



Children's Acute Transport Service **Annual Report 2010-2011**

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Executive summary

Highlights for 2010/11

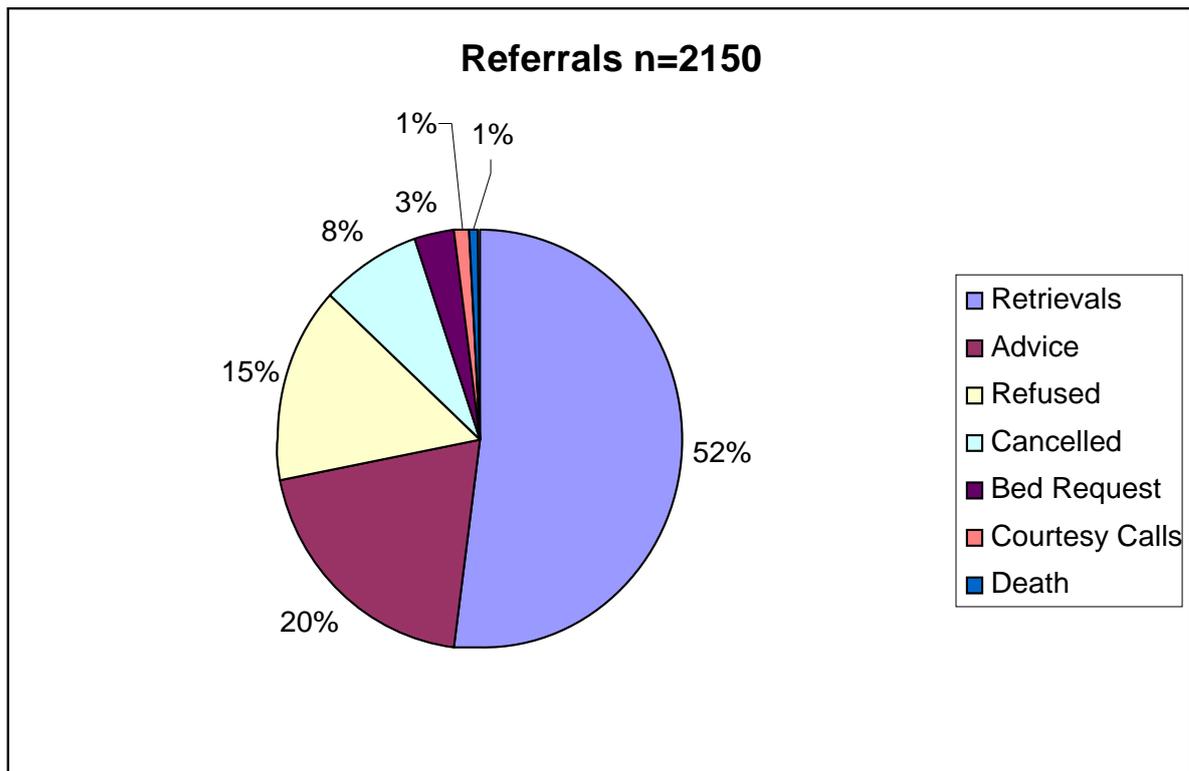
- ❑ The service entered its tenth year of providing dedicated specialist paediatric intensive care retrieval services for the North Thames region.
- ❑ In 2010/11, CATS handled **2150** referral calls and performed **1119** critical care retrievals.
- ❑ All Guidelines and protocols have been updated and are available for use on the CATS website
- ❑ Additional Guidelines written to support the District General Hospital in relation to transfer and interim management of the critically ill child.
- ❑ A number of research articles were published in prominent peer-reviewed journals and CATS staff presented at various national and international conferences
- ❑ A number of innovative IT developments were piloted at CATS to improve patient care and the efficiency of the service.
- ❑ CATS will be integrating a new training modality into our existing outreach teaching programmes: “High fidelity Simulation”. We now have access to 2 ultra mobile computerised manikins.

Summary of activity: 2010/11

CATS provide a single point of contact for advice, bed finding, and a paediatric retrieval team for acutely ill children needing intensive care. In 2010/11, we maintained our activity in comparison to previous years.

Total referrals received: 2150
 Total team mobilisations: 1119
 Total transfers to PICU: 1070

Breakdown of referrals and their outcome



Destination units

Retrievals were undertaken to a number of different PICUs.

Destination ICUs for patients transported by CATS

Receiving Hospitals	Number
London units	
Great Ormond Street Hospital (GOSH)	532
St Mary's Hospital (SMH)	212
Royal Brompton Hospital (RBH)	99
Evelina Children's Hospital	32
St George's Hospital	19
King's College Hospital	27
Royal London Hospital (RLH)	15

Non-London units	
Addenbrookes Hospital	72
St Andrews Burns Centre, Broomfield	8
ECMO Centres (Not GOSH)	5
Oxford PICU	5
Southampton PICU	2
ECMO Takebacks/Other	25

Admissions and preferences for PICUs are shown for North Thames and other regional and out-of-region units.

Preference / Destination	GOSH	SMH	RBH	S Thames	RLH	Addenbrookes	Total
No Preference	214	155	13	46	5	27	461
GOSH	263	25	1	8	2	8	307
SMH	4	25	1	0	0	1	31
RBH	4	2	83	1	0	0	90
S Thames	1	1	0	22	0	0	24
RLH	0	1	0	0	3	0	4
Addenbrookes	3	1	0	0	0	36	40

Background

The Children's Acute Transport Service is a specialised service designed to make intensive care rapidly available to critically ill children in North Thames and East Anglia.

Most hospitals do not have a Paediatric Intensive Care Unit (PICU) - paediatric intensive care is only provided in a small number of specialist units. However, most critically ill children initially present to hospitals without a PICU. The Children's Acute Transport Service (CATS) facilitates the safe and speedy transfer of these children to a PICU.

CATS deploys a skilled paediatric intensive care team to assist in the treatment of critically ill children both before and during transfer to ICU. We offer telephone consultation, liaison with sub-specialists and skilled inter-hospital transport within one service.

Mission Statement

The Children's Acute Transport Service aims to provide the highest quality paediatric intensive care for patients and their families from the point of referral to the handover of care at the receiving paediatric intensive care unit

