By: Tristan Godfrey, Research Officer to the Health Overview and Scrutiny Committee

To: Health Overview and Scrutiny Committee – 5 February 2010

Subject: Item 5: Emergency Care Pathways (Cardiac, Stroke, Trauma)

Background

As part of the Next Stage Review, Lord Darzi asked the Strategic Health Authorities (SHAs) to produce a regional vision.[1] *Health People Excellent Care*, *A Vision for the South East Coast* was the report from NHS South East Coast. This was published on 2 June 2008, and made the following pledge:

> "By 2010, strokes, heart attacks and major injuries will always be treated in specialist centres."[2]

On 30 June 2008, the Department of Health published *High Quality Care for All. NHS Next Stage Review Final Report.* This was a response to the Strategic Health Authorities 'visions'. This pledge is picked up within the report:

> "The visions have sent a powerful message that the most effective treatments should be available for all NHS patients. Their plans for transforming treatment for heart attack, stroke and major trauma vividly illustrate this. For stroke – the third largest cause of death and single largest cause of disability in the UK – the clinical evidence clearly demonstrates that the quality of care is greatly improved if stroke is treated in specialist centres. Each region is therefore pushing forward with the development of specialised centres for their populations with access to 24/7 brain imaging and thrombolysis delivered by expert teams. For example, by 2010, NHS South East Coast intends that all strokes, heart attacks and major injuries will be treated in such specialist centres. Once implemented, these plans will save lives. From every corner of the NHS, there was also a strong emphasis on the importance of patient safety. They all aim to make hospitals and health centres clean and as free of infection as possible."[3]

The rest of the briefing note provides background information on each of the three areas separately – cardiac care, stroke, and trauma.

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[1] London had a slightly different process to the other nine SHAs.
[2] NHS South East Coast, *Healthier People, Excellent Care. A Vision for the South East Coast*, June 2008, p.6, http://www.southeastcoast.nhs.uk/hpec/documents/Hpecreport.pdf
[3] Department of Health, *High Quality Care for All. NHS Next Stage Review Final Report*, 30 June 2008, p.20, http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_085828.pdf

Part 1 - Cardiac Care

Coronary Heart Disease (CHD) is the biggest cause of death in the country, killing more than 70,000 people in England each year, with 110,000 having a heart attack.[4]

The National Service Framework (NSF) for Coronary Heart Disease (CHD) was published by the Department of Health in March 2000[5] and set out a strategy to modernise CHD services over a ten year period. Chapter Three dealt specifically with "Heart attacks and other acute coronary syndromes." At the time this document was produced, around 300,000 people suffered a heart attack (or, acute myocardial infarction) each year in the United Kingdom, of whom 140,000 died. Between a third and two-thirds of these deaths occurred outside a hospital, often within the first few minutes of the onset of symptoms.

The NSF set out a number of standards relating to ensuring access to the most appropriate care as soon as possible, including use of a defibrillator by an appropriately trained person within 8 minutes, and thrombolysis within 60 minutes of calling for professional help ('call-to-needle time'; see next page for further key terms)[6]. Thrombolysis is a clot dissolving drug, and at the time the NSF was produced, only a third of A+E departments were able to offer it[7].

The treatment of heart attack patients was monitored and in the Seventh Public Report of the Myocardial Ischaemia National Audit Project (MINAP), published in June 2008, it was reported that 71% of patients were receiving thrombolytic treatment (the national target was 68%)[8]. The report also reported on the increasing use of pre-hospital thrombolytics and primary angioplasty (also referred to as primary percutaneous coronary intervention or PPCI).

> "Coronary angioplasty is a technique for unblocking arteries carrying blood to the heart muscle. A small balloon at the tip of a catheter tube is inserted via an artery in the groin or arm and guided to the blocked heart artery. It is then inflated and removed, leaving in place a 'stent' - a rigid support which squashes the fatty deposit blocking the artery, allowing

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[4] Department of Health website, *Coronary Heart Disease*, http://www.dh.gov.uk/en/Healthcare/Coronaryheartdisease/index.htm

[5] Department of Health, National Service Framework for Coronary Heart Disease, March 2000, http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4094275

[6] Ibid., Chapter Three, p.2.

[7] Ibid., Chapter Three, p.4.

