User Experience of a Centralized Hyperacute Stroke Service
A Prospective Evaluation
Barry Moynihan, MD; Selina Paul, BSc; Hugh S. Markus, FRCP

Background and Purpose—Centralizing hyperacute stroke unit (HASU) care services allows improved access to thrombolysis but could be associated with worse patient experience, particularly when early repatriation to a local stroke recovery unit occurs as this may result in discontinuity of care. A centralized model of care was introduced in London, United Kingdom, with 8 HASUs providing acute care for the whole 8.3 million population, with repatriation on day 3 to a local stroke recovery unit. The patient and carer experience of this model of care has not been previously reported.

Methods—We undertook a prospective observational study of the new model of care in the South West London sector. Patient and carer experiences were evaluated using a modified Picker Questionnaire. Separate questionnaires were used for patients discharged directly home from the HASU, those repatriated to local stroke recovery units, and for carers of patients admitted to the HASU.

Results—Despite moving from a selected to nonselected admission pattern, thrombolysis rates increased from 6% to 9%. High satisfaction rates were reported among both patients and carers. Patients discharged directly home had higher satisfaction levels than those requiring repatriation to their local stroke unit, who were older and had more severe stroke. A total of 47% of carers expressed anxiety over the repatriation from the HASU back to the local stroke recovery unit, but few patients and carers reported an impact of this move on patient recovery.

Conclusion—Centralized HASU care is associated with good levels of patient and carer satisfaction. (Stroke. 2013;44:2743-2747.)

Key Words: diagnosis ■ health services research ■ quality of health care ■ stroke ■ thrombolytic therapy

Organized stroke unit care improves outcomes for all patients with stroke. Intravenous thrombolysis using alteplase improves outcome in acute ischemic stroke and is currently the only licensed acute treatment for ischemic stroke. It is licensed for use within 4.5 hours of stroke onset, and even within this time window efficacy reduces rapidly over time. The evidence for use beyond this time window is less strong, although efficacy to ≤6 hours has been suggested by the recent third International Stroke Trial (IST-3). Increased public awareness through the Face, Arm, Speech Test and paramedic training programs have increased the proportion of patients with stroke presenting within the time window for thrombolysis. Despite this, audits in many countries have shown that a minority of eligible patients receive tissue-type plasminogen activator (eg, a National Audit in England showed low thrombolysis rates with only 1.4% of patients receiving alteplase in 2008). Thrombolysis rates are increasing in some but not in all countries. A major challenge is how to make 24-hour specialized stroke care available to the whole population. Several models of service reconfiguration to improve access to thrombolysis have been suggested, including redirection of patients to comprehensive stroke centers and telemedicine-based systems.

Redirection of patients to larger stroke centers improves thrombolysis rates. High-volume centers have been associated with better adherence to guidelines, and this has been associated with both improved stroke outcome and higher patient satisfaction. However, centralizing services itself might be associated with lower patient and carer satisfaction for a number of reasons. These include increasing the distance for visiting family and carers, transport discomfort, and care provision in an unfamiliar environment. In addition, patient satisfaction with stroke service provision has been reported to be lower in larger stroke services. Furthermore, admission to comprehensive stroke centers is often followed by transfer back to a more local stroke a few days after stroke resulting in discontinuity of care, which has itself been associated with worse outcomes. Therefore, the patient experience of centralized stroke services could be either positive or negative.

In 2010, a centralized stroke service was implemented covering the whole of London, United Kingdom. All Face, Arm, Speech Test–positive patients, whether they met eligibility criteria for thrombolysis, were diverted by ambulance with direct admission to a hyperacute stroke unit (HASU). When stable,
patients are repatriated to their local stroke unit for ongoing rehabilitation. We evaluated the patient and carer experience of this centralized stroke care model.

Methods

Patient Population

The Healthcare for London model centralized hyperacute stroke care into 8 HASUs providing care for a population of 8.28 million.14 The South West Sector has 4 district general hospitals, one of which is St George’s Hospital. The South West Sector is served by a single HASU based at St George’s Hospital. After the patients with hyperacute phase are transferred back to 1 of 4 local stroke recovery units based in district hospitals in the sector, one of these SU’s being at St George’s.