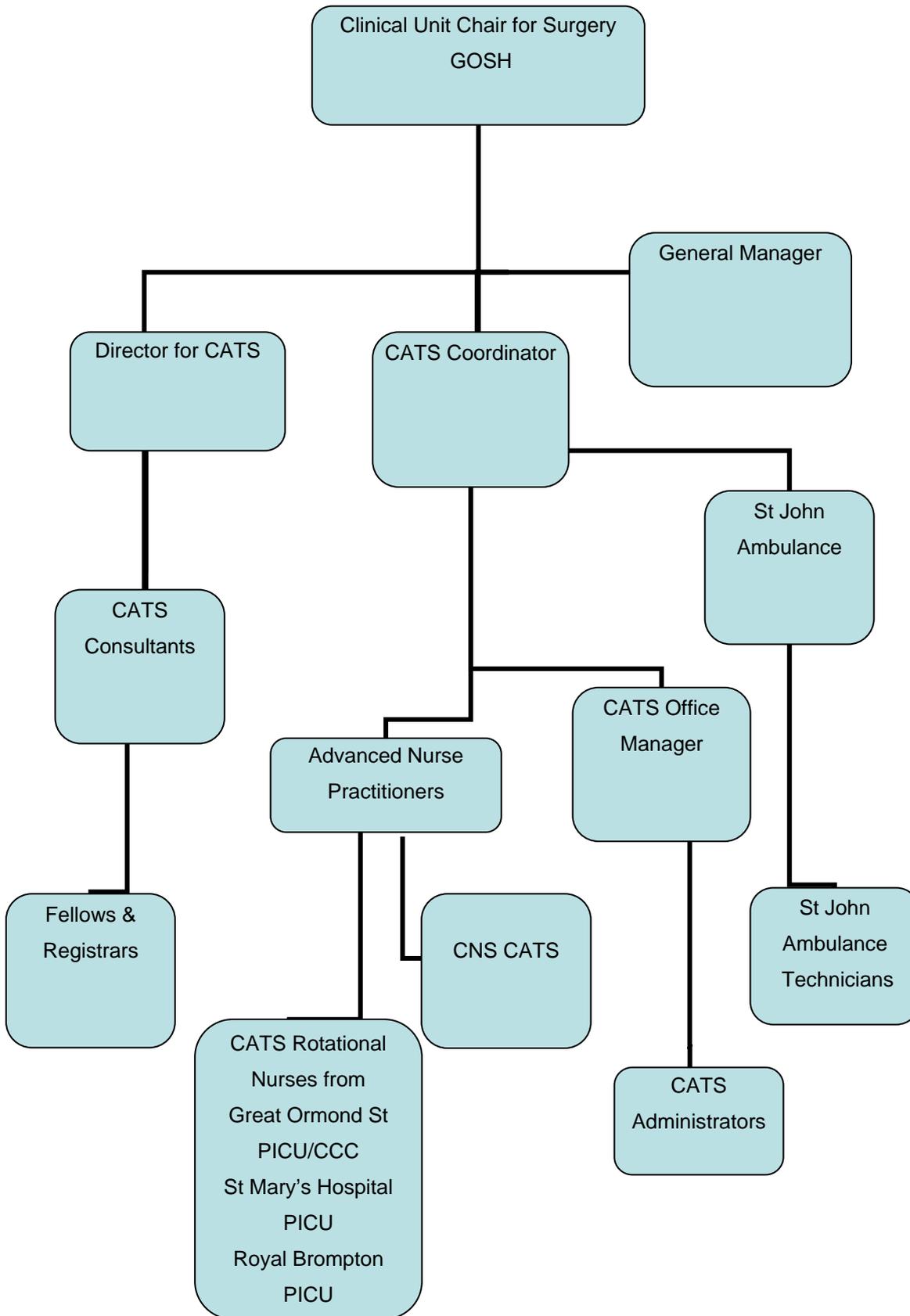
- Single regional focus for provision of paediatric critical care for patients presenting as an emergency
- Provides 24 hour, 365 day, Consultant led telephone advice and a triaging facility for all referrals
- Committed to improving and developing the provision of critical care and critical care transport for all patients within its scope of care

Service Standards

The following core standards apply:

- The CATS service will meet the Standards for the 'Retrieval and Transfer of the Most Critically Ill Children' identified by the Paediatric Intensive Care Society 4th edition of the document 'Standards for the Care of Critically Ill Children' 2010
- Any child within North Thames within CATS scope of care can expect the retrieval team to be mobilised within 20 minutes from decision to retrieve
- Any child within East Anglia requiring PIC depending on transport mode can usually expect the retrieval team to be mobilised within 1 hour from decision to retrieve
- When the capacity of the CATS service is exceeded, referrals will be prioritised according to clinical need
- Early expert clinical advice and management by Consultants trained in Paediatric Intensive Care is available to referring hospitals at all times
- Education and training of the CATS staff is a fundamental part of the service
- An Outreach Programme will be offered by CATS to referring institutions
- Written protocols and guidelines are in place for the management of the most frequently retrieved patient groups
- Rigorous audit is undertaken and presented to both East Anglia and North Thames provider units on a regular basis not exceeding yearly.
- At times of paediatric intensive care bed shortage all patients within CATS scope of care will be transported to the nearest appropriate paediatric intensive care bed unless the risk of doing so is deemed greater than providing care at the referring institution

CATS organisational chart and team profile



Management

Dr Liz Jackson - Clinical Unit Chair
Tom Smerdon - General Manager

Director of CATS

Dr A Petros

CATS consultants

Dr Daniel Lutman
Dr "Ram" Ramnarayan
Dr Richard Paget
Dr Sara-Louise Hulme
Dr Mark Peters
Dr Paula Lister
Dr Joe Brierley
Dr David Inwald
Dr Parvis Habibi
Dr Sabeena Qureshi

CATS Senior Nurse/Coordinator

Eithne Polke

Advanced Nurse Practitioners

Lynn Shields
Mark Clement
Fergal O Malley

Retrieval Nurse Specialists

Beverly Halverson-Steele
Ali Clayton Payne
Rachel Higson
Helen Fallows
Carole Jones

CATS Office Manager

Mhairi Emery

CATS Administrators

Marissa Willock
Joan Joseph
Taslima Heera
Roger Mc Gee
Chevonne Dixon
Jeuntelle Stapleton
Alan Beckwith

CATS Registrars

Dr Tanja Adamovic
Dr Anna Bonetto
Dr Sharlene Butler
Dr Perumal Karnan
Dr Claire Kirby
Dr William Morton
Dr Raj Pillai Parampeswarn
Dr Sarfaraz Rahiman
Dr Sainith Raman
Dr Bhupinder Reel

CATS Rotation Nurses

Great Ormond Street PICU

Catrin Hierl
Alison Taberner Stokes
Cathy Roberts
Felicity Collins
Josephine Jim
Helen Drennan
Ana Marote
Claire Fraser
Sonia Dunn
Ben Dale
Simon Mansfield Sturgess
Emma Whitehurst
Jason Pritchard
Nicola Pearson
Gamal Hutton
Jeremy Weber

Great Ormond Street CCC

Jo Broadhurst
Katie Smith
Polly Payne

St Mary's Hospital PICU

Debbie Lees
Tamsin Dawson
Louise Purcell
Anne Dowson
Vicky Norman
Annabelle Smale (Training)

Royal Brompton PICU

Claire Buckle
Jodie Luckie
Vicky Nash
Fiona McNerney
Jill Mc Gee

CATS/St John Ambulance

Mr Bradleigh Sims (Commercial Transport Manager)

