Annual Report 2017 – 18

NWTS

North West & North Wales
Paediatric Transport Service

Contents Page

Foreword

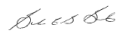
We are pleased to present the 2017/18 annual report. Welcome to the North West and North Wales Paediatric Transport Service (NWTS) Annual Report 2017/18. This year has been an extremely busy year for the service. The increase in referrals has gone up by 49% since 2010. The clinical team have continued to do an excellent job providing an excellent quality service to the North West and North Wales region.

The outreach programme has been particularly busy this year; the education team have worked extremely hard with the District General Hospital Teams (DGH) to deliver a robust programme. The close partnership working can only help to strengthen the quality service that the children of the North West and North Wales receive.

NWTS success is only possible with the close working relationship it has with its Tertiary and District General Partners.

Thank you again for all your support

The NWTS Senior Team.



Kate Parkins
Lead Consultant

Sarah Santo
Clinical Nurse Manager

Executive Summary 2017/18

- Since the service began in November 2010, NWTS have received over 8,500 referrals and have transferred 4,500 children.

- NWTS is commissioned for total 900 referrals and to provide 650 PIC transfers per year (since launch in 2010).

- Staffing includes nursing and trainee medical staff that rotate from either of the 2 regional PICUs.

- Consultants and the senior nursing team are primarily based with NWTS. Staffing resources allows NWTS to run 1 team 24/7 all year round, and an extra team for 12 hours per day during winter (3 months only) to meet times of high clinical demand.

- Over the last year we have seen an increase in the number of referrals to the NWTS service.

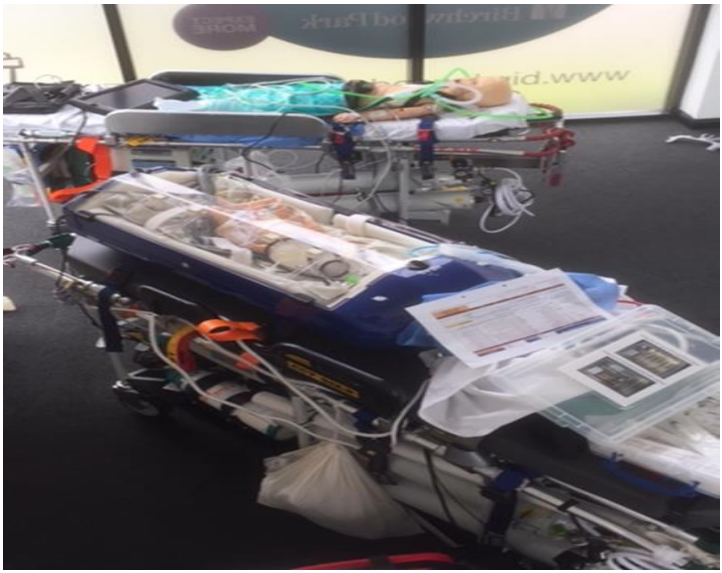
- Non-commissioned development of Paediatric Critical Intensive Care Transport advice service.

- Change to clinical practice (high flow humidified oxygen; non-invasive ventilation etc.)

- Changing landscape and provision within the North West England & North Wales Region.

- Provision of quaternary care out of region transfers.

- Neonatal transfers in region as per algorithm.



About NWTS

Background

In 1995 in the UK a 10 year old boy with an acute intracranial bleed, requiring stabilisation and transport to an appropriate specialist Paediatric Intensive Care Unit, did not receive such care.

After publication of the resulting inquiry, the Department of Health produced a landmark report on paediatric intensive care (PIC) development and configuration, 'A Framework for the Future' which outlined the strategic direction for streamlining children's intensive care services in the United Kingdom. Its long-term vision was of a 'high quality integrated service organised and delivered around the health care needs of children' and that a transport service must be funded and staffed on a 24 hour basis for each geographical area.

Therefore, regional transport teams have been developed in the UK over the last 15 years.

NWTS is a stand-alone regional transport team based in North West England. It is a specialist multi-disciplinary team, providing expert advice, stabilisation and transport of critically sick or injured children from the 29 referring centres within North West of England and North Wales to one of the two lead centres providing

Paediatric Intensive Care in region (Royal Manchester Children's Hospital – RMCH and Alder Hey Children's Hospital – AHCH), or further afield when necessary.

Mission Statement

The North West and North Wales Paediatric Intensive Care Transport Service aims to provide the highest quality paediatric intensive care for children and their families from the first point of contact to the final unit destination.

The NWTS service:

- Provides easy access and service co-ordination for referring children's units
- Facilitates improvements in transport provision for critically ill children
- Co-ordinates all available regional resources to meet fluctuating demands
- Provides telephone advice and triaging facilities for all referrals
- Facilitates the delivery of the most appropriate care, in the most appropriate place, for any infant or child requiring Intensive Care in the North West / North Wales Region
- Education and outreach for the District General Hospital
- Audit and research will form part of the service provision

The Guiding Principles

A collaborative and inclusive service working with colleagues across North West England and North Wales:

- Close working with the regional Paediatric Intensive Care Units
- Rigorous audit with regular presentation and dissemination of information to the two provider units
- Close collaboration with adjacent transport services

Service Standards

The following Core Standards apply:

- All infants and children requiring critical care will receive the appropriate treatment, in the right place, at the right time.
- The transport service will undertake to find an appropriate Paediatric Intensive Care (PIC) bed within the North West Region (or appropriate alternative) for those deemed to require intensive care.
- Any child within the North West Region requiring PIC can usually expect the transport team to be mobilised within 30 minutes from the decision to transfer.

- Any child within the North West Region requiring PIC can usually expect the transport team to be at their bedside within 3 hours of the decision to transfer.
- When the teams are on transfer, it will be necessary to prioritise referrals according to clinical needs.
- Early expert clinical advice and management by Consultants trained in Intensive Care is available to referring hospitals at all times.
- The clinical team comprises of a transport doctor (with at least 6 months experience in the intensive care environment) and a band 6 or above with relevant experience in PIC, with an appropriate intensive care qualification. Both staff groups will be APLS accredited.
- Education and training of the transport staff is a fundamental part of the Service.
- Outreach education for referring units is provided.

Clinical Governance

As part of an on-going quality and safety program a number of performance indicators are continuously audited by the North West and North Wales Paediatric Transport Service. These quality performance indicators are also part of national standard monitoring.