The previous model of hyperacute stroke care at St George’s Hospital is shown in Table 1. Before the current system stroke care system, a hub-and-spoke model had been operating whereby the HASU admitted all patients from the local region (served by St. George’s district hospital), and also patients presenting out of hours (evenings and weekends) eligible for thrombolysis from the entire South West Sector.19

Data Collection

We prospectively collected data for all HASU admissions to St. George’s Hospital from November 1, 2010, to October 31, 2011, after the new Healthcare for London model opened. Data were taken from St. George’s entries to the Stroke Improvement National Audit Program, a national audit program (http://www.rcplondon.ac.uk/projects/stroke-improvement-national-audit-programme-sinap). Data are collected prospectively on each admission using a detailed form and uploaded to a national database. The data were cross-checked with the ward admission register. Mortality data were determined from hospital records (where death occurred in hospital) and Stroke Improvement National Audit Program. Stroke Improvement National Audit Program is linked to the National Register of Births, Deaths, and Marriages ensuring all deaths are identified. Patient demographics, final diagnosis, thrombolysis therapy, length of stay, and discharge destination were recorded. Diagnosis was separated into stroke, transient ischemic attack (TIA), and stroke mimic.

Data from the current system were compared with data from the St. George’s HASU during the preceding hub-and-spoke model. The data were prospectively collected on the hospital record system, which is also linked to the National Register. Thrombolysis times for the previous model were taken from Safe Implementation of Treatments in Stroke registry data,20 on which all hospitals prospectively entered their thrombolysis cases during the hub-and-phase stroke.19

Patient and Carer Questionnaires

We assessed patient and carer feedback using a modified Picker questionnaire, which has been validated for use in patients with stroke,21 and included additional questions relevant to the new model of care (questionnaires available in the online-only Data Supplement). The questionnaire addresses the route of admission to the HASU, patient information, communication by doctors and nurses, ease of visiting both HASU and SU, repatriation questions where appropriate, and stroke severity. Questionnaires used are available in the online-only Data Supplement.

Three groups were recruited. First, patients discharged directly home from the HASU were sent a questionnaire in the mail after discharge. Second, patients repatriated from the HASU to local SU’s were interviewed by a single research associate about their experience of the new pathway after transfer back to their local SU. The research associate visited all 4 stroke units in the 2 weeks after repatriation. Third, we posted questionnaires to relatives and carers of patients.

Statistics

IBM SPSS version 20 for Mac or Prism 6.0b for Mac was used for statistical analysis. All t tests had Mann–Whitney U post hoc tests performed. ANOVA tests used Kruskal–Wallis post hoc tests.

Results

Patient Population

There were 2031 admissions to the HASU in the calendar year, an increase from 771 admissions per year under the previous hub-and-spoke model (Table 1). Twenty eight of these were from other medical teams at St. George’s, primarily in-hospital strokes, leaving 2003 stroke admissions. Of these 62% were stroke, 13% TIA with symptoms resolving in 24 hours, and 25% did not have acute stroke or TIA (stroke mimics). Mean age (SD) was as follows: strokes 72.8 (14.8) years, TIA 72.4 (13.7) years, and stroke mimics 61.3 (18.6) years. The proportion of females was 48.9%, 49.8%, and 59.6% for stroke, TIA, and mimics, respectively.

Effect on Thrombolysis Rates

Overall numbers of patients thrombolysed increased from 46 in the hub-and-spoke model to 145 per year with the HASU model. The numbers of patients thrombolysed increased to a rate of 9.4% of stroke admissions (10.8% of ischemic strokes), compared with 6% under the previous model. This increase occurred despite the model mandating all patients with stroke be admitted to the HASU and not just thrombolysis-eligible patients. The 30-day mortality was 9.6% for stroke, 0.8% for TIA, and 1.2% for stroke mimics. The 30-day mortality for TIA and stroke combined was 8.1% versus 12% in the previous hub-and-spoke model. However, the previous model only took regional referrals who were thrombolysis eligible, and, therefore, direct comparisons of mortality are unreliable.

Onset to treatment times were largely unchanged: mean onset to treatment times of 133 minutes (median, 130 minutes) for the previous model and 139 minutes (median, 134 minutes) in the HASU model. This was associated with a reduced door to needle time mean of 65 minutes (median, 59 minutes)