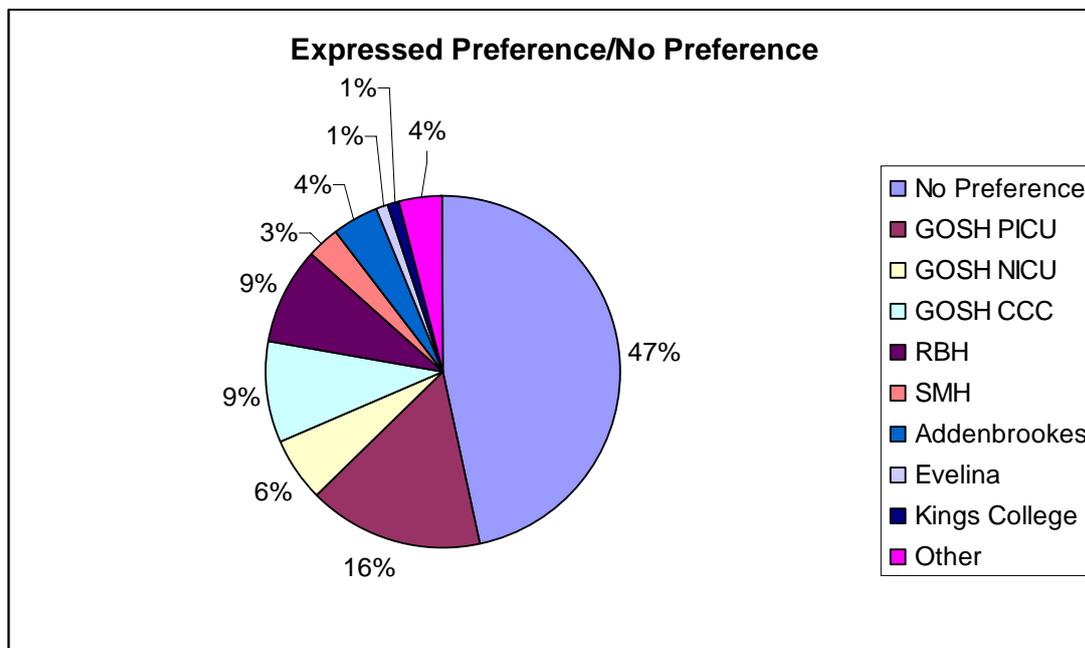
Technician Team

Richard Green
Albert Rapacioli
Richard Levy
David Morton
Paul Dunkley
Ian Michaels
Chris White
Phil Bartholomew
Maurice John
Dave Warren
Mark Bourne

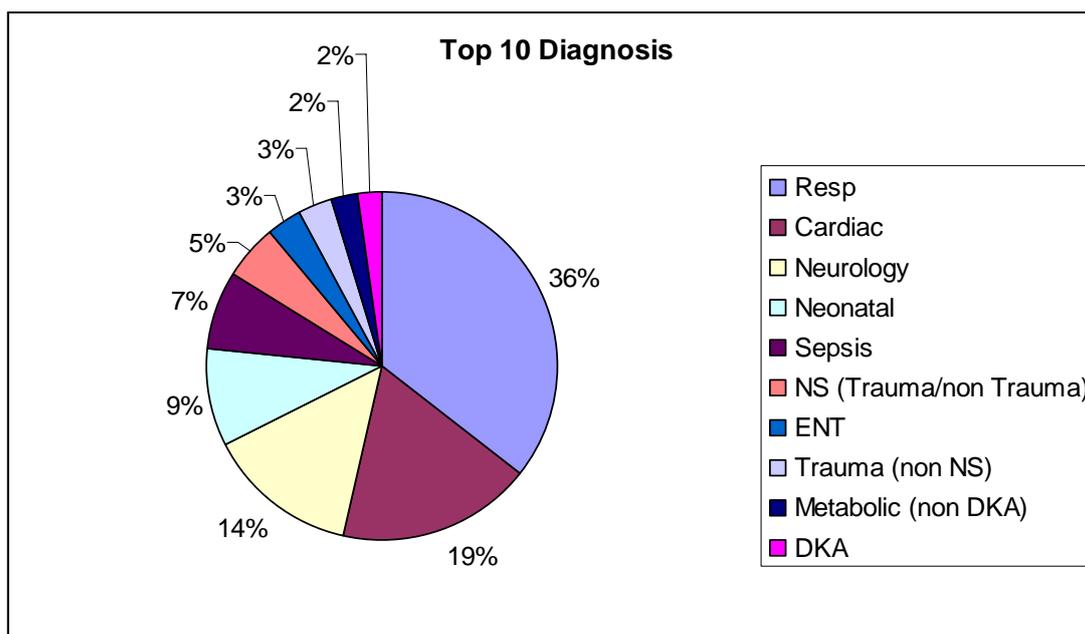
Detailed Clinical Activity Report

Referrals

Referrers expressed a preference for a particular unit in 53% of cases. In a significant number of referrals, no preference was expressed (47%).



Children with a number of varied conditions were referred for intensive care, reflecting the diverse case mix covered by the service.



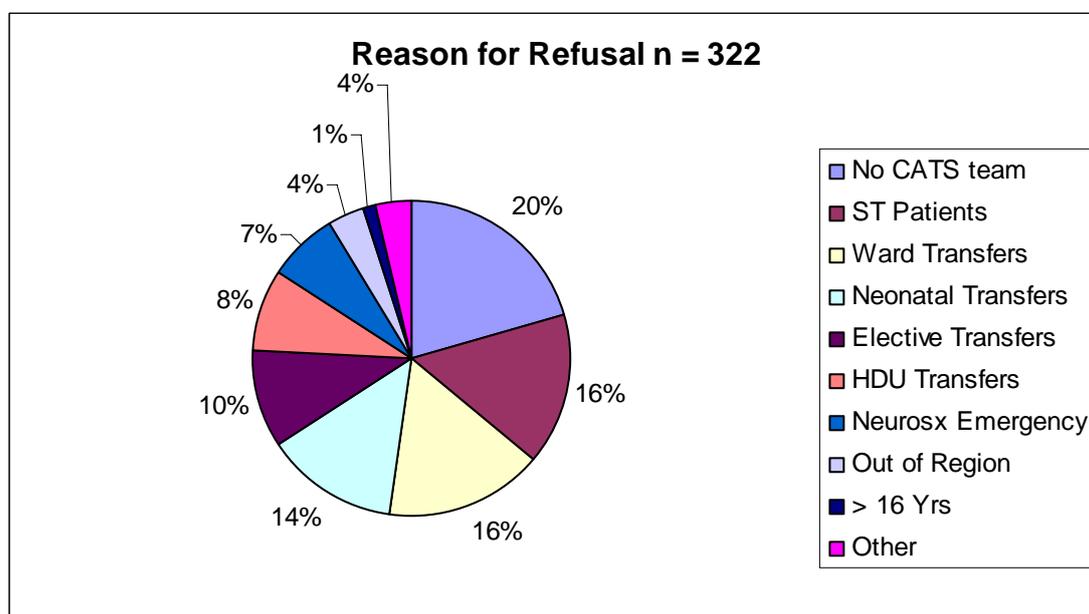
The outcome of referrals received at CATS during 2010/11 is shown below.

