

## Greater Manchester centralisation of acute stroke care

### Frequently Asked Questions

#### A. Ambulance pathway and patient transfer

**1. Will your ambulance service take suspected stroke patients to HASUs based on their current capacity rather than distance to more evenly distribute workload?**

Our ambulance service NWS have been very engaged all through our re-organisation which is key to making sure the pathway works well and changes are implemented quickly if needed.

We have discussed how we can amend our pathway to divert some activity to our other HASUs as our main centre at Salford Royal is a little overwhelmed and we need to consider how we can move flow elsewhere. NWS have been clear that they will not amend their practice (and would struggle to persuade staff on the ground to comply for professional reasons anyway) and will only convey to the nearest open HASU (two of ours are not open overnight).

Our pathway has a few exceptions - if the patient is a child, very unwell with risk of death or if >48 hours from presentation but everyone else goes to the nearest open HASU (Appendix 1). Our experience of the first round of centralisation (so called Manchester A) is that simple pathways for ambulance staff ensures patients go the right hospital quickly and it was one of the drivers for us moving to a fully centralised model, where all patients regardless of time of onset go to a HASU. The more rules, the more chance of a breach of pathway.

**2. How do you ensure ambulance crews comply with the pathway?**

We continue to have breaches by crews and use incident reporting to try and ensure breaches are monitored and dealt with through feedback to staff. NWS now have a stroke lead paramedic who deals with this and the network co-ordinator who facilitates it (and is a paramedic) We are rolling out a mobile phone app which helps ambulance crews decide which hospital to go to which could be adapted for other regions (contact [Christopher.ashton@srft.nhs.uk](mailto:Christopher.ashton@srft.nhs.uk) for details). We also have an online training package for ambulance crews and run training events with the College of Paramedics.

**3. What sort of communication/telehealth do you use in ambulances?**

We don't use telemedicine in ambulances but this could be explored.

**4. Do you use pre-alerts to A&E?**

Yes, for patients <4 hours and now we have introduced one for patients 4-48 hours on anti-coagulants to help speed up scan and treatment times for our new ICH pathway

**5. How did you cost out transport implications and what types of vehicles are used?**

Extra ambulance workload for repatriation was modelled and the ambulance service was provided with funding for an additional vehicle.

The type of transport used for transfers between hospitals is largely determined by the condition of the patient. If they aren't well enough to move then they won't be transferred so the only transfer by ambulance would be ASU A&E to HASU on blue light (ASU self-presenters for example). The rest would be PTS or possibly urgent care vehicle if

moving someone from a stroke unit to intermediate care etc. Mimics also need to be considered although we didn't factor this into our re-design.

## **B. Hospital pathway**

### **6. What proportions of patients self-present (or via GP) or are inpatient strokes at ASUs?**

There will still be a rump of patients that are admitted at an ASU including late onsets (for us that is >48 hours), FAST –ve and inpatient strokes and all have remained steady year on year as a proportion. Our proportion of self-presenters at ASUs is ~20% with our HASUs seeing ~9% self-referrers. Inpatient strokes are 27% for ASUs, and 7% at HASUs.

Those brought by ambulance to HASUs is 85%, and as expected was far lower at 43% at ASUs

### **7. What about FAST –ve patients?**

Our ASUs directly admit 30-35% of stroke patients who are FAST –ve (they don't go to a HASU as often outside 48 hour cut off by the time diagnosed). HASUs see far less at 7%. Around 44% of patients are diagnosed as FAST +ve by the ASU themselves.

Our pathway dictates that if within 48 hours of time of onset, ASUs must ring their local HASU and discuss whether it would be in their best interests to move a FAST –ve or inpatient stroke as patients don't just access thrombolysis at a HASU but hyper acute care. Self-presenters should be sent directly from A&E by ambulance to a HASU before admission. Lack of HASU capacity is not a reason not to accept a transfer. An IT system to record these discussions is a good idea, we don't have one yet.

