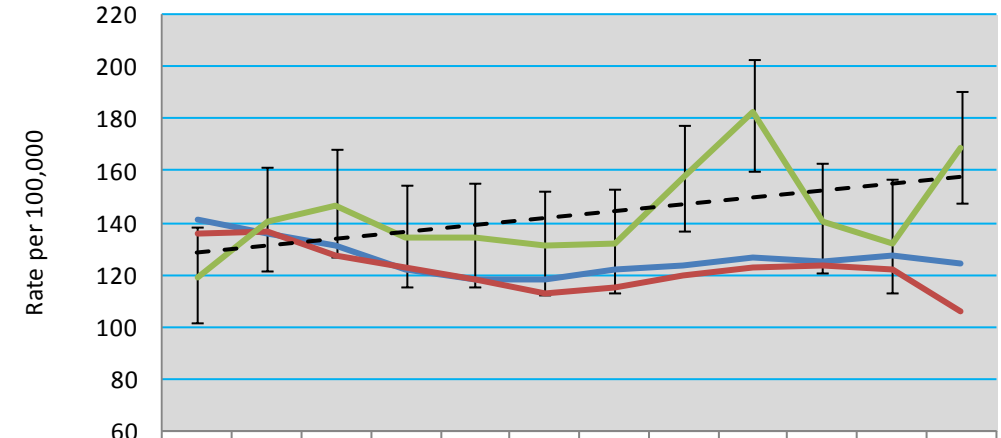



*Source: QOF*

## Emergency hospital admission

However, the result from recorded stroke related emergency hospital admissions (EHA) by Hospital Episode Statistics (HES), shows different picture. Figure 7.20.2 shows the EHA rate in Barking and Dagenham between 2003/04 and 2014/15 increased from 120 to 170 per 100,000 while in the same period of time, there has been a decline in EHA rate for England, approximately from 141 to 124 per 100,000 of population and London almost follows the national trend up to 2013/14 but it had a sharp decline in 2014/15, 22% lower admission compared to 2003/04. Since 2004/05 LBBD had always higher rate of admissions than both London and England.

**Figure 7.20.2 Stroke related emergency hospital admissions; Barking & Dagenham, London and England, 2003/04 to 2014/15**




| | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | 2013/14 | 2014/15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| England | 141 | 136 | 131 | 122 | 118 | 118 | 122 | 123 | 126 | 125 | 128 | 124 |
| London | 136 | 136 | 127 | 123 | 118 | 113 | 115 | 119 | 123 | 124 | 122 | 106 |
| LBBD | 119 | 141 | 146 | 134 | 134 | 131 | 132 | 157 | 182 | 140 | 132 | 169 |

Source: HSCIC

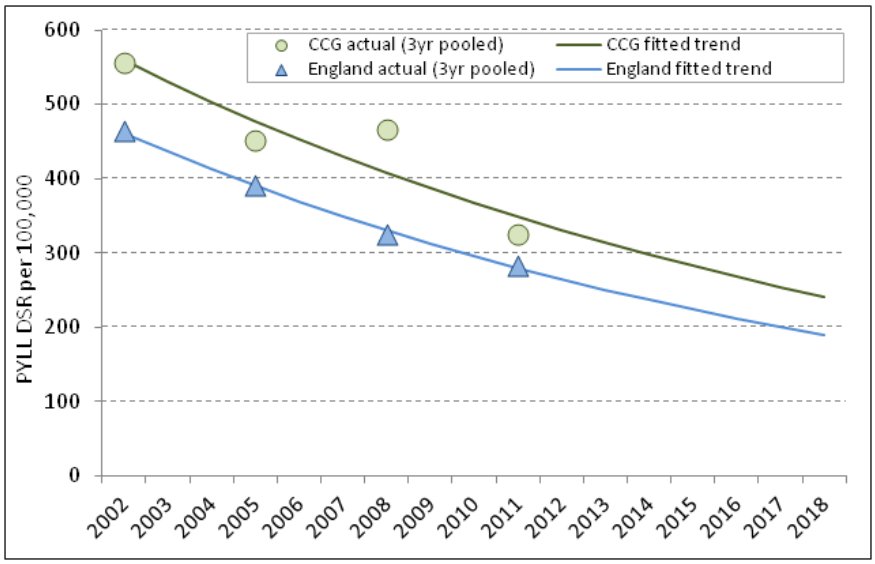
## Potential Years of Life Lost (PYLL) by stroke

Potential Years of Life Lost (PYLL) from causes considered amenable to healthcare (NHS OF Indicator 1a) is one of the key outcome measures that NHS England has asked CCGs with NHS England Area teams to include in five year strategic plans (2014/15 to 2018/19)[6].

