SOUTHAMPTON OXFORD
RETRIEVAL TEAM

Southampton and Oxford Retrieval Team (SORT)

Annual Report 2013-2014

SOUTHAMPTON
Children's Hospital

University Hospital Southampton NHS
NHS Foundation Trust

Oxford University Hospitals NHS
NHS Trust

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1. Executive Summary

Although Southampton and Oxford have both had well established retrieval services for their individual regions, it is only since June 2012 that they have combined to provide a more resilient service 24 hours a day for the combined area. This is the first full year of reporting of the Southampton and Oxford Retrieval Team (SORT). A total of 914 referrals were received which resulted in SORT undertaking 455 (49.8%) retrievals and responding to 228 (25%) advice-only calls. A total of 154 (16.85%) retrievals were performed by other teams.

The highlights during 2013-14 principally centred on the establishment of an effective and supportive working relationship between the 2 retrieval services. This has enabled a strengthening of the patient pathway to ensure a safe service is provided for each referral. The other key events are:

- Introduction of a new retrieval ambulance at Southampton.
- Initiation of a working relationship and training with The Children's Air Ambulance (TCAA).
- Establishment of the Oxford and Southampton Children's Hospital Network – Critical Care Board.

2. Introduction

The Southampton and Oxford Retrieval Team (SORT) have been delivering expert care to critically ill children throughout the south of England since June 2012. This is the first full year of reporting. It is an integrated retrieval service run through the collaboration of two paediatric intensive care units – University Hospital Southampton NHS Foundation Trust (UHS) and Oxford University Hospitals NHS Trust (OUH). Both units have worked closely to strengthen the patient pathway and streamline the safe stabilisation and transfer of children around the region. By using the expertise previously gained as independent retrieval services, shared best practice has been utilised to deliver a consistently high standard of care. Following referral to the single SORT retrieval and advice hotline, patients are triaged and transfer is coordinated. Depending on patient location, a team is a launched from either the Southampton or Oxford site. The patient is then retrieved to either Southampton or Oxford PICU depending on the patient's location, the availability of beds and any requirement for specialist services only available at one site.

3. Aims of Service

The service aims to provide support and assistance to hospitals with critically ill children throughout the region. By working collaboratively between Southampton and Oxford, children are provided with specialist care whilst adhering to nationally agreed standards set out by the Paediatric Intensive Care Society (PICS). If the patient is known to a particular centre, SORT will liaise with that hospital to coordinate transfer.

4. Organisational Structure

4.1 The Team

The team is staffed 24 hours a day by specialist retrieval medical and nursing personnel. A Paediatric Intensive Care Unit (PICU) consultant is available 24 hours a day to provide advice and undertake retrievals as required. There are 9 PICU consultants at UHS and 6 consultants at OUH with sufficient resources to provide a consultant retrieval rota 24 hours a day. This ensures the care of all critically ill children is maintained. During 2013-2014, the number of retrievals undertaken by consultants was 116 (43.3%) at UHS and 28 (62.2%) at OUH. All other retrievals were undertaken by fellows or registrars.

The nursing team at UHS comprises of 29 Band 5-7 nurses and at OUH there are 23 Band 5-7 nurses. Both groups have completed a recognised critical care course and retrieval training. Uniquely at UHS, there is a Critical Care Technologist on all retrievals fulfilling the dual role of ambulance driver and retrieval technician. This has proven to be extremely successful in delivering a higher standard of care and decreasing the time spent at referring hospitals. At OUH the driving is undertaken by a St John's Ambulance Driver.

4.2 Referral Pathway

All referrals for the region are directed to the PICU at UHS and follow a structured pathway (Figure 1). Once a patient is accepted for retrieval, a decision is made regarding the most appropriate receiving PICU. If possible, attempts are made to transfer the patient to their closest receiving hospital. Patients from the Southampton region are retrieved by the UHS team and taken to UHS. Patients from the Oxford area are retrieved by the OUH team Monday to Friday 8am to 6pm, and later if a team is available. Outside of these hours, the UHS team will deliver the patient to OUH. On occasions, the OUH team can deliver patients to UHS. This has meant that a decision can be made promptly about where the patient needs to go and who is best suited to undertake the retrieval.

4.3 The Region

With the amalgamation of Southampton and Oxford, the region has increased immensely (Figure 2). By utilising two retrieval services, the aim is to maintain retrieval times within the national guidelines. Some hospitals also belong to other regions and may have different referral pathways depending on diagnosis. Where this happens SORT coordinates with the adjacent retrieval services and PICUs to ensure that the appropriate team delivers the patient to the appropriate unit.

