Southampton NHS
University Hospitals NHS Trust

The safe retrieval of critically ill children from St Mary's hospital on the Isle of Wight

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PICS Standard 123. The retrieval team should arrive at the referring unit within three hours of the decision to retrieve the child.

Note: In remote areas, where the Retrieval Service has considerable distance to travel, retrieval team should arrive within four hours of the decision to retrieve the child.

We have been asked to submit a final paper to the JCPCT summarising the issues affecting the retrieval of acutely unwell patients from St Mary's Hospital on the Isle of Wight, to the paediatric intensive care service at Southampton General Hospital.

We will describe the background to this, its relevance to the decision making process and the reality on the ground in order to help the committee come to a true understanding of the real impact on patients.

Background and relevance to the decision making process

At the heart of this issue is the fair and accurate application of the Paediatric Intensive Care Society standard number 123 and the influence this has on the designation of surgical centres in the safe and sustainable review. The standard itself is endorsed by all the relevant professional organisations and the steering group has agreed that every designated surgical centre must meet this standard for all DGH's in its network in the future. The JCPCT separately has stated that it will consider only those configuration options in which the standard could be reached in every network..

It is made clear in the consultation document on page 87 (and was re-iterated at every consultation event) that the inability of any centre other than Bristol to meet the four hour element of the standard with regard to Truro hospital and the three hour standard for three other distant hospitals, notably Haverfordwest which nearly breaches four hours, led to the exclusion of any option in which this centre was not designated. In contrast, the inability of any centre other than Southampton to meet even the four hour remote element of the standard with regard to St Mary's Hospital in the Isle of Wight has had no impact on the options appraisal.

This error occurred because the standard mode of transport for retrieval of patients from the Isle of Wight (road and ferry) was not taken into account. It was wrongly assumed that these patients would usually be collected using air transport. In fact the Isle of Wight is so close to the mainland that air is only used on rare occasions. Transporting intensive care patients in an ambulance is a lot easier and safer than in an aircraft. This view is reflected by the fact that the Acute Transport Group of the Paediatric Intensive Care Society do not consider air transport to be safe or reliable enough to replace existing modes of transport. As our current model can meet the PICS standard for time, then it is the mode of transport

of choice. We understand that the Paediatric intensive Care Society, in a separate communication, has endorsed this position.

Assessing "worst case scenario" journey times for retrieval

Retrieval times were assessed using the DirectGov journey planner from potential surgical centre to referring hospital, with all journeys by car and starting at 1200hrs. This is described in Appendix T of the consultation document.

DirectGov is the official UK government website for citizens, its car journey planner is updated via the Highways Agency; it is the only journey planner that allows the user to put in a specific time of departure and the only journey planner that synchronises with the ferry times. Twelve mid-day was chosen because it generated the marginally longest times and the stated aim was to generate a 'worst case scenario' (see para 1, page 210 of the Pre-Consultation Business Case). Car journey times were used, as no standard times by blue light were available for all the journeys. In addition the use of blue lights is associated with increased accidents and the steering group did not wish to promote less safe modes of transport. All retrieval calculations in Appendix T of the Pre-Consultation Business Case (page 210) were made using this method and all of them exclude St Mary's. If St Mary's is restored and the methodology described in Appendix T applied, one can see that it is not possible for a centre other than Southampton to get there in less than 4 hours (4 hours and 4 minutes from Bristol and 4 hours and 5 minutes from London). If Bristol is not the retrieval centre then the time to Truro is 4 hours 15 minutes.

In our experience over many years, it is the case that during the night and at all times during the winter, the ferry service to the island is less frequent and this extends the retrieval times considerably. For example in the winter day times the ferries run every 90 minutes or less frequently. If the JCPCT continues to uphold the principle that "worst case scenario" times ought to be considered, then it must take note of the retrieval times when they are known to be the longest.

During times of reduced service, the worst case scenario is that it would take Bristol 5 hours and 3 minutes to retrieve a patient and 4 hours and 48 minutes for the Evelina to do so. This is based on a decision to retrieve at 2315hrs. The longest retrieval time from Southampton is 3 hours and 32 minutes.

Reality on the ground

SUHT has a published protocol that is followed for retrieving patients by ferry from the Isle of Wight.

When a referral is received, the first thing we do, while information is being acquired about the patient is to check the ferry timetable. Once we have assessed which ferry we are most likely to be able to catch, we ring the ferry company, book the slot for the ambulance and ask them to expect us. We do this so that they don't close the gate and so that their staff know to waive the normal pre-boarding time. We also liaise with them because even when the ferry is full, they have been prepared to bump an already booked but not loaded vehicle and let us take its place. Given the close proximity of Southampton General Hospital to the ferry ports it has not been necessary to delay departure and therefore there is no grounds for assuming that the operators would be prepared to do this for hospitals in Bristol or London. We do not expect them to alter their timetable and they have made no undertaking to us to do so. If the ferry is already loaded then we cannot go at the front, but

if we arrive in time, we get priority boarding and therefore priority disembarkation. We use both the Southampton and Portsmouth ferries, depending on times. If there is a delay in the ferry then we have to consider using a helicopter. We have done this twice in the last 6 years. On one further occasion the patient was stable on ICU at St Mary's so stayed there until we could retrieve the next day.