The Potential Years of Life Lost by disease group tool assists clinical commissioning groups (CCGs) in identifying the broad mortality groups that currently contribute dis-proportionately (relative to England) to the overall PYLL rate. These groups are CHD, stroke, pneumonia, amenable cancers and other amenable causes. PYLL from stroke in Barking and Dagenham and England (actual and fitted) from 2002 to 2018 are illustrated in Figure 7.20.3. Trend in Figure 7.20.3 shows the gap is narrowing down.

[6] PHE, 2015. 'Potential Years of Life Lost tool' [online] available from: http://www.yhpho.org.uk/default.aspx?RID=203686 [accessed 25th August 2015]

**Figure 7.20.3 Three years aggregated PYLL from stroke (actual) and annually fitted, Barking & Dagenham and England, 2002 to 2018**

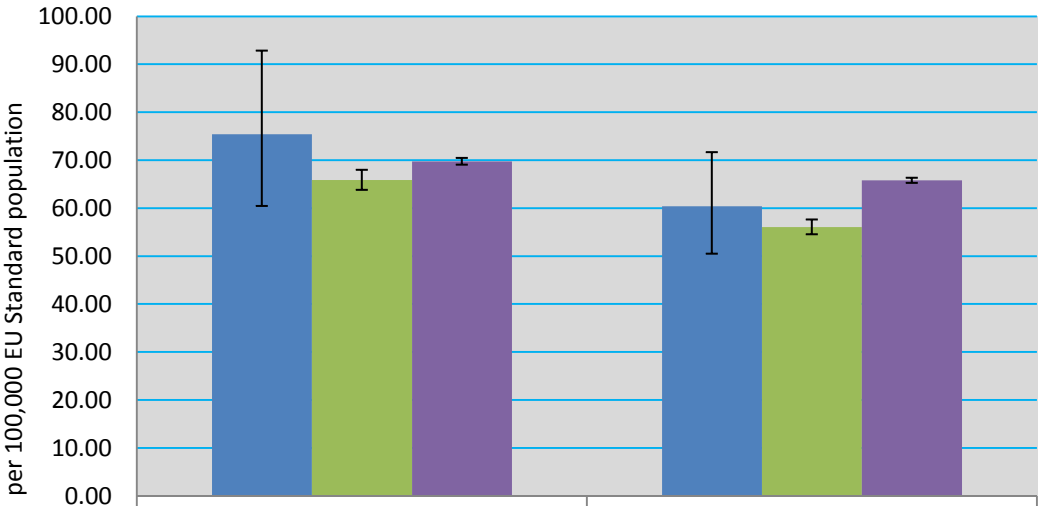



*Source: PHE- HSCIC, PYLL Tool (December 2015)*

## Mortality from stroke

In Figure 7.20.4 the mortality from stroke for all ages, males and females in Barking and Dagenham between 2012 and 2014 (Pooled) has been compared with one London and England. The figure shows the mortality rate from stroke for males in Barking and Dagenham is higher than all other comparator geographical areas. The figure also shows mortality rate from stroke for female is also higher than London but slightly lower than England (not significantly).