Figure 1 Referral Pathway for Southampton and Oxford Retrieval Team (SORT)

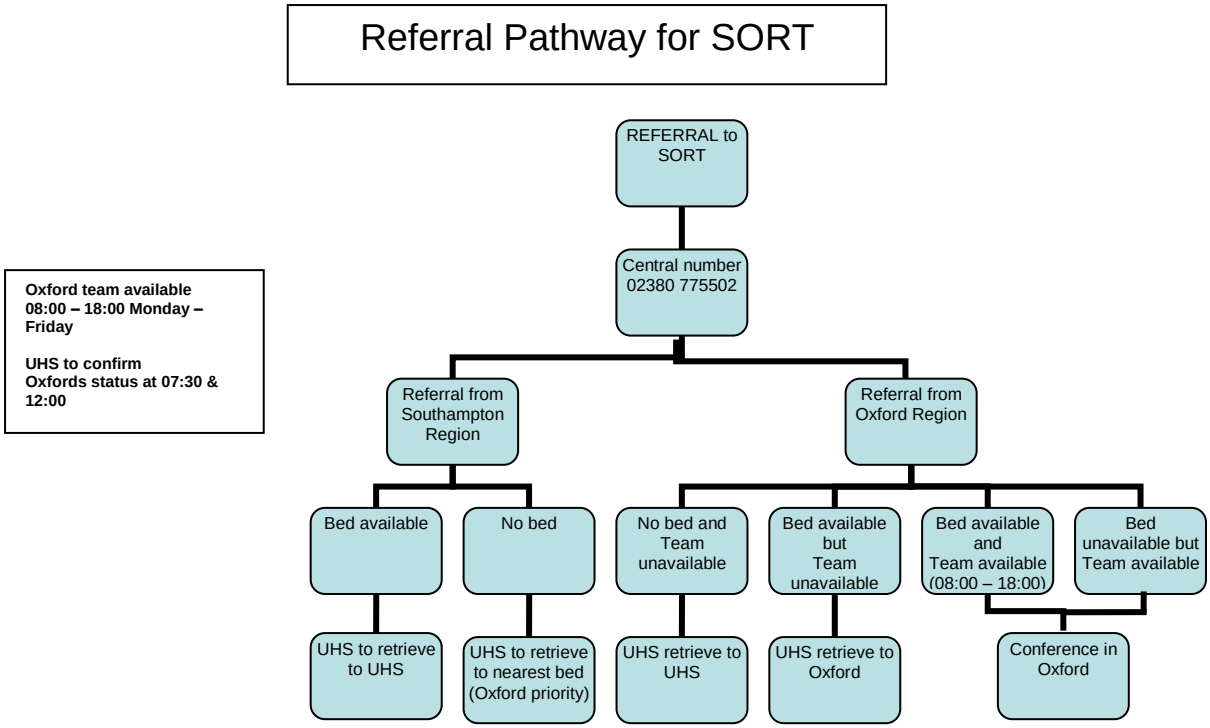


Figure 2 SORT Referral Region

5. Retrieval Activity

5.1 Number of Referrals

During 2013-2014, SORT received 914 referrals which resulted in a variety of actions dependent on clinical need (Table 1).

Table 1 Outcome of Referrals

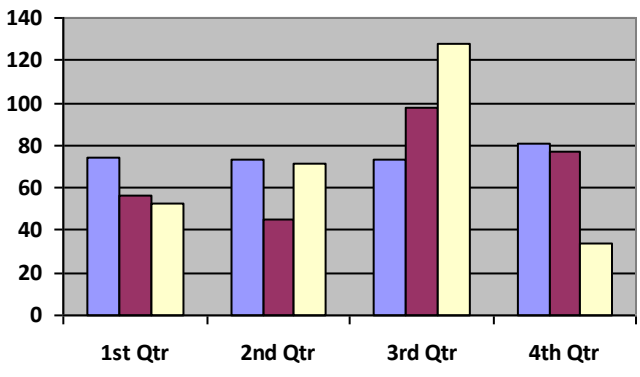
Action Following Referral	Number of Patients	Percentage
Retrieval by Southampton Team	410	44.86%
Retrieval by Oxford Team	45	4.92%
Retrieval by Other Teams/Other PICU Team Transfers/Taken to Other Hospital by Other Team	154	16.85%
Advice-only Calls (retrieval no longer required)	228	24.95%
Patient Condition Improved	60	6.56%
Refused Retrieval in Region	0	0%
Refused Retrieval Out of Region	8	0.88%
Remained Ventilated in DGH	1	0.11%
Elective Delay in Retrieval	1	0.11%
Died Before Retrieval Took Place	7	0.76%
Total	**914**	**100%**

Included in the number of transfers undertaken by other teams are 17 'time critical' transfers. Due to the nature of the patients' condition they required prompt mobilisation to the specialist centre for emergency treatment.

Activity was greatest in the 3rd and 4th quarters (October-March) which reflects the increase due to 'winter pressures' (Figure 3).

Figure 3 Distribution of Referral Numbers throughout 2013-2014

1st quarter (April-June)	20%
2nd quarter (July-Sept)	20.7%
3rd quarter (Oct-Dec)	32.8%
4th quarter (Jan-Mar)	26.5%



The distribution of referrals accepted for admission to the SORT region or another hospital can be demonstrated by their referring hospital (Tables 2 and 3). Transfer of these patients was undertaken by SORT or another team.

