Development of Stroke Services in Greater Manchester: Twelve Month Review (2011)

Prepared by the GMCCSN Support Team
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The National Stroke Strategy published in 2007 set out a 10 year plan for the development of national services for people with stroke. Since then, Greater Manchester (GM) has made very significant progress in the provision of stroke services. Stroke care in GM has improved beyond recognition in the last 4 years, with collaboration between hospital and community Trusts, commissioners, North West Ambulance Service (NWAS), clinicians and managers, and participation from service users across the conurbation. Access to hyperacute stroke care is available for patients presenting within 4 hours of symptom onset at three well staffed and equipped specialist stroke centres. This has improved access to thrombolysis and other acute treatments, which will lead to lower levels of disability. Audit data also shows much evidence of improvements in care at all stroke centres across GM.

This report outlines some of those achievements which are the result of an impressive level of collaborative working. The report also points to areas which require further work in order that all GM patients can truly access the very best levels of care.

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Dr Peter Elton, Consultant in Public Health; Public Health Lead, GMCCSN
Executive Summary

1. Stroke has a major impact on individual lives and on the economy and health of the nation. The last 2-3 years have seen considerable activity in Greater Manchester (GM) aimed at both preventing stroke and, when it does occur, ensuring that services are aligned in order to help make certain that patients receive the best possible care. Whilst much of this work has only been implemented over the last 12-18 months, data is already indicating some tangible benefits in terms of patient care. However, the data also shows that there is further work still to be done in ensuring that all patients have equitable access to the best quality stroke and TIA services. Some specific points from this report are highlighted below.

2. Emergency Response and Subsequent Hospital Stay

- **SINAP** – the Stroke Improvement National Audit Project – is becoming well established across the country. In GM, a ‘SAVI’ approach – SINAP Added Value for Improvement – has been deployed to help ensure systematic data collection across GM. As a result GM has been told it has amongst the most complete stroke data in the country. Since April 2011, acute trusts receive monthly, comprehensive reports from the Network team (analysis carried out via CBS) on their performance and are able to use this information to drive service improvement within their organisation. A summary of this data is provided in this report. Please note, SAVI has included the distribution of monies to the acute hospital trusts to facilitate data collection. These monies were given on the proviso that trusts would fund this themselves from 2012/13.

- The **Greater Manchester Integrated Stroke Service (GMISS)** was fully rolled out in April 2011 comprising of designated Comprehensive, Primary and District Stroke Centres. Many patients have already benefitted from this system which includes – but is not restricted to – assessment for, and where appropriate administration of, thrombolysis treatment. There are, however, a number of important caveats:
  
  - the evidence resulting from carrying out this 12 month review does suggest that a number of patients who potentially should be accessing the hyperacute service are not doing so.
  
  - as a result all the agencies involved will be working particularly closely together over the summer months to identify any 'pathway exceptions' (the evidence suggests that this is not simply due to NWAS not taking the patients to the 'right place').
  
  - the question may be asked, to what degree is the apparent shortfall a result of the 'within 4 hour' model (as opposed to, for example, London’s ‘all strokes’ hyperacute model) – and to what degree can service improvement measures optimise the GM model

- **Thrombolysis rates have risen significantly**: 2010 showed a tenfold increase compared to 2008 (225 versus 20 cases) and this is likely to rise further in 2011 (reflecting full year of fully rolled out service). The current rate in GM, using all strokes as the denominator, is 6.1% (241/3975) versus 3.8% nationally. The rate of thrombolysis is not the only driver to thrombolytic performance – many patients are ineligible either clinically (e.g., administering thrombolysis to a patient with haemorrhagic stroke would be catastrophic), because of contraindications or because the patient presents outside the relatively short time window. Furthermore, comparisons across the country can be difficult as there is no agreed method of measurement meaning that different denominators may be applied (e.g. % of all strokes recorded in SINAP; all strokes as recorded in SUS; all patients accessing a hyperacute centre etc). Also, case-mix variation, including evidence of contraindications, may vary. That said, Greater London is reporting a considerably higher thrombolytic rate of 13%. Assuming this figure is arrived at using a similar approach to the numerators and denominators
as GM, this again poses a question as to whether the relatively lower rates are attributable to some extent with the comparatively more complex ‘within 4 hour’ GM model or whether comparable levels can be achieved through further service improvement measures.

- **Good progress is being made at trusts against the key process indicators** related to care within the first 72 hours, though there remains room for improvement at some centres in certain areas. Whilst a small number of centres achieved the important standard that 80% of patients spend 90% of their stay in a stroke unit, a number of trusts are falling well below this standard.

- There has been a drop in the overall length of stay and the number of excess bed days. The results show that overall there was an **18% drop in lengths of stay during 2010-11 and a 35% decrease in the number of excess bed days when compared with the 2008-09 control year.**

- Data from SUS indicates that **in hospital stroke mortality has fallen by 5% points; 18% (722/3975) in 2010/11 compared to 23% (825/3641) in 2008/09. This represents a 22% relative reduction in mortality.** We would hope to see this trend continue with the combined effects of the initiatives outlined in this report taking effect. In terms of other sources, 30 day mortality from the Office of National Statistics (ONS) is now linked to SINAP records and will soon serve as an ongoing resource to chart mortality. This latter data is, however, not comprehensive enough at the time of writing to act as a reliable source. Slightly more limited 30 day mortality results derived from the (2008/2010 respectively) Sentinel studies is also shown in the report.

- Compared to 2008 **GM has seen a 26% increase in national Sentinel Audit results across the 9 process indicators; GM results now stand at 16% above the national average.** All hyperacute centres have been scoring well above the national average. Individually three acute trusts have seen improvements since the 2008 audit. Stockport Foundation Trust has moved up from the inter-quartile range to the upper quartile; Central Manchester Foundation Trust and Mid Cheshire Foundation Trust were in the lower quartile in 2008 and have moved up to the inter-quartile range.

- SUS data indicates a **7% increase in patients being discharged to their usual place of residence: 68% (2711/3975) in 2010/11 compared to 61% (2216/3461) in 2008/2009.**

3. **Transient Ischaemic Attack (TIA) services**

- Also known as **Stroke Prevention Clinics -** are now embedded in all GM trusts and GM as a whole is achieving the ‘Vital Signs’ performance measure. Even in areas where services have been less comprehensive there have been many recent developments in provision. By means of a lengthy process, supported by the TIA Development Group, the decision has been made not to pursue GM weekend TIA clinics at the present time but, rather to concentrate service improvement areas around processes and access to existing clinics.

4. **Rehabilitation**

- The **12 month ImpReS – Improving Rehabilitation in Stroke project** sees GMCCSN supporting service improvements within each site with the aim of increasing the amount of meaningful activity stroke patients engage in each day. Already the project is seeing a significant increase in activity on stroke rehabilitation wards resulting in reported increase in patient engagement in the rehabilitation process. Significant improvements have also been made within the teams with communications amongst nursing and therapy staff and between hospital and voluntary groups.
5. Life After Stroke (LAS) initiatives have been guided by the Accelerating Stroke Improvement (ASI) measures:

- A Joint Health and Social Care Management document aimed at facilitating a seamless transfer of care (and reflecting an ASI measure) has been devised and implemented.

- In April 2010 no teams were offering a 6 month review post-stroke, which is recommended in the ASI metrics. Since that time, Collaboration for Leadership in Applied Health research (CLAHRC) have developed the GM Stroke Assessment Tool (GM-SAT) - a tool kit to be used during the review process. Salford and Bury have both implemented GM-SAT using Stroke Association and Early Supported Discharge (ESD) teams respectively to deliver reviews. Both models have proved successful with 100% of Salford patients receiving a 6 month review between January and March 2011 and 67% of Bury patients (though this latter figure reflects the fledgling nature of the service).

- In April 2010 one ESD team was operational in Greater Manchester (Bolton). Since that time a further 4 have been established (MRI, Salford, Bury, Wigan), with another team currently under development.

- Work coordinated by the Network Support Team is now being aimed at addressing findings of surveys of stroke patients, which show that the level of support and therapy provided in hospital does not always continue into the community in all areas of GM.

- The Care Quality Commission Review is contributing to an understanding of which areas may require attention, in terms of LAS, going forward. Only one PCT has an overall assessment of ‘better’, with one PCT scoring a ‘best, five scoring ‘fair’ and two scoring ‘less well’. This is an area where further focus is recommended.

- Psychological support: To support implementation, training has been commissioned by GMCCSN, utilising Stroke Alliance funding, to provide staff with skills in solution focused therapy (SFT), motivational interviewing (MI) and cognitive behavioural therapy (CBT). Three training sessions have been arranged to be delivered by December 2011 to train 50 clinicians in SFT and MI, with an additional 25 in CBT. Upon completion of this training, each team will be equipped to deliver a service with the ability to provide low level psychological interventions. Further details, including information on the Health Innovation and Education Cluster (HIEC) project, are given in the report.

6. Workforce Development:

- Stroke specific Nursing Home Training: this has been carried out in Stockport. If well-evaluated, the plan would be to roll out in other GM areas in July 2011.

- A considerable number of staff who are involved in thrombolysis have now had ‘STARS’ thrombolysis training. For example, all relevant staff in Pennine have undergone the Core Programme training. Currently staff are being trained at Advanced level.

- Evaluation from the University Masters level Stroke course has been very positive. A further course is planned for later this year.

- A Leisure Centre Training course is currently in development; the aim is that it will support rehabilitation in the community by utilising existing infrastructures.
7. **Patient and carer views**

- Discovery interviews and an online survey were undertaken in order to elicit patient feedback on GM stroke services. Those carrying this out concluded that transfer to a hyperacute centre rather than a local hospital was not a negative concern for most interviewees. Those interviewed who had been through the hyperacute service reported fast access to emergency care post stroke and a good experience. An online patient survey was also carried out to discover opinions of current services. Experience seemed to vary depending on the whereabouts of their presentation and availability of stroke services (including Life After Stroke services) in the locality.

The findings in this review are intended to inform commissioners and providers in their discussions on improvements of stroke services across Greater Manchester. The Network will continue to support and facilitate these discussions and provide regular updates on progress.

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The Network Support team went through a 3 week validation process to help ensure all information is correct. All information is correct to the best of our knowledge. If you do note any anomalies, please contact the team.
1. Overview/context

Each year more than 110,000 people in England suffer a stroke. Stroke is the third biggest cause of death in the UK and is the largest single cause of severe disability, costing the NHS over £2.8 billion every year. In December 2007 the National Stroke Strategy was published, which aimed to address the shortfall in stroke services. Its recommendations were wide-ranging and covered all areas along the patient pathway – prevention, early detection, acute care, rehabilitation and Life after Stroke.

To help rationalise the approach to service development, the Greater Manchester & Cheshire Cardiac & Stroke Network’s (hereafter referred to as the Network*) service development workstreams were determined as follows:

- Emergency Response
- TIA
- Rehabilitation
- Life After Stroke
- Work Force Development

This report gives an update on these 5 areas – for practical purposes we incorporate all hospital stay data within the ‘Emergency Response’ section. Demming’s system of ‘Profound Knowledge’ is used as a guiding principle: that the first stage of stimulating improvement in an organisation is to comprehensively understand the system and how it is viewed by those within it. The growing stroke-related data on which the graphs and charts are based is an invaluable resource – few areas of care have such a resource and we are grateful to those who have spent their time collating and inputting the relevant information. At the same time we acknowledge that graphs and charts do not give the whole picture; the Network Support Team regularly witness the hard work of the clinical and managerial staff working with great dedication for the benefit of stroke patients across Greater Manchester.

‘...the hard work of the clinical and managerial staff working with great dedication for the benefit of stroke patients across Greater Manchester’.

The Accelerating Stroke Improvement (ASI) programme (DH 2010) was launched earlier last year and has also become integrated into the Network’s programme of work. ASI aims to build on existing developments and includes a focus on long-term care. Specific areas covered by this initiative include Atrial Fibrillation detection (vital to help avoid preventable stroke), six month review post discharge and Early Supported Discharge. The full list of 9 metrics can be seen in appendix 1.

Note; the interim (6 month) report used data which was anonymised at Trust level. When presented to the joint Chief Executive meeting in December 2010 there was a request by both PCT and Acute Trust Chief Executives that all future reports should show unanonymised data in order that the organisations could benchmark themselves against neighbouring GM trusts. This report complies with that request.¹

¹The wider ‘Network’, comprises of a wide range of individuals - clinicians, managers, patient representatives - across Greater Manchester (GM) who have been involved in the development of stroke services.

¹That is, at trust level. Obviously, all data is anonymised at a patient level.
2. Emergency Response & subsequent hospital stay

QM7. Urgent response - Marker of a quality service
- All patients with suspected acute stroke are immediately transferred by ambulance to a receiving hospital providing hyperacute stroke services (where a stroke triage system, expert clinical assessment, timely imaging and the ability to deliver intravenous thrombolysis are available throughout the 24-hour period).

Greater Manchester has been at the forefront nationally in addressing the issues and challenges around ensuring that patients have access to specialist acute stroke services.

Greater Manchester Integrated Stroke Service (GMISS) - an overview
Typically, 1.9 million neurons are lost for each minute a stroke goes untreated. Every stage of the journey until treatment is received is therefore time critical.

The National Stroke Strategy (2007) and National Institute for Clinical Excellence (NICE) Diagnosis and Initial Management of Acute Stroke 2008 supported the urgent specialist assessment and investigation of patients presenting with suspected stroke. The clinical evidence to support this was well documented and provided the catalyst to a number of publications culminating in NICE guidance 2008. In 2008 the Network began augmenting their range of work to encompass stroke and TIA in order to help address the high burden of stroke disease in GM.

In 2008 the Association of Greater Manchester PCTs collaboratively commissioned a hub-and-spoke hyperacute service, with FAST positive patients presenting within 4 hours of onset being taken, depending on geography and time of presentation, to either the nearest Comprehensive Stroke Centre (Salford Royal) or Primary Stroke Centre (Stepping Hill Hospital or Fairfield General Hospital). After receiving their hyperacute treatment at the first centre, the patient is usually repatriated to their local district stroke centre for ongoing specialist care and rehabilitation (see figures 1 & 2).

These National Stroke Strategy Quality Markers have guided service development both nationally and locally.