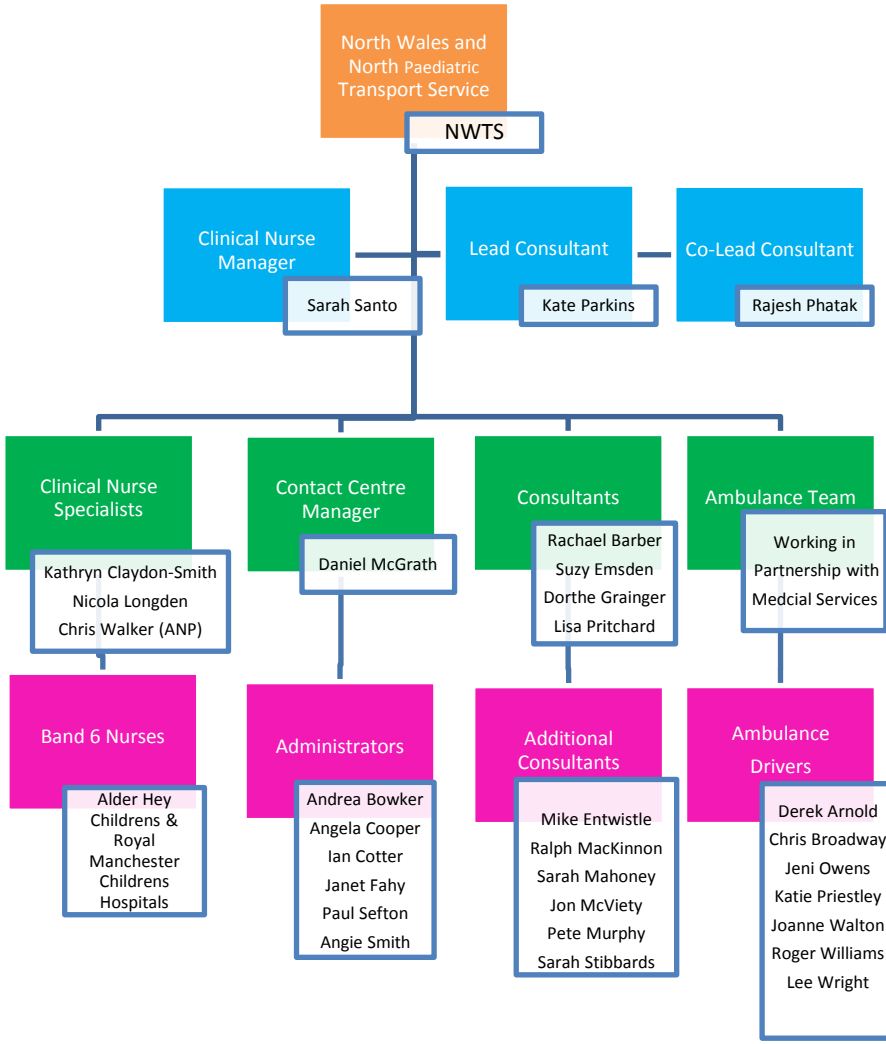
Within the North West of England we are fortunate to have the two largest children's hospitals not only in the UK but in Europe. This means that very few children have to travel outside the region to receive specialist paediatric care.

The Royal Manchester Children's Hospital had a 'state of the art' new facility built in 2006 with Alder Hey Children's Hospital in Liverpool following suit in 2015.

This allows for a large capacity of children's intensive care beds; however this is finely balanced as they serve a very densely populated area, with a very mixed demography.

When the NWTS Service was set up the placement of children between both tertiary centres was very closely monitored. Each referring unit has its' lead centre; these were based on contracts and historical pathways. This means that the child is placed as near to home as possible.

Meet the Team



Teams mobilised vary in composition depending on the level of care an individual child needs and the ability of the transport lead on duty (who may be either medical or an Advanced Nurse Practitioner). Consultants are available 24/7 to join the team to improve the level of care delivered, reduce risk during transport for the patient and to provide education and training to members of the team. Medical trainees come from a variety of specialities eg Anaesthetics, Emergency Medicine and Paediatrics, including Paediatric Intensive Care medicine. In addition to clinical expertise, an individual needs good team-working and communication skills, flexibility and adaptability to cope with the demands of an individual patient, unfamiliar clinical environments, work with unfamiliar clinical teams, and multiple simultaneous referrals. Assessment of competencies during transport is made by a senior

NWTS team member before an individual performs a transfer without direct senior supervision (nursing or medical). A National Paediatric Intensive Care Transport Competency Passport has been developed by the UK Paediatric Intensive Care Society (PICS) Acute Transport Group and ratified by PICS council and RCPCH. Two members of the NWTS senior team were on the working group that developed this document.

In addition to competency assessment, regional transport teams must provide annual training for their team members, and this includes scenario training in addition to workshops and lectures. Mortality and critical incident review, in addition to audit, are all part of on-going training and review of how well the team is performing, and inform the on-going development of the team.

Staff must be aware of the hazards of fatigue and it is important to have regular fluid and food during any shift to maintain concentration levels. NWTS drivers are encouraged to take a break, especially after longer journeys, before assisting the team preparing for transfer back to PICUs. Emergency snack-packs are carried by the team to use if they have been unable to take adequate meal breaks during a shift.

Providing Advice

Any referral to NWTS (whether for advice or transfer) involves a direct discussion and advice on patient management from a NWTS Consultant, and ideally at this stage the referring consultant will have already reviewed the patient. It is anticipated that the patient's consultant will join the referral call unless actively involved in stabilising the patient. If the consultant is not present at the point of referral to NWTS, the NWTS consultant expects that the paediatric consultant be brought into a conference call in order to clarify the plan for patient management.

Advice given is based on the information provided, and clear communication about a patient's history and current clinical concerns are key to the success of this process. There is a referral proforma (on NWTS website) to aid referring teams gather all the information required. Essentially it is important to state what is required from the NWTS team; give a brief history plus relevant past medical history, with up-to-date clinical observations, an ABC assessment including examination findings and any blood results including blood gases and a lactate, and the response to any intervention/treatment (actual numbers help NWTS build a picture of current clinical state). NB at the end of the call please state your proposed clinical management plan and what you want from

NWTS. NWTS may also ask talk to other clinical colleagues e.g. anaesthetists, surgeons etc.

Clinical advice from NWTS on stabilisation of the patient is delivered using an ABC approach. NB all patients referred to NWTS are followed up for a minimum 24-48 hours or until their condition stabilises. If a patient appears to be deteriorating at follow-up the NWTS consultant and the paediatric consultant will be brought into another conference call to discuss any proposed changes to patient management.