Table 2 Patients Accepted for Admission – SORT Region

Southampton Region	**Number of Referrals Accepted for Admission**
The Royal Berkshire County Hospital, Reading	70
Queen Alexandra Hospital, Portsmouth	65
Poole Hospital	49
Basingstoke and North Hampshire Hospital	47
Stoke Mandeville Hospital, Aylesbury	42
Milton Keynes Hospital	40
Salisbury District Hospital	37
Frimley Park Hospital	34
Wexham Park Hospital, Slough	30
Royal Hampshire County Hospital, Winchester	28
John Radcliffe Hospital, Oxford	20
Dorset County Hospital, Dorchester	20
St Richard's Hospital, Chichester	16
St Mary's Hospital, Isle of Wight	12
Horton Hospital, Banbury	11
Great Western Hospital, Swindon	9
Jersey General Hospital	7
Northampton General Hospital	5
Wycombe Hospital, High Wycombe	2
The Princess Elizabeth Hospital, Guernsey	1
The Royal Bournemouth and Christchurch Hospitals	1
Worthing Hospital (trauma)	1
Total	**547**

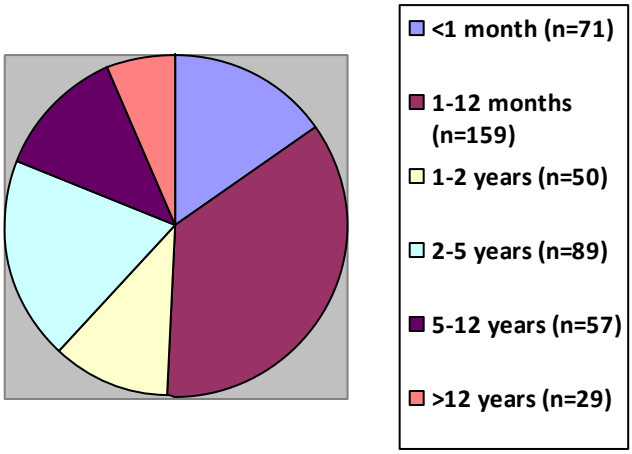
Table 3 Patients Accepted for Admission – Other Regions

Other Regions	Number of Referrals Accepted for Admission
Derriford Hospital, Plymouth	4
Royal Sussex County Hospital, Brighton	4
Conquest Hospital, St Leonards-on-Sea	3
South Thames Retrieval Service	3
Worthing Hospital (non-trauma)	3
Bristol Children's Hospital	2
Northwick Park Hospital, Harrow	2
Princess of Wales Hospital, Bridgend	2
Royal Surrey County Hospital, Guildford	2
Torbay Hospital	2
Addenbrooke's Hospital, Cambridge	1
Barnet Hospital	1
Bedford Hospital	1
Birmingham Children's Hospital	1
Evelina Children's Hospital	1
George Eliot Hospital, Nuneaton	1
Gloucester Royal Hospital	1
Great Ormond Street Hospital	1
Kettering General Hospital	1
Musgrave Park, Taunton	1
Norfolk and Norwich University Hospital	1
Prince Charles Hospital, Merthyr Tydfil	1
Royal Cornwall Hospital, Treliske	1
Royal Gwent Hospital, Newport	1
St Georges Hospital	1
West Suffolk Hospital, Bury St Edmond's	1
Yeovil District Hospital	1
Total	**44**

5.2 Age Distribution

Patients are accepted from birth to age 16 years (Figure 4) with the majority of patients under the age of 12 months.

Figure 4 Age Distribution of Patients Accepted for Retrieval



5.3 Acuity

In terms of the acuity of the 455 patients retrieved by SORT, 83.1% were receiving mechanical ventilation and 20.4% required infusion of inotropes/vasopressors.

5.4 Refusals / Outcome

No patients within the SORT region were refused for retrieval even if a bed was unavailable at Southampton or Oxford. These children were taken to another PICU by the SORT team. Only eight referrals from out of region were refused – six due to lack of beds and two due to lack of a team.

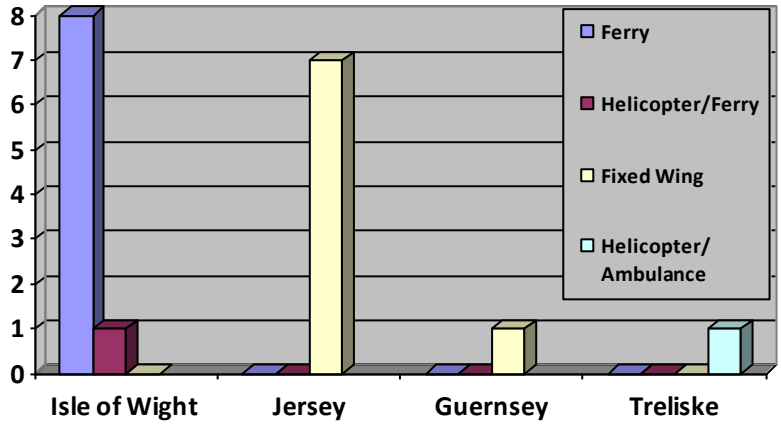
5.5 Specialised Retrievals

Due to the location of SORT, it is necessary to retrieve patients from Isle of Wight (IOW), the Channel Islands and the West Country (Figure 5). SORT retrieved 8 patients from IOW using the ferry. For one of these it was possible to transfer the team to the island by The Children's Air Ambulance (TCAA), but equipment was not available at this stage to transfer the child back by helicopter. The average decision response time to reach these children was 2 hours and 55 minutes. Dependent on the time of year and the time of day, the frequency of the ferries can vary.