National Stroke Strategy
The patient who presents within 4 hours of the onset of stroke will be sent to (depending on the time of day and geography) either the CSC (based at Salford Royal Foundation Trust) or one of the PSCs (based at Stepping Hill Hospital and Fairfield General Hospital respectively). These centres are able to deliver thrombolysis treatment and have 24/7 access to CT perfusion scan, CT angiography, MR and MRA scanning with immediate reporting. Pathways at these centres are in place for immediate access from A&E (to stroke unit bed) with access to cardiac monitoring, ICU access and specialist nursing.

This innovative service model was also designed in order to implement the findings from landmark research studies into 'clot-busting thrombolytic'; thrombolysis has been shown to have the potential to increase the chance of an excellent outcome in a stroke patient by 30%, relative to patients who do not receive the drug (appendix 2 shows information leaflet for patients). Few of the major conurbations in the UK are currently able to offer such a comprehensive 24/7 thrombolysis service as that which is now available to Greater Manchester residents.

GMISS is co-ordinated in partnership with the Greater Manchester and Cheshire Cardiac and Stroke Network. The model is dependent upon cooperation between NWAS, the Comprehensive Stroke Centre, the two Primary Stroke Centres and the District Stroke Centres (who also play a key role in this integrated system of care) to ensure there is service continuity along the entire patient pathway.

*Note, the initial plan was that all patients within a 24 hour period would be transported to the hyperacute centres. In early 2009 the decision was taken to modify this approach by moving to a ‘within 4 hours’ model, mainly due to concerns around repatriation and the ability for DSCs to take patients as soon as their hyperacute care was completed. It was agreed that once the current service had been fully rolled out for 12 months, a review would be undertaken to ensure that all patients within GM are getting equitable access to acute stroke services. The option remains to divert patients on a ‘within 24 hours’ basis, in certain areas, if significant shortfalls in service provision remain.

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Performance in the first 12 months following full rollout

*The Greater Manchester Integrated Stroke Service has now been rolled out for 12 months.*

The Network has helped facilitate the capture of data across GM by funding audit capacity within each acute provider and coordinating reporting and analysis of this audit data. As a result of this systematic approach – presented nationally, and referred to as “**SINAP Added Value for Improvement**” or SAVI - all acute trusts across Greater Manchester, are now using the Stroke Improvement National Audit Programme (SINAP) to capture audit data on every patient who elicits a response from their stroke team. We have been informed by the Royal College of Physicians (RCP) that GM records are amongst the most complete in the country.

The Network now has the ability to provide both trust level and Network level reports (the first such reports were disseminated earlier in the year). This facility is in collaboration with Advancing Quality, who have the option of using the same SINAP data for their CQUINs incentives, meaning that participating Trusts only need to capture data once to satisfy a number of audit requirements.

SINAP data enables stroke teams to drill down into the stroke pathway, looking at, for example, the time it takes from a patient’s arrival to their first brain scan, their thrombolysis treatment, and their admission to the stroke unit. This monthly ‘mirror’ to the service is increasingly becoming a powerful driver for service improvement.

### 2.1 GM summary data

**Patients by diagnosis**

As would be expected, *(chart 1)*, most patients entering into the hyperacute system have a stroke diagnosis, with a smaller number having TIA. The remaining patients are ‘false positives’.

![Chart 1. Patients by diagnosis (note CSC refers to CSC/PSC). Source: SINAP](chart1.png)

**Type of stroke**

In most cases the cause of stroke is cerebral infarction rather than cerebral haemorrhage. This mirrors findings in the literature *(chart 2)*.

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5 Proceedings of National Network Director’s and Lead Clinicians meeting, London (11.11.2010)
2.2. Key process indicators

a. Sentinel 2010 data

The objective of the national Sentinel audit is to assess the quality of care for people who have had a stroke and to help trusts use audit as a means of quality improvement.

The Sentinel audit is based on evidence based standards for the organisation of services and processes of care agreed by the representatives of the Colleges and professional organisations of the disciplines involved in the management of stroke. The report has been compiled every 2 years, with trusts being asked to collect data from a batch of casenotes. That data is then assessed against 9 key indicators (increased to 12 in the 2010 report). In future, Sentinel is likely to be incorporated with SINAP in order to provide an ongoing (rather than a 2-yearly) picture.

Whilst the various tables in this report point to certain areas that still require some improvement, the data shown in tables 1-3 reflects the considerable work by the GM stroke teams in recent years and has drawn favourable comments when shown at recent Network meetings.

Table below compares 2008 audit data with 2010 audit data for GMCCSN

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<thead>
<tr>
<th>Quartile</th>
<th>2008</th>
<th>2010</th>
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<tbody>
<tr>
<td>Upper Quartile</td>
<td>31% (4/13)</td>
<td>38% (5/13)</td>
</tr>
<tr>
<td>Inter-Quartile Range</td>
<td>38% (5/13)</td>
<td>46% (6/13)</td>
</tr>
<tr>
<td>Lower Quartile</td>
<td>15% (2/13)</td>
<td>15% (2/13)</td>
</tr>
<tr>
<td>no data</td>
<td>15% (2/13)</td>
<td>0% (0/13)</td>
</tr>
</tbody>
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Table 1. 2008/2010 GM Sentinel comparison per quartile

- 3 trust have seen an improvement since the 2008 audit:
  - Stockport Foundation Trust have moved up from the inter-quartile range to the upper quartile
  - Central Manchester Foundation Trust & Mid Cheshire Foundation Trust were in the lower quartile in 2008 and have moved up to the inter-quartile range

- However we have two trusts in the lower quartile:
  - WWL
  - Tameside General Hospital
National Comparison
The Network has seen a 26% increase in performance on the Sentinel Audit since 2008 where all 9 indicators were received and is now 16% above the national average (table 2). All our hyperacute centres have been scoring well above the national average:

Greater Manchester is 5% above the national average where all 12 indicators were received (table 3).
<table>
<thead>
<tr>
<th>Trust name (site name)</th>
<th>Received all key 9 indicators in 2008</th>
<th>Received all key 9 indicators in 2010</th>
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<tbody>
<tr>
<td><strong>National results</strong></td>
<td>17%</td>
<td>32%</td>
</tr>
<tr>
<td><strong>GMCCSN</strong></td>
<td>16%</td>
<td>48%</td>
</tr>
<tr>
<td>Salford Royal NHS Foundation Trust</td>
<td>44%</td>
<td>87%</td>
</tr>
<tr>
<td>Stockport NHS Foundation Trust</td>
<td>0%</td>
<td>41%</td>
</tr>
<tr>
<td>Central Manchester and Manchester Children's University Hospital NHS Trust</td>
<td>7%</td>
<td>25%</td>
</tr>
<tr>
<td>North Manchester General Hospital</td>
<td>9%</td>
<td>26%</td>
</tr>
<tr>
<td>Royal Oldham Hospital</td>
<td>0%</td>
<td>44%</td>
</tr>
<tr>
<td>Royal Bolton Hospital NHS Foundation Trust</td>
<td>47%</td>
<td>44%</td>
</tr>
<tr>
<td>Tameside Hospital NHS Foundation Trust in collaboration with NHS Tameside and Glossop</td>
<td>23%</td>
<td>47%</td>
</tr>
<tr>
<td>Trafford Healthcare NHS Trust</td>
<td>0%</td>
<td>55%</td>
</tr>
<tr>
<td>University Hospital of South Manchester NHS Foundation Trust</td>
<td>18%</td>
<td>32%</td>
</tr>
<tr>
<td>Wrightington, Wigan and Leigh NHS Foundation Trust</td>
<td>45%</td>
<td>27%</td>
</tr>
<tr>
<td>Rochdale Infirmary</td>
<td>13%</td>
<td>n/a</td>
</tr>
<tr>
<td>Fairfield General Hospital</td>
<td>50%</td>
<td>n/a</td>
</tr>
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<td>Fairfield General Hospital and Rochdale Infirmary</td>
<td>n/a</td>
<td>70%</td>
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*Table 2.* 2008/2010 GM Sentinel comparision against the 9 key indicators
<table>
<thead>
<tr>
<th>Trust name (site name)</th>
<th>Received all key 12 indicators in 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National results</strong></td>
<td></td>
</tr>
<tr>
<td>GMCCSN</td>
<td>16%</td>
</tr>
<tr>
<td>Salford Royal NHS Foundation Trust</td>
<td>21%</td>
</tr>
<tr>
<td>Fairfield General Hospital and Rochdale Infirmary</td>
<td>83%</td>
</tr>
<tr>
<td>Stockport NHS Foundation Trust</td>
<td>27%</td>
</tr>
<tr>
<td>Central Manchester and Manchester Children’s University Hospital NHS Trust</td>
<td>27%</td>
</tr>
<tr>
<td>North Manchester General Hospital</td>
<td>24%</td>
</tr>
<tr>
<td>Royal Oldham Hospital</td>
<td>0%</td>
</tr>
<tr>
<td>Royal Bolton Hospital NHS Foundation Trust</td>
<td>25%</td>
</tr>
<tr>
<td>Tameside Hospital NHS Foundation Trust in collaboration with NHS Tameside and Glossop</td>
<td>11%</td>
</tr>
<tr>
<td>Trafford Healthcare NHS Trust</td>
<td>0%</td>
</tr>
<tr>
<td>University Hospital of South Manchester NHS Foundation Trust</td>
<td>33%</td>
</tr>
<tr>
<td>Wrightington, Wigan and Leigh NHS Foundation Trust</td>
<td>20%</td>
</tr>
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<td></td>
<td>0%</td>
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*Table 3. 2008/2010 GM Sentinel comparison against the more recent 12 key indicators*
b. Onset to arrival by individual site compared to national median

- National median onset to arrival: 435 minutes (taken from 2nd interim SINAP report produced Feb 2011 by the RCP, which uses 6 months’ worth of data from May 2010 – November 2010.

- GM medians use SINAP data from May 2010 – Mar 2011

![Chart 3: Median Onset to Arrival May 10 - Mar 11 (minutes)](chart)

Chart 3. Median onset to arrival. *Source: SINAP*

c. Promptness of initial assessment by Stroke Teams (all centres). As can be seen (chart 4), median times to assessment show that patients are being assessed quickly following admission to the C/PSCs with some evidence of quicker response times in recent months:

![Chart 4: Time from arrival to assessment at all stroke centres. Source: SINAP](chart)
d. Door to CT scan (ASI 4a and 4b)

![Chart 5](image_url) Proportion of patients receiving first brain scan within 1 hour and 24 hours. Source: SINAP

e. Fast access to Stroke Unit (ASI 2)

![Chart 6](image_url) Proportion of patients arriving in a designated stroke bed within 4 hours of arrival. Source: SINAP
f. Proportion of patients receiving aspirin within 24 hours (North West CQUIN)

Chart 7. Proportion of patients receiving aspirin within 24 hours. Source: SINAP

g. Proportion of patients receiving swallow assessment within 24 hours (North West CQUIN)

Chart 8. Proportion of patients receiving swallow assessment within 24 hours. Source: SINAP
h. Proportion of patients receiving physiotherapy assessment within 72 hours (North West CQUIN)

![Chart 9](chart9.png)

Chart 9. Proportion of patients receiving physiotherapy assessment within 24 hours. Source: SINAP

j. Proportion of patients receiving an occupational therapy assessment within 72 hours (North West CQUIN)

![Chart 10](chart10.png)

Chart 10. Proportion of patients receiving OT assessment within 24 hours. Source: SINAP
Some highlights from the District Stroke Centre SINAP data. The data reflects some excellent work at the DSCs. Below are some highlights:

- North Manchester General Hospital (NMGH) and Royal Oldham are consistently providing >90% of patients with an occupational therapy and a physiotherapy assessment within 72 hours of arrival. NMGH are also notably successful at providing a swallow assessment within 24 hours of hospital arrival.

- Based on the cumulative year to date figures University Hospital of South Manchester (UHSM) is the highest performer of all the stroke centres at ensuring that all appropriate patients receive aspirin within 24 hours of arrival. They are also the most consistent DSC in providing timely assessment of patients by the stroke team, with a year to date median of 163 minutes (2hrs 43mins).

- NMGH and UHSM are the highest performing DSCs in terms of scanning patients within one hour. All centres are making good progress towards scanning all patients within 24 hours.

j. Patients who spend at least 90% of their inpatient stay on a stroke unit (Level 1 Vital Signs Monitoring Return, now renamed ‘Integrated Performance Measure’) This metric is reported on a PCT basis (charts 11a, 11b) and reflects considerable improvement in performance at the acute Trusts although GM currently still trails our counterparts in neighbouring areas by a few percentage points. One or two trusts are currently finding this area challenging and this is affecting the overall GM performance.

![Chart 11a](chart_11a.png)

**Chart 11a.** Patients who spend at least 90% of their time on a stroke unit: 2010-11 Quarter 4. **Source:** DH
k. Length of Stay (LOS) at the Comprehensive Stroke Centre (CSC):

Chart 12 reflects LOS information from the CSC. This length of stay can vary from less than an hour to a few days, depending on the clinical presentation. The indicative hyperacute tariff reflects a LOS at a hyperacute centre of 3 days; most patients are not exceeding this at the CSC.

Chart 12. Average length of stay Source: Monthly commissioner information provided by CSC
I. Bed days lost to delayed repatriation. The data shown in chart 13 is also from the CSC. An escalation policy is in place to help ensure patient flow at peaks of demand.

![Chart 13. Bed days lost to delayed repatriation. Source: SINAP](image)

m. GM Length of Stay Analysis (this section by Andrew Scotchmer, Commissioning Business Services [CBS])

Length of Stay Analysis

The new stroke pathway has resulted in a drop in the overall spell length of stay (LoS) and the number of excess bed days (XBD) when compared with the 2008-09 control year. The lengths of stay and excess bed days for the control year were calculated using the 2010-11 trimpoints to ensure that a like-for-like measurement was taken. Also, in the 2010-11 data, the hyper acute element which resulted in repatriation were removed from the data and 1.9 days (the average length of stay at a hyper centre) was added to the receiving hospital’s length of stay.