Having taken all of these steps, the average time from decision to arrival at St Mary's is 2 hours and 45 minutes (this average excludes the patient we left on the island overnight). This time includes retrievals that are done throughout the year and at any point during day or night and are therefore influenced by the variation in ferry timetables.

Assessing the real retrieval times from Southampton to St Marys shows that even if the London centre used blue lights and was able to arrive at either Portsmouth or Southampton in ninety minutes, the average time would therefore still exceed 4 hours (4hrs 15mins). It is likely that it would in fact be much longer as no other team would have the benefit of commencing their journey just ten minutes away from the terminal.

Materiality

We have been asked to consider the issue of materiality. In other words, does the number of patients that retrieval times apply to really warrant the application of the standard to the designation of surgical centres?

In fact this issue has already been considered by the review in its decision to exclude options that do not include Bristol. This is made clear on page 211 of the Pre-Consultation Business Case, where the statement is made that "It is recognised that the need for emergency retrieval is rare for children with congenital heart problems but time is of the essence when it is required". This test was applied as a safety measure for all, without any consideration of materiality. The assumption was that no child would be put at risk because of a failure to adhere to this safe and sustainable standard, and there is no assertion from PICS that they are prepared to waive it.

With that in mind the JCPCT may nevertheless find it informative to consider a comparison of the materiality of retrievals from both the Isle of Wight and Truro.

The South West Audit of Critically Ill Children (SWACIC) is published on the PICAnet web site. This shows that between 2004 and 2008, 14 children a year were collected from Truro by the Bristol PICU team. It is not recorded how many of these were cardiac surgical patients; however the overall percentage of patients with a cardiological diagnosis to explain their critical illness is 4%. In other words it can be assumed according to this data that on average one cardiac surgical patient a year is retrieved from Truro.

To compare this with retrievals from the Isle of Wight, we have complete annual data on our database for the last six calendar years and during this time 112 patients were referred to us from St Mary's, of which 72 were transferred. This means that an average of 12 patients per year were transferred and all patients were ventilated ICU patients. During the same period six acute cardiac surgical patients were transferred (one per year), of which two had potentially time sensitive lesions- a TAPVD and a prostin resistant critical coarctation. The latter patient was retrieved in the middle of the night and the time taken from decision to arrival at the referring hospital was 2 hrs and 55 minutes. She was immediately and continuously resuscitated by the retrieval team, transferred to Southampton and operated on later that same day. She is now fit and well and back home

in Scotland and her family are grateful that a children's cardiac intensive care was close enough to reach her.

In terms of the total patients affected the numbers are still small but almost exactly the same in Truro or on the Isle of Wight. This should be no surprise as the population of the Isle of Wight is 145,000, only marginally smaller than Western Cornwall (170,000), but it has the second highest incidence of congenital cardiac disease in the country (see appendix 1). In fact the main difference is that the patients of the Isle of Wight would experience a longer enforced delay in retrieval than those from Truro. If Southampton rather than Bristol had to go to Truro the enforced delay would be 1 hr and 10 minutes. If London had to come to the Isle of Wight the enforced delay is 1hr and 46minutes.

Conclusion

These factors lead us to conclude that the designation of Southampton as a surgical centre should be considered mandatory in the same way that Bristol is. We conclude that, based on the facts presented in this paper and the model proposed by S&S, Southampton should be included in all short-listed options. Option B appears to be the best solution given that it would not necessarily be beneficial to consult further on new options. We welcome the opportunity provided by the consultation process to highlight the oversight of retrieval from the Isle of Wight and would strongly assert that for the JCPCT not to correct the error would be to fatally flaw the review process.

Appendix 1

Section on retrieval times taken from the SUHT response to the public consultation

The continued maintenance of a safe retrieval service to all mainland district general hospitals (DGH) was given due consideration in the selection of cardiac centres.

This is well documented in appendix T of the pre-consultation business case (page230-231) produced by Safe and Sustainable (reproduced for the West & South England & South Wales below). The method of calculating retrieval journey times was chosen with a view to demonstrating worst-case scenarios. "Blue light" ambulance journey times were considered but it was felt that car journey times should be used with a view to giving a "worst-case" timing.