**Figure 7.20.4 Mortality from stroke, DSR, all ages males and females, LBBD, London and England, 2012-2014 (Pooled)**



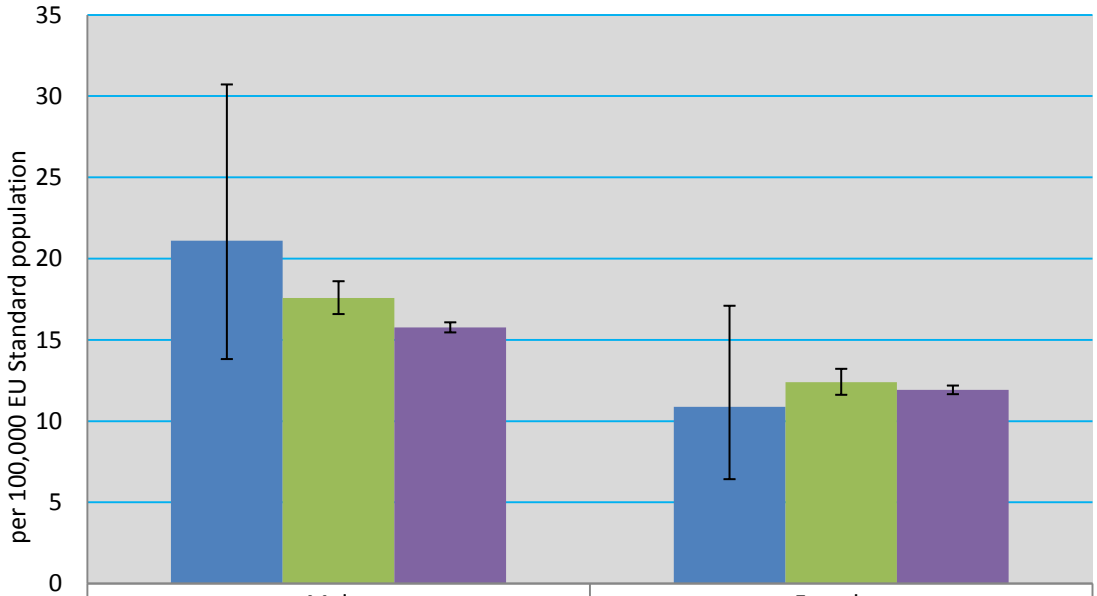

| | Males | Females |
|---|---|---|
| B&D | 75.41 | 60.41 |
| London | 65.88 | 56.07 |
| England | 69.76 | 65.79 |

*Source: PHE- HSCIC, PYLL Tool (December 2015)*

In another attempt, the rate of mortality from stroke for age group 65-74, males and females in Barking and Dagenham has been compared with London and England, the result is presented in Figure 7.20.5. Again it confirms that the mortality rate from stroke in Barking and Dagenham for males is the highest between the compared geographical areas and is 34% higher than England average. However, for females under 75 years old the rate in Barking and Dagenham is lower than other comparators.

**Figure 7.20.5 Mortality from stroke DSR per 100,000 European Standard population, 65 to 74 years, LBBD, London and England, 2011-2013 (Pooled)**

*Source: HSCIC – ONS (December 2015)*




| | Males | Females |
|---|---|---|
| B & D | 21.1 | 10.9 |
| London | 17.6 | 12.4 |
| England | 15.8 | 11.9 |

**Blood pressure control**

QOF reported the following indicators for hypertension in 2013/14:

**HYP002:** The percentage of patients with hypertension in whom the last blood pressure reading (measured in the preceding 9 months) is 150/90 mmHg or less

**HYP003:** The percentage of patients aged 79 or under with hypertension in whom the last blood pressure reading (measured in the preceding 9 months) is 140/90 mmHg or less, NICE 2012 menu ID: NM53

**HYP004:** The percentage of patients with hypertension aged 16 or over and who have not attained the age of 75 in whom there is an assessment of physical activity, using GPPAQ, in the preceding 12 months, NICE 2011 menu ID: NM36

**HYP005:** The percentage of patients with hypertension aged 16 or over and who have not attained the age of 75 who score 'less than active' on GPPAQ in the preceding 12 months, who also have a record of a brief intervention in the preceding 12 months, NICE 2011 menu ID: NM37

However in 2014/15, the above indicators have been scrapped and were replaced with the following indicator:

**HYP006:** The percentage of patients with hypertension in whom the last blood pressure reading (measured in the preceding 12 months) is 150/90 mmHg or less.