The results show that overall there was an 18% drop in lengths of stay during 2010-11 and a 35% decrease in the number of excess bed days:

<table>
<thead>
<tr>
<th>Year</th>
<th>Adj LoS</th>
<th>Adj XBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>102,860</td>
<td>21,585</td>
</tr>
<tr>
<td>2010-11</td>
<td>84,099</td>
<td>14,050</td>
</tr>
<tr>
<td>Reduction</td>
<td>18%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Table 4a

The drop was due solely from stroke activity with TIA’s actually increasing in length of stay:

<table>
<thead>
<tr>
<th>Year</th>
<th>Adj LoS</th>
<th>Adj XBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>2008-09</td>
<td>99,299</td>
</tr>
<tr>
<td></td>
<td>2010-11</td>
<td>79,463</td>
</tr>
<tr>
<td>Reduction</td>
<td>20%</td>
<td>37%</td>
</tr>
</tbody>
</table>

Table 4b
The reduction in stroke length of stays and excess bed days however was not seen across all providers with both Salford Royal and Trafford General increasing in the number of days a patients stays in their care:

<table>
<thead>
<tr>
<th>Stroke Length of Stay</th>
<th>Site</th>
<th>2008-09</th>
<th>2010-11</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRI</td>
<td>10,605</td>
<td>7,898</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Pennine</td>
<td>31,530</td>
<td>22,836</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Royal Bolton</td>
<td>8,566</td>
<td>8,199</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Salford Royal</td>
<td>3,741</td>
<td>6,803</td>
<td>-82%</td>
<td></td>
</tr>
<tr>
<td>Sth Manchester</td>
<td>8,763</td>
<td>5,708</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>Stockport</td>
<td>15,099</td>
<td>10,909</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Tameside</td>
<td>6,350</td>
<td>6,175</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Trafford</td>
<td>2,818</td>
<td>3,735</td>
<td>-33%</td>
<td></td>
</tr>
<tr>
<td>WWL</td>
<td>11,827</td>
<td>7,201</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>99,299</strong></td>
<td><strong>79,463</strong></td>
<td><strong>20%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 4c

Regarding excess bed days, Salford Royal's, Tameside's and Trafford's contribution all increased in number:

<table>
<thead>
<tr>
<th>Stroke Excess Bed Days</th>
<th>Site</th>
<th>2008-09</th>
<th>2010-11</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRI</td>
<td>3,295</td>
<td>2,363</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Pennine</td>
<td>5,378</td>
<td>3,808</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>Royal Bolton</td>
<td>1,797</td>
<td>934</td>
<td>48%</td>
<td></td>
</tr>
<tr>
<td>Salford Royal</td>
<td>549</td>
<td>822</td>
<td>-50%</td>
<td></td>
</tr>
<tr>
<td>Sth Manchester</td>
<td>1,567</td>
<td>262</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>Stockport</td>
<td>5,377</td>
<td>2,595</td>
<td>52%</td>
<td></td>
</tr>
<tr>
<td>Tameside</td>
<td>471</td>
<td>749</td>
<td>-59%</td>
<td></td>
</tr>
<tr>
<td>Trafford</td>
<td>186</td>
<td>563</td>
<td>-202%</td>
<td></td>
</tr>
<tr>
<td>WWL</td>
<td>1,974</td>
<td>786</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20,594</strong></td>
<td><strong>12,881</strong></td>
<td><strong>37%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 4d

On first glance, Tameside showed an alarming 202% increase; however on closer examination of the data it was found that this was largely due to just five patients having stays above 100 days with one patient staying close to 200 days. By comparison no patient in 2008-09 had a stay over 100 days in length.

When these five patients were removed from the data, excess bed days totalled 202 days, producing a more moderate 9% increase over 2008-09.

As these patients represented just 3% of the total activity, the reported 202% increase could be put down to exceptional circumstances rather than part of a continuing trend.

2.3 Hyperacute data

a. **Patients who (according to SINAP data) were eligible for thrombolysis (tPA), who presented within 4 hours, but weren’t transferred to a hyperacute centre**

*Caveat* – whilst patients are excluded from this analysis if there is evidence in SINAP that a phone call referral to a C/PSC was made (and therefore an assumption is made that it was
agreed not to transfer), it is probable that, in many instances, a phone call referral was made but not noted, i.e., it may have been felt that referral to a CSC/PSC was inappropriate possibly due to the time factor (eg, by time transferred would be too late for thrombolysis).

![Bar chart: Patients eligible for tPA who presented within 4 hours to a DSC, but weren't transferred to a hyperacute centre](chart14.png)

**Chart 14.** Patients eligible for tPA who presented within 4 hours to a DSC, but were (according to SINAP data) not transferred to a hyperacute centre (2010/2011)^6. *Source: SINAP*

b. **Door to needle times – Q2-4 2010/11**

![Line chart: Median Door to Needle Time](chart15.png)

**Chart 15.** Median Door to Needle time. Note, as SHH shows has a smaller numbers thrombolysed, cases can disproportionately affect the data. *Source: SINAP*

c. **Are all eligible patients accessing the hyperacute system?**

Analysis of SINAP data suggests that a significant number of patients who potentially *should* be initially seen at a CSC/PSC are *not* being; there are 4732 patients in SINAP with diagnosis of stroke. 1794 (38%) of these patients presented with stroke within 4 hours (in the 12 month period). Of this 1794, 1147 (64%) patients were seen at a CSC or PSC whilst 647 (36%) were not. At the time of writing, the Network Support Team are working closely with NWAS and the C/PSCs to both corroborate this data and to take any remedial action necessary to ensure that all suitable patients do access the hyperacute centres.

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^6 Patients were excluded from this analysis if there was evidence in SINAP that a phone call consultation took place regarding the patient.
Note, it cannot be assumed that the shortfall is simply down to the fact that NWAS crews are not following the pathway. There is likely to be more than one factor at work which may include the effects of the ‘within 4 hours’ model but may also include some areas which, using this data, are amenable to change through service improvement.

Some important points about this data – including some caveats:

- The denominator is drawn from diagnosis and time of onset data as inputted by hospital staff. It cannot necessarily be assumed that all factors pertained at the time of NWAS assessment. (the data is currently being cross-referenced with NWAS data).

- It has emerged that some patients may have been refused admission at one of the hyperacute centres (not by the Stroke Team) following a NWAS courtesy call. This practice has now stopped but may have contributed to a shortfall in the numbers of cases being seen at the centres.

- FAST – it’s possible that this test, used by NWAS crews, is not able to pick up all strokes – hence a current study regarding the use of ROSIER in a part of London. However, London has predominantly used FAST alone in the last year and they have a relatively higher proportion of patients going to the hyperacute centres – so this may not be a major consideration.

- For completeness, the NWAS clinical pathway will be cross-referenced against the London equivalent – to ensure, for example, that exemption criteria are comparable (note, there are sometimes good reasons why a patient will not be immediately transferred to a centre such as excessively low blood pressure which might need stabilisation at a local centre prior to transfer).

- Patient choice – it’s possible that some patients are refusing transfer out of their local vicinity

- The ‘within 4 hour’ model factor: London’s model is extremely simple by comparison to Greater Manchester in that they take all patients to the hyperacute centres. As a consequence, any patient arriving at the equivalent of a DSC would probably be easily identifiable as a ‘pathway exception’.

In terms specifically of the comparatively low thrombolysis rate:

- Patient behaviour – in terms of thrombolysis rate it’s possible GM patients present later than London patients (though this is not thought at present to be a major factor)

- Patient case mix – it is possible that less patients are eligible for thrombolysis

- Internal processes at C/PSCs – there may be scope to further improve processes in order to maximise numbers within the relatively short thrombolysis time window afforded to suspected stroke patients (only 4.5 hours compared to a 12 hour reperfusion window for acute heart attack patients).

Note that the GM system is not only a thrombolysis service, it is a service designed to ensure that patients get uniform access to thorough assessment, initial treatment and plan of care by a specialist stroke team, including assessment for thrombolysis. Moreover, rates of thrombolysis are not the only consideration. The expertise required to give a thorough assessment - which no doubt results in the avoidance of inappropriate thrombolysis (with potentially catastrophic consequences) - should also be recognised. Representatives from the 3 hyperacute centres meet regularly and are able to discuss any relevant managerial and/or clinical factors related to the care of these hyperacute stroke patients. This is an ongoing
Such governance is arguably less easily achieved in areas of the country which do not operate an integrated service.

d. Thrombolysis:

- 241 patients were thrombolysed in the first year of full roll out (May 2010 – April 2011). Chart 16 shows the number of patients thrombolysed rising per calendar year – with a projection, based on current numbers, for 2011:

![Chart 16. Thrombolysis in GM – note, in first year of full roll out (May 2010 – April 2011) 248 patients were thrombolysed. Source: data submitted by CSCs/PSCs to Network Support Team](image)

Thrombolysis rates at the hyperacute centres

- **Salford Royal NHS Foundation Trust**
  *Based on May 2010 – Feb 2011 data:*
  - 1077 confirmed strokes entered the pathfinder of which 166 were thrombolysed (15.4%)

- **Fairfield General Hospital**
  *Based on May 2010 – Mar 2011 data,*
  - 276 confirmed strokes entered the pathfinder of which 32 were thrombolysed (11.6%)

- **Stockport NHS Foundation Trust**
  *Based on May 2010 – Mar 2011 data,*
  - 277 confirmed strokes entering the pathfinder of which 19 were thrombolysed (6.9%)

See later ‘discussion’ section for a further exploration of thrombolysis data.

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7 (note, these figures also include patients presenting within the catchment of the CSC/PSC – if such patients are excluded, thrombolysis rates at the centres would rise):
2.2 Outcome measures

a. Proportion of patients presenting with stroke with AF who were anti-coagulated on discharge (ASI 1)

Caveat – this graph is derived from free text information inputted into User Defined Fields in SINAP – this can be less robust than data from core fields.

b. Newly institutionalised rates

Chart 17. Proportions of patients presenting with stroke with AF who were anti-coagulated on discharge. 
*Source: SINAP*

Chart 18. Newly institutionalised rates. *Source: Sentinel (note, red line shows the national rate)*
c. **30 day mortality**

![Chart 19: 30 day mortality](chart)

**Note,** Office of National Statistics (ONS) 30 day mortality data is now linked to SINAP records. This should soon be an invaluable data resource – but the data is not quite robust enough yet to present. *Data from the discharge information table (table 6) indicates that in hospital stroke mortality has fallen 5% over the last two years; 18% (722/3975) in 2010/11 compared to 23% (825/3641) in 2008/09.*

d. **Discharges by destination**

See table 6 overleaf
<table>
<thead>
<tr>
<th>Discharge</th>
<th>Destination</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>Usual place of residence</td>
<td>2216 (61%)</td>
</tr>
<tr>
<td>79</td>
<td>Not applicable - PATIENT died or still birth</td>
<td>825 (23%)</td>
</tr>
<tr>
<td>51</td>
<td>NHS other hospital provider - ward for general PATIENTS or the younger physically disabled</td>
<td>188 (5%)</td>
</tr>
<tr>
<td>85</td>
<td>Non-NHS (other than Local Authority) run Care Home</td>
<td>135 (4%)</td>
</tr>
<tr>
<td>54</td>
<td>NHS run Care Home</td>
<td>96 (3%)</td>
</tr>
<tr>
<td>65</td>
<td>Local Authority residential accommodation i.e. where care is provided</td>
<td>86 (2%)</td>
</tr>
<tr>
<td>29</td>
<td>Temporary place of residence when usually resident elsewhere (includes hotel, residential educational establishment)</td>
<td>50 (1%)</td>
</tr>
<tr>
<td>87</td>
<td>Non-NHS run hospital</td>
<td>24 (1%)</td>
</tr>
<tr>
<td>99</td>
<td>#N/A</td>
<td>9 (0%)</td>
</tr>
<tr>
<td>53</td>
<td>NHS other hospital provider - ward for PATIENTS who are mentally ill or have learning disabilities</td>
<td>5 (0%)</td>
</tr>
<tr>
<td>98</td>
<td>#N/A</td>
<td>3 (0%)</td>
</tr>
<tr>
<td>49</td>
<td>NHS other hospital provider - high security psychiatric accommodation</td>
<td>3 (0%)</td>
</tr>
<tr>
<td>88</td>
<td>Non-NHS (other than Local Authority) run Hospice</td>
<td>1 (0%)</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>3641</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Table 5.** Discharges by destination & in hospital mortality 2008/09 compared to 2010/11 (source SUS data)
2.3 A DSC view on repatriation: Dr Ed Gamble (UHSM)
A subjective view of repatriation of stroke patients to a DSC

“On the whole repatriation has worked very well from a district perspective. Liaison and transfer hasn't been as difficult as projected and has been seamless from our end. Medical information has been good, except for the occasional episode where reason why not thrombolysed has been omitted. The standard of medical care has been excellent. When clarification has been sought at consultant level, this has been of an extremely high standard. In particular difficult clinical scenarios (esp. functional elements) have been very well handled and particularly helpful.

Patients also have been equally satisfied.

Feedback has been requested to understand the reasons why a particular patient may not have received thrombolysis.

We would be happy in future to perform a more objective assessment by audit if required”

2.4 Communicating the message

The Network Support Team continue to work with the Public Health Network in helping ensure that the message regarding the need to recognise stroke early and act quickly. The FAST (Face, Arms, Slurred Speech, Time to call 999) message was distributed to GPs in Greater Manchester and is a key element of the pathway used by paramedics to determine which centre the patient should be sent to. Also, a specially designed GP receptionist poster has been sent to all practices across GM (appendix 3).

There is some evidence of a relative shortfall in numbers presenting in some areas and we are working with a third party to undertake some research to look into this in more detail with a view to taking remedial action.

2.5 Discussion

The data indicates significant improvements in the care that patients are receiving. Once again, we would like to thank all the staff working at the CSC/PSCs/DSCs and NWAS – for their hard work over the last 12 months in helping this GM integrated hyperacute stroke service translate from the planning stage to a day to day operational reality.

However, the data also suggests that there remains room for improvement in the delivery of stroke services across a number of measures. This report provides a platform for discussions to take place.

Whilst the hyperacute service is much more than a thrombolysis service, the current overall GM thrombolytic rates indicate potential for improvement. Rates in the literature tend to use a number of different denominators which can make true comparison somewhat difficult. That said, the approximate percentage of ALL stroke patients (regardless of time of onset and type of stroke) thrombolysed in GM is 6.1% (though rates at the actual hyperacute centres are considerably higher than this – as high as 15.4% (166/1077) of the stroke patients seen at SRFT for example).