Neonates and children come in a variety of ages and sizes, and emergency on-line drug calculators (e.g. www.crashcall.net) in addition to regional/national guidelines help to improve confidence in prescribing and administering appropriate drugs. NWTS website (www.nwts.nhs.uk) includes a section for regional and national guidelines for easy access.

Early referral to the regional paediatric transport team, who provide Consultant advice (from a consultant in paediatric critical care transport) on patient management, may prevent deterioration and the need for transfer to Paediatric Intensive Care. All patients referred to NWTS are followed up for a minimum 24 hours or until their condition stabilises. Approximately 40% of referrals to the NWTS Team do not result in transfer to a tertiary centre. This

ensures children are cared for closer to home; and supports the appropriate use of PICU resources.

Referrals that result in an advice only response are not just dealt with in one single call. Referrals are followed up until a child is improving or if they then deteriorate further despite escalation of care locally and require transfer by NWTS to PICU. On review of advice only calls for 2017-2018 NWTS followed patients up for mean 34.86 hours (median 20.5 hours; range 0.47-426 hours) involving numerous calls to support the clinical team during the stabilisation process. Length of follow-up for advice calls varies during the year from mean 23.84 hours in summer (median 8 hours) to mean 40.14 hours in winter (median 45.33 hours) is due to acuity of patients during winter season. Any advice call in addition to clinical management may include drug/fluid doses, practicalities of equipment use, conference calls with specialist teams, help with bed location, and logistics of transfer (ie organisation of time critical, high dependency or ward level transfers). Patients may have complex medical problems and NWTS increasingly are providing support to local clinical teams when managing patients requiring end of life care in their local hospital, in addition to transfers to home or hospice.

Retrieval and Transport Data

Transport Data 2017-2018	Total
Total Referrals to NWTS	1260
PICU Retrievals	518
Back Transfers	0
Advice	595
Out of Remit	25
Refusals	18
Back Transfers to DGH using primary PIC team	2
Transferring out of region due to lack of PICU beds	65
NWTS mobilised child stabilised at DGH not requiring PICU transfer	15
Child transferred to Neonatal Unit	3
HDU to HDU transfer	9
Child Transferred for Palliative Care	2
Team mobilised child RIP at DGH	9
Tertiary Centre Repatriation	5
Out of Region for Quaternary Care	22
Ward Transfer	2
Adult ITU	1
Overseas Repatriation	0

Out of Region Transfers

Prior to NWTS set up we were aware that around 50-100 patients per annum were transferred out-of-region (OOR) due to lack of availability of PIC beds, often by a local DGH Team. This usually entailed multiple phone calls by the referring teams, and long delays before transfer. In 2017 – 18 there were 65 OOR transfers due to lack of capacity in region. This is partly a reflection of the increasing numbers of PIC transfers required and is part of a national problem during periods of peak demand.

In order to minimize the impact on families for all emergency OOR transfers due to lack of PIC capacity in region NWTS always seek to find the closest appropriate PIC bed e.g. patients from Leighton or Macclesfield would be transferred by NWTS to PIC at North Staffordshire University Hospital. The majority of these transfers occur during peak demand (winter) when PIC bed pressure nationally is high.

Some patients require transfer out-of-region for quaternary treatment (e.g. cardiac, liver or lung transplant patients; tracheal or complex cardiac surgery; ECMO). Some are transferred out-of-region for a second opinion. This entails long-distance transfers, and is often done on a semi-elective basis. We aim to provide a second team specifically for these transfers to ensure that a NWTS Team is always available for any transfers within region.

Destinations included Leeds and Birmingham for liver patients, London (Evelina and GOSH) for cardiac and tracheal surgical patients and Newcastle and Leicester for ECMO patients.

Flight Transfers

Over the last year NWTS have continued to work as clinical partners with both the flight team from the Isle of Man and The Children's Air Ambulance (TCAA). NWTS have undertaken 16 flight transfers; both fixed wing and helicopter.

Flight transfers are considered for any transfer over 90-120 minutes as per national guidelines proposed by Paediatric Intensive Care Society Acute Transport Group. Flights are broadly dependent on whether a patient is fit to fly, whether there is an aircraft available within an appropriate timeframe, and if the weather is suitable. NWTS personnel receive additional training in management of patients during flight transfers. If a flight transfer is not possible (due to weather conditions) the majority of children are then transferred by road.

NWTS are part of the clinical governance group for transfers involving TCAA which involves monthly conference calls to discuss previous flight transfers, and is a forum to promote shared learning from any excellence or adverse incident reporting.

This year NWTS are also very grateful to have flown at night using Bristow Search & Rescue (SAR) team and with Emergency Medical Retrieval & Transfer Service (based in Wales) to enable the team to transfer critically sick patients to a specialist centre for on-going treatment when our usual flight providers were unavailable.

Winter Pressures

Winter pressure funding is allocated annually via NHS England. NWTS bid for additional funding to increase the team's ability to provide transfers for critically sick children in region during peak demand. During the past winter NWTS utilised winter pressures funding in 2 main areas.

Firstly, an additional PICU transport team for 3 months during the winter (Nov – Feb), equating to a full NWTS team working 12MD till 12MN Monday to Friday only. NWTS have seen a year on year increase in referrals and therefore utilised the winter pressures money to extend this service to 7 days a week to help meet this demand.

During 2017–18 65 children required transfer to an out of region PIC bed due to lack of regional PIC bed capacity. The additional 12-12 team helped NWTS to transfer such patients safely (reduced risk

of NWTS team working beyond usual shift hours). Without the additional 12-12 team NWTS would have struggled to meet quality performance indicators e.g. target for NWTS team mobilisation times and NWTS refusals during times of peak demand.

Mobilisation Data

April 2017 – March 2018

All Paediatric Intensive Care Transport Services aim to achieve quality targets

1. 'NWTS primary team – mobilisation within 30 minutes of accepting a referral.' (Service specification North West Specialist Commissioners)

2. 'The retrieval team should arrive at the referring unit within three hours of the decision to retrieve the child'. (Paediatric Intensive Care Society (PICS) 2015)

Target 1

NWTS mobilised a team ≤ 30 minutes 69.9% of the time. Mobilisation times when the team are at base reveal that NWTS mobilise ≤ 30 minutes 80.5% of the time.