Outcome of referrals received (n=2150)

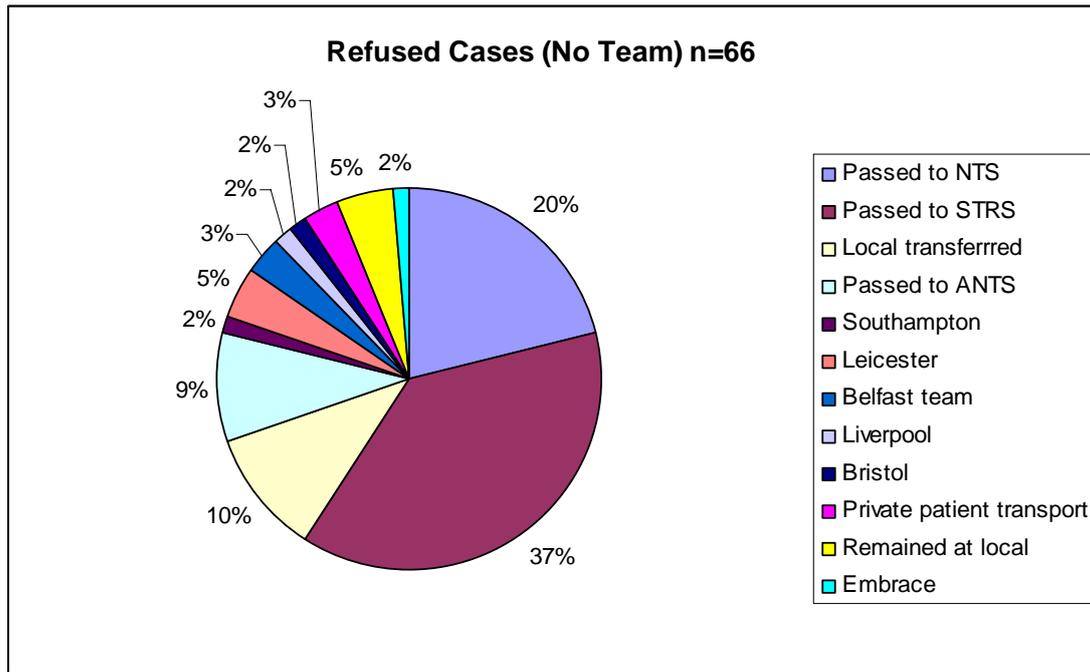
CATS team mobilised	1119
Resolved with advice	429
Refused	322
Cancelled by referrer	170
Death	15
Other	95

The reasons for refusing referrals to CATS are broken down in the following graph:

Breakdown of reasons for refusal (n= 322)



Further information regarding cases where no CATS team was available (and their outcome) are provided below:



All 7 (4.6%) cases where the local team had to undertake the transfer were closely scrutinised and reviewed. Of the seven cases:

- 3 were high level HDU
- 1 was an ECMO take back
- 1 was an inter unit transfer (PICU to PICU)
- 1 was a private hospital transfer request
- 1 was a nationally funded liver failure patient in Bristol

Retrievals

The CATS team was mobilised on **1119** occasions. Of these **915** children were retrieved to one of the 4 provider PICUs in North Thames/East Anglia region (**204** children were transported into other destination units).

The outcome of all episodes in which a retrieval team was mobilised is illustrated in the table below:

Outcome of all episodes in which the team was deployed (n=1119)

Completed transfers	1070
Patient improved and left at referring hospital	13
Patient died whilst team on route to referring hospital	3
Patient died at referring hospital (with team)	17
Retrieval cancelled	16

The majority of patients were ventilated. A significant number needed inotrope support and a number of children needed inhaled nitric oxide during transport.

Invasive ventilation	79%
Inotrope support	27%
Inhaled nitric oxide	4.4%
Median PIM mortality risk (IQR)	7.3% (4%-18%)

Mode of Transport

Most of the transfers were undertaken by road, using dedicated CATS ambulances (97%). A number of transfers were performed using helicopters or fixed-wing aircraft (3%).

Interaction with other Teams

The CATS team continues to work in close co-operation with the other regional transport services such as the London Neonatal Transport Service (NTS), the South Thames Retrievals Service (STRS) and the Anglia Neonatal Transport Service (ANTS). During busy periods, these teams cross-cover and utilise existing PICU/NICU beds efficiently.

The team interactions and their outcome are depicted below:

Referral from	Total requests	CATS team deployed	Refused due to lack of teams/Other*
South Thames Team	79 (49 bed request only)	11	2 /17*
London Neonatal Transport Service	39 (6 bed request only)	14	23/6*
Addenbrookes Team	36	22	1/13*
Oxford PICU Team	8	5	2/1*
Anglia Neonatal Transport Service	17 (4 bed request)	5	8/0*

* Resolved with advice or were cancelled by referring transport teams

Clinical Governance & Quality Improvement

CATS Risk Action Group (RAG)

The Group's aim is to ensure consistency in the quality and access to the service across the region and continue to work in partnership across the multidisciplinary paediatric critical care teams, specialised commissioners, St John's Ambulance Service and where possible with patients and their carers in planning the future of CATS.

The scope of the group is to provide a forum which promotes care to the highest standard through open dialogue, teamwork and knowledge where lessons are learned and risk is minimised and where change is continuous and rapid.

The RAG membership is made up of CATS consultants, nurses, office manager, Transport manager, PICU consultants from other PICUs in North Thames and a member of the risk management team at GOSH.

- Monitor and oversee all clinical activities
- Maintain processes for assuring quality of clinical care
- Provide up to date guidelines on clinical practice and procedures
- Develop and monitor implementation of National Standards
- Monitor all research and development activities within CATS Team
- Proactively manage clinical risk assessment processes including incident reporting
- Manage complaints, critical incidents and audit
- Ensure that CATS Mortality and Morbidity meetings are held across the PICUs
- Health & Safety Standards
- Use of Information
- Education & Training Standards

All governance meetings are informed by the 3 monthly Risk Action Group meetings

- Specialty Board at GOSH
- 3 monthly clinical excellence meeting (RAG)

- 6 Monthly with the PICU provider units in order to present an audit of clinical activity and report back on critical incidents on retrieval
- Separate 6 month Morbidity & Mortality meetings (or as required) with the 4 PICUs across the region
- Monthly (3rd Friday of every month) CATS Morbidity & Mortality meetings
- Daily review of referral/retrieval activity
- Annual review of service delivery
- Outreach education packages available bi-annually to the DGH which incorporates an element of discussion on difficult cases and service improvement
- Monthly teaching programme (4th Friday of every Month)
- Extraordinary meeting which can be called by any of the users/co-opted members

Clinical Effectiveness

CATS is concerned with providing evidence based guidelines on the most commonly retrieved groups of patients for both the CATS team and users of the service. We currently have all our clinical guidelines uploaded onto the CATS website for reference.

All guidelines are regularly reviewed and maintained by a multidisciplinary group and ratified with sub-speciality input where appropriate. All Guidelines have been updated in 2011

Service Improvement

- An audit was undertaken of central line insertion infection rates and because of this work CATS now carry an easily accessible central line insertion pack.
- Some indicators are audited continuously, for example the use of lights and sirens remains an ongoing project.
- Audit of Drug Prescription errors

Mobilisation Times

One of the service standards, and an accurate indicator of the agility of the service, is time to mobilise a team once the decision to accept the patient has been made. As part of our quality improvement programme the CATS team aims to mobilise a team within 20 minutes of acceptance.