This is a fledgling GM service, but it must be borne in mind that the London integrated service is reporting a considerably higher 12% (of all strokes) rate. When comparing 2 sets of data it is preferable, as mentioned above, to ensure that ‘apples are being compared with apples’,
i.e., that the same denominators and numerators are being applied. That said, the lower GM rate seems may be influenced by these factors:

1. It appears that a third of patients who, on the available evidence, should be directly accessing the hyperacute centres, are not

2. Rates of thrombolysis vary at the hyperacute centres. Note that Salford Royal NHS FT may benefit in one respect from the fact that patients in their local catchment will always be admitted directly to the centre (i.e., it can be assumed that a patient presenting with stroke will be admitted to Salford Royal NHS FT, whereas we can see from the data that around a third of 999 calls from elsewhere in Greater Manchester do not access a hyperacute centre).

3. There is always the potential for numbers to be optimised if internal processes are as ‘LEAN’ as possible

Taking this point further, it has been conjectured that the different models may have an effect. By comparison, the London model is as follows:

1. All patients are transferred to a Hyperacute Stroke Unit (HASU) regardless of time of onset of symptoms. This means effectively less decision making for the ambulance staff as virtually all FAST positive patients will be taken to a HASU. In GM, by contrast, NWAS staff must ascertain the time of onset and ensure they are within 4 hours before transferring to a CSC or PSC. This means that where the time of onset is uncertain (e.g. "wake up strokes") patients are less likely to directly access a hyperacute stroke centre.

2. All London HASUs are open 24/7. Changing the target stroke centre depending on time of day may potentially add to confusion for NWAS crews regarding where to direct the patient.

One aim of this review is to assess if to what extent any improvements can be derived from service improvement work to the existing model (e.g., ensuring that patients do indeed access the hyperacute centres, that protocols are followed etc) and what may require an actual shift in the service model.

3. TIA

**QM5. Assessment – referral to specialist. Markers of a quality service**

- Immediate referral for appropriately urgent specialist assessment and investigation is considered in all patients presenting with a recent TIA or minor stroke
- A system which identifies as urgent those with early risk of potentially preventable full stroke – to be assessed within 24 hours in high-risk cases; all other cases are assessed within seven days
- Provision to enable brain imaging within 24 hours and carotid intervention, echocardiography and ECG within 48 hours where clinically indicated.

Much work has, and continues, to being carried out across GM to help ensure that services are in place to meet QM5 and the associated Vital Sign metric.

3 TIA Service Development work

3.1 Introduction

There is a compelling evidence base for prevention of stroke through timely, evidence-based TIA care, and it is clear that this care is not equitably accessible across GM. The EXPRESS study showed that treating higher risk TIA patients within 24 hours of presentation can reduce the risk of subsequent full stroke by up to 80%. As a health economy, significant benefits can be achieved for our population by improving TIA services, which will reduce unnecessary
admissions and prevent strokes by treating the associated risk factors promptly and effectively.

In April 2010, the Network held an event to appraise options for the development and improvement of GM TIA services, using a Strategic Outline Case prepared by the Network Support Team and the TIA Development Group. A need emerged for a networked solution to providing high quality and timely TIA care, particularly at weekends. The Network worked closely with local Commissioners in the development of a service specification using clinical standards agreed at the TIA Development Group.

3.2 Proposals for Service Delivery
Local commissioners worked with their providers to progress delivery of Monday to Friday services. It was agreed to work at a network level to find solutions for the delivery of weekend services. GMCCSN asked every provider to submit proposals for how they would deliver a weekend service, with an emphasis on collaboration across Trusts. Draft proposal were received from each Provider, with varying degrees of detail and intentions for collaboration. From the outset, concerns were raised around the demand for the service and whether its cost/benefit ratio would be viable given the low activity projected. There was also ongoing discussion around the logistics of a networked service being accessed by patients who had been advised not to drive.

Linking in with the Stroke Improvement (SIP) Team, the Network Support Team (NST) found that, anecdotally, a minimum population of 800,000 is required to make a weekend TIA service viable. This supported our own findings when modelling various weekend service models; based on the costs submitted by our providers, and the numbers projected to flow into weekend clinics, Greater Manchester could not support more than three TIA centres at the weekend. The preferred scenario, which had emerged from providers’ own proposals was not found to be viable when appraised against the costs indicated by providers of running the service; the projected numbers would not generate sufficient activity and income to render the service affordable.

One Trust proposed to deliver 7 day a week TIA services locally; the NST supported this and proposed a pilot to provide auditable weekend service data to share with the rest of the Network. However, this Trust was unable to develop the planned service due to insurmountable financial challenges around the diagnostic element of the pathway.

Based on the findings of the viability analysis, the anecdotal findings of the SIP team and at the suggestion of one of the district stroke centres, the NST began to explore the possibility of the two primary stroke centres opening for thrombolysis at weekends, and offering a TIA service to their respective hyperacute catchments. The modelling based on the costings received from providers and the projected numbers indicated that this could be viable. At a meeting with the three hyperacute centres, the NST presented this scenario for discussion. The scenario was opposed by all three hyperacute centres, based on:

- Stroke consultants at both primary stroke centres being an integral part of the general medical on-call rota. Providing a weekend TIA service would require these consultants to either leave or reduce their commitment to the general medical rota, which would have significant impact on the rest of the Trust.
- Due to the current financial climate, stroke clinicians at the primary stroke centres are currently being asked to reduce their PAs; a model which saw these PAs increase would not be feasible
- At the CSC the weekends are particularly busy with fluctuations in demand as they are taking for the whole of GM
- Providing a TIA outpatient service is very different to delivering a hyperacute service and therefore cannot easily be accommodated in the current consultant job plans
- Triage of patients at referral is concerning as large numbers of patients turn out to be false positives making scaling up difficult
- The CSC does not have access to dopplers at the weekends
- Transport to the TIA centres and then into vascular would need to be considered
- The cost of a weekend carotid dopplers service had to be taken into consideration
However the Comprehensive Stroke Centre is willing to consider how some of the challenges could be overcome if this is a service that commissioners are still keen to see happen at the weekends. Recommendations will be made in early August 2011 as to how this can be progressed.

It is neither affordable nor feasible for the primary stroke centres to open at weekends purely to deliver a TIA service.

Achievements to date

As a result of the strong commissioner and provider focus on TIA over the last financial year, the network-wide service has already greatly improved, with Monday to Friday services increasing to 5 days a week in a number of Trusts. The graph below reflects GM's improvement in the TIA Vital Signs Monitoring Return (VSMR), which measures the compliance of providers seeing and treating 60% of high risk TIA patients within 24 hours of contact:

A key driver for the work on TIA was the Network's historically poor performance on the TIA VSMR. As a result of the improvements made in Monday to Friday services, the Network as a whole is now performing extremely well against this target (Charts 20a & 20b). In aspiring to 7 day a week working, the Network has made significant improvements to Monday to Friday services. There are pockets of GM which are not performing as well as others, and the NST will continue to focus on and support these areas to achieving Monday to Friday delivery. TIA services have become more accessible across the Network over the last 12 months, and the NST is currently re-running its baseline survey of TIA services across the Network to quantify these developments.

![Implementation of the stroke strategy - % of higher risk TIA cases who are treated within 24 hours: 2010-11 Q4](image)

**Chart 20a.** Percentage of high risk TIA cases treated within 24 hours: 2010-11, Quarter 4 (ASI 5)
3.4 Recommendations

- The Network level TIA Development Group will be reconvened on 5th July 2011, and nominations have been requested for a clinical lead to take the TIA work forward.
- The NST will make recommendations to the July CPC and the August CPB concerning how Greater Manchester TIA services can be further improved in light of our findings.

4. Rehabilitation

**QM10. High-quality specialist rehabilitation - Marker of a quality service**

People who have had strokes access high-quality rehabilitation and, with their carer, receive support from stroke-skilled services as soon as possible after they have a stroke, available in hospital, immediately after transfer from hospital and for as long as they need it.

4.1 Improving Rehabilitation in Stroke (ImpReS) – an overview

An innovative approach is being adopted by the Network to increase the amount of therapy that patients receive following stroke. Five acute providers are participating in the therapy arm of the ImpReS project; see table 6 below for outline of which trust is in which arm of ImpReS. This 12 month project sees GMCCSN supporting service improvements within each site with the aim of increasing the amount of meaningful activity stroke patients engage in each day. Already the project is seeing a significant increase in activity on stroke rehabilitation wards resulting in reported increase in patient engagement in the rehabilitation process. Significant improvements have also been made within the teams with communications amongst nursing and therapy staff and between hospital and voluntary groups.

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8 SHH point out that TIA –related activity data has only been requested by NHS Stockport PCT since January.
The development of a New Stroke Rehabilitation Model
Recent developments in stroke care both nationally and locally have focused on improving the hyperacute pathway. However, recently several publications have highlighted the lack of improvement in the stroke rehabilitation pathway in comparison to the hyperacute pathway (National Audit Office 2010).

In December 2009 the Network carried out a baseline exercise to evaluate local stroke rehabilitation services. This report identified:
- inequity of services offered across the Greater Manchester conurbation
- a wide variety of length of stay and places of discharge
- a willingness of staff to change
- service users’ dissatisfaction of the amount of therapy and length of wait to access therapy.

As a result of this report it was agreed that a uniform model of care across the conurbation had the potential to increase adherence to best practice, promote timely discharge from acute services, reduce length of stay and increase patient and carer participation in the rehabilitation process.

GMCCSN, in conjunction with the University of Salford, then carried out a review of models of service delivery nationally and internationally along with a review of best practice. Features of successful models of care which supported best practice were identified and developed into a model of care which was felt to be suitable for local application.

The GMCCSN stroke rehabilitation model (appendix 5)
The resulting model allows streaming of the patient into one of 4 different pathways of care; end of life care, severe stroke, active rehabilitation and early supported discharge. Each pathway has indicators, based on research evidence, which point to the likely prognosis. Each pathway additionally has minimum standards of care based on best practice and research evidence. In particular, patients accessing the active rehabilitation pathway should receive intervention aimed at maximising activity levels in accordance with research evidence.

Patients receiving this model of rehabilitation will be frequently re-evaluated regarding their potential to move between the pathways.

Five out of ten stroke rehabilitation teams within the GMCCSN conurbation have agreed to implement the proposed model over a 12 month period commencing November 2010 as part of the ImpReS (Improving Rehabilitation in Stroke) project. Throughout this project teams have utilised the pathway in clinical practice and amended indicators and processes to increase clinical utility of the model. Individual service improvements have been implemented at each site to streamline the processes along the pathways in order to prevent bottlenecks in the system.

To date improvements include increasing communications amongst social and health care, streamlining the goal setting process, consistently setting estimated discharge dates upon arrival in rehabilitation and implementing regular multidisciplinary team (MDT) meetings.

<table>
<thead>
<tr>
<th>Implemented stroke rehabilitation model</th>
<th>Implementing stroke rehabilitation model</th>
</tr>
</thead>
<tbody>
<tr>
<td>UHSM</td>
<td>Wigan (Royal Albert Edward)</td>
</tr>
<tr>
<td>CMFT</td>
<td>Salford</td>
</tr>
<tr>
<td>Tameside</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Increasing activity</th>
<th>Increasing activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pennine – Fairfield, North Manchester,</td>
<td></td>
</tr>
<tr>
<td>Oldham</td>
<td></td>
</tr>
<tr>
<td>Trafford</td>
<td></td>
</tr>
<tr>
<td>Stockport</td>
<td></td>
</tr>
<tr>
<td>Bolton</td>
<td></td>
</tr>
</tbody>
</table>

Table 6: centres according to arm of ImpReS
5. Life After Stroke

**QM12. Seamless transfer of care - Marker of a quality service**

- A workable, clear discharge plan that has fully involved the individual (and their family where appropriate) and responded to the individual’s particular circumstances and aspirations is developed by health and social care services, together with other services such as transport and housing.

**QM13. Long-term care and support - Marker of a quality service**

- A range of services are in place and easily accessible to support the individual long-term needs of individuals and their carers.

Much work coordinated by the Network is now being aimed at addressing findings of surveys of stroke patients, which show that the level of care and therapy provided in hospital does not always continue into the community. This reflects a similar picture nationally. It is often despite the best efforts of those involved and probably points to the need for better links between secondary care and the community. A flavour of the work of the Life After Stroke Group, who meet regularly, is given below:

### 5.1 Joint health and social care management plan (appendix 6)

In January 2011 a case note audit revealed 1 out of 10 stroke rehabilitation teams were utilising a joint health and social care plan at the point of discharge. However, this was inconsistent at 20% compliance. GMCCSN have developed a template to comply with the ASI metric of a joint health and social care plan, which has been agreed and endorsed by the Life After Stroke working group and endorsed by the Stroke Board. This has now been disseminated to all stroke rehabilitation teams and through the ImpReS project; individual teams are working towards implementation with all stroke rehabilitation patients. The template has also been included in a stroke patient handbook developed by GMCCSN to raise awareness of the document with patients and carers and encourage them to request its completion.

The primary challenge to the delivery of this metric is the different computer systems utilised by health and social care and the poor communication between the two agencies. Increasingly stroke rehabilitation teams do not have a dedicated social worker which impacts on communications and availability of staff to complete documentation. Additionally social care staff have alternative priorities outside of the health-driven ASI metrics. Teams who have successfully implemented this metric are those who have retained dedicated social workers or those teams who delegate the completion of the document to a member of the health MDT, utilising information provided in an alternative location by social care.

Providing a joint health and social care discharge plan to the patient has recently been added to SINAP. Therefore data collection in the future should become more robust with regular reporting to GMCCSN.

### 5.2 Assessment and review

In April 2010, no teams were managing to offer a 6 month review post-stroke, which is recommended by ASI. Since that time CLAHRC have developed GM-SAT, a tool kit to be used during the review process. Salford and Bury have both implemented GM-SAT using Stroke Association and ESD team respectively to deliver reviews. Both models have proved successful with Salford delivering 100% of their patients 6 month reviews between January and March 2011 and Bury carrying out 67%. It should be noted that in Bury this is a newly established service and is developing. As such figures for January did not include nursing home residents but February and March 2011 did extend to this client group. This development resulted in the percentage of patients receiving a review increasing to 85%. Although this remains below the ASI target of 95%, the 15% who did not receive the service were offered a review but either declined or failed to attend.
Reporting on this metric remains challenging for GMCCSN as it is the only metric not routinely captured. All other of the 8 metrics have been added to SINAP to enable routine collection and reporting of data. Therefore monitoring of this metric is performed via GMCCSN individually contacting those responsible for delivering the service. Each service has been able to report accurately the numbers received or offered a review; however, finding the denominator of numbers alive at 6 months was more challenging and remains a challenge for the future.