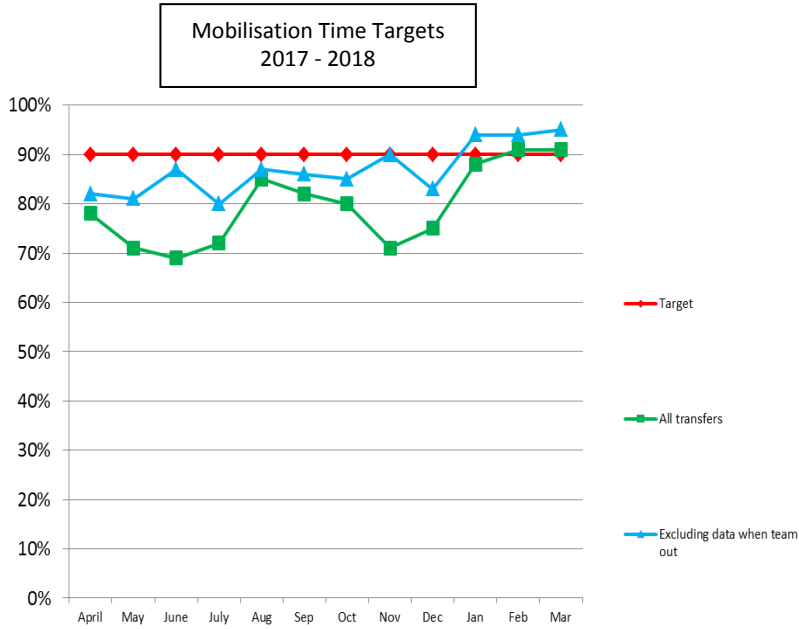
The main other reasons for delay of mobilisation (other than the team already being out on transfer) is dealing with multiple referrals at once, flight transfers, elective transfers and referrals being made just before shift change.

Target 2

Regional transport teams are required to be at a patient's bedside within 3 hours of agreement of need for transfer to PIC (national target).

Response Time (time from acceptance to patient bedside) in 2017-2018 was under 3 hours 92.5% NWTS transfers.

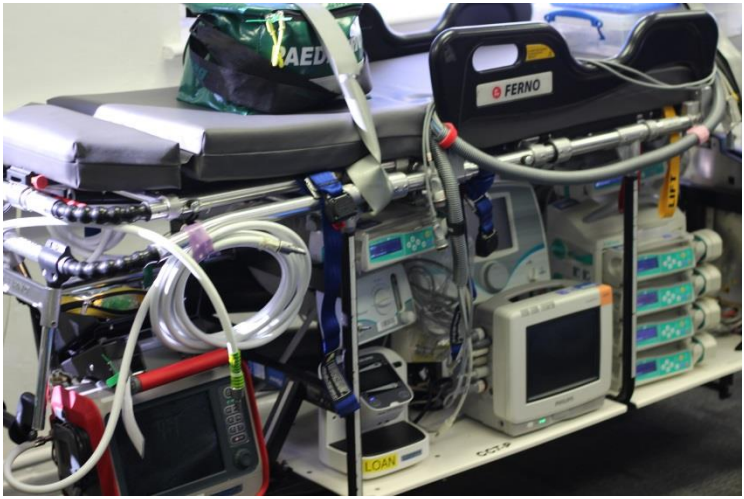
The delay outside of this target was due to the primary team out already on transfer or multiple referrals to the team.



Previously, teams from both PICUs in region were often delayed in mobilising as nursing, medical and ambulance teams had different shift patterns, and they all had responsibility for the care of other patients. Previously, both unit-based teams utilised the local 999 ambulance provider for all transfers. To improve NWTS ability to meet this target the whole team is based on one site with aligned shifts and their only clinical responsibility is transport. NWTS has a dedicated ambulance team based with the team which has led to improved mobilisation times.

Equipment

Regional transport teams have access to dedicated equipment and kit including specific ventilators, monitors and infusion pumps that can cope with variety of sizes of paediatric patient (i.e. from neonate to 16 years) and are robust with sufficient battery life to cope with transport without requiring recharging. Part of induction and on-going training at NWTS includes equipment to enhance familiarity with its operation. At each shift the equipment is checked to ensure that it is fit to be used for a transfer, and any faults are referred to the medical engineering department.



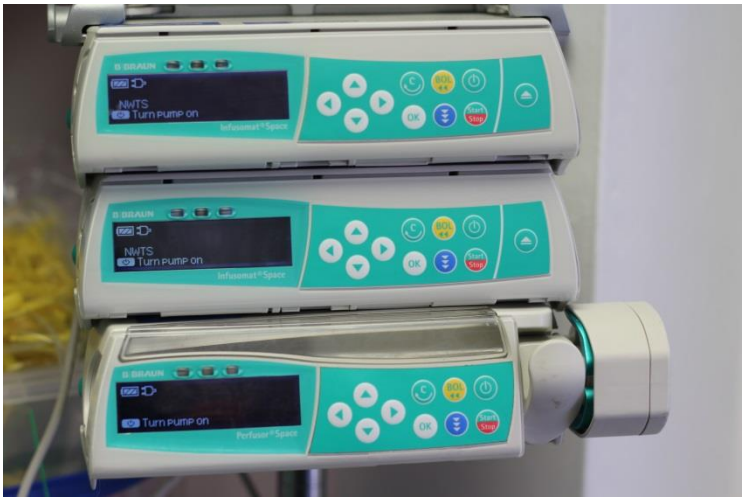
NWTS use checklists to ensure that the team makes adequate preparation for each transfer. This includes one to ensure that appropriate equipment is taken from base to the referring unit, in addition to a pre-departure ABC-based checklist prior to transferring a patient to the receiving PICU. For all patient journeys equipment is packed and easily available to address events which occur infrequently, e.g. re-intubation kit. In addition, most children may require a bolus of fluid or drugs during their transfer, so these are prepared before transfer and kept close to hand.

Infants and children must be secured safely to the transport stretcher before departure. NWTS use the Baby POD™ for those under 5 kg and an appropriate 5-point harness for older children e.g. ACR harness (Paraid) or similar. To improve ability to maintain temperature NWTS use either transwarmers (chemically activated warming device) or Inditherm™ as active heating devices, especially for those under 1 year old. All equipment must be safely secured to the ambulance trolley during transfer to prevent danger of injury to patient or staff during the journey.

NWTS use a dedicated ambulance. The ambulance has been adapted for purpose, with provision of both piped air and oxygen, and use of cupboards for additional equipment. This provides NWTS with the ability to do back-to-back transfers without the

need to return to base, reducing any delays which may otherwise occur, especially at times of peak demand.

During transfer, for safety the team and parent(s) must wear seatbelts. The trolley fixation has been moved more centrally to allow a member of the team to be able to reach to adjust either pumps or ventilation without removing their seatbelt. If any other patient intervention is required, the ambulance pulls over to allow the team to stabilise the child before transfer continues.