Table 1. Comparison of Services During Service Development

<table>
<thead>
<tr>
<th></th>
<th>Hub and Spoke</th>
<th>HASU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period (mo/y-mo/y)</td>
<td>02/08–01/09</td>
<td>11/10–10/11</td>
</tr>
<tr>
<td>Mean no. of admissions per m</td>
<td>64.3</td>
<td>166.9</td>
</tr>
<tr>
<td>% Thrombolysed of all admissions</td>
<td>6</td>
<td>7.2</td>
</tr>
<tr>
<td>Annualized thrombolysis numbers</td>
<td>46</td>
<td>145</td>
</tr>
<tr>
<td>Medical ward rounds, d/wk</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Nursing cover</td>
<td>1 staff to 5 patients</td>
<td>1 staff to 2 patients</td>
</tr>
<tr>
<td>MRI access</td>
<td>5 day service</td>
<td>7 day service</td>
</tr>
<tr>
<td>Vascular imaging</td>
<td>5 day service</td>
<td>7 day service</td>
</tr>
<tr>
<td>Physiological monitoring</td>
<td>30% monitored</td>
<td>100% monitored</td>
</tr>
<tr>
<td>Initial CT location</td>
<td>Neuroscience</td>
<td>Emergency department</td>
</tr>
<tr>
<td>Early supported discharge</td>
<td>Initiated</td>
<td>Full service</td>
</tr>
</tbody>
</table>

CT indicates computerized tomography; and HASU, hyperacute stroke unit.
to 49 minutes (median, 45 minutes) in the HASU model. This may have been partly because of a new computerized tomography scanner located in the emergency department, improved training or an increased volume of activity.

Med. in, mean (SD) length of stay was 3, 3.8 (5.8) days for stroke, 1, 1.7 (1.6) day for TIA, and 1, 2.1 (2.5) day for mimics. Patients repatriated to 2 of 3 district stroke units had similar length of stay (median, 3 days), whereas repatriation to the third was significantly slower (median, 4 days; P<0.01).

Patient Satisfaction Questionnaires
HASU Discharges Directly to Home
A total of 429 postal questionnaires were sent to sequential admissions discharged directly home; 213 (49.6%) responses were received. The mean (SD) age of the responders was 68.1 (14.4) years. 31 patients were from the catchment area of the local district hospital associated with the HASU (St. George’s) and, therefore, some questions were not applicable. Of the remaining 182, 89.5% were happy to come to the HASU, 5% did not mind, and 4% were not happy (Table 2). A total of 80% felt they were diagnosed quickly enough, with 6.6% feeling they were not diagnosed quickly enough.

Table 2. Questionnaire Responses From Patients and Relatives/Carers of Their Experience of Hyperacute and Stroke Recovery Units

<table>
<thead>
<tr>
<th></th>
<th>Direct Discharges</th>
<th>Repatriated Patients</th>
<th>Relatives and Carers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number sent</td>
<td>429</td>
<td>220</td>
<td>483</td>
</tr>
<tr>
<td>Number returned (%)</td>
<td>213 (49.6%)</td>
<td>100 (45.5%)</td>
<td>235 (48.6%)</td>
</tr>
<tr>
<td>Self rated stroke severity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>148 (69.5%)</td>
<td>32 (32%)</td>
<td>86 (36.6%)</td>
</tr>
<tr>
<td>Moderately severe</td>
<td>23 (20.0%)</td>
<td>25 (25%)</td>
<td>67 (28.5%)</td>
</tr>
<tr>
<td>Severe</td>
<td>8 (3.8%)</td>
<td>27 (27%)</td>
<td>19 (8.1%)</td>
</tr>
<tr>
<td>Very severe</td>
<td>1 (0.5%)</td>
<td>13 (13%)</td>
<td>19 (8.1%)</td>
</tr>
<tr>
<td>Ease of visiting HASU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No difficulty</td>
<td>158 (74.2%)</td>
<td>50 (50%)</td>
<td>180 (76.6%)</td>
</tr>
<tr>
<td>Some difficulty</td>
<td>31 (14.6%)</td>
<td>21 (21%)</td>
<td>39 (16.6%)</td>
</tr>
<tr>
<td>Great difficulty</td>
<td>4 (1.9%)</td>
<td>16 (16%)</td>
<td>8 (3.4%)</td>
</tr>
<tr>
<td>Unable</td>
<td>4 (1.9%)</td>
<td>2 (2%)</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Don’t know/other</td>
<td>16 (7.5%)</td>
<td>11 (11%)</td>
<td>7 (3.0%)</td>
</tr>
</tbody>
</table>

Were you happy being admitted to HASU rather than local hospital
Yes 163 (76.5%) 31 (31%) 173 (73.6%)
No 8 (3.8%) 7 (7%) 2 (0.9%)
Don’t mind/not sure/ other 9 (5.6%) 27 (27%) 25 (10.6%)
HASU was local hospital 30 (14.1%) 35 (35%) 35 (14.9%)

Ease of visiting SU* |
No difficulty n/a 91 (91%) 85 (74.6%)
Some difficulty n/a 4 (4%) 21 (18.4%)
Great difficulty n/a 1 (1%) 0 (0%)
Unable n/a 0 (0%) 1 (0.9%)
Don’t know/other n/a 2 (2%) 7 (6.1%)

*Responses from relatives/carers where the patient was repatriated (n=114). HASU indicates hyperacute stroke unit.