[8] MINAP Steering Group, *MINAP Seventh Public Annual Report*, June 2008, p.ix, http://www.rcplondon.ac.uk/clinical-standards/organisation/partnership/Documents/Minap-2008.pdf

blood to flow more easily. Primary angioplasty uses this technique as the main or first treatment for patients suffering a heart attack."[9]

The Department of Health, in collaboration with the British Cardiovascular Society and British Cardiovascular Intervention Society, set up the National Infarct Angioplasty Project (NIAP) to examine the feasibility of setting up a primary angioplasty service across the country.

This began work in 2005 and the final report was published by the Department of Health in October 2008 as *Treatment of Heart Attack Overall Guidance.* The following are the overall conclusions of this report:

- "National roll-out of PPCI is feasible over the next three years but may be logistically challenging in some parts of the country.
- Times to treatment within 120 minutes are achievable but a PPCI service needs to achieve these reliably regardless of the time of day or day of the week.
- Hybrid services offering daytime PPCI and out-of-hours thrombolysis are not satisfactory.
- A PPCI service needs to be 24/7 and carried out in centres with a sufficiently high overall volume of cases to maintain and develop skills.
- If an acceptable PPCI service cannot be established, pre-hospital thrombolysis is preferable to in-hospital thrombolysis. Forthcoming European guidelines are likely to recommend subsequent referral for coronary angiography for anyone having thrombolysis."[10]

This report also provides the following definitions of some key terms used:

> **"Call-to-balloon (CTB) time:** the time from the patient calling for medical help to the time when an angioplasty balloon is first inflated, or coronary reperfusion is confirmed on angiography."
>
> **"Call-to-needle (CTN) time:** the time from the patient calling for medical help to the time when intravenous thrombolysis is given."
>
> **"Door-to-balloon (DTB) time:** the time from the patient arriving in hospital (whether this be a PPCI centre or a non-PPCI centre) to the time when an angioplasty balloon is first inflated or coronary reperfusion is confirmed on angiography."
>
> **"Door-to-needle (DTN) time:** the time from the patient arriving in hospital to the time when intravenous thrombolysis is given."

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[9] Department of Health website, *Thrombolysis and primary angioplasty*, http://www.dh.gov.uk/en/Healthcare/Coronaryheartdisease/Thrombolysisandprimaryangioplasty/index.htm

[10] Department of Health, *Treatment of Heart Attack Overall Guidance Final Report of the NIAP*, October 2008, p.5, http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_089454.pdf

> **"Reperfusion:** the restoration of blood flow to an organ or tissue, for example after a heart attack. An immediate goal is quickly to open a blocked artery and reperfuse the affected heart muscle. Early reperfusion minimises the extent of heart muscle damage and preserves the pumping function of the heart."[11]

Part 2 - Stroke

Stroke is the third biggest cause of death in the UK, and each year around 110,000 people in England will suffer from a stroke. It is also the largest single cause of severe disability.[12]

In December 2007, the Department of Health launched a new stroke strategy. This document provides the following definitions:

> "Stroke is a 'brain attack' caused by a disturbance to the blood supply to the brain. There are two main types of stroke:
>
> - Ischaemic: the most common form of stroke, caused by a clot narrowing or blocking blood vessels so that blood cannot reach the brain, which leads to the death of brain cells due to lack of oxygen.
> - Haemorrhagic: caused by a bursting of blood vessels producing bleeding into the brain, which causes damage.
>
> Transient ischaemic attacks (TIA), also known as minor strokes, occur when stroke symptoms resolve themselves within 24 hours."[13]

Chapter Two, 'Time is Brain', of the strategy set out the quality markers (QMs) which set out the changes that needed to happen in the emergency management of TIAs and strokes:

> "High-risk TIA patients need to be assessed by experts and, wherever possible, scanned using magnetic resonance imaging (MRI) within 24 hours of experiencing symptoms; lower-risk groups need to be seen within seven days and are given follow-up care (QM5 and QM6). People with suspected stroke should be immediately transferred to a hospital providing hyperacute services throughout the day and night – this includes expert clinical assessment, rapid imaging and the ability to deliver intravenous thrombolysis. They should receive an early multidisciplinary assessment, including swallow screening, and have prompt access to a high-quality stroke unit (QM7, QM8 and QM9)."[14]

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[11] Ibid., pp.31-33.
[12] Department of Health website, *Stroke*, http://www.dh.gov.uk/en/Healthcare/Stroke/index.htm
[13] Department of Health, *National Stroke Strategy*, December 2007, pp.10-11, http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_081059.pdf
[14] Ibid., pp.5-6.