### **8. What about non strokes (i.e. mimics and TIAs)?**

Audits showed that ~50% of all assessment at HASU A&E were not stroke in Y1, increasing to 60% in Y2 suggesting improved recognition by ambulance crews. This is a burden that must be considered in planning as for every stroke brought in on the pathway, there will be another "false positive".

There was a significant drop in the proportion of mimics/TIA admitted to a HASU ward - 23% in Y1, falling to only 8% of total assessments in A&E in Y2 suggesting better recognition and management of patients by HASUs (they are harder to repatriate).

### **9. What is your pathway for mimics?**

Mimics often get more work up as it is less clear what the problem is and they get the same care as a stroke patient on the pathway until we know they aren't a stroke. If this happens in A&E then they are handed off there, once in the stroke ward it can be a real problem transferring them elsewhere internally or repatriating them as they are seen as "stroke".

We still don't have a specific SOP for mimics admitted and we would recommend that they must be included in repatriation pathways which shouldn't distinguish between stroke or mimic.

### **10. How are your stroke units staffed?**

We have a standard service specification for our main HASU, our two supporting HASUs and our ASUs (which also applies to our HASUs for their own residents). These are based on staffing levels from the RCP guidelines and BASP etc.

### **11. Where are suspected stroke patients seen in HASUs?**

All patients are assessed in A&E by HASU stroke staff. One has its own stroke bay with 3 beds. All have easy physical access to scanners that reduces door to needle times.

### **12. How did you model the number of beds needed at stroke units?**

Footfall at each unit was modelled using basic assumptions and SINAP data although it was a bit old. Assumptions used included 30% of HASU admissions would be mimics (initially correct, now lower), 5% would be inpatient strokes (correct it is 7%), 100% presentations would be at a HASU (wrong and caused problems as it underestimated ASU direct admissions which were 10-15% in Y1 and now 5+%) and 40% would go home directly without repatriation to a ASU with community support (about right but will depend on local services of your region).

HASUs did their own business cases outlining how many HASU beds they wanted on their wards and each are configured differently. In reality, the difference between HASU and ASU, and ASU and rehabilitation beds for own residents, can be hard to unpick as may be co-located on the same wards. Salford Royal sees 2,000 strokes a year and has 10 official HASU beds, with Fairfield and Stepping Hill seeing half the volume that but operating 9 and 13 beds respectively.

It was agreed that ASU beds would be kept as they were for the first year to allow the changes to settle down. It actually took two years and when we reviewed bed utilisation at ASUs we found around in general across all our ASUs that 25% of stroke beds are occupied by delayed discharges, with around 20% medical outliers, so almost half of our stroke capacity is not being used as designed. We have discussed this at length as a network and provided the data to local groupings working on acute bed capacity for local clusters for them to decide if they want to change their ASUs bed numbers, to date, none have.

### **13. How does Salford Royal cope with being the largest unit in the country at >2,000 strokes/annum?**

It is fair to say that the unit struggles with its size at times, especially as a growing number of patients need very specialist support (IAT, ICH, haemicraniectomy pathways). Medical staffing is an ongoing issue; we don't have a GM wide rota for OOH (the other HASU consultants contribute to medical rotas and so not easily unpicked) and non-medical staffing levels are also a problem. Managing a very high through put of patients and discharging to all community and stroke unit teams as open overnight for the region is challenging. A&E actually sees ~4,000 strokes/year which is a burden on the stroke team who perform the assessments.

Its bed occupancy rate for the second half of 2017 was 85% ASU beds and 77% HASU beds

We continue to look at reducing the pressure at Salford Royal and have explored changing the time of onset cut off to 12 or 24 hours (from 48) but this will only result in more admissions at our local ASUs, which we know will result in poorer quality of care. We are considering opening the other two HASUs 24/7 but this has resource implications.