Nationally a recent presentation suggested that the 3 networks currently collecting this metric report a compliance ranging from 5% - 70%. Although this data requires verification, it does appear that Salford and Bury are performing well when compared to the national picture.

<table>
<thead>
<tr>
<th>Percentage of patients receiving 6 month review</th>
<th>100</th>
<th>67</th>
</tr>
</thead>
<tbody>
<tr>
<td>site</td>
<td>Salford</td>
<td>Bury</td>
</tr>
<tr>
<td>percentage</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>0</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>40</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>80</td>
<td>100</td>
<td>120</td>
</tr>
</tbody>
</table>

*Chart 21. Percentage patients receiving a 6 month review Source: Local ASI data*

The introduction of this service would require an addition to existing services, and therefore a change in contract or the securing of a new provider for the service. There is, however, scope to include the delivery of 6 month reviews in the service specification and contracts when new services are established. This is occurring within GM and has resulted in one additional service planning to offer a 6 month review service.

In April 2011 NHS Improvement reported only 3 Network nationally were providing reports of this metric. This was the lowest number of Networks reporting across the whole ASI metric. Locally within GMCCSN the transfer of patient data from an acute setting to community provider remains challenging. All other ASI metrics have the potential to be delivered in the acute setting, therefore removing the need to transfer patient data. However, the 6 month review requires the acute provider to inform a community provider of the patient and their requirements for a review. Within the model of Stroke Association delivering this service, advocated by CLAHRC, this requires transfer of information from a health care to tertiary provider, increasing the challenges of data protection.

5.3 Access to and availability of ESD services
In April 2010 one Early Supported Discharge (ESD) team was operational in Greater Manchester (Bolton). Since then a further 4 teams have been established (CMFT, Salford, Bury, Wigan), with one further currently under development.
The GMCCSN ESD working group has reconvened with the aim of sharing good practice and responding to changes at a national level. For example the group agreed a consensus on inclusion of facilitated discharges in ESD in line with SIP recommendations and removed upper limits of Barthel being utilised in indicators for access to services.

Whether a patient receives treatment through an ESD has now been included on SINAP, therefore data collecting and reporting should become more robust in the future. However, challenges remain to increase awareness amongst staff using the system that the field has been added and requires completing. This work has commenced though a recent ESD working group and will continue over the coming months.

5.4 Timely access to psychological support

This metric, as stated in ASI, limits the numerator to include assessment for mood disorder. Mood assessment is a core field in SINAP, which enables regular data collection from the teams. The resulting reports from SINAP data show 8 sites reporting data via this method. From these 6 teams offer assessment to more than 40% of stroke patients, as specified in ASI (period January – March 2011).

A recent national presentation reported that only 3 Networks nationally were reporting information on this metric, varying between 20% and 50% delivery. In comparison to this...
national picture, GMCCSN is routinely gathering data from numerous sites and also delivering this service to a significantly greater percentage of stroke patients than the national ASI advises and the national picture suggests.

However, GMCCSN have pursued service improvement in line with the ‘spirit’ of ASI aiming to ensure each service assesses mood disorder but also has the capability to manage the patient if a mood disorder is detected. In December 2011, 3 out of the 10 stroke rehabilitation teams in the GMCCSN conurbation provided evidence of a mood disorder pathway. All other teams had processes in place for assessment but not treatment. Access to psychology support remains limited across Greater Manchester. However, the National Stroke Improvement Team have recognised this with their endorsement of AHPs using low level psychological interventions. In response, GMCCSN have developed an algorithm for intervention based on that suggested by SIP. This algorithm indicates those with mild and moderate mood disorders to be offered treatments by non-statutory organisations and stroke rehabilitation AHPs. To support implementation, training has been commissioned by GMCCSN, utilising Stroke Alliance funding, to provide AHPs and nursing staff with skills in solution focused therapy (SFT), motivational interviewing (MI) and cognitive behavioural therapy (CBT). Three training sessions have been arranged to be delivered by December 2011 to train 50 clinicians in SFT and MI, with an additional 25 in CBT. Upon completion of this training each team will be equipped to deliver a service with the ability to provide low level psychological interventions.

Discussions have also taken place with the North West Lead of IAPT (Increasing Access to Psychological Therapies) to develop referral pathways from the stroke rehabilitation teams to IAPT services. IAPT are supportive of this development with a training session being arranged for October 2011.

5.4.1 Health Innovation and Education Cluster (HIEC)

HIEC is a joint project between Manchester PCT, GMCCSN and University of Manchester. The 9 month project aims to increase knowledge of the psychological impact of stroke with anyone coming into contact with stroke patients within the first 6 months after stroke. The project will develop appropriate training resources for delivery of a training package.

5.5 Care Quality Commission review

The recent Care Quality Commission (CQC) review is contributing to an understanding of which areas may require attention, in terms of LAS, going forward. They key findings are outlined in table 7.
<table>
<thead>
<tr>
<th>Management of transfer home</th>
<th>Bolton PCT</th>
<th>Bury PCT</th>
<th>Manchester PCT</th>
<th>Oldham PCT</th>
<th>Salford PCT</th>
<th>Stockport PCT</th>
<th>Tameside &amp; Glossop PCT</th>
<th>Trafford PCT</th>
<th>Ashton, Leigh and Wigan PCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
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<td>Support for participation in community life</td>
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<td>1</td>
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<td>2</td>
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<td>Reviews and assessments after transfer home</td>
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<td>3</td>
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<td>Range of info provided</td>
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<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
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<tr>
<td>Signposting, coordination and personalisation</td>
<td>3</td>
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<td>Involvement in planning and monitoring</td>
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<td>Working together</td>
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<td>5</td>
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<td>1</td>
<td>3</td>
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<tr>
<td>Average score</td>
<td><strong>2.87</strong></td>
<td>2.67</td>
<td><strong>2.93</strong></td>
<td><strong>3.33</strong></td>
<td><strong>3.13</strong></td>
<td><strong>2.87</strong></td>
<td><strong>2.8</strong></td>
<td><strong>2.6</strong></td>
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<tr>
<td>Overall assessment</td>
<td>Fair</td>
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<td>Least well</td>
<td>Fair</td>
<td>Best</td>
<td>Better</td>
<td>Fair</td>
<td>Fair</td>
<td>Least Well</td>
</tr>
</tbody>
</table>

Table 7. GM-level CQC review 2010
6. Workforce development

QM19. Workforce review and development - marker of a quality service
- Commissioners and employers undertake a review of the current workforce and develop a plan supporting development and training to create a stroke-skilled workforce

The Network Workforce Development Group was formulated to address stroke-related workforce issues across the Network, with particular reference to the Stroke Specific Education Framework (DH 2009). Some specific areas of work include:

- **Stroke specific Nursing Home Training**: this has been carried out in Stockport. If well-evaluated then the plan would be rollout in other GM areas in July 2011

- **STARS training**: a considerable number of staff who are involved in thrombolysis have now had STARS training. For example, all relevant staff in Pennine have undergone the Core Programme training. Currently staff are being trained at Advanced level.

- Evaluation from the University Masters level Stroke course has been very positive. A further course is planned for later this year.

- **A Leisure Centre Training course** is currently in development; the aim is that it will support rehabilitation in the community by utilising existing infrastructures.

- A **training page** has been added to the GMCCSN website which contains locally devised training material as well as links to external training material. The aim is to add to this resource over time.

7. Patients’ and Carer’s views

Patient experience is an important measure of success and the Network has conducted a series of interviews with patients and carers. Below is an extract, originally included in the Interim 6 month report (December 2010) from one such interview:

Bury resident
Fairfield General Hospital
Female, aged 74

How the patient felt about the services they experienced
The patient said the team who treated her at Fairfield hospital were “absolutely fantastic, they helped me every step of the way and I know that if it wasn’t for their help and the excellent services available to me that I may not have been so fortunate.”
The patient was unaware of the specialist Thrombolysis treatment before she received it but she now knows that this is a new, innovative treatment, which had been proved to give stroke suffers the best possible chance of recovery.

What could it do differently or build on?
The only criticism the patient had is that she did not receive a home visit until 7 weeks after she returned home after her stroke.

Has their experience had any impact on their future lifestyle choices?
The patient’s life has now been changed for the better after her stroke. Following advice from her specialist stroke team at Fairfield General
Hospital, the patient has taken the necessary steps to change her lifestyle and get fit and healthy. Since her recovery process began, the patient has managed to lose more than 5 stone in weight and trains regularly at her local gym. She also now follows a healthy diet and lifestyle, which includes walking to the shops and anywhere else she needs to go. She now attends Slimming World to aid her weight loss even further and aims to reach her target weight of 11 stone early next year.

Online survey undertaken in Spring 2011

A simple questionnaire was devised to assess patient and carer experience; this could be completed in paper form, or online. The questionnaire had input from clinicians and the Central Office for Information (COI), in that it was adapted from a previous version used in the NW vascular services review.

A link to the Survey Monkey website was posted on the GMCCSN website and network stroke contacts were advised at every opportunity. A Twitter feed was employed to alert the public and stroke-related charities and groups.

The Stroke Association was very helpful, distributing paper questionnaires with pre-paid return envelopes via its group structure in Greater Manchester. We also visited support groups, including the STAR group in Withington and the Think Ahead group in Wigan. These initiatives ensured people who are not resident immediately near a hyperacute centre were surveyed about their strokes.

Eighty four people returned questionnaires. The majority opinion was that the transfer to a hyperacute centre, rather than a local hospital, was not a negative concern of patients. Most people reported fast access to emergency care post stroke and a good experience.

All three hyperacute centres expressed an interest in their Trust's patient/carer experience of emergency stroke care. At Stepping Hill, the stroke wards were visited as a pathfinder for facilitated completion of the questionnaire. Network support team staff sat with the patients. Although this worked well, the outcome was that only a small number of people were able to be worked with and it felt more like a story telling session (e.g. a qualitative interview) to all parties concerned. It was felt that an ethics opinion was advisable before any widespread application. Some quotes:

- I believe it is an economic and moral imperative to ensure that CT scans, expert diagnosis and, if relevant, thrombolysis treatment is available to everyone in order to reduce the requirement for more expensive ongoing care and disability affecting the patient and all family members
- Get the Stroke care pathway sorted, to allow for joined up treatment through hospital and home

See appendices 7 & 8 for full transcripts of 2 discovery interviews of recent patients.

8. Financial report (Andrea Dayson)

Historically stroke has been part of local commissioning arrangements but with the implementation of the hyperacute stroke pathway the decision was taken by PCT Chief Executives to collaboratively commission the three hyper acute centres (the CSC and PSCs). The district stroke centre (DSC) commissioning has been retained at a local level with the performance management being led by CBS to mitigate the risks associated with the agreed split indicative tariff.
Collaborative commissioning arrangements for 2009/10 only included the CSC and PSCs but from 2010/11 a joint approach has been agreed to include the activity and financial management of the DSCs. However commissioning of stroke services within the DSCs will still remain the responsibility of the PCTs, as will the performance management but will be informed by the activity and financial information which will be provided by the host PCT. PCTs will continue to commission the DSC element of the service through current local commissioning arrangements and be responsible for the performance management aspect of service delivery in terms of quality and service improvements.

A split tariff that covers patient movement across different organisations has a risk of multiple payments. As such ensuring that all activity across the new pathway is captured and monitored for performance management purposes reduces the risk associated with potential duplicate payments. Despite this agreement to use the indicative tariff for 10/11 a number of districts have continued to use PbR.

We have recently reviewed the Department of Health (DoH) Unbundled Best Practice stroke tariff. This payment method reflects the current pathway from hyperacute, sub acute and rehabilitation with all being included and priced separately, as in the indicative tariff currently being used. It was agreed to use the indicative tariff for the first 12 months (10/11) and review against actual data levels and move to national tariffs as and when they reflected the current pathway. Following a recent review of the tariffs the most favourable options was to either retain the local indicative tariff or move to the Best Practice Unbundled stroke tariffs.

Across 10/11 a full year of implementation was realised and activity levels were lower than that anticipated through the original data modelling. All of the hyperacute centres have underperformed as well as most district stroke centres. This raises questions about the service model but in accordance with the timing of the 12 month review all hyperacute centres are not proactively closing any infrastructure until the review have been fully evaluated and GM commissioners have all the evidence in front of them to decide if a change in the service model is needed.

### All activity

<table>
<thead>
<tr>
<th>Commissioner</th>
<th>Actual</th>
<th>Plan</th>
<th>Variance</th>
<th>Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALW PCT</td>
<td>£1,666,684</td>
<td>3,015,703</td>
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<td>Bolton PCT</td>
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<td>Total</td>
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<td>25,396,487</td>
<td>-£5,112,459</td>
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</table>

Table 8. All activity
Hyperacute centres

Hyper Acutes

<table>
<thead>
<tr>
<th>Commissioner</th>
<th>Actual</th>
<th>Plan</th>
<th>Variance</th>
<th>Reduction</th>
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<td>Total</td>
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<td>£10,680,889</td>
<td>-£1,470,488</td>
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Table 9. Hyperacute centres
### District Stroke Centres

#### DSCs

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<tr>
<th>Commissioner</th>
<th>Actual</th>
<th>Plan</th>
<th>Variance</th>
<th>Reduction</th>
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</thead>
<tbody>
<tr>
<td>ALW PCT</td>
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<td>£2,360,493</td>
<td>-£1,308,556</td>
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<tr>
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<td>£1,597,179</td>
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<tr>
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<td>£387,930</td>
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<td>Manchester PCT</td>
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<td>Salford PCT</td>
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<td>Stockport PCT</td>
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<td>£375,354</td>
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<tr>
<td>Tameside PCT</td>
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<td>£1,567,225</td>
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<tr>
<td>Trafford PCT</td>
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<td>£1,526,427</td>
<td>-£589,392</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>£14,715,598</strong></td>
<td><strong>-£3,641,971</strong></td>
<td><strong>25%</strong></td>
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*Table 10. District Stroke Centres*
Chart 26. District Stroke Centres
Appendices
## Revised measures of progress

<table>
<thead>
<tr>
<th>Domains</th>
<th>Joining Up Prevention</th>
<th>Implementing Best Practice in Acute Care</th>
<th>Improving Post Hospital and Long Term Care</th>
</tr>
</thead>
</table>
| Key measures (aim) | • Proportion of patients with AF presenting with stroke anti-coagulated on discharge (60% by April 2011) | • Proportion of patients admitted directly to an acute stroke unit within 4 hours of hospital arrival (90% by April 2011) | • i) Presence of a stroke skilled Early Supported Discharge team  
   ii) Proportion of patients supported by a stroke skilled Early Supported Discharge team (40% by April 2011) |
|         | • Proportion of people with high-risk TIA fully investigated and treated within 24 hours (80% by April 2011. Vital Sign) | • Proportion of patients spending 90% of their inpatient stay on a specialist stroke unit (80% by April 2011. Vital Sign) | • Proportion of patients and carers with joint care plans on discharge from hospital to final place of residence (85% by April 2011) |
|         |                          | i) Proportion of stroke patients scanned within one hour of hospital arrival (50% by April 2011) | • Proportion of stroke patients that are reviewed at six months after leaving hospital (95% by April 2011) |
|         |                          | ii) Proportion of stroke patients scanned within 24 hours of hospital arrival (100% by April 2011) | • Proportion of patients who have received psychological support for mood, behaviour or cognitive disturbance by six months after stroke. (40% by April 2011) |
Appendix 2

Stroke Thrombolysis
(clot dissolving drugs)
Information for patients and carers on the treatment of stroke.