Education and Training

The NWTS Team is commissioned to provide support, education and training for the local referring teams who may, at times, face the challenges of the management of a critically ill or injured child. In 2017 - 18 NWTS provided:

Nurses HDU Conference 2017

* 27th June 2017
* HDU Care morning – presentations - 5
* Afternoon workshops - 6
* Attendance – 56 candidates
* Hospitals where candidates attended – Isle of Man, Blackburn, Bolton, Warrington, Wigan, Bangor, Glan Clwyd, Tameside, Lancaster, Furness, Preston, Wigan, Wrexham, Stepping Hill, NMGH, Macclesfield, Blackpool and Wythenshawe.
* Faculty – 17 Bolton ,Warrington, Wigan, Wrexham Glan Clwyd, Stepping Hill, NMGH, Preston and Blackpool

56 Attendees

The Three C's
Cardiac, Coagulation & Child Protection

NWTS
North West & North Wales Paediatric Transport Service

Annual Conference 2017

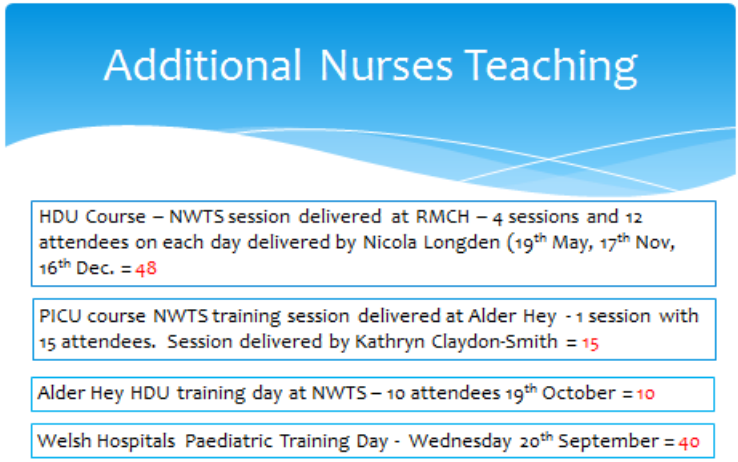
Wednesday 27th September 2017

Chair for the day:- Dr Suzy Emsden (AM) & Dr Jon McViety (PM)

Time & Topic	Presentation key learning objectives	Speaker
9.30-9.50 (20 mins)	Registration / Tea and Coffee	
9.50-10.00 (10 mins)	Welcome	Suzy Emsden
10.00-11.00 (60 mins) Cardiac	• To understand how a neonate presents with the undiagnosed Congenital Heart Defect (CHD) • How to optimise the management of a neonate with CHD within the district general hospital • To recognise the importance of the treatment of a known child with a CHD who presents with none cardiac condition (sepsis) ensuring treatment is not delayed	Joyce Lim
11.00-11.20 (20 mins)	Break	
11.20-11.50 (30 mins) Cardiac	• To review the process and treatment the child has on admission to the tertiary centre when a CHD is diagnosed.	Rafael Guerrero
11.50- 12.30 (40 mins) Child Protection	• Recognising and managing the patient who may have taken illegal substances, and the importance of safe guarding referral. • Where is the appropriate place care for this 'Child' Adult / paediatric ICU	Sarah Stibbards Mike Entwistle
12.30 -13.00 (30 mins) Coagulation	• Interesting Case: Liver, immunity or sepsis • Understanding diagnose pit falls when dealing with Coagulation	Lisa Pritchard
13.00-13.45 (45 mins)	Lunch	
13.45 -14.15 (30 mins) Coagulation	• Interesting case: expect the unexpected • Understanding what makes a critical care transfer, is a gut feeling enough?	Suzy Emsden
14.15-14.45 (30 mins)	Communication, and Constructive Criticism • How does NWTS being a single team service affect your ability to care and transfer your child within the HDU? • Question and Answer session.	NWTS Panel
14.45- 15.05 (20 mins)	Break	
15.05- 15.50 (45 mins) Child Protection	• To understand the principles and difficulties that we faced when dealing with child and family involved with a non-accidental injury (NAI)	Sarah Dixon
15.50- 16.25 (35 mins) Coagulation	• To understand the diagnostic approach to a child with an undiagnosed Coagulopathy	Rob Wynn
16.25-16.30 (5 mins)	Questions and Close	Suzy Emsden

99 Attendees

- 20 Centres NWTS Provided Outreach
- 1 Regional Conference: Cardiac, Child Protection, Coagulation
- 5 Critical Care Update Days
- 4 PCCN – Nursing Sub Group Meetings
- 1 Link Nurse Day
- 11 Nurse Shadowing Shifts
- Ad-hoc Training Days (UCLAN/HDU/ Theatre Teams etc.)



Total Number Trained Externally 1344

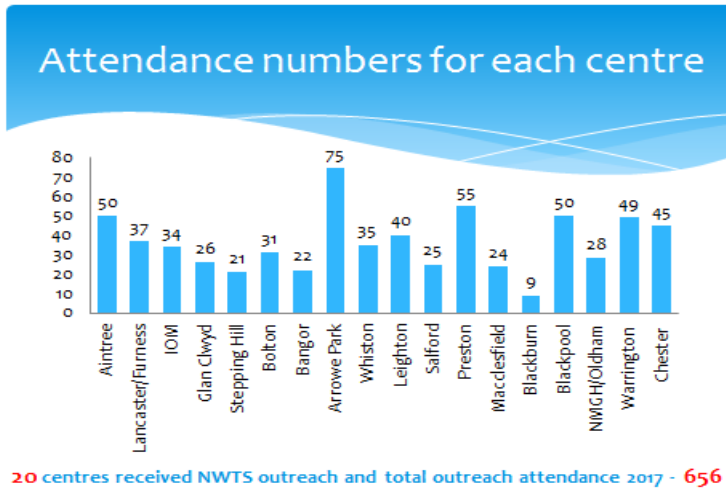
Who is on the team?

- Suzy Emsden
- Carrie Young
- Rachel Barton
- Nicola Longden
- Kathryn Claydon-Smith
- Constantinos Kanaris
- Katie Higgins
- Amicia Davey

Associate Members

- Laura Dixon
- Michelle Wilson
- Sara Sollieux
- Claire Hughes

Over the past 8 years, senior members of the NWTS team have travelled out to the majority of each hospital trust (29 in total) within the region to provide an agreed programme of education. The aim is to provide a once-a-year session to each hospital with a key objective to attract all teams that may be called to assess and deliver acute care to critically sick children.