### **14. How have ASUs coped with the change in their focus away from more hyper acute care?**

Some initially struggled to cope with the change in case mix to more dense strokes with no hyper acute element but all have settled down now. There remain ongoing issues with staffing levels of nurses, doctors and therapists, but these are more related to general NHS problems, rather than to do with the pathway. We have strongly promoted the benefits of the pathway (i.e. SSNAP scores going green) and shared the success of the pathway widely which has resulted in even the late adopters coming on board.

No one thinks we should ever go back to an uncentralised model and people are proud of what has been achieved – messaging and communication are key aspects of change management and shouldn't be underestimated! Stroke units need support in managing the change and being part of the conversation, something we could have done better I think as was very HASU focused (we weren't around then!).

Being part of a network has helped to ensure staff from different teams regularly meet and have access to peer support, as well as a training programme that provided support for learning in areas of unmet need (topics were discussed an agreed regionally).

### **15. Do you have 7 day consultant cover at your ASUs?**

No, we only staff a 5 days service as we didn't anticipate as many direct admissions at our ASUs (our modelling was not realistic and assumed close to 100% at HASUs and not 90-92% as currently the case).

We have audited direct admissions at our ASUs and found access to a consultant within 24 hours is a problem, ditto some other key SSNAP domains (not all are appropriate for this group of patients as they are typically late onset patients). This needs considering, as you will still get direct admissions and they may need more acute care than those who are repatriated from a HASU

Several ASU consultants do a limited amount at Salford OOH (1/12 weekends etc). Most of our ASUs are short of consultants (i.e. have only 1 or 2) so we are thinly spread (see below on reducing stroke unit numbers).

### **16. What is the average LoS in HASUs and ASUs**

Around 2.5 days - in line with the hyper acute bundle. ASUs are not obliged to accept back before then but do so if they can. HASUs will try and keep patients for 4-5 days sometimes if they will be going home rather than send them to an ASU for a day. The funding was worked out on a "swings and roundabouts" principle as HASUs sometimes discharge after 1-2 days so it all evens out although we haven't done any analysis on this.

All our HASUs also have ASUs for their own residents.

As expected, LoS at ASUs increased following re-design as their cohorts became more complex as milder strokes are discharged straight home from HASUs.

### **17. How big a problem is repatriation from HASU to ASU?**

It's an ongoing issue that we have never fully resolved and always have to keep an eye on (another role for the network). We have just switched to a funding model where the HASUs agree the excess bed days with their ASU and report it the CCG who top slice £300/day off the ASU tariff (they get a fixed tariff regardless of the LoS) and redirect it to the HASU. This is done via contracting and minimises disputes.

The financial penalties (i.e. fines) approach failed as providers didn't agree it had been signed off (it had). Key learning point - get provider top level agreement (backed by CCGs) for how you fund excess bed days at HASUs and penalise ASUs for not taking back on time. Get it in writing and in place before you start! We have worked with our regional Directors of Operations Group and regularly report to them on the position of our breaches, as well as reporting to CCG who manage it via their quality performance processes. We also have written to CEOs for persistent offenders, which can result in action being taken.

The main problem is our ASUs are not able to ring fence their own beds and the beds get caught up in hospital general bed management machinery. You need to get assurances from the outset that the unit can have control over their own beds and any outliers are very short stay and don't impact their ability to accept transfers. Also, we have found direct admissions suffer as repatriated patients are prioritised onto stroke wards, so they need to have bed capacity for all their stroke patients, not just transfers.

The other learning point is that you need administrative support to manage patient flow and repats and this needs factoring in. You need people to do it who are not part of the clinical team and therefore called away and we now have a flow co-ordinator role at Salford although not across the weekend which is a limitation.

An IT system would make the whole process much more efficient as ASUs and community teams could "look in" to a live board of patients to see when they need to be ready, cutting down on phone calls and emails. We are still investigating a local designed system for cardiology and may adapt.