It was determined that in order to ensure a retrieval time from Truro that would be compliant with the Paediatric Intensive Care Society (PICS) standards[1], namely standard number 123, Bristol would need to remain as a cardiac centre. As a consequence of this, configuration options which did not include Bristol (options 1,7 and 11) were eliminated.

Unfortunately, the equally important need to provide a safe retrieval service for St Mary's Hospital on the Isle of Wight was overlooked at the time of selection of centres. This was brought to the attention of the review team in March 2011. St Mary's Hospital on the Isle of Wight serves a population of 145,000 people and it does not have a CAA approved airport suitable for landing of fixed-wing aircraft and PICS does not regard helicopter transport as a reliable means of retrieval because of the difficulties of flying at night or in bad weather. In other words the only reliable and safe way of retrieving critically ill children from the Isle of Wight is by means of road and ferry.

The retrieval times to St Mary's, Isle of Wight would breach the PICS standards if Southampton were no longer a surgical centre. The review calculated retrieval times using the website www.direct.gov.uk and using the same website for calculation, a retrieval team leaving Evelina Children's Hospital, London at 12 noon would require four hours and five minutes to reach St Mary's Hospital on the IOW and one leaving the Bristol Children's hospital would require four hours four minutes. This would be in breach of the PIC retrieval standards and Safe and Sustainable have acknowledged this in their response to the Trust of 3 June.

The focus now appears to have shifted to exploring times of departure where the travel time to St Mary's are the quickest and this is in direct contrast to the original methodology of calculating travel times for a 12 noon start in order to consider "worst-case" timings. The need to retrieve a critically ill child may occur at any time of the day or night. The PICS standard (no123) is a clinical safety recommendation based on the recognition that the critically ill child may deteriorate if specialist intensive care is not provided as soon as possible. It is because of this that the original methodology was chosen to highlight the worst case scenario and a 12 noon start (which gave a slightly longer travel time) was chosen and it was stipulated that blue light times would not be considered.

Unlike the mainland centres the most difficult time to reach the Isle of Wight is at night when the ferries are infrequent. Journey times can be significantly prolonged in winter and during periods of bad weather. In summary the 12 noon start time does not represent the

[1] Paediatric Intensive Care Society, *Standards for the care of critically ill children (4th Edition),* June 2010

worst case scenario for the Isle of Wight but even in this setting the PICS retrieval time standard is breached.

Having devised a methodology with a view to demonstrating the worst case times for mainland DGH's there can be no justification for exploring the best case times for St Mary's Hospital on the Isle of Wight. The methodology applied must be the same for all hospitals. Further, time is of the essence, and in practice retrieval teams will make every effort to reach their destination within the shortest possible time and this applies both to the mainland and the Isle of Wight in equal measure. Our position is that the real clinical need to retrieve critically ill children from the Isle of Wight, which has inherent transport difficulties, and which had been overlooked in the initial appraisal, must be given equitable consideration.

As you can see in the charts reproduced below, taking the safety of children on the Isle of Wight into account leads to a very different picture of the comparison between Options A and B in Appendix T of the Pre-consultation Business Case.

Appendix T
West & South England & South Wales – 12:00 travel time (current travel time)

Option A

	Bristol	Southampton	Oxford	London	Birmingham
Truro	**03:04**				
Barnstaple	**02:12**				
Plymouth	**02:16**				
Aberystwyth					**02:55**
Haverfordwest	**02:33**				
Carmarthen	**01:43**				
Swansea	**01:24**				
Bournemouth	**02:17**	**(00:41)**			
Dorchester	**01:52**	**(01:13)**			
Yeovil	**01:20**				
Portsmouth		**(00:29)**		**02:02**	
Brighton				**01:48**	
Margate				**02:00**	
Isle of Wight				**04:05**	

Key to shading:
Blue = No change in travel time
Green = Change in travel time, with new time less than 3 hours
Red = Change in travel time, with new time over four hours
() = current travel time

Option B

	Bristol	Southampton	Oxford	London	Birmingham
Truro	**03:04**				
Barnstaple	**02:12**				
Plymouth	**02:16**				
Aberystwyth					**02:55**
Haverfordwest	**02:33**				
Carmarthen	**01:43**				
Swansea	**01:24**				
Bournemouth		**00:41**			
Dorchester		**01:13**			
Yeovil	**01:20**				
Portsmouth		**00:29**			
Brighton		**01:42**			
Margate				**02:00**	
Isle of Wight		**02:19**			

Yellow = A decrease in travel times

Comparison of travel times to St Mary's, Isle of Wight at different times of day showing 12noon is not the worst-case journey time.

Hospital	12noon	2310
London	04:05	04:53
Bristol	04:04	04:52
Southampton	02:19	03:22

Data taken from the HIA scoping document showing that the Isle of Wight has high incidence of congenital cardiac defects requiring surgery