NWTS Outreach Programme for all units 2017 - 2018

NWTS Presentation on Sepsis

Interesting Cases presented by local DGH Team

NWTS Presentation on GCS

NWTS Presentation on Intubation – Preparation & Pitfalls

NWTS Presentation on Inotropes & when to use them

Case Discussions led by the local team (in which there had been NWTS involvement, either providing advice and/or transferring the child into a tertiary centre. Attendees rotate around 3 workstations.

Feedback from Regional Teaching

'I thoroughly enjoyed the content and thought the speakers were clear, stimulating and the case studies to be very relevant'
'Well run and very friendly atmosphere'

'Loved the simulation scenarios but challenging to organise for the faculty, thanks for your hard work!'

'Enjoyable day, much prefer this style to previous days. May have been even more productive if a better turn out. Think it might be better in future if people are allocated which day they are doing, given plenty of notice so that it can be figured into off duty both at AHCH/RMCH/NWTS.'

'Overall very relaxed but clear & useful day – I thoroughly enjoyed it thank you – best yet!'

'Was so glad that the day wasn't all "death by PowerPoint" and really enjoyed the "sim" side of it'

'Really great day – thoroughly engaging – super debriefings – best educational intervention from NWTS to date – many thanks'

'Tracheostomy care as first time I have practice passing one, & keeping the emergency management plan in our high dependency rooms.'

The team also provided the NWTS Annual conference aimed at any healthcare professional covering 2017 topic of the “3 C’s” Cardiac, Coagulation and Child Protection. The day was a great success with lots of positive feedback.

Link Nurse Days are run twice a year. These sessions include Feedback, Case Discussions and Practical Demonstrations, including Optiflow and SiPAP. These sessions ran from 10.30 am to 3 pm. They are aimed at Nurses and Advance Nurse Practitioners working in Paediatric Wards / Emergency Departments / Theatres / Adult ICUs. We have also now started taking Link nurses out with us on a transfer to get an insight in to the logistics of the referral and transfer process. We have facilitated this for 11 link nurses in 2017-18.

NWTS team members are part of the team organising and facilitating the monthly regional PICM teaching with colleagues from both AHCH and RMCH. Senior team members also present at a variety of regional and national meetings and conferences on paediatric transport, airway management, vascular access, and on paediatric simulation courses.

NWTS In-House Education

Medical/Nurse Focused sessions: 8 sessions delivered and attendance numbers - 33 NWTS team members trained/updated 12th May, 28th July, 10th August, 11th August, 15th August, 19th September, 9th October, 25th October 2017

Content

Team building

Cardiac top tips lecture & interesting case presentation

Metabolic top tips & interesting case presentation

Simulation 1 – Helicopter

Simulation 2 – Defibrillation safety in the ambulance

Simulation 3 – Ambulance lipped tube

Simulation 4 - Handover at DGH

CMAC Cleaning update

ANTT, Syringe drivers, prostin calculations, moving & handling at NWTS, Acute Transport Group Passport update

NWTS Highs & Lows

PICANet

Shrek stretcher practical

Medical devices

Optiflow/CPAP/NIV update

Flight Training

Principles of Flight and Physiological Effects – delivered by Terry Martin on 21st Sept - 23 staff attended

The Children's Air Ambulance Annual Training 2017

NWTS Valid AETC Training Numbers = 30

Feedback

The day was very good and informative. It was great to attend a study day that included all the team from consultants to nurses to ambulance crew and admin.

Really useful information throughout day - lovely mixing with other members of team that I wouldn't see from shift to shift

A real time simulation e.g. Scenario of child needing flight or nitric almost like APLS!

Helicopter stretcher preparation

Additional Education Resources

NWTS Online training and induction placed on a secure staff site as part of www.nwts.nhs.uk

Daily training provided as part of review meetings (10am meeting). Log sheets available to demonstrate attendance at these meetings.

Transport Passport (Paediatric Intensive Care Society- Acute Transport Group) nationally agreed educational record of retrieval experience, education and reflection utilised at NWTS to log all activity.

Practicing the admin role when they aren't there, conferencing calls etc.

Accident Planning

Networks

NWTS are part of the Paediatric Critical Care Operational Delivery Network in region, and work with clinicians from both referring units and specialist tertiary centres to optimise the care of the critically ill child through the formulation of regional guidelines, the provision of educational sessions and information sharing through regular regional meetings.

NWTS senior team members have continued involvement with the Children's Major Trauma Network and the Paediatric Cardiac Network, working together to improve the care of the critically injured or ill child.

Senior team members were part of the working party developing the paediatric critical care transport competency passport for the Paediatric Intensive Care Society Acute Transport Group. This has been approved by both PICS council and the RCPCH Paediatric Intensive Care Medicine CESAC and is now used by all NWTS staff.

NWTS are part of the national paediatric and neonatal critical care flight transfer group. NWTS also work in collaboration with the Children's Air Ambulance Service (TCAA) to ensure high quality care of patients during flight transfers.

Guidelines

The NWTS team understand that the initial management of the critically ill child in the DGH can be challenging. As such we provide several guidelines which are readily accessible on the NWTS website. These have been developed with close collaboration between NWTS, specialists at the two tertiary paediatric centres and the regional paediatric critical care operational delivery network.

The guidelines are kept regularly updated and new guidelines developed in response to regional and national events and incidents.

All guidelines are available at www.nwts.nhs.uk/clinicalguidelines

Audit, quality improvement and service development

The NWTS team endeavour to promote good quality care through audit, quality and service development projects.

Data is collected from all NWTS transfers for the national PICANet retrieval dataset. PICANet annual reports are available at http://www.picanet.org.uk/

All adverse events, critical incidents and mortality data are reported and analysed at regular intervals. Mobilisation times, refusals, documentation, parent attendance on transfers and education and outreach provision are also regularly audited.

The NWTS excellence reporting system continues to capture and feedback on excellent practice at NWTS and amongst our colleagues in the region. An excellence 'safari', sharing learning points and good practice, has been incorporated into the regional outreach programme.

Audit projects over the past year include:

Audit of documentation of intubation

Retrospective audit to establish documentation standards for intubations in patients under 12 months of age and to identify who is carrying out intubations and any documented complications.

Findings

83% of patients had grade 1 and 15% had grade 2 laryngoscopy, and the majority (75%) were intubated on the first attempt. 81% were intubated by the referring tem.

Actions

The NWTS form was updated to facilitate clear documentation and this is reviewed in the daily case review meeting. The findings have been shared with our colleagues in the region at the Critical Care Update study days.