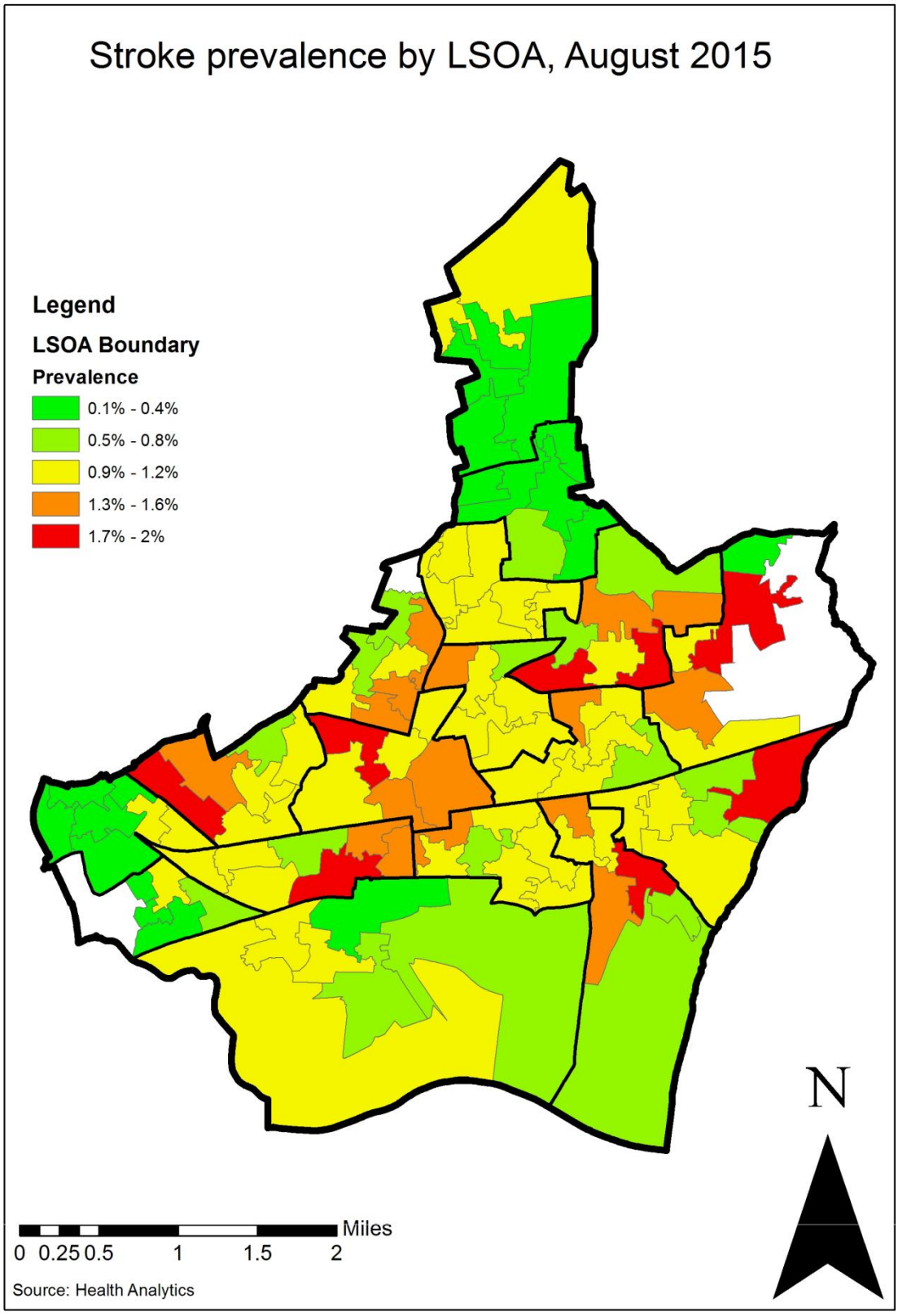
The HYP006 indicator outcome in 2014/15 shows, out of 48,780 patients with hypertension, 40,929 (83.9%) had a blood pressure reading of 150/90 or less, the rate is higher than Waltham forest (similar statistical neighbour) with 81.1% and London average of 83.6% but lower than the national average of 85.3%.

QOF 2014/15 results also show Barking and Dagenham CCG compared with London and National average had a better outcome in recording the blood pressure for patients aged 45 or over in the proceeding 5 years (Indicator: **BP002**). It shows in Barking and Dagenham, 93.8% of patients 45 years or over years old had a blood pressure reading compared to 91.2% for London and 91% for England.

***Conclusion:*** *If the recorded blood pressure and hypertension indicators outcome by QOF are accurate, the rate of emergency hospital admission for stroke patients and the stroke mortality rate for Barking and Dagenham must decline to lower than London and England rates in the next one or two years.*

Figure 7.20.6 illustrated the prevalence of stroke by LSOA in Barking and Dagenham.