Stroke / Thrombolysis
You have been diagnosed as having a stroke. This means that one of the blood vessels in your brain may have been blocked by a blood clot, causing damage to the brain.

Treatment Options
A new treatment that tries to unblock the affected blood vessel by dissolving clot may improve your symptoms. This treatment is given as a drip over one hour and aims to break up the clot. The sooner it is given, the better it works. This new treatment is called thrombolysis.

Advantages of Thrombolysis
• For every three people treated, one person achieves a better recovery.
• Successful treatment can mean reduced long-term disability for patients.

Disadvantages of Thrombolysis
• It does not work in every patient.
• It can cause bleeding (haemorrhage) in other parts of the body.
• Approximately 1 person in 50 (2%) will experience significant haemorrhage and 1 in 20 will suffer allergic reaction (angioedema), although this is usually mild and self-limiting.
• Bleeding complications may need transfusion with blood or blood products.

The doctors treating you will only offer this treatment if in your case the benefits are likely to be greater than the risks. If you decide not to have this treatment, your care will not be affected in any other way. You will continue to treat you in the usual way which involves admission to hospital, close monitoring and drugs to prevent future strokes.

Please feel free to ask the doctor any questions you may have.
Appendix 3

Protocol for receptionists in general practice telephone enquiry for patient who may have had a new stroke

Most strokes happen in older people but a stroke can occur at any age.

Fast test for stroke:
- Facial weakness - can the person smile? Has their mouth or eye dropped?
- Arm weakness - can they raise both arms? New loss of use/ weakness of an arm or a leg?
- Speech problems - can the person speak clearly and understand what you say?
- Time to call 999 - if the answer is yes to one or more of the above.

All symptoms must have started very quickly
A person who has had a stroke may also have one or more of the following, with or without FAST symptoms:
- Altered consciousness - it may not be possible to arouse the person or they may not recognise people around them.
- Collapse.
- Dizziness or unsteadiness.
- Difficulties with swallowing causing choking or coughing.

If the person had the symptoms in the last 24 hours but they have recovered, the person still needs to be seen urgently as there may be a high risk of a further episode.

Questions to ask:
- FAST test (not due to a previous problem or old stroke)
- Are these new problems/symptoms?
- When did these symptoms begin?
- Are they conscious and breathing?

What to do:
- Tell the caller to request an emergency ambulance (dial 999) because the person may have had a stroke and needs to be admitted to hospital as an emergency for urgent assessment and treatment.
- If the person is on the floor and/or they can't move, tell them not to move the person.
- Ask the caller to find all the person’s medications to take to the hospital or an up to date list.
- Ask that someone who has been with them when this occurred or knows them well goes to the hospital with them.
- Don’t give the person anything to eat or drink.
- If the person is uncertain or hesitant then say you will request an emergency (999) ambulance for them.
- Tell the ambulance service you think they have had a stroke.

If there is a doctor available in the building, you could ask their opinion if:
- The caller is reluctant for you to call an ambulance.
- The person is in a residential or nursing home (they make them more ill if they are admitted to hospital eg if they have dementia or a terminal illness).
- The person is known to have serious health problems.

A STROKE IS A MEDICAL EMERGENCY - IF IN DOUBT CALL 999
Appendix 4

Stroke Prevention (TIA) Clinic - Patient Information

Your symptoms may have been caused by a Transient Ischaemic Attack (TIA)

<table>
<thead>
<tr>
<th>?</th>
<th>A TIA is sometimes described as a ‘mini stroke,’ which may occur due to a blockage to the blood flow to a small part of the brain</th>
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<td>The symptoms can be similar to those of a stroke but they last from a few minutes up to 24 hours</td>
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</table>

Some of these symptoms include arm or leg weakness, difficulty thinking of words, speaking and understanding others, or a sudden onset of difficulty with vision or balance

Why should you be seen by a specialist urgently?

| Untreated, there is a high risk of stroke following TIA, sometimes as high as 1 person in 8 in the following week |
|---|---|
| We can greatly reduce this risk through timely assessment and treatment |
| URGENT |
| If your symptoms were not caused by a TIA, this will also help you find out what happened as soon as possible |

What happens next?

Your doctor will give you aspirin (or a similar medication if you are allergic to aspirin) straight away and will arrange a supply for you to continue until you attend the TIA clinic.

If you are already on medication to reduce your risk of heart disease, you should carry on taking this.

You will be referred to see a stroke specialist for some tests and investigations. They will try to arrange everything on the same day, so this may take some time. To make sure you are seen quickly, this may not be at your nearest hospital.

You will also get advice on how to reduce your risk of stroke and can ask questions.

It is not safe for you to drive until you have received advice from the specialist.

Please ring 999 if you have the same symptoms, or similar symptoms, before your clinic appointment.
Appendix 5
Stroke Rehabilitation Streams (as part of ImpReS)

Does the pt meet the criteria for stroke rehabilitation, based on stroke severity, functional status and social support?

ASSESSMENT (including mental capacity and consent)

PATHWAY 3
Most severe stroke patients or more of the following indicators:
- Barthel less than 10
- Too drowsy for active rehab
- Unable to sit without assistance for 15 sec
- Premorbid level of function at nursing home level care
- Cognitive impairment
- Difficult to engage in rehab

Could pt tolerate active rehab?

Commence pathway 2
Transfer to community services with POC / to NH / residential care with resettlement support to work towards community goals. Joint health and social care management plan copied to family, pt and GP.

Is patient progressing towards their goals?

Reassess progress, future needs and risks

Rehab provided to deliver goals
Set rehab goals with MDT, patient and family

Complete section 2
NO
YES

PATHWAY 2
Reassess progress, future needs and risks

Is patient progressing towards their goals?

Is pt ready for transfer to community?

Address adherence to treatment and barriers to improvement

Transfer to specialist stroke community services with POC / to NH / residential care with resettlement support to work towards community goals. Joint health and social care management plan copied to family, pt and GP.

Complete Section 2

YES
NO

PATHWAY 1

* All indicators to be considered along with MDT clinical judgement

Is pt in last hours or days of life?

NO
Commence Liverpool Care Pathway (see local protocol)

YES

Complete Section 2 if required
Appendix 6

JOINT HEALTH AND SOCIAL CARE PLAN

Patients Name: .................................................................
Date of Discharge: ......................... Place being discharged to:
..................................................
Transport arrangements:

..................................................................................................

Details of care /Support arranged (Hours and frequency of provided care package as agreed/ If attending day care the days and times /Stroke Association Coordinators )

Name and contact details of Social Worker:

Contact for Care Package Provider (contact number and named coordinator):

Out of hours emergency telephone contact number:

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<th>Date of Installation</th>
<th>Provider</th>
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</tbody>
</table>
**Follow-up services to be provided:** *(including Hospital /therapy follow-up, continuing care assessment)*

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</thead>
<tbody>
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**Copies to:** *(Tick those which apply)*

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<th>Family / Carer</th>
<th>GP</th>
<th>Community Teams</th>
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</thead>
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Appendix 7

DISCOVERY INTERVIEW 1
Stroke Hyperacute Services Review
Joint Interview Transcript - Patient and Carer (friend)

PART ONE (joint story)

Patient: I went into the bathroom in the morning and I came out and he looked at me strangely and said, ‘hang on. There’s a nurse across the road. I’m sure you’ve had a stroke.’ And I didn’t believe him. Of course, he went across, and this other nurse came across, and an ambulance was sent for, and within about a quarter of an hour, the paramedics were there, and said ‘yes’, and an ambulance was sent for. I was whisked into the Accident and Emergency at J Hospital (hyperacute). By that time, I was sort of fading quite a bit. I couldn’t tell, really, what was going on. But I heard someone say to my friend, ‘We need to particularly use this drug, and it takes… you’ve got to have consent to have it.’ And they wanted him to do it. He said he would if… but then he managed to contact someone who gave them consent. And then… I can remember this needle, or whatever, going in, and that then… I think I sort of went off, as it were, for a bit. After that… you correct me if I go wrong….

Carer: I’m wondering what you meant by ‘went off’?

Patient: Well, I can’t remember what was happening there, until I was put into the ward, and into a single room. And all I can remember about that was…. on the first night, there was somebody in that room opposite… whether it was my imagination or not… who kept screaming. I had a really awful night. Probably hallucinations. And then the following night, I was feeling better and I thought, well, I should get a good night’s sleep tonight and the nurse came in and said to me, ‘I’m sorry, but tonight I will be waking you every hour to give you drugs.’ And then I was transported from there to the main ward in the hospital. Still at J hospital. When people were coming to see me, my daughter said that I was still speaking gibberish… (I didn’t think I was speaking gibberish, but I was…) That was true, wasn’t it? And then, just day after day after that, my speech kept coming back, and coming back, and then a sudden surge… well, I think it has… come back.

Carer: Can you not remember the Thursday afternoon? When everyone was so amazed …. It was as if….

Patient: Yes…. the transformation. I could understand people and then I was taken to see if I could do walks. Taken up and down the steps by someone… to see if I could go up and down. Steps. That sort of thing. She took me into the kitchens to see it I could recognise
things like teapots and whatever. And each time, each day, everything seems to go better. I couldn’t remember from there on, whether I just had injections, or... Do you? I can’t remember. (Carer comments that it wasn’t injections; they were taking bloods.)

**Carer:** I rang NHS Direct. Because what was happening was the more I was telling my friend I was concerned he was getting more agitated at the thought of an ambulance, and he was panicking. I was trying not to get him more agitated. And I said quickly that I was going to ring NHS Direct as a way of appeasing him if you like. But straight away, when I started describing the symptoms, the young lady on the phones said ‘Right, I’m sending a Paramedic.’ And that all happened in a matter of minutes.

**Patient:** And, in actual fact, when I was actually wheeled out by the Paramedic, and I was actually leaning against the ambulance behind me, it didn’t matter to me too much then. I thought, ‘I need it.’

**Interviewer:** So you weren’t particularly feeling unwell?

**Patient:** Not really unwell, but I needed something else. But as we got nearer to Y, I was feeling worse, worse and worse.

**Interviewer:** It seems like you then had thrombolysis drugs, blood-clot busting drugs? They’d done a CT Scan?

**Carer:** Yes... what was happening... what my friend was describing before... this drug that they needed to get into him intravenously, the doctors and nurses kept saying that as soon as they could start this, less damage would occur.

**Patient:** Yes, that’s right. I heard that and I was thinking, well, get on with it then.

**Carer:** You weren’t able to express that, were you?

**Patient:** No. After that treatment, I was put into that single ward, wasn’t I?

**Carer:** It took an hour for this drug to be released.

**Patient:** I was just... I was under a lot of stress at that time.

**Carer:** And they said they couldn’t move from Accident and Emergency until this was completed, and then they did the tests again. The blood pressure, etc. And then they said, ‘Right, we’re going to move you up to the ward.’
Interviewer: Do you remember seeing a Hospital Consultant?

Patient: Yes, they came round several times. I can’t remember their names… sorry.

Carer: Well, to be fair, I can’t remember. There were several. And students.

Interviewer: The first night you remember screaming, but you’re not sure if that was real.

Carer: Do you not remember me trying to explain to you? That was a lady who was very ill.

Patient: Oh. So you could hear it. So it was real.

Carer: Yes. On the stroke unit at J Hospital, as you go into the main ward, My friend was in this little side room…

Patient: And the door was open, for obvious reasons. And the doors to the female wards were open again, for obvious reasons, I suppose. Which made the noise louder, because this lady was screaming. I felt sorry for her, if nothing else, but it was still disturbing.

Interviewer: What do you remember about the second day? I know you said about the second night; you remember being woken up every hour.

Patient: I can’t remember a lot about the second day, actually. I think I was just glad to be there. I had that sort of realisation.

Carer: Can you remember your son coming?

Patient: Yes I do. Into that small room. The rest of my family… they are all spread about a bit…they all came the day after that. A was the first. My children. Yes. They brought two of my grandchildren. They are twins.

I can remember the twins, but they weren’t allowed to come and see me, but they’d brought them both, and they live down South.

Carer: No, they don’t live down South.

Patient: Oh no… they live in C.
Carer: Where were they going when you had the stroke?

Patient: Yes they were going down to see L, down South. In fact, they all ended up at the Hospital for a bit.

Interviewer: What else do you remember about being in J Hospital?

Patient: Well, what I would say was an Isolation Ward. They took me for two nights in there. I went into the main ward and I could sit up and speak by then, but on the first day, it was a bit gibberish, I think. It was quite pleasant, really. It was only 6 – 8 people in it. It was quite good if you wanted to be there.

Carer: Can you not remember something else that was quite significant about that day?

Patient: About the first day?

Carer: No. On the third day. Something that you had not been able to do. What do you normally do when you get up in the morning?

Patient: Oh yes…. I go to the bathroom… I found that I could do that. I was okay, really, to do that myself.

Interviewer: You talked about being guided towards using the stairs and walking.

Patient: Yes, it was getting to see if I could possibly go home. They wanted to see if I could manage things. Whether I could remember, like I said, about the kitchen. Whether I could remember what things were. Which I felt by that time I could remember, but for some people would be able to.

Carer: The assessment with the picture? Can you remember that?

Patient: I can't, actually.

Carer: Who brought the picture?

Patient: The Speech and Language Therapist.

Carer: Can you not remember her saying…?