A total of 74% of patients felt their family had no difficulty visiting them in the HASU, with 16% reporting some or great difficulty (Table 2). A total of 94% of patients rated the quality of care on the HASU as excellent or very good.

HASU Discharges to a Local Stroke Recovery Unit
A total of 220 transfers were approached to achieve 100 interviews. Reasons for not being included were as follows: too unwell 30, cognitive impairment 27, communication problems 36, declined 9, other reasons 18. Mean (SD) age of patients who completed questionnaires was 75.2 (13.9) years. A total of 63% felt the care on the HASU was excellent or very good (significantly lower than directly discharged home group; P<0.01).

Patient’s views on moving wards are summarized in Table 3. For those patients whose local hospital was not the HASU, 48% were happy to have been admitted to the HASU hospital, 31% did not mind, and 11% were not happy. A total of 22% had been anxious about repatriation to their local hospital with 74% not worried about transfer. A total of 45% felt they had settled into the local stroke unit within a day, 33% within 3 days, and 17% took >3 days. A total of 91% felt visiting was easy for families in their local unit compared with 50% for visiting on the HASU.

Regarding the effect of moving on their treatment or recovery, 69% felt it had not affected them, 10% felt they had positively benefited, and 6% reported a negative effect from transfer. Age above or below the median (79 years) had no impact on patient satisfaction (P=0.82).

Satisfaction levels in groups (HASU discharges directly to home) and (HASU discharges to a local stroke recovery unit) above inversely correlated with stroke severity (P=0.013).

Family/Carer Satisfaction Questionnaire
A total of 235 responses from 483 questionnaires sent were received (48.6% response rate). A total of 54% described themselves as spouses/partners, 40% as relatives, 1% as carers, and 5% as other. Of the 200 nonlocal patients, 86.5% of their relatives/carers were happy for the patient to be admitted to the HASU hospital, whereas only 1% were unhappy. For repatriated patients, 47% were anxious about the patient moving wards or hospitals. Despite this anxiety, 74% reported

Table 3. Patient and Carer Views on Moving Wards and the Effect on Recovery

<table>
<thead>
<tr>
<th></th>
<th>Repatriated Patients (n=100)</th>
<th>Relatives/Carers (n=114)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were you worried about moving wards/hospitals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>22 (22.0%)</td>
<td>49 (43.0%)</td>
</tr>
<tr>
<td>No</td>
<td>74 (74.0%)</td>
<td>55 (48.2%)</td>
</tr>
<tr>
<td>Don’t know/other</td>
<td>4 (4.0%)</td>
<td>3 (2.6%)</td>
</tr>
<tr>
<td>No response</td>
<td>0 (0.0%)</td>
<td>7 (6.1%)</td>
</tr>
<tr>
<td>Did move affect treatment/recovery in any way?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positively</td>
<td>10 (10.0%)</td>
<td>25 (21.9%)</td>
</tr>
<tr>
<td>Negatively</td>
<td>6 (6.0%)</td>
<td>17 (14.9%)</td>
</tr>
<tr>
<td>No effect</td>
<td>69 (69.0%)</td>
<td>44 (38.6%)</td>
</tr>
<tr>
<td>Don’t know/other</td>
<td>15 (15.0%)</td>
<td>24 (21.1%)</td>
</tr>
<tr>
<td>No response</td>
<td>0 (0.0%)</td>
<td>4 (3.5%)</td>
</tr>
</tbody>
</table>
not minding the patient moving, whereas 17% did mind. The views of carers on the effect of patient moves on recovery are detailed in Table 3. Relatives reported visiting the HASU were similarly easy to visiting the SU, although patients had reported it was more difficult (see above).

Discussion
This prospective evaluation found that direct admission of all strokes after ambulance triage to a centralized comprehensive stroke center was associated not only with increased thrombolysis rates, but also with high satisfaction levels among both patient and carers.