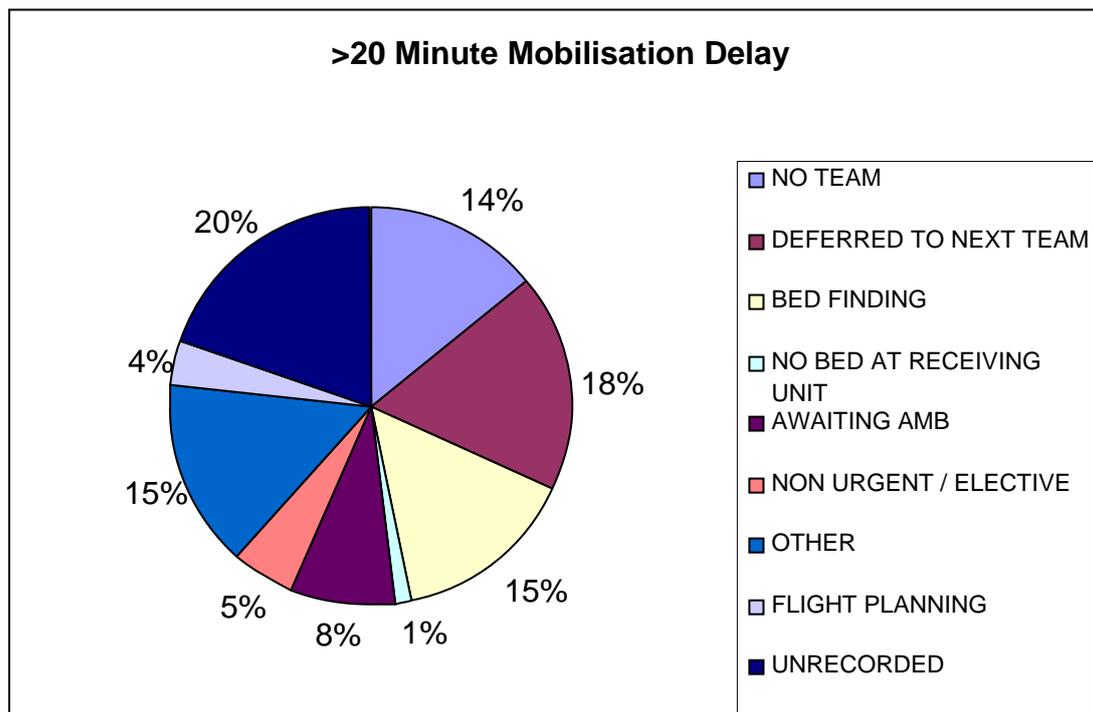
In addition, the CATS team aims to provide the same level of intensive care at the referring institution as at the receiving PICU - this often necessitates a period of stabilisation and assessment of stability for transfer.

Mobilisation and stabilisation times

Mobilisation time	Median 20 min (IQR 15 - 30)
Stabilisation time	Median 105 min (IQR 75 - 140)
Total transfer time	Median 275 min (IQR 218 - 346)

The reasons for not achieving our 20 minute mobilisation target are outlined below:

> 20 minute mobilisation delay: n = 415 (26% total transfers)



Service capacity is the main reason for the target 20 minute mobilisation time delay n = 234 (56. %) of our total recorded delays. (No team, deferred team, no bed/finding bed, awaiting ambulance)

Risk Management/Adverse Event Reporting

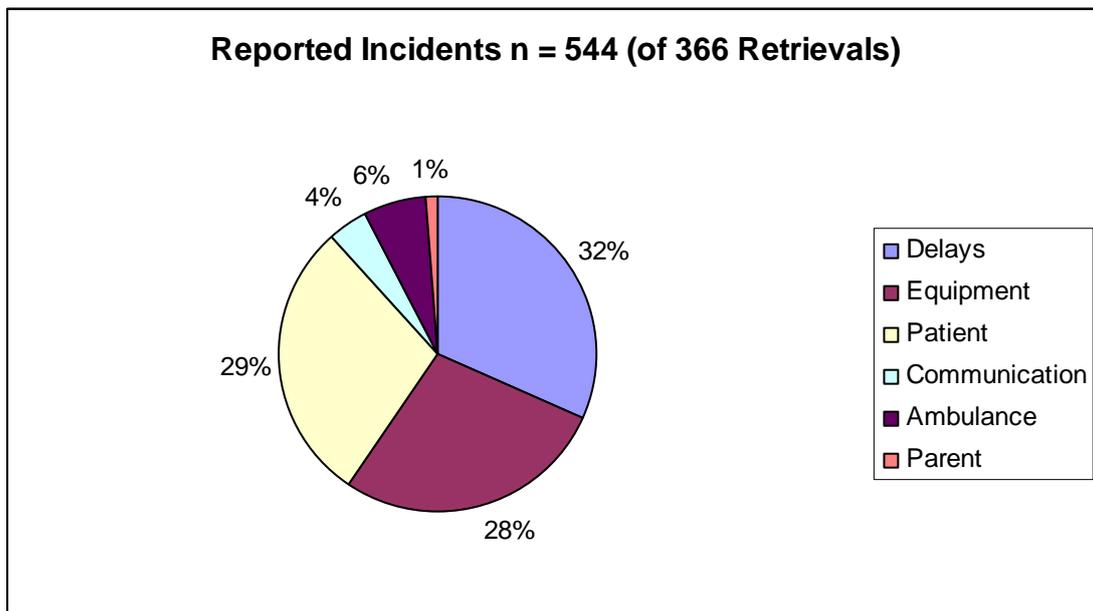
CATS has a robust clinical risk management system. The clinical team records adverse events and near misses during the course of the transfer relating to ambulance, equipment, and patient-related activity.

Adverse event reporting is encouraged to facilitate an active approach to risk reduction. Each adverse event is analysed during the daily team meeting where clinical activity from the previous 24 hours is discussed.

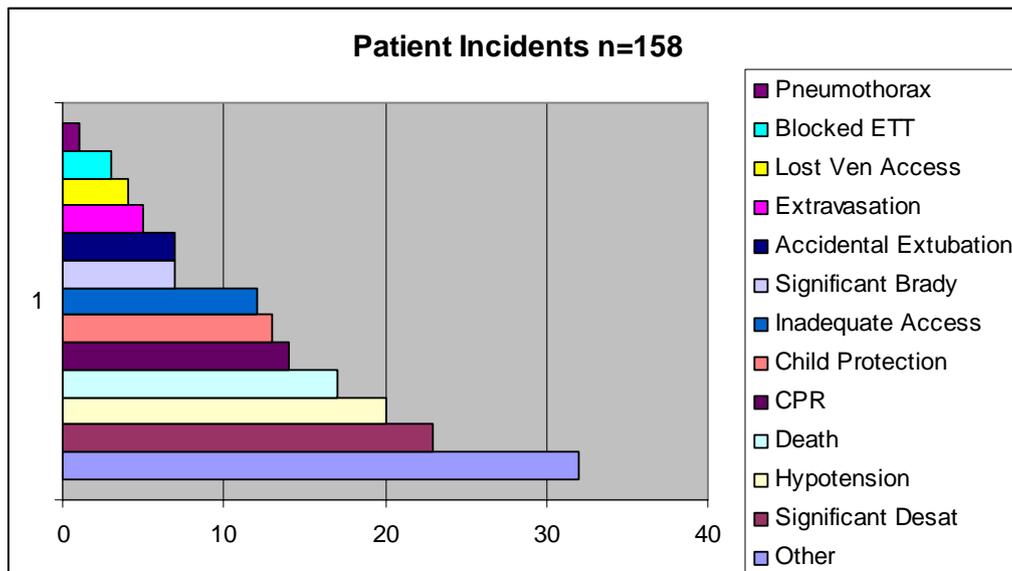
The vast majority of transports did not involve any adverse events (66.7%).