Patient: Oh, yes… pointing to things. I couldn’t do all of it. But I thought I could.
Carer: But that’s interesting, because if it happened now, and she did the same thing now, you’d do it without any problem… I know you would.

Interviewer: So, you’ve seen some Physical Therapists and you’ve seen admin. type of person, and speech and language.

Carer: She wasn’t an admin person, she was an occupational therapist.

Patient: Oh, was that what she was? She was the one making arrangements for me to have everything here.

Carer: Can you not remember what else was discussed?

Patient: Do you mean in the way of being able to do things myself?

Carer: No. Whether you would be able to come back here, or another location (?care home). Can you remember?

Patient: No, I don’t, because I would probably resist it completely.

Carer: There was you, myself and A. With the possibility of referring you to the DGH at X.

Interviewer: They were talking about moving you to another Hospital, because you were out of the urgent phase?

Carer: They decided on the Friday morning, but - on Thursday night before I went home - they asked me to phone the ward Friday morning. Because they weren’t sure if he was coming home or going to the X. And when I rang the nurse, she said that he was going home today, and that he was waiting for medication from the Pharmacy.

Interviewer: So how long were you in J for, roughly?

Patient: 5 days. Then I came back here and then a week later I went back into X DGH Hospital.

Interviewer: Let’s rewind…. so you’ve had your stroke, you’ve gone to J for your Emergency Treatment and you stayed there, but at some point they decided that you needed an operation…. carotid endarterectomy.
**Patient:** Yes, that’s correct.

**Carer:** Can you remember the Doctor explaining to you what had caused the clot?

**Patient:** Yes, I do. And I was amazed that I said yes to do it. I’m a bit of a wimp. But to do this after the other seems quite logical, because - if this is going to stop any other strokes - then it’s worth doing. There were 4 days in between…. 5 days. Yes.

**Interviewer:** Tell me about this particular aspect.

**Patient:** Well, nothing, really… it’s been okay. But, by now, I’m thinking that I shouldn’t be feeling anything at all. But that’s me. It’s still just a little bit numb.

**Interviewer:** When did they do the operation? I don’t know when you had your stroke, so I can’t picture the time.

**Carer:** I’m working it out now. You had the stroke in S month, you came home on T day and then had the operation on the following Friday.

**Interviewer:** So tell me about that then.

**Patient:** Well, it was straightforward, really. Except that I thought that, when I went in, I was going to come in and come out the day afterwards, didn’t I?

**Carer:** That was the plan. That was what we were told… until the phone call on the Wednesday morning. Can you not remember the phone ringing? Can you remember what else you had to do? To do with tablets. Can you not remember what the nurse said about Atenolol?

**Patient:** Not to take it, because it had something to do with the blood thinning.

**Carer:** No. Atenolol is something to do with blood pressure. What had it done that they were uneasy about? Can you remember?

**Patient:** No.

**Carer:** It slowed your heart rate down. And that’s why you had to go in on the Thursday afternoon, so they could monitor you overnight.
Interviewer: To see if you were healthy enough for…?

Patient: Yes, because it was a bit like that…. if they were going to do it. Because the Consultant came down and I think he actually said to me that it was just a little bit low and that they were going to go ahead. He explained to me what the operation was about. He did say that people have lost their lives, but at this stage he had never lost anybody, and I would be alright. He was quite reassuring. And I believed him.

Carer: What else had changed, after he had explained what he was going to do?

Patient: Well, before this, I was told that you could have an operation without an anaesthetic. Then the anaesthetist came to me and said that I’d not got to move and this kind of thing. … so I decided to have a normal anaesthetic. Normally, going down the theatre you’d be quite jittery, but the staff there, were really nice, and talking to you. When I woke up I felt fine. I didn’t have any sickness, or anything. It was brilliant.

Interviewer: What do you remember about the time after your operation?

Patient: For this one? Just 1 or 2 nights, feeling a bit uncomfortable. Nothing more than that.

Interviewer: Ok. What happened next?

Patient: I just waited until I got home.

Interviewer: I think you said you’ve had the best part of a fortnight being treated for a stroke, going home for a few days, then going back to a different hospital. This time, X hospital to have your artery cleared of the problem that has caused the stroke in the first place. How long were you in hospital after your carotid endarterectomy.

Patient: Another 5 days. That’s what annoyed me actually. I know hospitals are busy, but I was out of bed in the morning, which is fine. Didn’t want to be in bed. Sitting by the bed reading. And my friend could’ve come for me from here, from X, but we had to wait for pills from the pharmacy. How long does it take?

Carer: That was on the Monday. Do you not remember on the Saturday, telling me that you could go home? You were sat there, fully dressed, and greeted me by saying, ‘Have you come to take me home?’ The consultant had said you could be discharged, and asked you where you had come from and you said ‘J Hospital’. So, he then said, ‘We can discharge you back there’.
**Patient:** That’s where I had come from, in medical terms. So that’s why I had to stay then. Because they were making arrangements then for me to go over to J hospital.

**Carer:** It was just a bit of a mix up.

**Patient:** And I didn’t really suffer much for that.

**Carer:** Well, you were very frustrated. But S and I managed to calm you down and make you understand that staying there another couple of nights would be a good thing for you.

**Patient:** I can’t understand, though, why it takes so long to get pills organised. Having to wait for so long.

**Carer:** Well, because you were so frustrated I did actually take you home at lunchtime. The nurse checked that I could do that… as long as I came back for the medication, as it would be around 4 o’clock when the medication was ready. It was frustrating, because they knew on Saturday that he was being discharged.

**Patient:** I think that this is an admin problem, which could be sorted out, really.

**Interviewer:** So… you’ve had your busy 2 weeks or so, and your operation, now you are at home… tell me about that.

**Patient:** Well, I’m really quite pleased to be at home. And my friend’s retired, so at the moment what we’ve been doing is, he’s got a place in K, and we have been alternating between here and there. Haven’t we? Until I can… Well, I think I can cope now, but other people think not.

**Carer:** What is one of your biggest frustrations at the moment? What can’t you do… that you like to do?

**Patient:** Driving. It’s quite essential here, because there are no shops. I don’t need to go long distances, but just need to be independent, really. I don’t know what the score on that one will be. I feel that I can do it.

**Interviewer:** So what else has changed since, apart from the driving restrictions? What has changed for you?

**Patient:** There are certain things that I can’t remember. I’ve got 2 credit cards. That sort of thing, I can only remember 1 of them. So I have to remember before I put it in, not to put it in,
or have someone with me who does know. That's pretty frustrating. And, just occasionally, just a few words that I can't think of. I feel that that is slowly coming back, and that should be okay. I'm also frustrated that every Whit Friday we have a big party here... do you know that we have (music festival) bands here? We did the party.

**Carer:** Yes we did it, but toned it down this year.

**Interviewer:** I think you’ve covered it, but my next question is how you are coping with it and getting better? Is there anything more you would like to say?

**Patient:** I feel I'm getting better. Living with the condition... well, I suppose you've got to, haven't you? Writing is not very good, is it?

**Carer:** Well, you said it isn't, but I don't think so. It has changed, but it's not bad.

**Patient:** Follow-ups. That's a main one. I've been going to them. I'm going to see the consultant tomorrow. The vascular.

My GP hasn't been to see me. There's been no need to see me, but he's very good isn't he?

**Carer:** Who did you see down there at the Surgery last week? The Diabetic Nurse. And she's not going to see you again.

**Patient:** Oh, that's right. Yes, it's not a stroke nurse, but there's a name for it. Stroke and Cardiac Clinic, and I've got an appointment there.

**Interviewer:** With a GP Practice Nurse?

**Patient:** Yes, that's right. I have an appointment with her in July. They are all on the calendar. That's one thing I do now. They all are written on the calendar. And I've got another appointment to see the consultant in August.

**Interviewer:** So what have people said to you about being followed-up?

**Patient:** The medical people? Well, usually, when they have said it will be followed-up, it has been. Hasn't it? We were going to go down and see the GP, but was told that I had to go to the clinic. It was for elderly patients. That's what it was, and she transferred me to ....

**Carer:** Doctor Z was on holiday, so we had to see a doctor for what?

Patient: They were going to send me a speech therapist, which should’ve been tomorrow, but they rang me this morning to tell me that this lady was ill. And, after a long conversation, she said ‘It doesn’t sound like you need a speech therapist. I had the same opinion. If you can’t always think of a word, it’s not always because of the stroke; it might just be a case not being able to pronounce it. So, she said she was going to speak to the lady and see what she thinks and get back to me. So, I think all is well.

Interviewer: You haven’t said anything about any physical impact on you and the psychology of it all?

Patient: Well, I don’t ordinarily walk very well, and I didn’t walk quick before. But it has just slowed it down, that little bit. But I’m just hoping that that will come back, the more I try to use it.

I think you could get depressed if you started dwelling on it. I’m just hoping to be positive about it. That would be better than to be sorry. But, just occasionally, I do think ‘Why?’ But, on the other hand you could say that I came around from it, whereas other people don’t.

Interviewer: Is there anything else you want to tell me about being in hospital, either with the stroke or the surgery?

Patient: I’ve not had a lot of experience with hospitals. The two seemed to be okay to me. D would be the better person to ask, because he’s spent more time in hospitals. I don’t mean as a patient, but as a visitor. Did you find anything?

Carer: No, the standard of care overall was excellent, I thought. The slight negative, like you said, was in X… when you had to wait to be discharged. Waiting for the medication. But that’s the system they have.

Patient: I can’t think of anything about the actual treatment.

Carer: It was first class treatment, I thought. Can you remember what they said to you as you were leaving the X hospital?

Patient: Yes. Ideal patient

Carer: He’s made a miraculous recovery, and when they were talking of a follow-up, for speech etc, it probably was needed then. But I don’t think he needs it now.
Interviewer: So there haven’t been any adaptations to the house?

Carer: There was talk of that, because the bathroom is downstairs, but the bedroom is upstairs. But there is a bed in there now.

PART TWO (Carer story perspective)

Carer: Well, on the Monday morning when it happened, I looked around the bedroom door and he was sitting up awake, and I just said ‘Good morning’. At that stage I hadn’t noticed anything wrong, and he said to me ‘Are you going into the bathroom?’ And I said, ‘No not right away, I’m going to let the dogs out in the garden. So, he said ‘Right, I’m just going to have a wee’. So it was literally minutes, and he opened the bathroom door and his mouth had dropped at the side of his face. And I said ‘Are you alright?’ and he said ‘Yes’ but it was quite slurred. So I said that I thought we needed to get a doctor at first. He was saying no, but it wasn’t as clear as I’m saying now. And I then actually said that I think we need to get an ambulance, and that’s when he started getting agitated, and I knew that that was the last thing that should be happening, so I actually shot across the road and got one of my neighbours to come back with me who agreed that urgent intervention was necessary, but every time we mentioned an ambulance he was getting quite worked up and anxious, so that’s when I opted for NHS Direct. And like I said before, as soon as I started to mention the symptoms, the young lady said ‘Right, I’m sending you an ambulance’. And within minutes a paramedic had arrived in one of the cars, and then within seconds an ambulance was by his side. But by then, when they said about going to hospital you seemed to accept that because they were paramedics….

Interviewer: So then what went on? What did you see? What happened next?

Carer: He got into the ambulance, the paramedic car drove away, and the ambulance, for me seemed a long time, and I thought something else had happened then. So I went and knocked on the ambulance door, and the ambulance man came to the door, and I asked him if something else has happened? He said ‘No, we just have to be 100% sure before we set off to the hospital, but everything was still ok as in heart rate, blood pressure and all that.’ He said that I could go with them in the ambulance if I wanted but asked me ‘but how are you going to get back home’. And he then suggested that I went in my car. Which I did. I arrived shortly after B.

There seemed to be doctors and nurses seeing to him practically constantly, and then there was this discussion about getting this drug into him, and needing permission. I was slightly panicking, because, like I said, ‘I’m a friend. I’m not a relative. I’m not the next of kin, or
anything. And I had had the sense to take his address book up with me, so I said, 'I think you should try his eldest son.' But it's a bit of a joke, really, isn't it with S? Just to say 'Good Morning' on the phone. He very rarely answers it and, if you ring his mobile, it usually goes onto voicemail. And they tried about 3 times, and they kept coming back and saying that they couldn’t get hold of him. Then the doctor said 'Well, what do you think about this treatment?'. And I said 'Well, you keep saying the longer you leave it the more damage will occur so do it.' And I thought, well, if you’re relying on me and I’m not giving consent, then more damage is going to happen, so do it, and they did. Then I said that I had his other son's phone number, and you can nearly always get hold of him, and sure enough they did. And I said that when they spoke to them tell them that his friend is with him. I stayed at the hospital with him nearly all day. I didn’t want to leave him, because I knew that he didn't like hospitals and I knew that - if I left - he would get anxious and worked up. So, I just stayed there. Then, after the drug had gone through, the nurse came into the cubicle and said that they were moving him to a ward, as soon as a bed was available. I stayed with him until the end of visiting, by which time he was more settled on the ward.

I knew you didn’t want to stay there, but there wasn’t an alternative. But you were calmer by then.

Interviewer: What else do you remember about those few days?

Carer: I knew he was frustrated, because he couldn’t articulate what he wanted to say. And there was a period where I was trying to interpret for him, and that was making him worse, and then just sitting silently. And I was thinking to myself, desperately trying to think of a way to resolve the problem…. And then I thought I’d give him a pen and some paper. And said, ‘can you write down what you want to tell me?’ And, in big letters, he wrote ‘NO’. Then, he tried to tell me, try tomorrow’. So, I turned to him and said, ‘So, are you telling me that you want me to leave it today and try again tomorrow?’ He smiled. And then, each day, there was quite an improvement. It was nice to see the improvements happening until the Wednesday afternoon, when this Speech Therapist was doing his assessment. She’d asked me if we knew each other well, and I said, ‘Oh, yes, we are long standing friends.’ She then asked B if I was allowed to stay for this assessment and B said ‘Yes’. She said that she only wanted me here so that if he got stuck I might be able to help, in what he was trying to say. I just sat there quiet nearly all the time, but I knew, normally, with this picture she was showing him, that he would’ve been asking why she was showing it him. But one or two of the obvious things, he got wrong.

And then she gave you the leaflets about dysphasia and aphasia. But then, on the Thursday, it was like a miracle had happened overnight; because your speech was practically back to normal. When I came on Thursday, it just started to trail off a little bit, at the end of visiting.
And then the same in the evening, when I went back later. I still put that down to part being the stroke and part being tired as well. And, Friday, they were saying that they were waiting for a bed at the X Hospital, and then later when I rang up towards lunchtime, they said ‘No, he’s not going to X, he’s being discharged home.’ I was ready for going to pick him up and then L rang me and said she would go and pick him up.