These services are to be provided as part of a local stroke network according to the strategy.

National Director for Heart Disease and Stroke

Professor Roger Boyle CBE is the National Director for Heart Disease and Stroke (appointed March 2000). He set out the clinical case for reconfiguration for heart disease and stroke services in *Mending hearts and brains – clinical case for change*, published by the Department of Health in December 2006[15]. This document outlined how a 'hub and spoke' model for both services would work and how there would be an increasing role for the paramedic in deciding whether a patient would be taken direct to a specialist centre (which might be further than the local hospital's A+E department).

Part 3 - Trauma

Selected key facts:

- Trauma means wounding due to physical injury. Major trauma is used to describe multiple injuries involving different tissues and organ systems that are, or have the potential to be, life threatening.
- Globally, it is responsible for around 10% of all deaths.
- There are over 16,000 deaths due to injury in England and Wales each year, and the numbers are increasing.
- About 7% of the total annual NHS budget (approximately £1.6 billion) is spent on treating trauma injuries.
- Major trauma accounts for 15% of all injured patients.
- Major trauma admissions to hospital account for 27-33 patients per 100,000 population per year and represents less than 1 in 1,000 emergency department admissions. [16]

Over the years, there has been a growing body of evidence concerning the need to improve trauma services. In 2007, the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) produced a report entitled *Trauma: Who Cares?* This found "Almost 60% of the patients in this study received a standard of care that was less than good practice. Deficiencies in both organisational and clinical aspects of care occurred frequently."[17]

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[15] Department of Health, *Mending hearts and brains – clinical case for change*, December 2006, http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_072493.pdf

[16] All key facts taken from: The Intercollegiate Group on Trauma Standards, *Regional Trauma Systems. Interim Guidance for Commissioners*, December 2009, p.9, http://www.rcseng.ac.uk/news/docs/Regional_trauma_systems.pdf. The exception is the definition of major trauma, which is taken from The Royal College of Surgeons of England, *Provision of Trauma Care Policy Briefing*, September 2007, p.1, http://www.rcseng.ac.uk/publications/docs/provision-of-trauma-care-1

[17] NCEPOD, *Trauma: Who Cares?*, 2007, p.10, http://www.ncepod.org.uk/2007report2/Downloads/SIP_report.pdf

Among the principal recommendations contained in the NCEPOD report was a call for designated Level 1 trauma centres as part of a regional service.

The Royal College of Surgeons of England provides the following definition:

> "For a unit to be defined as a 'major trauma centre' it must provide, 24-hours a day, a fully staffed emergency department, a consultant-led resuscitative trauma team, dedicated trauma theatres and operating lists, the presence of all major surgical specialties on a single site (orthopaedic trauma, general and vascular surgery, neurosurgery, plastic surgery, cardiothoracic surgery, head and neck surgery, urology), interventional radiology (which uses radiological techniques to place wires, tubes or other instruments inside a patient to diagnose and treat various conditions) and anaesthesia with appropriate intensive care facilities."[18]

Across England, regional plans for trauma systems are being developed. A regional trauma system will aim to reduce death and disability as a result of major trauma. The idea is that resources will be managed in such a way that trauma patients are treated by the right people in the right place. Major trauma patients will go to major trauma centres and trauma units will take other trauma patients.

On 1 April 2009, Professor Keith Willett was appointed as the first National Clinical Director for Trauma Care and his team assists SHAs in developing these trauma networks.