In 33.3% of retrievals, teams documented and reported adverse events - the majority were minor and did not compromise patient safety.

Events were analysed in five major groups (ambulance related, equipment related, and patient related as well as communication and delays, outlined in graph below).



A more detailed breakdown of patient related events is outlined in the graph below:

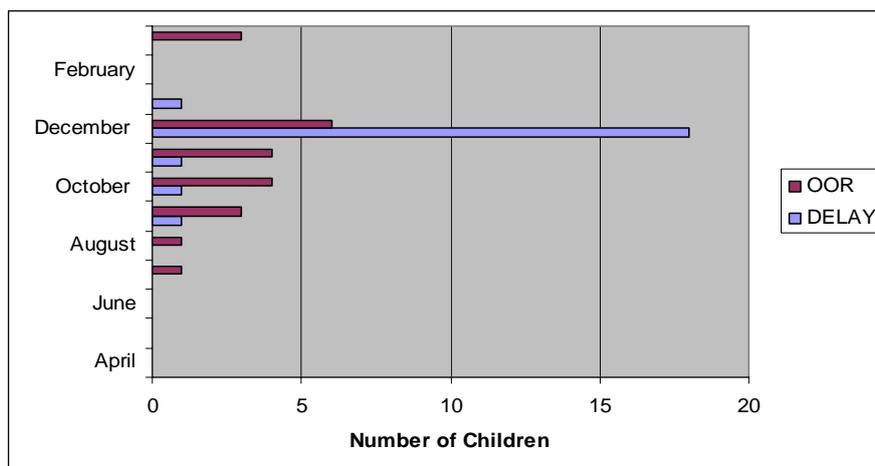


Transfers Out of Region (admissions to PICUs outside London)

CATS continues to monitor the flow of patients from the North Thames Region and reports directly to the commissioner for PIC services on a monthly basis.

This year's activity saw a number of children flow from the London region to other regional PICUs. There were 22 (2%) of children transferred out of region in 2010-11 to other PICUs with available beds; the majority of these children were transferred to Addenbrookes PICU. 1016 (98%) children requiring intensive care were successfully admitted to London PICUs.

Transfers out of region and delay in transfer to PICU Graph: April 2010- March 2011



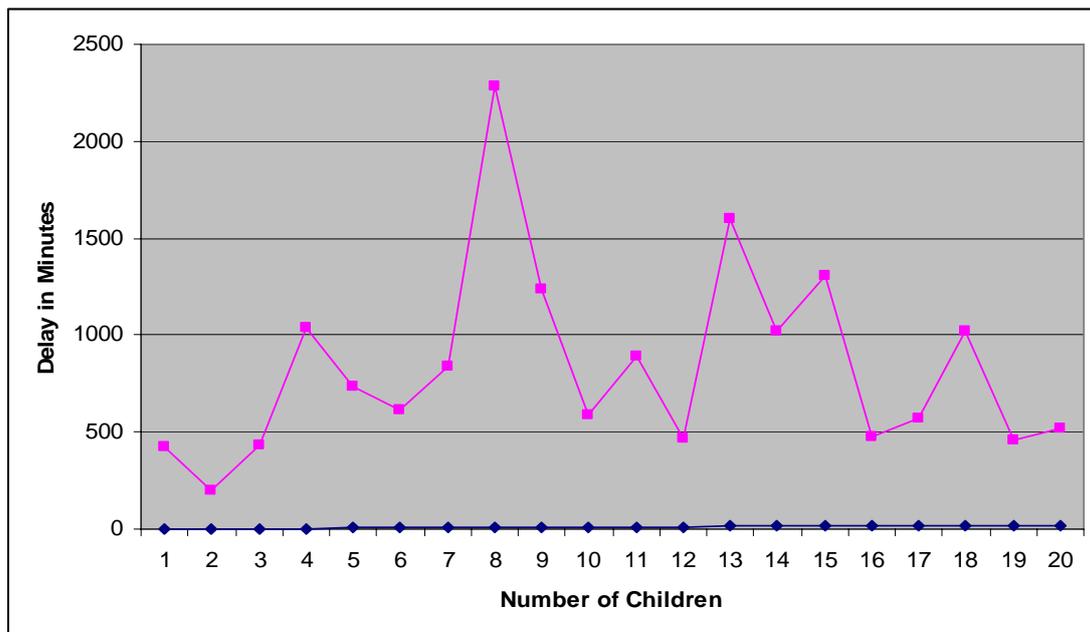
Significant Delays in Transferring to PICU

This year's activity saw a number of children specifically over the December period having to be cared for by the District general Hospital for greater than 8 hours.

Of the **21** breaches recorded over the last year **17** breaches were in December alone. This was mainly due to capacity issues in relation to availability of intensive care beds both regionally and nationally.

A number of transfers also had to be deferred due to the adverse weather conditions as it was deemed too dangerous to attempt a transfer. These children were managed locally in collaboration with the CATS team and once the situation improved were transferred in to PICU

Of the 21 reported delays within our region, 1 teenager was successfully extubated on AICU and 20 of the children were transferred to PICU



Research and Audit

CATS advocate a strong research environment as part of its clinical service. Opportunities are provided for trainees to perform studies, audits, presentations and abstracts. A number of audit projects are registered with the Great Ormond Street Audit Department and constantly re-examined to continue the audit cycle.

List of Audits for 2010-11

1. Use of exemptions (lights & sirens) during retrieval
2. Adverse events occurring on transfer
3. Neurosurgical emergency transfers Audit
4. Intubation Audit
5. Decision time analysis
6. Mobilisation times
7. Medical documentation audit
8. Use of Ambulance child restraints
9. Paediatric Air Retrieval: Are we monitoring safety?
10. Flight Retrieval
11. Shock reversal at the local DGH
12. Child Protection Paperwork audit
13. Drug Prescribing errors
14. Out of Hospital Cardiac Arrest Audit

Research themes:

1. Use of biomarkers in early critical illness (cardiac troponin)
2. Epidemiology of retrievals and service organisation (effect of stabilisation time on outcome; effect of source of admission on outcome)
3. Early intervention during retrievals (planned cardiac output monitoring study; use of ultrasound guided vascular access)

Participation in multi-centre research studies

1. CATCH study: multi-centre study of standard versus heparin coated versus antibiotic coated central venous catheters, Institute of Child Health
2. Intravenous Sildenafil in treatment of PPHN

Recent Publications (2010/11)

1: Ramnarayan P, Borrows EL, Montgomery M, Lutman D, Petros A. Factors that influence stabilization times in children requiring transport. *Pediatr Crit Care Med*. 2011 Mar;12(2):242-3. PubMed PMID: 21646960.

***2: Ramnarayan P, Thiru K, Parslow RC, Harrison DA, Draper ES, Rowan KM. Effect of specialist retrieval teams on outcomes in children admitted to paediatric intensive care units in England and Wales: a retrospective cohort study. *Lancet*. 2010 Aug 28;376(9742):698-704.