**Interviewer:** So those few days when you were here, were you here on your own, or…

**Carer:** No, I was here, but L stayed with him on the Friday night, and they had to go on Saturday. So, he was only on his own for a couple of hours until I got here. Then I stayed here for the weekend. A drove up on the Monday morning, and then we went up to the X hospital for the pre-op in the afternoon, and A stayed here. So there were 3 of us here, Monday and Tuesday nights.

**Interviewer:** So what do you remember about the suggestion of carotid endarterectomy? How did that come about? How did they know that that needed to be done?

**Carer:** Well, I’m assuming that it was a scan of some kind. I think it was a CT scan and, again, it was when A and I were there together at J hospital….

**Interviewer:** So this is during the initial emergency period?

**Carer:** Yes, that’s right, because that is what had caused the stroke.

**Interviewer:** So they could see it on that scan?

**Carer:** Yes. You weren’t with it enough to comprehend it all, were you? But I think he was much more positive at that time when A and I came out.

**Interviewer:** So is there anything else that you want to say around the vascular surgery side of things?

**Carer:** Well, having said that, there was no option. It was rather worrying on the Friday afternoon. I kept thinking, ‘I hope that you’re going to be alright’. But then, when I went in the evening, because they said to ring and don’t just turn up at visiting time, because he may be down in theatre, so you would’ve just had a wasted journey. I did ring, around 1:30, and he was still on the ward; but couldn’t tell me when he was going down to theatre; and the nurse advised me to phone later. I did and he was in theatre. The nurse told me to come visit in the evening. He was sitting up in bed and I was gob smacked. He was quite chatty and not
drowsy. It was such a relief, seeing him sitting up and chatting. Then I shared his frustrations over the weekend when I couldn’t understand why they couldn’t discharge him. They weren’t doing anything further at that point. They had even taken the dressing off the wound and all the drips and things were out, so in my opinion he could’ve come home and we could’ve managed here.

Interviewer: So, tell me about coming home. Being at home, looking after your friend.

Carer: Well, it’s been a lot easier than I anticipated. No, it was just nice to have him back home, because I knew that’s what he wanted. Desperately… to be back here. And for the first 5 or 6 days we just stayed here. I did nip back home, but I was only away about an hour at the very most, and I was worried leaving him. I was going to get a neighbour from across the road to come and sit with him, but he was saying, ‘no, don’t you dare!’ But I made him promise not to attempt the stairs or anything, and I made him a drink before I went and just nipped home. I was very anxious for the first few days, but, as time went on, he was going to be alright. As I said, now he helps… well, he’s cooked a full meal, and does drinks, and he has negotiated the stairs without any problems. Well, I shouldn’t say without any problems, but it’s no different, really, than before the stroke. And he has been playing the piano again.
**Appendix 8**

**DISCOVERY INTERVIEW 2**

**Stroke Hyperacute Services Transcript**

**July 2011**

**Patient:** I didn’t feel well on the Sunday; I had a pain *(in my chest)* here and I couldn’t understand what was the matter. I thought I’d sit in my dressing gown all day. I took one of my husband’s aspirin. So I felt a bit better.

I got up Monday morning, fine, got everything ready for shopping… I do some sewing; I was a dressmaker, you see, and I thought I’d put a zip in for my friend. I went into the conservatory, got the machine, got the dress, just put it under…. and it wouldn’t move; the left hand wouldn’t move. I thought, what’s going on? Because I felt fine. I got up, took a few steps and down I went. I did get panicky then; so I couldn’t move. I was shouting, screaming…. He heard me; my neighbour came… I said to him, will you get the ambulance, I think I’ve had a stroke. I knew what I was doing.

The ambulance men came; they were alright, they were very good. They took me in the ambulance; they said, “oh, I’m sorry R, but we’ll have to put the sirens on!” I said, I’m not going to C Hospital; I just buried my husband a couple of months ago and I knew the treatment he got.

Got in the hospital, took my clothes off me, said to one of the nurses, I’m not having that on! A night dress!

They said, will you move your arm? Well, I couldn’t. The doctor (stroke consultant) saw me and said, I’ll send you up to the ward. I went up to the ward and the girls came with me; I was looked after day and night and I couldn’t complain about anything.

One day I ordered my food… I’d ordered baked beans, mash and a baked potato! I said, what’s that? They got me another dinner…. Oh, they were good! Nothing was too much trouble… the only complaint I’ve got is that hard bed and the pillow. Nothing else.

I knew from the telly *(that I’d had a stroke)* and I knew when I couldn’t move my hand; I knew when I just couldn’t move at all, not even to get up to go to the door. The (ambulance) fellow said, we’ll have to get you there, to the hospital. And that was it!

I remember the doctor; he was an Asian doctor… I remember the girls. And they came up to the ward. I remember them undressing me. I remember them putting a needle in my arm… I
thought I’d only be there for a day. When I got up to the ward, they put me in a private ward. The doctor came and said, can you move your arm, R? I said, no.

I don’t think it was for blood… I don’t remember anything coming out… I just remember this thing put in my arm. (Carer comments: A new drug and, if it catches it within 4 hours of having a stroke, it makes you recover a lot quicker.)

So, then they moved me to the other ward. And a lady came… and asked me would I do this oxygen? It’s a new thing. The stroke oxygen study. I had that…. she came nearly every day to see me, to see if I was alright. I had to have it for 3 and a half days and nights. So I agreed to that. I said would it affect me in any way? And she said, I don’t think so. I had that. The nurses were there for me, even at night. They said I had low blood pressure and they kept putting the light in my eyes and I said, what do you want to wake me for?! (Laughing.)

In the morning, they’d be there for a shower for me. The morning I came out, I went in the shower on my own. They said, you can’t! And I said, I’ve got to! When I go home, I’ve got to do the same thing. They were there outside, waiting for the scream and the shout.

They came every day (8 days)… there were always nurses in the ward. I’ve never known there not to be nurses on the ward; couldn’t believe they were so kind… I had the private room the whole time. Only that bed for the oxygen, you see.

Then, of course, the handsome doctors came round. Oh, to be young! They ask you, are you all right, you know? General how do you feel? Well, you’re in the bed and you can’t really feel things until you’re out (of bed). Then you feel a bit wobbly, feel the wall as you go along.

I had plenty of visitors. There was 8 one day!

Only for the nurses… I couldn’t praise them enough…. At the other hospital (late husband’s hospital,) there was always one had got a face on her, or a couple of them were talking about each other.

(And at my hospital,) the nurses were always smiling and always willing. I could hear them talking and having a banter with each other … never come across such a nice bunch, I haven’t, honestly.

The ambulance man, he was explaining how he found me… to the nurses and doctors. He said, ‘don’t think I’m talking over you, I’m talking to the nurses’… They were lovely.
I don’t really know what sort of a stroke I had (refers to copy of hospital patient information booklet – type of stroke is filled in as ‘infarct’), I need that explaining. It wasn’t a serious one, was it? Or could I have another one?

They said you had a stroke, I don’t know, my brain doesn’t take that all in. (Interviewer comments on taking the aspirin.) My husband left them the aspirin… he died… I was supposed to take them back to the chemist… Would that be the flow to the head or the heart? Why would I get that pain in the middle of my chest the day before… it was bad pain, right there… I couldn’t understand it. But I felt so well on the Monday morning.

I knew what was going all the whole time… I just didn’t know the specifics. Well, you’re not listening are you? I’m not sorry for myself, I never am. I just wanted to get up and out. I’m not ill… only pretending!

On the Saturday, they said, I think we’ll send you home. I was going to go to the rehabilitation ward, but I didn’t in the end. They said they were going to take me home… but they decided, no, I could stay the weekend. I was quite glad; I was getting all the attention from the visitors! No one to come home to, you see?

I had to wait for the medicine; then the doctor came round… then the nurse said, will you sit and have a photo with the doctor? I said, of course I will. It was on the front page! (refers to newsletter in the living room; patient hasn’t read the story due to reading problems). I had cataracts done a couple of years back… they’re going to attend to it. I got a letter from Oldham saying they were going to attend to it.

I remember coming home… my friend, neighbour called for me, brought me home. It was the first time in my life I’ve ever come home to an empty house. It was lovely. Did I have any dinner? Don’t remember that bit. I was too excited to get home, but sad to leave the nurses, because they were so brilliant. And I just got on with it… I couldn’t wait to get into bed… the machines were going all night and I ended up in the corridor… beep, beep, beep, I couldn’t sleep… don’t go into hospital because you can’t sleep!

Since I had the stroke, I sleep better now. And I’ve always been a bad sleeper. I can’t wait for 9 o’clock to come! The other morning, I woke up at 20 to 7. From 9 o’clock at night!

I used to be very active… used to go to an animal sanctuary at 6 am in the morning. I’ve had to stop that, but am trying to get back into it.
(The stroke has affected me…) I’m slow. I like everything done fast… the house used to be immaculate. I don’t know if it’s because my husband died in March, but I don’t care about the dusting any more. There’s more important things. I do think I’m a bit slow; I’m a bit wobbly on my left side. Could be that that’s getting me down.

My arm came back after a couple of days in hospital. I think that’s the thing they put in. I still feel a bit heavy on my shoulder and I do the exercises every morning. I can’t do the simple ones! I can do the others, I can lift the leg.

I went out yesterday into Yorkshire… with church… I enjoyed the day out. And all the people from church were there, pleased to see me, came over to say hello. A few kisses and hugs, makes a big difference doesn’t it? They asked me how I was… I’ve got some good friends, you see.

I need help from my friend… if she can’t come, if she’s working, her daughter comes instead to take me shopping… I used to go for the bus and to the X shopping centre… It’s just that I feel confident enough to go there, but do I feel safe on my feet? If you know what I mean? It’s getting on the bus. I’m getting a badge for the bus. To tell the bus driver not to go until I sit down; they’re well known, the Bluebirds! Even the taxis know about them. They’re devils!

Nobody came at all (to visit from the NHS) at home. So, you’re going to have to look after yourself.

Carer commented: your GP got onto somebody, didn’t she? And she came last week, nice lady she was.

Someone came from the stroke society, going to get this badge for me….

(Carer comments that somebody would have come in the past, to stroke survivors at home. And the patient didn’t have rehabilitation either, which would help with skills at small tasks after stroke. They maybe thought she didn’t need it. Carer said, they used to do a pack, or something, but they don’t do it any more. There’s nobody to deliver it.)

And I don’t like this… when I’m eating. (refers to weakness around her mouth.) They gave me exercises from the hospital. It’s these ones I can’t do! I can’t get up (muscles working) there… on that side. I try, but then I look in the mirror and think, oh my god! I do most of the exercises. The really simple ones I can’t do.
But nobody came. I thought it’s just too bad. I say there’s nothing the matter with you! If I was a person who felt sorry for themselves… but I’ve always had to fend for myself, so I’m used to it. But someone else might not be so lucky.

The nurses phoned me up last week from the hospital, to see if I was alright. Isn’t that nice of them? Oh, I couldn’t praise them enough. If my husband had got half an hour of what I’d got, I’d have been glad, and he was in 8 months. He went in with a water infection… a year ago next Sunday… so one thing led to another… he didn’t get the looking after, you see? That’s why I didn’t want to go there (the other DGH). I thought I’m going to be in a box like him and I’m not ready yet! There he is (points to photographs in the room). And the wedding photos up there, you see. Handsome man.

I had my stroke the end of X, I remember because my birthday was at the beginning and it was the end of the month.

My arm came back after 2 days. The physios came and told me what to do. They just tell you what to do, so you do it… you’ve just got to do it, if you want to feel better. Oh dear god, my poor arm’s killing me, but you’ve just got to do it if you want to get better.

I’ve been to see the GP, but she didn’t know I had a stroke until I told her; she said has anybody come? And I said no. She said, haven’t they? I said no.

There’s nothing, really, I can tell you any more, not unless I were grumbling, and I’m not.

As I said, my neighbour… he stood on my hand and I had my glasses in my hand… I was leaning on the ironing board and on a stone floor, getting colder and colder, I could feel the cold… there for an hour. I was black and blue from here to here… really black. I knew everything that was going on (or I wouldn’t have said that). So, I wasn’t really out of it, wasn’t ready for the box.

My priest said to me, the poor man hasn’t been him in his grave for very long and she wants to join him… you’re not giving him a bit of peace! Well, I’m not joining him yet; not ready yet.

Got a follow up appointment … physio for my back. And an appointment for the stroke doctor follow up.

They said on the ward, one said to me, I don’t think you really need rehabilitation. Another handsome one, I said, you know where I live doctor (laughing)!
Get mixed up in all these (information leaflets). I remember I’ve got to take the aspirin and the one for the acid… I take them in the morning. I should have taken my statins before (the stroke). I was on them before, once a month. I’ve got to take them every night now and then I get a little thing for cholesterol… Benecol, in the fridge.

I don’t know what I’m supposed to eat, or drink, or anything… so I’ll have to ask all this on Monday. I’m partial to a bit of vodka…. (laughing) I went out with my friend and had a glass of wine, I was well away. I think at my age, I can’t be bothered!

I’m 39 and a bit! (Laughing) People say, what about the other bit? I say, I don’t go there!

This is what I remember and I can’t praise the nursing staff and doctors enough. I did a thank you letter, oh, they were like angels to me. I’m going to give them a fright one day and walk in…. she’s going to take me down there one day.

Even the girls that did the cleaning, they were brilliant… top quality. I’d give it 20 out of 20. I’ve never come across such nice people, (except of course my friend). The camaraderie between them all; never saw a grumpy face; you know when you’re mesmerised? I thought, what’s going on here? I thought I was in heaven, couldn’t believe my luck! They were so nice, I shed a tear when I came out … her dad said, I never knew anybody to cry when they came out of hospital!

The oxygen, I think it did help… mind you, it gave me a runny nose. I lost the smell… from the stroke… I said to my friend, like you know when you’re used to having a wash?

And I’ve never had so much wind in all my life… and I was never a windy person, so you put that down (laughing)! I used to say to my husband, do you mind? How can you make so much noise? And now I’m doing the same! Even burping, as well…. And now I’m taking the pill for the acid and I’m able to eat fruit, which I was never able to eat before. So that’s a good thing.