The network also facilitates sector forums involving the HASUs, its ASUs and community teams to help foster relationships and to iron out operational issues about patient flow etc. These met very frequently following re-organisation and proved invaluable.

### **18. What is the "right number" of stroke units for a population?**

It will depend on your footprint, but we have agreed that we will take every opportunity to review and reduce the number of ASUs if appropriate to protect the quality of care by protecting specialised staffing and maximising efficiency (repatriation is inefficient). So, ideally, have as few as possible which may tie in with IAT planning.

Our choice of HASUs (apart from our neuroscience centre at Salford Royal which was a given) was based on ambulance journey times across the region to ensure equality for residents.

**19. How are you planning on running your thrombectomy service from April 2018?**

We will be building on our successful IVT pathway for IAT i.e. drip and ship model, we are very clear we mustn't destabilise it in favour of a relatively small number of patients for IAT. Salford also could not accommodate the extra volume for a mother ship model, but as the evidence develops we may have to reconsider.

If we were re-designing the pathway now with IAT also in the mix, we may have considered the mothership model more seriously.

**20. What about your TIA services, do they run 7 days yet?**

Only Salford Royal runs a 7 day service and we are exploring with CCGs and providers how all our stroke units can work together in clusters to make 7 day services cost effective and feasible in terms of staffing. We tried to roll out a regional service in 2010 which failed, so have decided not to attempt this again and encourage more local arrangements to be explored. We hope to have 7 days services in place or at least agreed across the region by the end of 2018. Patients seen out of area within 24 hours will be followed up at their local stroke unit and we may develop a standard service specification for a 7 day service based on the RCP 2016 guideline.

**A. Community rehabilitation**

**21. Were your specialist community services considered when you re-organised?**

No, and they should have been! We only have 2/10 CCGs with no community teams at the moment and their local HASU has a much longer LoS for these patients. There are no delays in accessing community teams for initial assessment in most of our areas so patients are not delayed going home, but the variation in commissioning (ESD only, ESD plus CNRT to integrated teams who see all strokes) has led to a postcode lottery across the region which we are working to change.

We have designed a service specification and model and are working across all our CCGs to implement it to standardise teams and their services. It is confusing having different team models especially for Salford who discharge to 16 different teams, making it more inefficient. We estimate that around 80-90% of people discharged should be seen by a community team (around 10-15% in care homes) with the current ESD approach creating an inequality for those who do not meet the criteria (which are differently interpreted anyway).

The SSNAP cost analysis tool will help calculate savings although it is based on an ESD model which we feel needs to be moved from. The evidence from ESD is about 10 years old so we would be wary about over estimating your savings as many hospitals have already improved their discharge processes and we aren't where we were when the research in ESD was done so there may be less to save than there was. <https://www.strokeaudit.org/Health-Economics.aspx> (you need to log in).

**B. Finance**

**22. Do you have a local stroke tariff?**

Yes. We have a single tariff for HASU admission (initially set in 2015 as £2732) and another for the subsequent rehabilitation spell in ASUs (£3036), with other activities that may be required e.g. CT at ASU funded via per procedure under normal arrangements. These local tariffs have been uplifted for inflation in line with national pbr uplifts and CNST uplift and we have checked our HASUs are not being paid less than they would be under national tariffs

To set the initial prices, we looked at total quantum of income payable for activity and assumed all of this was best practice. We compared this quantum of income with the costs put forward by the HASUs for delivering their model - and we (i.e. the region) added c£2.5m on top of best practice tariff income. We used this quantum to enter nine tariffs based in assumptions of activity flowing to HASUs and repatriations. So our tariffs include best practice - both at HASU and ASU - and are linked to costs of delivering service. At the time, these tariffs were more than hrg4/PBR.

The 3 day used for HASU was an estimate. Whether a patient stays for 1 day or 4 days on HASU, they attract the HASU tariff- as they received the bundle. Patients transfers when they are medically fit.