Fixed wing aircraft is used to retrieve patients from Jersey and Guernsey in the Channel Islands. Flights depart from either Southampton or Bournemouth. Six patients were retrieved by SORT from the Channel Islands and two patients were transferred by other teams. The average decision response time was 3 hours and 42 minutes. This can be affected by availability of aircraft, weather conditions and regulations associated with pilot flying hours.

For one patient in Treliske, it was possible to transfer the team by TCAA, but at this stage the equipment necessary for the helicopter was still awaiting delivery to Southampton.

Figure 5 Specialist Retrievals Undertaken by SORT



5.6 Liaison with Other Retrieval Teams

Whilst every attempt is made by SORT to undertake all retrievals that have been referred, it is sometimes important to work with other teams to ensure the patients receive timely and optimum care. Throughout the year, 32 retrievals have been undertaken by other PICU teams and 122 retrievals have been undertaken by other non-PICU teams – principally neonatal transport teams based in Portsmouth and Oxford. In reverse, SORT has accepted patients from other PICU teams (Children's Acute Transport Service (CATS), South Thames Retrieval Service (STRS) and Kids Intensive Care and Decision Support (KIDS) when there has been a shortage of beds within their own regions (Table 4).

Table 4 Transfer of Children In and Out of SORT Region by SORT and Other Teams

	Number of Patients	Transferred by	Reason
Patients Transferred out of SORT Region	7	SORT	Specialist Treatment
	1	SORT	Bed Availability
	11	Other Specialist Team (PICU)	Specialist Treatment
Patients Transferred into SORT Region	2	SORT	Bed Availability
	3	Other Specialist Team (non-PICU)	Bed Availability
	20	Other Specialist Team (PICU)	Bed Availability / Team availability
Patients Remaining in SORT Region but transferred by other teams	88	Other Specialist Team (non-PICU)	Specialist treatment/review (including 'Time Critical' x 10)
	25	Non-Specialist Team	Specialist treatment/review (including 'Time Critical' x 7)
	1	Other Specialist Team (PICU)	Team availability
	1	Unknown Team	Specialist treatment

6. Quality and Safety Indicators

SORT is underpinned by rigorous governance and auditing. Various performance indicators are used to determine the quality of the service delivered.

6.1 Mobilisation Time

Of the combined retrievals undertaken by Southampton and Oxford, the median mobilisation time was 39 minutes. The average percentage of retrievals taking greater than 60 minutes to mobilise the team was 26.5%. The most frequent reason for delayed departure was that the retrieval team were already undertaking another retrieval. Meanwhile regular advice is given to the referring hospital to ensure optimum care of the child is maintained whilst awaiting the team to arrive.

6.2 Time from Base to Referring Hospital

The median decision response time, or time from acceptance of retrieval to arriving at referring hospital, was 1 hour and 44 minutes. This is within the PICS guideline of 3 hours (PICS 2010). The ability to comply with this guideline has been achieved despite extending the referral region.

6.3 Stabilisation Time

The median stabilisation time at the referring hospital was 1 hour and 22 minutes. This is greatly enhanced by the ability of local staff to intervene and prepare the child for transfer with guidance from the retrieval team.

6.4 Transport Time

The median transport time taken from mobilisation to return to base is 4 hours and 12 minutes. This is a reflection of the increased distances travelled and the need to take Oxford region patients to OUH before returning to Southampton and vice versa.

6.5 Out of Region Transfers

It has been necessary to transfer 19 patients out of region during the year which is related to bed availability or requirement for specialist treatment (Table 4). The total number of Oxford patients that needed to be taken to Southampton was 68; while 2 Southampton patients were retrieved to Oxford.

6.6 National Standards

In line with the PICS standard, retrieval data is submitted within 3 months of retrieval to PICANet. This allows comparison of services and ensures transparency. Alongside this as members of the PICS Acute Transport Group, recommendations for practice and competency documents are shared to create equitable services throughout the country.

6.7 Retrieval Review

All retrievals undertaken by UHS are reviewed on a weekly basis and at OUH it occurs monthly. This has a proved very effective for complete data collection, discussion of practice and for critical incidents to be managed early, thus lessening the impact on future retrievals. Feedback is provided to all team members and referring teams as appropriate.