3: Ramachandra G, Shields L, Brown K, Ramnarayan P. The challenges of prompt identification and resuscitation in children with acute fulminant myocarditis: case series and review of the literature. *J Paediatr Child Health*. 2010 Oct;46(10):579-82.

4: Dehò A, Lutman D, Montgomery M, Petros A, Ramnarayan P. Emergency management of children with acute severe asthma requiring transfer to intensive care. *Emerg Med J*. 2010 Nov;27(11):834-7.

5: Thiru K, Rowe S, Shaw N, Durward A, Inwald DP, Ramnarayan P. Survey of clinical information system usage by paediatric intensive care units in the UK. *Intensive Care Med*. 2010 Sep;36(9):1616-7.

6: Borrows EL, Lutman DH, Montgomery MA, Petros AJ, Ramnarayan P. Effect of patient- and team-related factors on stabilization time during pediatric intensive care transport. *Pediatr Crit Care Med*. 2010 Jul;11(4):451-6.

7: Lampariello S, Clement M, Aralihond AP, Lutman D, Montgomery MA, Petros AJ, Ramnarayan P. Stabilisation of critically ill children at the district general hospital prior to intensive care retrieval: a snapshot of current practice. *Arch Dis Child*. 2010 Sep;95(9):681-5.

8: Hutchison JS, Frndova H, Lo TY, Guerguerian AM; Hypothermia Pediatric Head Injury Trial Investigators; Canadian Critical Care Trials Group. Impact of hypotension and low cerebral perfusion pressure on outcomes in children treated with hypothermia therapy following severe traumatic brain injury: a post hoc analysis of the Hypothermia Pediatric Head Injury Trial. *Dev Neurosci*. 2010;32(5-6):406-12.

Presentations & Posters

7th World Congress of Pediatric Critical Care, Sydney, Australia, March 2011:

- Effect of source of PICU admission on central venous catheter infections (ORAL presentation)
- Diagnostic and Prognostic Value of Cardiac Troponin on Retrieval
- Metabolic Acidosis and Intravenous Salbutamol in Asthmatics Referred to a Retrieval Service
- In it Together: A Phenomenological Study Exploring The Experiences of a Paediatric Retrieval Team.
- Advanced Nurse Practitioners within a Retrieval Service - The North Thames Experience
- Outcome of Paediatric Out Of Hospital Cardiac Arrest Patients Referred to a Regional retrieval Service
- Effect of Team Composition on the Quality and efficiency of a Paediatric Intensive Care Transport Team

Paediatric Intensive Care Society Meeting 2010

Does an Ambulance technician's knowledge of the stabilisation of critically ill children benefit from a structured educational programme?

Outreach Education & Training

CATS play a pivotal role in helping referring hospitals to manage the critically ill patient and stabilise them while waiting for the transport team. This is done through regular outreach visits to facilitate case discussions as well as lectures, workshops and tutorials on specific topics such as securing the ET tube, maintaining cervical spine immobilisation etc. Consultants as well as senior nursing staff attend these sessions.

The CATS website serves as a single point of high quality information including guidelines, prescriptions for drug infusions and parent information.

Outreach Activity

Integral to the development and maintenance of the clinical network is the outreach activity performed by members of CATS. This takes a multitude of forms but revolves around the activities of the core CATS team.

The CATS teams has used the sector network to model its managed clinical networks and have made themselves known to key members of staff in the hospitals that use the service.

They are therefore easily accessible on an informal basis to bring up issues regarding the service, ask clinical questions and receive immediate feedback on children that have been retrieved.

Outreach sessions 2010/11

12 outreach days organised with the DGH teams covering over 18 of the main District General Hospital referrers to the service.

The idea of these outreach days is to allow full engagement between CATS and all those who look after seriously ill children in order to fulfill some of the recommendations made in the Tanner report (2006)¹. The service has made a huge effort in contacting colleagues in anaesthetics, adult ICU and accident and emergency, however, despite this it is not always possible due to time constraints placed on all departments to facilitate bi annual sessions for all the District General Hospitals.

¹ DoH (2006). The acutely or critically sick or injured child in the district general hospital
A team response.

Managed Clinical Networks (Training, Education & Clinical Governance)

All formal complaints go through the normal clinical risk route at Great Ormond Street Hospital. CATS actively encourage feedback in relation to the many learning points that may arise within the emergency setting.

North Western Sector Network

Network leads:

Consultant Lead Dr “Ram” Ramnarayan and Mark Clement Advanced Nurse Practitioner.

Contact Details ramnap@gosh.nhs.uk, clemem@gosh.nhs.uk

North Central Sector Network

Network Leads:

Consultant lead, Dr Richard Paget and Lynn Shields Advanced Nurse Practitioner

Contact Details Pagetr1@gosh.nhs.uk, Shiell@gosh.nhs.uk

North Eastern Sector & Essex Network

Network Leads:

Consultant lead, Dr Daniel Lutman and Fergal O Malley Advanced Nurse Practitioner

Contact Details lutmaa@gosh.nhs.uk, omallf@gosh.nhs.uk

CATS Education & Training

University Based Teaching

CATS Advanced Nurse Practitioners continue to provide a lecture series at 3 universities across the region South Bank University, City University, Thames Valley University and Anglia Ruskin University.

Training Opportunities

Staff mandatory update days. 3 sessions held over the financial year, in which all staff that work for the service must attend in order to continue to work on CATS. Part of their mandatory update consists of a supervised retrieval

Fellows Induction Programme 10 one day local induction programme were run over the past year

SIM Training CATS ANP & Consultant team facilitated on 4 SIM courses

CATS Core Nursing Team facilitated on 6 APLS courses over the last year

Induction days 3 two-day sessions attended by all new starters to CATS who then go on to work in a supervised capacity on retrieval

Advanced Nurse Practitioner Programme There were 2 ANP days run by the consultant body over the last year which consisted of didactic teaching, reflective practice and research paper discussion as well as review of clinical skills stations

Ambulance Technician update days are also held twice a year

Core curriculum Teaching Days are undertaken at GOSH which compliments the modular teaching for the ICTPICM.

Mortality & Morbidity: A monthly M&M is undertaken at CATS on the last Friday of every month. This allows the team to review the previous month's data concentrating on specific cases and utilising the discussion generated to inform practice future practice

Daily Morning Review/Teaching: Every morning CATS reviews its previous 24 hours work with a focus on encouraging clinical problem based discussions.

Weekly Teaching: A timetable is in place for all staff to participate in presenting an interesting paper, review a guideline, or present an interesting case in which they have participated in the retrieval process

Supervised Retrievals: The retrieval team is currently composed of one PICU doctor/ANP and one retrieval nurse. On many occasions additional nursing and medical staff formed part of the retrieval team as a training requirement or to re-evaluate a member of the team.

Consultant Delivered Retrievals: A consultant formed part of the team on 15% of occasions. The consultant activity relates to training and education of the retrieval fellows as well as level 4 PICU patients who require flight retrieval.

Observer shifts: There were also several retrievals in which an observer from the referring institutions such as the PICU outreach facilitators, registrars, and consultants were accommodated at the CATS base. They spent anything from a day to a week observing the whole referral/retrieval process and were given the opportunity to accompany the retrieval team on a number of retrievals.