Some CCGs and Trusts now have block contracts. At the time of doing our stroke review they were all activity/PBR based so the stroke funding is incorporated within any newly negotiated block. This will be for CCGs and providers to manage locally as they are negotiating on block contract deals that encompass all activity, income and costs.

Readmissions for stroke are no different to the readmissions for any other condition unless locally you choose to exclude stroke from locally agreed readmission penalties.

Both scan and 90% stay best practice are included in the pathway quantum. This quantum was split into the 2 tariffs so both elements include best practice. When we looked at the HASU costs they included the scan costs and because we sense checked our local tariffs with HASUs to ensure they covered costs, then we are assured that the scan element is within the HASU tariff.

Alteplase is still paid for separately. A&E attendances and any critical care bed days are also payable separately to the local stroke tariffs.

The GM tariffs have the best practice top ups built into them and assume that 100% of patients achieve best practice. CCGs were explicit that if a provider did not achieve best practice then there would be a claw back. We were careful on the wording i.e. not a penalty, it was clawing back a payment we had given in advance. In practice, CCGs have not clawed back anything as the providers have achieved the standards .

### **23. Does having a single tariffs work?**

We have found that it works well due to simplicity. Prior to further centralisation, GM had about 8 local prices to reflect the different input i.e. HASU, 3-7 days, 7 day +, excess bed days, separate tariff for scan, best practice top up for stay on stroke ward etc . Technically it was correct to have the tariffs split in 8 different ways but it was not easy to monitor from a commissioning perspective and the providers could not reliably capture info in that way either.

### **24. How are mimics funded?**

Our local stroke tariff pays for all HASU admissions regardless of their eventual diagnosis as they generally receive the same if not more care. This was included in the original modelling.

### **25. How are community services funded?**

Locally by each CCG, there is no regional approach.

## **C. Lessons learnt**

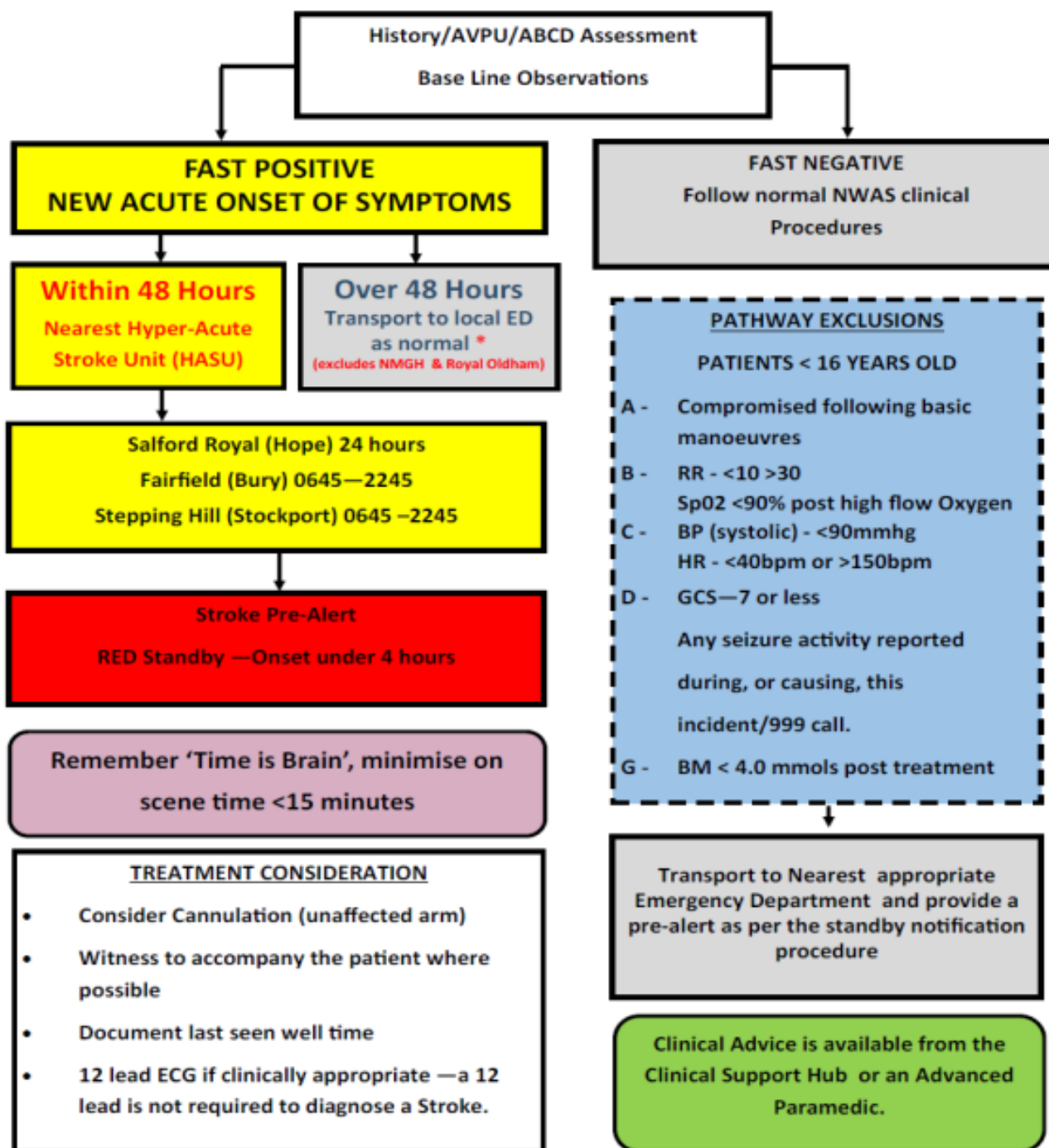
### **26. What would you do differently?**