6.8 Oxford and Southampton Children's Hospital Network – Critical Care Board

The Oxford and Southampton Children's Hospital Network was formed in 2012 in response to a review of national specialist services. The Critical Care Board is one of the four Children's Specialist Services within the network. The collaboration between the PICUs at Southampton and Oxford has enabled SORT to co-ordinate advice and retrieval. The Critical Care Board meets three times a year to provide an arena to discuss governance issues, guidelines, education and training and ensure parity across the network. Alongside this, it allows the teams from UHS and OUH to have discussions at a strategic level and respond to national consultations.

The other achievements of that the Critical Care Board in 2013-2014 are:

- National Dashboard – participation in this pilot study is enabling refinement of data collection.
- Neonatal Retrieval – exploring options for a regional neonatal service.

- Wessex Paediatric Critical Care Network – Thames Valley have been invited to observe this meeting and explore how a similar network could be set up in this region to develop parity and education.
- "Trauma Level 1" – participation in this 2 part television documentary provided an insight into the work of the major trauma centre at UHS.

6.9 Wessex Paediatric Critical Care Network

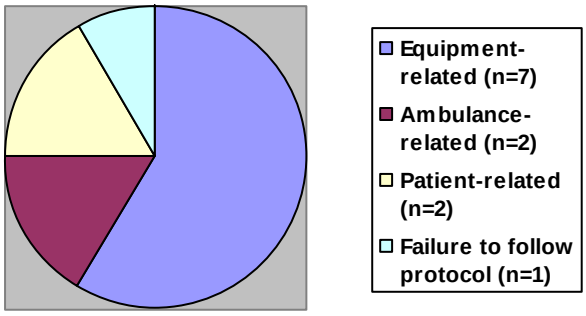
Within the Wessex region, a clinical forum has been in existence since 1999. It has recently been renamed as the Wessex Paediatric Critical Care Network. Every 2 months, medical and nursing representatives from all the referring hospitals meet to discuss governance issues, devise guidelines, plan outreach education and ensure that the regional service being offered is meeting local needs. This is complemented by an annual education day for the dissemination of projects and sharing of practical information on the management of critically ill children. This year's study day was held at Salisbury District Hospital in November with the focus on acute respiratory problems and was well received.

WESSEX PAEDIATRIC CRITICAL CARE NETWORK

6.10 Adverse Events / Near Misses

Twelve adverse events/near misses were reported at UHS during the year (Figure 6). This equates to an incident/near miss occurring on 4.18% of retrievals. The majority related to equipment, but none led to patient effect.

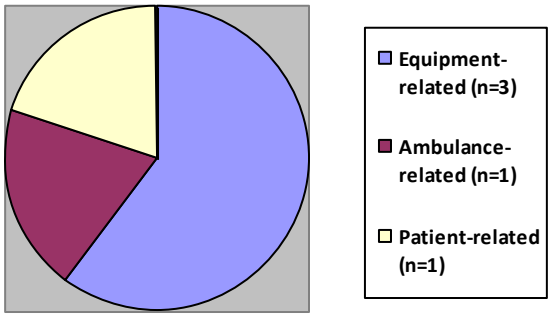
Figure 6 Summary of Adverse Events / Near Misses at UHS



Further discussion of critical incidents or near misses is held each month at the PICU Morbidity and Mortality meetings. This allows dissemination to a wider audience and identification of any issues with a financial impact that need to be placed on the Trust 'At Risk Register' for early resolution.

At OUH there were five adverse events (Figure 7) (11.11% of retrievals). None resulted in patient harm. Retrievals are discussed monthly to review incidents and discuss ongoing issues.

Figure 7 Summary of Adverse Events / Near Misses at OUH



7. Ambulances

7.1 Vehicles

Three retrieval ambulances are owned by UHS. They receive regular servicing to maintain safety and reliability. One vehicle is dedicated to the repatriation of children to their referring hospital, but can be used for retrieval if required. The two ambulances used for acute retrievals contain the same equipment to ensure that they are quickly and safely interchangeable. They are fitted with front and rear cameras and are able to record all vehicle movement. Purchase of the ambulances has been made possible through fund raising. The cost of the last vehicle was £116, 000 which was raised by the 'Friends of PICU' charity at UHS.

At OUH, the retrieval ambulances are provided and maintained by the St John's Ambulance service. There are three ambulances available as the provision is shared with the Oxford Neonatal Transport Team. This ensures that one is always available for PICU retrievals within the required time frame. Much of the equipment has been funded by charitable donations to PICU in OUH.

7.2 Driver Training

Uniquely at UHS, the retrieval ambulance is driven by the Critical Care Technologist rostered as the retrieval technician. There is a requirement to undertake driver training with the Institute of Health Care and Development (IHCD) which consists of a four week advanced driver course and is coordinated by South Central Ambulance Service (SCAS). All drivers hold a C1 qualification which allows them to drive vehicles up to 7.5 tonnes. Driver refresher training is currently annual and run by a SCAS driving instructor. However, this is under review and may change to every 2 years

due to enhanced experience associated with increased driving hours. This is a move which is supported by the Senior Driving Instructor at SCAS. All Technologists completed their last refresher in September 2013. Driving standards are also monitored by SCAS who can be called upon for professional advice.