A comprehensive reorganization of stroke services in London resulted in all patients in the South West sector being referred directly to a single comprehensive stroke center or HASU. Before this, a hub-and-spoke model with transfer of thrombolysis-eligible patients only had taken place, and data had also been prospectively collected during this model, allowing us to compare outcomes between the 2 models. The new model resulted in an increase in thrombolysis rates to >10% of all ischemic strokes. This was increased from the previous rates in the hub-and-spoke model, even though all patients with stroke regardless of eligibility for thrombolysis were now directly admitted to the HASU. A similar pattern was seen throughout London with pan-London thrombolysis rates rising from 3.5% in February to July 2009 to 14% in April to September 2011. The initial low pan-London rate was because of some regions having rudimentary thrombolysis services, unlike the hub-and-spoke model already in place in South West London. However, the increased thrombolysis rates may also have been influenced by public awareness campaigns, paramedic training, and improved access to brain imaging.

Although the primary aim of the model was to provide rapid access to all aspects of hyperacute care, during the HASU stay early secondary prevention measures were instituted. All ischemic strokes received carotid and vertebral artery imaging. There were 4 echocardiography slots per day and continuous ECG telemetry. Patients are not transferred until these diagnostic investigations had been performed. Secondary prevention strategies were agreed across the sector with early use of clopidogrel and statins. Early carotid endarterectomy was performed in eligible patients whom remained in the HASU hospital for this procedure. The HASU model has the potential to reduce early stroke recurrence because of early institution of secondary prevention measures. However, we did not collect data on early stroke recurrence for this study.

Despite the improved thrombolysis rates and outcomes, there was concern that a centralized system would result in a worse patient experience. This might result from patients being admitted to a more remote hospital with which they are less familiar, longer ambulance transfers, longer traveling time for visitors, and discontinuity in care when patients are transferred back to their local stroke unit after the initial acute phase. Such discontinuities in care have been associated with worse outcomes and may be modificable. To evaluate these effects, we prospectively audited patient and carer views.

Satisfaction levels of patients with stroke have been shown to relate to stroke disability. Therefore, we evaluated the view separately of patients making a rapid recovery who were discharged directly home, and those who required more prolonged periods of rehabilitation and were transferred from the HASU to the local stroke unit.

Of those patients discharged directly home, the vast majority (90%) were happy to be transferred to a more remote HASU, and their experience of care was excellent. Only a minority reported difficulties with access for visitors.

Patient’s views were also good in those discharged back to a local stroke unit, although levels of satisfaction were not as high as in those discharged directly home, probably influenced by the increased stroke severity in this group. About half were happy to be admitted to the remote HASU, whereas a third did not mind. There was some anxiety about repatriation back to their local stroke unit with approximately a quarter feeling anxious and patients requiring a few days to settle down in their new environment. However, only 6% reported a negative effect of the transfer on their outcome.

A concern in design of the model had been that carers and relatives would have to travel further to visit patients. Our results did not bear out these concerns, and only 1% of relatives were unhappy with care in a centralized HASU. However, like patients, there was considerable concern about repatriation to the local SU with about a half of relatives showing anxiety. Despite this, only a minority (15%) felt the transfer had impacted negatively on outcome.

The effect of care transitions on patient satisfaction and anxieties is well recognized. To address this, on admission to the HASU, patients were given written information about the aims of the HASU, how long they would stay on the unit, and the care pathway involving repatriation to a local unit. In addition, patients were assessed for safety on the day of transfer using a safety checklist, and all transfers were performed using a standardized protocol with transfer of discharge summary, notes, and electronic copies of imaging.

Some limitations of our data are noteworthy. The nonrandomized nature of this study means some potential bias cannot be excluded. Nevertheless, we had prospectively collected data from a previous model of care with which to compare. We received limited responses from carers of patients who had died. Patients with significant cognitive or language impairment were unable to complete the questionnaire. Relatives and carers of such families were still able to provide feedback via the carer questionnaire, but we did not undertake an apha-friendly version in this project.

In summary, our data demonstrated that a centralized comprehensive stroke service, which has been associated with high thrombolysis levels, resulted in high levels of patient and carer satisfaction, despite many patients and families being seen in a regional rather than their local hospital. A minority of patients and carers expressed concern about repatriation from the comprehensive center to a local stroke unit, but neither patients nor carers associated this with an adverse effect on recovery.

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References
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SUPPLEMENTAL MATERIAL

I. Direct Discharge Questionnaire
II. Repatriation Questionnaire
III. Relative and Carer Questionnaire
I. Direct Discharge questionnaire
DEAR PATIENT,

We are contacting you because you were recently admitted to the Hyper Acute Stroke Unit (HASU) at St George’s Hospital- William Drummond Ward (Third Floor Atkinson Morley Wing).

We are evaluating the way Stroke Services are organized across London and would like your feedback about your experience.