- Have a managed network in place before launch – the ODN started 4 months after going live. The network has been essential in ensuring the pathway runs smoothly and continues to evolve, and we keep our stakeholder on board and working together. The pathway would have undoubtedly collapsed within 6 months without our support
- Educate and support the ambulance service as much as possible before launch, on things like the pathway and recognition of stroke to reduce conveyance breaches and overburdening HASUs with mimics
- Minimise the number of stroke units in the pathway, especially ASUs as repatriation is inefficient. Fairfield General is one of the best units in the country as it does not repatriate and has consolidated its staffing, which positively impacts on quality
- Consider the care for direct admissions at ASUs as there will still be a rump of patients (5+%) who don't go to a HASU. Staffing a 7 day service for some aspects of care for these patients was not considered and they are more likely to not be admitted to the stroke ward as repatriations are seen as more of a priority
- Have a cast iron, CEO level agreed protocol for repatriation of strokes AND mimics with appropriate levers (probably financial) to enforce it.

- More infrastructure (i.e. people, IT systems and processes) to manage patient flow. Rapid turnover of patients with transfers generates a lot of extra work and cannot be supported just using the clinical staff delivering care. This was hugely underestimated by Salford Royal in particular and has caused ongoing issues. Good systems/processes, communication and people to actually do it will be needed by HASUs and potentially ASUs. SSNAP inputting will increase at HASUs, more staff may be needed to do it.
- Implement an integrated community stroke team model across the whole region so post-acute services are standardised making the care more equitable, ensuring all patients can be discharged as soon as possible (rather than just mild/moderate meeting ESD criteria) and also increasing efficiency of discharges as less confusing for the stroke units. We would advocate as a few teams as possible, so teams working across several CCGs could help. Effective commissioning of voluntary sector services to work with stroke units and community teams improves efficiency of staff as they can focus on clinical work, as well as patient experience and outcomes



**Greater Manchester and Eastern Cheshire Stroke Pathway**  
Operational Immediately



\* Patients in the Pennine Acute Hospitals Trust catchment area will continue to go to Fairfield and not NMGH or Royal Oldham.