8. Staff Education and Training

8.1 Doctor and Nurse Induction

All new doctors, nurses and critical care technologists appointed to the teams at UHS and OUH, receive a full day induction into their role, use of retrieval equipment and guidelines and the management of children whilst on retrieval. During 2013-2014, 3 study days were delivered at UHS to coincide with the appointment of new staff. Following this, each individual is required to undertake retrievals supervised by senior medical/nursing retrieval personnel. There is a need to demonstrate excellent patient management and an understanding of the equipment in use during a formal competency-based assessment. This ensures the required standards are achieved to maintain safety of the patient and other team members. The competencies need re-evaluation and assessment of individual ability every 3 years.

8.2 Maintenance of Competency

The majority of doctors working on PICU are either on 6 or 12 month placements. Following induction and assessment, they are allocated retrieval shifts and receive extensive experience in retrieval, which is a benefit to their training and to the skill and knowledge level within the region.

The nursing members of the team are required to undertake a minimum of six retrievals per year to maintain clinical competence. Reflection of each experience is undertaken to provide a learning opportunity and develop future practice, both on an individual and team basis. This is enhanced by ongoing experience of caring for critically ill children on the PICU when not rostered for retrieval shifts. If during a period of 6 months or more, no retrievals have been undertaken, it is necessary to attend an update day and be assessed on retrieval to ensure the demonstration of key skills.

All nursing members of the retrieval team at UHS and OUH receive an annual update study day to provide guidance on changes to the service, allow re-familiarisation with equipment that might be intermittently used, deliver theory based aspects of retrieval and participate in simulation training. For the update in 2013, all nursing and medical team members at UHS attended one of two study days run by The Children's Air Ambulance (TCAA) prior to its introduction into practice. This provided a greater understanding into the safety and practical aspects of retrieval via helicopter alongside an opportunity to practice loading and unloading the helicopter itself.

8.3 Mandatory Education

Along with all staff in the PICU multidisciplinary team, nursing and medical members of the retrieval team undertake annual mandatory training which includes infection prevention, manual handling, health and safety and updates on equipment and clinical management. Such training ensures that all staff are aware of their current responsibilities and are able to adapt principles to the situation they are working in, either at their local hospital or out on retrieval.

As another part of annual mandatory training, all PICU nursing staff at UHS attend a 'Paediatric Intensive Care Life Support Course' (PICLS). This incorporates:

- Recognition and management of seriously ill children
- Basic and advanced life support
- Arrhythmia recognition and management
- Defibrillation
- Advanced airway management
- Use of intraosseous needles
- Simulation training

8.4 APLS / EPLS Training

All members of the team at UHS and OUH are required to undertake APLS or EPLS training to enhance their knowledge and skills. Currently all retrieval staff have completed one of these courses during the last 3 years. In 2013-2014, a further 8 nurses at UHS have successfully completed a course. Alongside being APLS providers, the PICU Consultants and the retrieval nurse co-ordinator at UHS are APLS Instructors.

8.5 Simulation Training

During induction of nurses and doctors onto the retrieval team and annual updates, high fidelity simulation training in the Simulation Suite at UHS is undertaken. This opportunity to recreate scenarios based on critical incidents or less common situations has proved very effective in developing skills and confidence in a safe environment.

Within UHS, there is a training programme in place to provide simulation training – Southampton Neonatal and Paediatric Simulation (SNAPS) – to enhance competency and develop teaching and feedback skills to aid in the development of all retrieval members. During 2013-2014, 3 courses were delivered and successfully completed by 3 members of the retrieval nursing team.

9. Outreach Activity

9.1 Referring Hospitals

At both UHS and OUH there is a PICU Consultant responsible for Outreach throughout their region. Accompanying constructive feedback from referring teams or in-house, case presentations/simulation training is undertaken at the referring hospital to develop practice and enhance learning (Table 5). 'Lessons Learned' were also shared at the Wessex Paediatric Critical Care Network study day to allow wider dissemination.

Table 5 Outreach Activity

Nature of Outreach Activity	Number of Consultant Hours	Hospitals Visited
Case presentations / SIRI presentations	41	Salisbury Portsmouth Frimley Worthing Dorchester Chichester Basingstoke Winchester
Regional multidisciplinary team training	26	Chichester Dorchester Southampton
Critical airway simulation	9	Winchester
Critical illness simulation training	21	Reading Dorchester Worthing
Opera course	8	Milton Keynes
MAST course	18	Southampton

Simulation has also been taken beyond Southampton, by conducting in situ simulation study days in the Emergency Departments at 3 hospitals. This has proved very effective in developing management of 'Time Critical' retrievals. One of the PICU registrars at UHS has been involved in this project as part of a simulation fellowship with Health Education Wessex (HEW). As part of this fellowship, a poster of the project was presented at the Wessex Technology Enhanced Learning Conference and awarded first prize (Figure 8).