You were brought to St George’s Hospital because this is the regional centre for the emergency treatment of stroke.

We would like you to answer the following questions about how you were first admitted to hospital and your stay on the Specialist Stroke Unit at St Georges Hospital.

Even if you were discharged home with a NON STROKE diagnosis we would like your feedback.

If St George’s is your LOCAL/ NEAREST hospital we would like to know about your experience of the stroke service.

If St George’s is NOT your LOCAL or NEAREST hospital we are interested to know how you (and your family) found this experience and if you felt this affected your treatment or recovery in any way.

• Please try and answer ALL the questions but if you are unable to answer a question, or feel the question does not apply to you - just tick Other / NA.

• Your answers will be kept confidential

• Place your completed form in the FREEPOST Envelope provided to be returned to the Research team at St George’s University of London.

Your feedback will be used to help evaluate the recent changes to Stroke Services in London.

Thank you for your participation

Dr Barry Moynihan
Consultant in Stroke Medicine, St George’s Hospital NHS Trust
HIEC Patient Satisfaction Project, Stroke & Dementia Research Centre - Division of Clinical Science
St George’s University of London, Cranmer Terrace London SW17 ORE.

1. How were you first admitted to the HASU at St George’s Hospital?
   - [ ] Came directly to St George’s (by Ambulance)
   - [ ] Came directly to St George’s (own transport/ by foot)
   - [ ] Taken to other Hospital (A&E) then to St George’s
   - [ ] I was already an Inpatient in another ward/ hospital
   - [ ] Don’t know
   - [ ] Other..................................................................................
2. If St George’s Hospital is NOT your LOCAL/ NEAREST hospital-
Were you happy to be admitted to St George’s Hospital rather than your local hospital?
☐ Yes
☐ No
☐ Don’t mind/ Not sure/ Other..............................
☐ St George’s is my local hospital

3. When were you first told you (might have) had a stroke?
☐ Before I arrived in the hospital
☐ On arrival to hospital
☐ On/ After Leaving the hospital
☐ Don’t know/ Other...........................................

4. Do you think you received a diagnosis quickly enough?
☐ Yes, definitely
☐ No
☐ Not sure
☐ Other.....................................................................

5. How easy was it for friends & family to visit you on the HASU at St George’s?
☐ Able to Visit- No difficulty
☐ Able to visit- with some difficulty
☐ Able to Visit – with Great Difficulty
☐ Not Able to visit- why?...........................................
☐ Don’t Know/ Other..................................................

6. Did family & friends have enough opportunity to speak with staff on the HASU?
☐ Yes, Always
☐ Yes Sometimes
☐ No
☐ Don’t Know/ Other................................................

7. How would you rate the care you received during your hospital stay on the HASU?
☐ Excellent
☐ Very Good
☐ Good/Fair
☐ Poor
☐ Very Poor

8. Were you discharged home from St George’s HASU?
☐ Yes
☐ No

(Continued from overleaf)

9. How severe would you say your stroke or ‘stroke event’ has been?
☐ Mild
☐ Mod Severe
☐ Severe
☐ Very Severe
☐ Don’t know/ Other.............................................

10. Have you felt involved in the decisions made about your treatment and care in hospital?
☐ Yes-Completely
☐ Yes- to some extent
☐ No
☐ Don’t know / Other..............................................

11. Have you understood all the information you have been given about your diagnosis?
(Even if you did not have a stroke)
☐ Yes- All of it
☐ Yes- Some of it
☐ Little or None
☐ Don’t know/ Other..............................................
Is there anything else you would like to tell us about your hospital admission to St George’s HASU?

END OF QUESTIONNAIRE

THANK YOU FOR YOUR FEEDBACK  *  PLEASE RETURN IN FREEPPOST ENVELOPE
II. Repatriation Questionnaire
1. How were you first admitted to the HASU at St George’s Hospital?
☐ Came directly to St George’s (by Ambulance)
☐ Came directly to St George’s (own transport/ by foot)
☐ Taken to other Hospital (A&E) then to St George’s
☐ I was already an Inpatient in another ward/ hospital
☐ Don’t know
☐ Other

2. If St George’s Hospital is NOT your LOCAL/ NEAREST hospital -
Were you happy to be admitted to St George’s Hospital rather than your local hospital?
☐ Yes
☐ No
☐ Don’t mind/ Not sure/ Other
☐ St George’s is my local hospital

3. When were you first told you (might have) had a stroke?
☐ Before I arrived in the hospital
☐ On arrival to hospital
☐ On/ After Leaving the hospital
☐ Don’t know/ Other