PICU Nurse Trainees: CATS also offered placements to post registration nurses who were undergoing their PICU course at GOSH/SMH.

New for 2011: CATS Clinical Teaching using High Fidelity Simulation

CATS are integrating a new training modality into their existing outreach teaching programmes. We have purchased 2 ultra mobile computerised manikins with wireless connection.

This type of training where the manikin patient closely mimics the responses of a real patient can greatly enable the candidates' suspension of disbelief during the clinical scenario.

Running the scenario authentically in real time not only gives an opportunity to better apply ones clinical skills, but also practice one's leadership, communication and prioritisation skills as well.

The manikins are authentic in regard to voice, airway, breathing pattern, breathing sounds, pulses and interactive monitoring. They are easily transported in a small light suitcase.

We plan to:

- 1) Arrange regular regional and sub regional study days with Simulation as a major part.
- 2) Integrate simulated scenarios in order reinforce topics discussed during our DGH outreach teaching days.
- 3) Potentially target difficult cases and 'relive' them via simulation in a realistic multidisciplinary team way.
- 4) Help support as best we can the technical aspects of starting one's own local simulation teaching programme in the DGH.

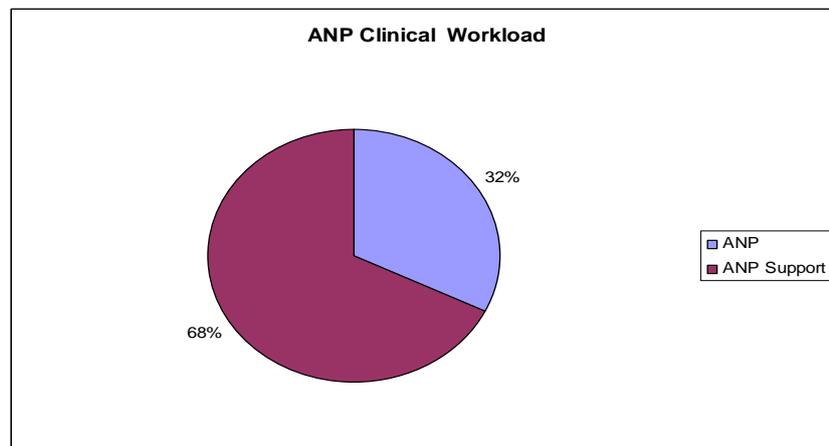
Advanced Nurse Practitioner Programme Update

The aim of the advanced nursing posts is to create a flexible team that can respond to the needs of the service and the referring centres through education, outreach, stabilisation and transportation of the critically ill child.

Currently all 3 of the Advanced Nurse Practitioners for the Children's Acute Transport Service have completed their training and are performing within their role. The advanced Nurse Practitioners have participated in 332 retrievals of which 107 were ANP led. The ANP job plan is divided up into 65% clinical, 25% education & training and 15% research & audit.

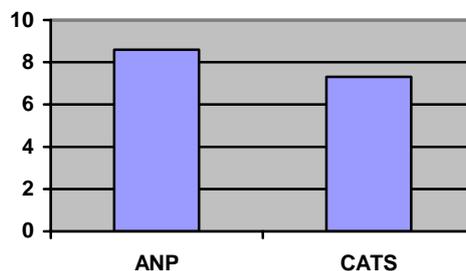
In relation to their clinical activity the following graph details their commitment to service delivery.

Participated in 332 Transfers (30% total activity)



Patient Acuity

The following graph shows a comparison of both CATS/ANP PIM range.



Information Technology and Use of Information at CATS

A number of innovative IT developments are being piloted at CATS to improve patient care and the efficiency of the service.

Digital ink forms:

As part of a multi-centre research study on the use of technology in handover, CATS and City University piloted the use of a digital ink forms technology. The CATS referral and retrieval forms were formatted and printed using digital paper technology and digital pens were used to write on the forms. This meant that the information was available in real time to the CATS base as well as to GOSH PICU and CICU, so that receiving PICUs could easily find out what stage the retrieval was at, as well as prepare in advance for the patient's arrival. Based on the success of the research study, CATS is implementing the digital ink technology as part of the service in 2011.

CATS retrieval database

A new web-based database was implemented to capture data related to referrals and retrievals for CATS in April 2009. CATS are now able to audit our activity much more closely and run quality improvement projects on a continuous basis. The database has also allowed the team to conduct research studies that have worldwide applicability.

Intensive care information system

CATS are part of the GOSH procurement process for a new PICU information system. This will allow the CATS team to record data electronically, just as on a PICU, giving the team the ability to store vital data, and query retrieval information in the future for education, training, audit and clinical governance purposes.

PICANet retrieval dataset

CATS have contributed to the development of the national dataset for retrievals that will become part of the PICANet dataset. CATS piloted the data collection forms and provided useful feedback to PICANet. This project is ongoing will commence in 2011.

External Consultations and Representation on Expert Working Groups

The CATS coordinator continues to assist the Republic of Ireland Health Service Executive on the implementation of their national retrieval service.

Daniel Lutman, CATS consultant has contributed to the Paediatric Intensive Care Society (PICS) Standards; this project is now complete and the revised standards have been published.

He has also been a member of the London Ambulance Service Medical Steering Group as an expert adviser for paediatrics.

Dr Ramnarayan, CATS consultant is a member of the Department of Health sponsored Acute and Critical Care Information Advisory Group and represents PICS at the group. He is also lead for the Transport Study Group at PICS SG and the lead for the Informatics Group of the PICS.

Parent and Public involvement

Parents in Transport

To overcome many of the risk management issues that existed CATS built their intensive care ambulances specifically to be able to accommodate one if not both parents.

Last year only one parent was not offered the opportunity to travel with their critically ill child, although no parent was prevented from travelling if they wished to do so

There was 1 adverse incidents associated with a parent travelling with the team.

Plans for 2011/12

To enhance working relationships with DGH and improve on the care delivered to the critically ill child

- Pilot clinical forum meeting twice a year for each network sector to be agreed
- Introduction of SIM training courses for the District General Hospital to become part of the CATS outreach education programme
- Continue to expand the outreach education programme to all referring units, especially by remote means.
- Site visit to all of the DGHs in the North Thames Region in order to meet with the senior teams and discuss the way forward for the service
- Written protocols and guidelines for the management of all patient illness groups updated as per best practice or every 2 years.
- Improving the two-way feedback system for referrer and receiving PICUs
- The re-establishment of HDU study days for the multi disciplinary team within the DGH setting is a priority for CATS
 - 2 Study days to be held at the RCPCH on the 6th July and 24th October 2011

Service Development

- Continue to work collaboratively across the region as well as nationally with other transport services
- Improving the two-way feedback system for referrer and receiving PICUs
- Continue to lead the way for research in transport medicine and set up collaborative studies with other transport services
- Advanced Nurse Practitioner role development remains a priority to the service with a drive to increase the numbers from three to six team members.

CATS

Childrens **A**cute **T**ransport **S**ervice

0800 085 0003

One phone call to organise
bed and retrieval



Telephone covered 24 hours a day
by a Transport Administrator



Consultant Paediatric Intensivist
advice instantly available



Consultant led service



A Paediatric Intensive Care Retrieval
Service for the North Thames
Paediatric Intensive Care Consortium