Figure 8 'Critically ill children in the DGH: the impact of outreach simulation' (Poster presentation)

Critically ill children in the DGH: the impact of outreach simulation

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INTRODUCTION

Southampton Oxford Retrieval Team (SORT) is called to retrieve over 450 critically ill children each year from district hospitals across the region and provides advice and support for an additional 200 patients.

At their local hospital, team based delivery of care that integrates recognition, rapid escalation and stabilisation is integral to the child's intact survival.

An ill prepared team or clinical environment can adversely affect each child's outcome.

Awareness of clinical systems and human factors that contribute to care in these uncommon but critical scenarios is essential to drive change and improve care.

AIMS

1. Identify the challenges of treating critically ill children in the district general hospital environment
2. Increase awareness of the time critical nature of interventions in critically ill children
3. Establish simulation as an agent for change across our paediatric critical care network
4. Promote a culture of openness and improvement across all specialties involved paediatrics

METHODS

A simulation team made up of matched faculty from Southampton PICU and the local team delivered a real time, in situ, time critical scenario at the DGH. High fidelity situation was achieved by running the scenario in the ED, activating the local resuscitation team using their own equipment and drugs with real time telephonic support from SORT.

Following the scenario the remainder of the day was used for debriefing and education sessions.

The final program for day of simulation:

0900	Filmed in-situ ED simulation
1230	Review of ED video and multi professional debrief
1340	In situ, team based simulation on Children's ward
1500	In situ, team based simulation on intensive care unit
1600	Feedback and closing lecture

Feedback was collected using free comments and Likert scales.

Time to 'time critical' interventions were recorded during the ED simulation and reviewed during debrief

DEBRIEF METHODS

The team involved in the ED simulation had an immediate debrief by the faculty. Their written was collated immediately post simulation and turned into a word cloud to identify themes.

The scenario was filmed using GoProTM cameras. Footage was collated then replayed at a lunchtime meeting open to all healthcare professionals involved in care of children in the DGH (45-60 attended). Attendees included management staff as well as junior and senior members of the nursing and medical teams. They were able to identify and take ownership of changes that needed to be made to improve care for sick children presenting to their hospital. An action plan were drawn up and distributed.

Video feedback leant weight to the team and environmental factors where change would improve time to 'time critical' interventions.

Simulnior™ moves to the CT Scanner - Dorset County

OUTCOMES

We performed in situ simulation study days in 3 hospitals. Royal Berkshire, Dorset County and Worthing Hospitals.

Feedback has been overwhelmingly positive. 100% of participants strongly agreed or agreed the day was beneficial for their training and 95% strongly agreed or agreed they now feel more confident approaching critically ill children.

The mean time to intubation was 29 minutes

The mean time to CT scan was 38 minutes

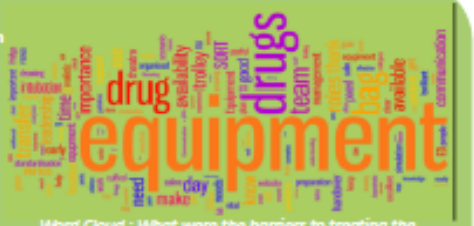
Simulation in Emergency department Royal Berkshire Hospital

DISCUSSION

This project has shown that in-situ simulation is well received in district general hospitals.

Themes highlighted by the video debrief and feedback session were common across the 3 DGHs and the action plans called for:

1) standardisation of drugs
2) standardisation of equipment
3) standardisation of the teams



Word Cloud : What were the barriers to treating the child in the scenario? (n= 60)

Examples of standardised drug packs and equipment trolleys were provided to the local hospitals.

The days have inspired local teams to start to implementing changes where they have identified barriers to treating critically ill children. The days have also stimulated further simulation activity in the hospitals we have attended, which are now establishing simulation in their training.

FURTHER WORK

Clips from the videos are being used in regional teaching in paediatric critical care
Regional guidelines for standardisation are being finalised for dissemination
Funding is being sought to continue this project throughout the region and repeat simulations to assess change in practice and time to 'time critical' interventions

Acknowledgements

Royal Berkshire Hospital, Dorset County Hospital, Worthing and Chichester Hospitals, Denise Greenspan, Marion Lynch, Wessex Critical Care Program

NHS South of England

9.2 Study Days – Southampton and beyond

The SORT Outreach programme has become well established within the region and has involved a varying educational programme depending on the needs of the requesting hospital. All Outreach study days are advertised on the SORT website. Such programmes have included formal teaching and team simulations based around identified learning points or expressed areas of interest.

UHS and OUH both continue to run a bi-annual study day entitled 'Stabilisation of the Critically Ill Child in a District General Hospital'. Each course accommodates 36 candidates from hospitals throughout the region. The day is oversubscribed and very well evaluated.

Other hospitals throughout the region organize topic specific multi-disciplinary study days. During 2013-2014, 8 days were delivered to ensure education was readily available for all staff.