Plans are at different stages around the country. In the early part of 2009, Healthcare for London held a consultation on plans for trauma and stroke services. As regards trauma, the decision was to set up four trauma networks with major trauma centres at:

- The Royal London Hospital, Whitechapel
- King's College Hospital, Denmark Hill
- St. George's Hospital, Tooting
- St. Mary's Hospital, Paddington[19]

In the South East Coast Strategic Health Authority region[20], at its Board Meeting of 17 November 2009, the SHA approved the Outline Business Case for the Brighton and Sussex University Hospitals NHS Teaching, Trauma and Tertiary Care Centre (3Ts). One of the five investment priorities of this plan would be:

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[18] The Royal College of Surgeons of England, *Provision of Trauma Care Policy Briefing*, September 2007, p.2, http://www.rcseng.ac.uk/publications/docs/provision-of-trauma-care-1

[19] Healthcare for London, http://www.healthcareforlondon.nhs.uk/consultation-on-developing-new-high-quality-major-trauma-and-stroke-services-in-london#section1

[20] Brighton and Hove, Kent, Medway, Surrey, East Sussex, and West Sussex.

> "developing the Royal Sussex County Hospital[21] as the Level 1 major trauma centre for South East Coast would enable 360 cases a year of patients with multiple injuries to be treated in Sussex rather than having to be taken out of area, mainly to London. In establishing the Level 1 Trauma Centre, the Trust will work with Queen Victoria Hospital NHS Trust[22] to provide plastic surgery cover."[23]

This does not mean that all, or even most, major trauma patients from Kent and Medway would go to Brighton. It appears likely that hospitals in London will be the destination for most major trauma patients. Further detailed information on this can be found in the Appendix, which contains a letter received by the Chairman of the Committee following a briefing on the 3Ts programme last year.

[21] Located in Brighton.
[22] Located in East Grinstead, West Sussex.
[23] South East Coast Strategic Health Authority, *Unconfirmed Minutes of 17 November 2009 Board Meeting*, http://www.southeastcoast.nhs.uk/aboutus/theboard/papers/documents/79-09.4UNCONFIRMEDMINUTESBoardmeeting17-11-09.pdf

Appendix: Letter Concerning the 3Ts Development

Brighton and Sussex University Hospitals NHS Trust

3Ts Programme Office
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Tel: 01273 696955

Godfrey Horne MBE
Chairman,
Health Overview and Scrutiny Committee
Kent County Council
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29 September 2009

Dear Mr Horne

Brighton & Sussex University Hospitals NHS Trust: 3Ts Development

I am writing further to the very helpful meeting which Darren Grayson and I attended at your offices on 3 July. We discussed the redevelopment of the Royal Sussex County Hospital and our need to develop and expand neurosciences and cancer services for the people of Sussex.

As we discussed, as part of this development, the Trust and its local commissioners has established a Sussex Trauma Network to look at the potential to develop a Level 1 Major Trauma Centre in Brighton. We have worked with South East Coast Ambulance Trust (SECAmb) and the emerging major trauma networks established through the Healthcare for London work.

At the meeting, you asked us to provide an estimate of the likely number of Kent residents who might fall within the trauma centre catchment and which wards these represented.

We have used SECAMb's road ambulance travel times to model the equidistance between the Royal Sussex County Hospital and the next nearest major trauma centres, being the Royal London, St. George's Hospital, King's College Hospital and Southampton University Hospital. We then used population data at individual ward level to identify a logical catchment area. The analysis also includes project population growth to 2014. We estimate our total workload of around 360 cases per annum in major trauma to be drawn from a catchment of 1.49m.

The road travel times show the catchment for the Sussex Trauma Network overlapping slightly with the West Kent and Eastern & Coastal Kent Primary Care Trust boundaries (and therefore with the Kent County Council boundary).

Our modelling suggests that the following wards could fall within the Sussex Trauma Network catchment:

- Tunbridge Wells Borough excluding the northern wards of Paddock Wood, Frittenden & Sissinghurst, Capel, Southborough and Brenchley;

- Ashford Borough, but only including the wards of Oxney and Rolvenden & Tenterden West;

- Shepway Borough, but only including Lydd and part of Romney Marsh wards.

We estimate that, by 2014, there will be a population of around 100,000 in these areas which could translate to around 25 cases per annum – so quite a small proportion of the overall total.

I should like to stress again that these are planning estimates. The decision where to take a particular patient will be clinically driven and will depend upon the acuity of the patient.

I hope that this is the information you were seeking.

Yours sincerely

Duane Passman
Director of 3Ts, Estates & Facilities

cc. Darren Grayson, NHS Brighton & Hove
Tristan Godfrey, Kent County Council
David Meikle, NHS Eastern & Coastal Kent
Paul Wickenden, Kent County Council