4. Do you think you received a diagnosis quickly enough?
☐ Yes, definitely
☐ No
☐ Not sure
☐ Other

5. How easy was it for friends & family to visit you on the HASU at St George’s?
☐ Able to Visit- No difficulty
☐ Able to visit- with some difficulty
☐ Able to Visit – with Great Difficulty
☐ Not Able to visit- why?
☐ Don’t Know/ Other

6. Did family & friends have enough opportunity to speak to staff on the HASU?
☐ Yes, Always
☐ Yes Sometimes
☐ No
☐ Don’t Know/ Other

7. How would you rate the care you received during your hospital stay on the HASU?
☐ Excellent
☐ Very Good
☐ Good/Fair
☐ Poor
☐ Very Poor

8. Were you discharged home from St George’s HASU?
☐ Yes
☐ No

Continued Overleaf....
REPATRIATION- At Your Local Stroke Unit

My Local Stroke Unit is: __________________________
Admitted to SU: __/__/____  Date of Interview: __/__/____

9. Did you know you would be moving to your Local Stroke Unit at [______________]?
   □  Yes  □  No  □  Don’t know/ Other..............................................

10. Were you given timely/ adequate notice about transferring to your Local Stroke Unit at [______________]?
    □  Yes  □  No  □  Don’t Know/ Other..............................................

11. Were you worried or anxious about having to move wards/ hospitals?
    □  Yes- A lot  □  Yes- A little  □  No  □  Don’t Know/ Other..............................................

12. Were you made to feel welcome on arrival at your local Stroke unit at [______________]?
    □  Yes  □  No  □  Don’t know/ Other..............................................

13. How long has it taken you settle at your local Stroke Unit at [______________]?
    □  Less than a day  □  1-3 days  □  More than 3 days  □  Don’t know/ Other..............................................

14. How easy has it been for friends and family to visit you at your local Stroke Unit at [__________]?
    □  Able to Visit- No difficulty
    □  Able to visit- with some difficulty
    □  Able to Visit – with great difficulty
    □  Not Able to visit- why?.........................................................
    □  Don’t Know/ Other.............................................................

15. Did family and friends have enough opportunity to speak with staff on your Local Stroke Unit?
    □  Yes, Always  □  Yes Sometimes  □  No  □  Don’t Know/ Other..............................................

16. How would you rate the care received during your hospital stay at your Local Stroke Unit (so far)?
    □  Excellent  □  Very Good  □  Good/Fair  □  Poor  □  Very Poor

17. Do you think moving wards/ hospitals affected your treatment or recovery in any way?
    □  Yes- Positively  □  Yes- Negatively  □  No  □  Don’t know/ Other..............................................
18. How severe would you say your stroke or ‘stroke event’ has been?

☐ Mild   ☐ Mod Severe   ☐ Severe   ☐ Very Severe   ☐ Don’t know/ Other

19. Have you felt involved in the decisions made about your treatment and care in hospital?

☐ Yes- Completely   ☐ Yes- to some extent   ☐ No   ☐ Don’t know / Other

20. Have you understood all the information you have been given about your diagnosis?

(Even if you did not have a stroke)

☐ Yes- All of it
☐ Yes- Some of it
☐ Little or None
☐ Don’t know/ Other

Is there anything else you would like to tell us about your hospital admission to St George’s HASU?

END OF QUESTIONNAIRE

THANK YOU FOR YOUR FEEDBACK * PLEASE RETURN IN FREEPOST ENVELOPE
III. Relative and Carer Questionnaire
1. Please circle your relationship to the patient

Spouse/Partner  Relative  Friend  Carer  Other:__________________

The patient was brought to the Hyper Acute Stroke Unit (HASU) at St George’s Hospital because this is the regional centre for the emergency treatment of stroke. The HASU at St George’s is WILLIAM DRUMMOND WARD, Third Floor Atkinson Morley Wing.

2. How was the patient admitted to the Hyper Acute Stroke Unit at St George’s Hospital?

Please mark all that apply:

- Ambulance
- A&E at St George’s Hospital
- A&E at Other Hospital-................................................
- Transferred from other hospital
- Other............................................................
- Don’t know

3. Was the patient admitted to the Hyper Acute Stroke Unit at St George’s Hospital quickly enough?

- Yes, the patient was admitted as I thought was necessary
- The patient should have been admitted a bit sooner
- The patient should have been admitted a lot sooner
- N/A- The patient was already in hospital when they had a stroke
- Don’t know/Can’t say

4. How satisfied were you with the information you were given when the patient was first admitted to the Hyper Acute Stroke Unit at St George’s Hospital?