Audit of palliative transfers undertaken by NWTS

This audit aims to ensure compliance with the standards stated in the NWTS guidelines, PICS standards and the ACT pathway

- All staff undertaking transfers should have appropriate training (at least 1 member of team NWTS trained)

- Palliative care transfers should not compromise the NWTS service by utilising an acute team

- Parallel planning should be in place

Findings

Ad-hoc arrangements lead to lack of consistency in the service offered, with the provision of palliative care transfers occasionally compromising the NWTS service.

Actions

NWTS guideline/SOP to be produced. The audit findings have been utilised to support our business case to fund an expanding service.

Audit of the regional management of Neonatal Herpes Simplex

Retrospective audit over a 12 month period aiming to review the incidence and management of HSV in neonates

Findings

As anticipated we identified that the incidence low but mortality high. We noted that there was limited clarity in the guidance to identify which infants presenting with sepsis should be treated empirically with acyclovir.

Actions

We plan to include advice on when to suspect/treat HSV in updated sepsis guidelines and re-audit and expand scope of audit to gain information on criteria for starting acyclovir.

Neonatal intensive care transfers referred to NWTS

Retrospective audit to identify compliance with NWTS transport guideline when transferring patients referred from NICU

Findings

Over 20% of NWTS transfers from NICU were off-guideline but transferred because the neonatal team were unavailable, impacting upon the paediatric critical care service. NWTS do not have the appropriate equipment to maintain temperature in <2kg - 48% of neonates transferred by NWTS were hypothermic

Actions

We plan to share our findings with Connect NW and potentially carry out a collaborative re-audit. Our updated transport guidelines will reflect the risks associated with transferring neonates under 2kg with the current equipment available to us.

Rolling audits and audits in progress

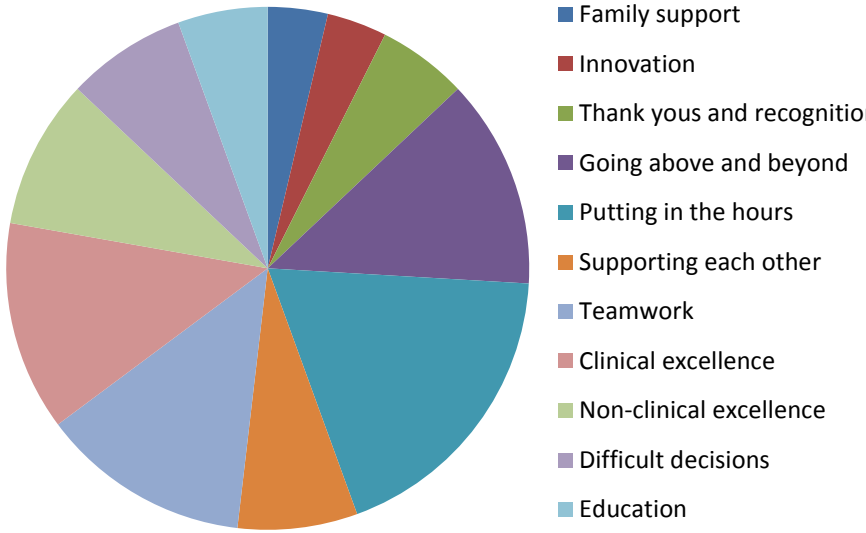
Rolling audits at NWTS include the PICANet dataset, Outreach and education activity, Documentation, Transfers reaching the bedside > 3 hrs after referral and families travelling in the ambulance.

Audits currently in progress at NWTS include Out of region transfers, NIV in bronchiolitis, Use of IV salbutamol, Availability of metabolic drugs in DGH, Management of the time critical abdomen and use of C-MAC video laryngoscope by NWTS team.

Excellence reporting at NWTS

Over the past year we have continued to celebrate and learn from excellent practice, both within the NWTS team and amongst our colleagues in our referring District General Hospitals, our receiving PICUs and our road and air ambulance providers.

Themes



Comments and learning points

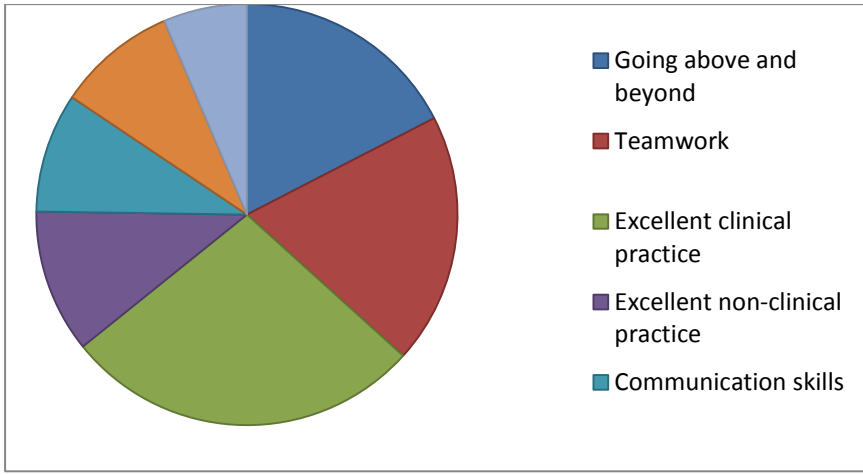
'The service relies on individual good will, selflessness, strong working ethos and clinical acumen to maximise resources within the team'

'Incredibly supportive in reassuring the team that there was consensus that withdrawal was appropriate, offering to attend to support the team and also continuing to support and advise the team after the child had died'

'A lot can be achieved in a short time by motivated and dedicated people! Well done!'

Excellence in the region

Themes



Comments and learning points

‘Early recognition and response to critical illness reduces mortality and morbidity’

‘Plan for all eventualities in known difficult airways’

‘Good communication in challenging scenarios maintains a calm environment’

The NWTS team really appreciate your support

- Your practical help is essential
- Discussing challenging cases can help with tough decision making
- Thank you for looking after the parents!

Teams work outside their comfort zone in the best interests of the child

- Managing adolescents on adult ICU
- Escalating treatment to avoid transfer (inotropes, NIV)

Mortality Review

Since its inception, reflecting on our practice and ensuring we have robust mechanisms to identify areas where change in practice is needed has been a core value of the NWTS team. NWTS aims to follow all transferred patients for the first 24-48 hrs post transfer. This helps with reflection and team learning.

As part of this process, regular Mortality Review meetings are held at NWTS base to review information from the referral process, stabilisation and eventual transfer to PICU (where applicable). Having close links to Mortality Review groups in both the tertiary children's hospital enables efficient sharing of information.