10. Information Technology

The SORT website is well-utilised and is the first access point providing guidance on how to make a referral to SORT (Figure 9). There is a drug calculator as well as guidelines on infusion preparation and management of different emergency conditions. To enhance accessibility to the website and speed referrals, mouse mats were provided for all referring hospitals giving details of the website and SORT referral contact details.

All telephone calls are linked in to provide conferencing with the referring hospital, retrieval team and on-call PICU consultant. This ensures that timely information is accurately received by all staff involved.

11. Funding

11. 1 Central Funding

The SORT retrieval service is funded by the specialist commissioners at a cost of £542,580 per annum. Within this budget, there is allocation for the following areas:

- 1/3 of the required number of Junior Doctors
- A full complement of Retrieval Nurses
- Education and Training
- Medical Lead of the Service
- Nursing Time – Nominated Lead Nurse
- 1/3 of the required number of Technician-Drivers

No consultant time or equipment is funded directly and there is a shortfall in funding for junior doctors and Technician-Drivers. The deficit in funding is made up from the already

commissioned PICU activity, demonstrating the financial benefit of cross-utilisation of resources.

Figure 9 SORT Website

11.2 'Friends of PICU' Charity

For the purchase of equipment, the 'Friends of PICU' charity has made significant contributions (Table 6). It is a charity run at UHS by volunteers, many being family and friends of children who have been patients on PICU. Since the development of SORT in June 2012, they purchased the most recent retrieval ambulance and have just celebrated the achievement of raising £1,000,000.

Table 6 Contributions of Friends of PICU April 2013 – March 2014

Purchase	Cost
Ultrasound System	£20621.23
Hand-held Oximeter	£539.00
Flight Sled for The Children's Air Ambulance	£25000.00
Transport Monitor	£22000.00
Tom-Tom Satellite Navigation System	£165.00
Total Contributions	**£68325.23**

12. Plans for 2014-2015

SORT is a developing service which is adapting to national guidance and changing needs throughout the referral region. Plans for next year reflect these developments:

- Second On-call Retrieval Team – With the introduction of a second retrieval ambulance at UHS at the end of 2013-2014, it is planned that a second on-call team will be available to allow 2 simultaneous retrievals to take place from 11am-11pm Monday to Friday. As well as providing an overlap during the busy evening period to ensure the day team is not required to work on into the night, it aims to ensure there are fewer delays while waiting for a new team to start a shift.

- Extended Retrieval Service at OUH – By appointing Fellows to PICU, it is planned to increase the hours that OUH is able to offer a retrieval service.

- Flight Retrievals have ongoing development. Equipment is being purchased to allow all ages to be transferred by TCAA. To facilitate training within TCAA, a collapsible simulator is being constructed to allow training for emergency situations as well as the practical aspects of working in a confined space. For fixed wing retrievals, a Life Port Stretcher is being sourced to enhance safety.

- Retrieval Advanced Nurse Practitioners (RNP) – Recruitment at UHS is planned for 2014-2015. Once successful appointment of a fully trained RNP or a trainee RNP has taken place, this will enhance the current medical cover at UHS alongside participation into the middle grade medical rota on PICU. It will take several years to become trained and integrated into the service, but will ultimately contribute to the delivery of an effective service alongside providing an opportunity for career progression for suitably trained and motivated nurses. At OUH, a Retrieval Nurse Practitioner is in training and on completion this will add to the medical cover available for retrieval in the future.

- Uniform – Retrieval scrubs are being purchased at UHS to provide the team with a clearer identity whilst at the referring hospitals. Clothing for flight retrievals is currently being explored and purchased as necessary including high-visibility jackets.

- Competencies – Through the PICS Acute Transport Group, it is planned to introduce a national multi-disciplinary competency document. As well as setting baseline standards, it will allow practitioners moving from one service to another to provide evidence of key skills. Alongside this, all retrieval services will continue to complete their own equipment competencies which are pertinent to the equipment used within their Trust.

- Outreach – The development of Outreach services is an ongoing. Currently multidisciplinary study days are run throughout the region. It is planned to enhance this by offering nurse-led outreach to individual hospitals to meet their own needs and include simulation based on case scenarios of critically ill children. Alongside this, there will be the ongoing opportunity for nurses to be seconded to PICU to maintain/enhance their skills in caring for critically ill children.

- Teleconferencing – The introduction of teleconferencing is being explored to enhance the referral process. This will also work to reduce the time taken to travel to meetings throughout an expanding region.

- Vehicle Tracking – Purchase of a tracking system for both UHS retrieval ambulances will allow planning of workload, time management and enhance safety.

As with all live services, there will probably be additional challenges within 2014-2015 in response to service developments and arising needs. This is an exciting time for developing a relatively new service which is striving hard to meet the needs of critically ill children in the South of England whilst supporting the delivery team to work at an optimum level.

Reference

Paediatric Intensive Care Society (PICS) (2010) Standards for the Care of Critically Ill Children (4th Edition). Available at: http://www.ukpics.org.uk/documents/PICS_standards.pdf (accessed: 10 June 2014).