- Very Satisfied
- Satisfied
- Slightly unsatisfied
- Very Unsatisfied
- Don’t Know

5. How would you rate your experience of the admission process to the Hyper Acute Stroke Unit (HASU) at St George’s Hospital?

- Excellent
- Very good
- Good
- Fair
- Poor
- Very poor

(Questions continue overleaf...)
6. In your opinion- How severe has the patients’ stroke been?
   Mild
   Moderate
   Severe
   Very Severe
   Don’t know/ Unable to say
   N/A-No Stroke diagnosis given

If St George’s Hospital is not the patient’s LOCAL or NEAREST hospital-

7. Were you happy for the patient to be admitted first to St George’s Hospital rather than their local hospital?
   Yes
   No
   Don’t Mind/ Not Sure/ NA
   St George’s is patients local hospital

The following questions are about the time the patient spent on the Hyper Acute Stroke Unit (HASU)-
William Drummond Ward at St George’s Hospital

8. ... Did you have enough opportunity to speak with doctors & nursing staff?
   Yes, Always
   Yes, Sometimes
   No
   Don’t Know/ Other

9. .... How satisfied were you with the communication you received from doctors?
   Very Satisfied
   Satisfied
   Slightly unsatisfied
   Very Unsatisfied
   Don’t Know

10. ...How satisfied were you with the communication you received from nursing staff?
    Very Satisfied
    Satisfied
    Slightly unsatisfied
    Very Unsatisfied
    Don’t Know

11. ...How easy was it for you to visit the patient on the Hyper Acute Stroke Unit?
    Able to Visit - without difficulty
    Able to visit - but some difficulty
    Very Difficult to visit patient
    Unable to visit patient
    Don’t know/ Other..............................

(Questions continue overleaf...
12. How satisfied were you with the visiting facilities?
   - Very Satisfied
   - Satisfied
   - Slightly unsatisfied
   - Very Unsatisfied
   - Don’t Know

13. Was the patient discharged Home from the Hyper Acute Stroke Unit at St George’s Hospital?
   Yes ➔ Go to Q 21 on pg 4
   No ➔ Continue to Q 14 below

The following questions are about the time patient has spent at their LOCAL hospital/ Stroke Unit at their LOCAL hospital: ### Stroke Unit:

14. Did you receive enough notice/information about the patients transfer to their local Stroke Unit/their LOCAL hospital- ### Stroke Unit?
   - Yes, enough notice/information was given
   - Yes, but........................................................................................................................................................................
   - No, little or no notice/ information was given
   - Not Sure/ Can’t Say

15. How would you rate the transfer of care between the Hyper Acute Stroke Unit at St George’s Hospital and the patients’ LOCAL Hospital- ### Stroke Unit?
   - Excellent
   - Very good
   - Good
   - Fair
   - Poor
   - Very poor
   - Not Sure/ Can’t Say

16. Were you worried or anxious about the patient moving wards/ hospitals?
   - Yes
   - No
   - Don’t know

Questions continue overleaf...
17. Did you mind the patient moving wards/ hospital during their hospital admission?
   Yes
   No
   Don’t know

18. In your opinion- How has moving wards/ hospitals affected the treatment or recovery of the patient?
   Positively
   Negatively
   No effect
   Don’t know/ Other

19. How easy was it for you to visit the patient at their LOCAL hospital- # # # Stroke Unit?
   Able to Visit - without difficulty
   Able to visit - but some difficulty
   Very Difficult to visit patient
   Unable to visit patient
   Don’t know/ Other

20. How satisfied were you with the visiting facilities at their LOCAL hospital- # # # Stroke Unit?
   Very Satisfied
   Satisfied
   Slightly unsatisfied
   Very Unsatisfied
   Don’t Know

21. a) Has the patients’ stroke diagnosis been discussed with you?
   Yes- Completely
   Yes- A little
   No
   Don’t know/ Can’t remember

21. b) When/ Where was the patients stroke diagnosis most thoroughly discussed with you?
   Hyper Acute Stroke Unit- WILLIAM DRUMMOND
   Local Hospital- # # # STROKE UNIT
   Both HASU and Local Hospital
   Don’t know/ NA
22. Have you received enough information & support during the patients’ hospital admission?
   Yes, Plenty/Enough
   Yes, Little/ Some
   No
   Don’t know/ Can’t Say

END OF QUESTIONNAIRE
PLEASE RETURN IN FREEPOST ENVELOPE PROVIDED
THANK YOU