Trainees and nursing staff have always been encouraged to present and participate in the mortality review meetings. Not only makes this more effective process, but also makes it more conducive to the concept of developing an "organisation with a memory". Serious adverse incidents are also reviewed across a multi-disciplinary group. Ambulance personnel are encouraged to attend and often provide valuable insight into ensuring logistic planning is as robust as it could be.

Notable conclusions from recent mortality reviews:

- Seeking input from tertiary specialists (either via conference call or standalone discussions with accepting Consultants) helps minimise risks to patients.
- The previously held concept of “resuscitation for 20 minutes” is constantly challenged and though there are some survivors, many children will not survive especially if OOHCA that is prolonged.
- Severity of illness / nature of Pathology often incompatible with life with presentation at late stage.
- Teams often go beyond their call of duty when making valiant attempts to preserve life. Some areas of excellence in practice already identified and these have been shared across the region (with consent from individual teams / clinicians, where applicable).
- Joint early intervention from Paediatrics / Anaesthesia and ED clinicians is often seen documented and this helps effective patient Mx in most instances. Early recognition or early intervention issues are best discussed when team dynamics are taken into consideration.

In addition to Mortality meetings at NWTS, event debriefs are offered to individual hospital teams across the region. They have always been well received. DGH teams have also welcomed the

opportunity to use audio call records to analyse / appraise decision making.

Parents

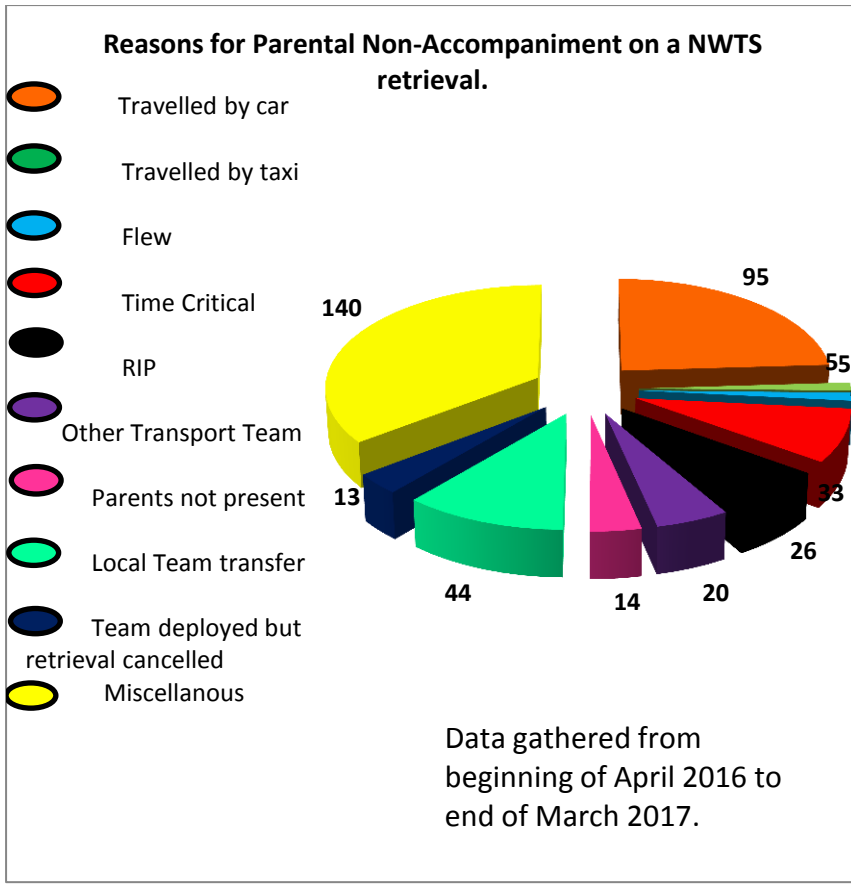
Supporting the family during the child's stabilisation and transfer is a vital part of our role at NWTS. Our parent information leaflet explains the transfer process and includes directions and contact numbers for the regional PICUs. It is available in English, Polish, Urdu and now also in Welsh.

Although the majority of our patients have a good outcome, occasionally a critically ill child becomes too unwell to survive transfer and the NWTS team support the withdrawal of life sustaining treatment in the referring hospital. This year NWTS have introduced an information booklet to guide families when a child dies, which includes practical advice on topics such as registering a death and arranging a funeral, as well as information on post mortems and organ donation, in a sensitive and supportive format.

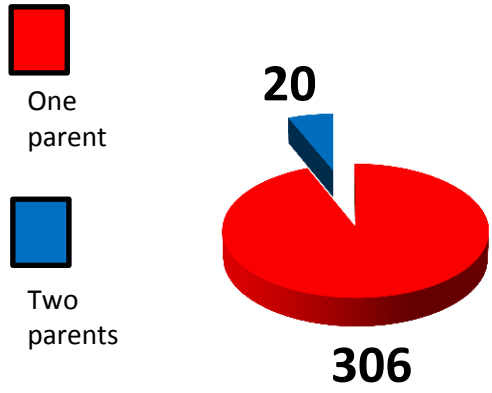
NWTS charitable fund provides a parent snack pack (consisting of a drink, crisps and biscuits) to all parents accompanying their child to PICU. We also have access to phone chargers enabling parents to charge their mobile phones in the ambulance.

Paediatric Intensive Care Society (UK) Standards 2010 state "wherever possible and appropriate, parents should be given the option to accompany their child during the transfer". NWTS

recognise the positive benefits of parent(s) travelling in the ambulance, especially if their child is very unstable and may not survive the journey. As such we endeavour to enable a parent to accompany their child on the majority of transfers, as shown below.



Number of parents who accompanied their child on a NWTS retrieval.



Data gathered from the beginning of April 2016 to the end of March 2017

Feedback from Family

"We would like to thank you greatly for transferring our little girl from Furness General (Barrow) to Alder Hey and back again. When you arrived at FGH on the worse day of our lives (Christmas Day) you instantly put us both at ease with the confidence you all showed. You are amazing. We now refer to you all as the Super Doctors. I am extremely thankful that a service like this exists. Thank you again. We got our Christmas Day eventually"

"A very big thank you for all your help when our son was transferred from Preston to RMCH.
As a family this is the second time we have used this service as my nephew was transferred to Alder Hey 6 years ago. Thankfully both have made a full recovery thanks to the great care received."

Charitable Donations

NWTS are very grateful to the families that have fundraised and made charitable donations over the past year, your efforts have enabled us to obtain new equipment.

08000 84 83 82

www.nwts.nhs.uk