**Figure 7.20.6 Stroke prevalence by Lower Super Output Area, LBBD, August 2015**




Source: Health analytic data

## Commissioning of stroke services

Commissioners and providers need to work closely to ensure that financial disincentives do not become barriers to the provision of evidence-based care and ensuring better outcomes for patients[7].

## Recommendations from national clinical guideline for stroke (RCP, 2012)

- Commissioning organisations should ensure that their commissioning portfolio encompasses the whole stroke pathway from prevention through acute care, early rehabilitation and initiation of secondary prevention on to palliation to later rehabilitation in the community and long-term support.
- The stroke services commissioned should be based upon an estimate of the needs of the population covered, derived from the best available evidence locally and nationally.
- Commissioners need to be satisfied that all those caring for stroke patients have the required knowledge and skills to provide safe care for those with restricted mobility, sensory loss, impaired communication and neuropsychological impairments.
- Commissioners should also commission to ensure that:
    - People dying with stroke receive palliative care from the acute stroke service or where possible in their own homes
    - People with stroke who are in care homes or are unable to leave their own home have full access to specialist stroke services after discharge from hospital
    - Adequate support services are available to patients with long-term disability covering the full spectrum of needs (e.g. nursing, therapy, emotional support, practical support, carer support)
    - Patients can re-access specialist services long after stroke.

- A public education and professional training strategy should be devised and commissioned to ensure that the public and emergency contact healthcare professionals (e.g. in emergency call centres) can recognise when someone has a potential stroke and know how to respond. This should be commissioned in such a way that it can be formally evaluated.
- Commissioners should ensure that there is sufficient information provided to patients and their carers covering what services are available and how to access them at all stages of the pathway. All information – both stroke related and other – should be written in an accessible form that benefits both those with communication disability and others.
- Commissioners should require participation in national audit, for the services they pay for, auditing practice against the specific recommendations made in this guideline.
- Health commissioners should ensure that there are:
    - formal protocols between health organisations and social services that facilitate seamless and safe transfers of care at the appropriate time

[7] Royal College of Physicians - Intercollegiate Stroke Working Party, 2012. 'National clinical guideline for stroke, 4th edition' [Online] available from: https://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf [accessed 24th August 2015]

- protocols in place that facilitate rapid assessment for and provision of all equipment, aids (including communication aids), and structural adaptations needed by patients with a disability, especially but not restricted to patients in hospital awaiting discharge and those in care homes.

## Recommendations for Commissioning

- Use NHS Health Checks to identify people with stroke risk factors to enable proper consideration of evidence-based lifestyle advice and treatments where indicated. NICE guidelines exist for treatment of stroke and TIA (CG68), hypertension (CG127), high blood cholesterol (TA94), atrial fibrillation (CG180) and heart failure (CG108)[8].
- Support GPs to provide opportunistic pulse screening to identify patients with atrial fibrillation.
- Ensure partners reach out to Black and Minority Ethnic (BME) groups of the population and people in areas of the borough who might be at higher risk of stroke and ensure all health professionals are aware of their increased risk.
- To provide access to CT scan within 12 hours of arrival in hospital for all stroke patients as outlined in the RCP guidance[9].
- Review post acute stroke service provision in Barking and Dagenham
- Use agreed improvements in outcomes for people with post –acute stroke as the guide to improved services
- Engage widely with patients and the public on the case for change to post-acute stroke services
- Ensure data sharing agreements in place to improve communication between primary and secondary care and community services for continued support and follow up of those who have had a stroke.
- Ensure GP stroke registers are up to date.
- Stroke patient's needs should be considered along with all patients who are living with a long term neurological conditions and physical disability including access to psychological therapy and support and vocational rehabilitation services.
- Carers of people with stroke should be considered in any carer initiative in the borough.

[8] Guidance. National Institute for Health and Clinical Excellence. 2015. Available at: http://guidance.nice.org.uk/Topic/Cardiovascular [Accessed 27 August 2015]

[9] Intercollegiate Stroke Working Party. National clinical guideline for stroke, 4th edition. London: Royal College of Physicians, 2012. Available from: http://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf [Accessed 27 August 2015]