



Annual Report

2014 / 15

University Hospitals of Leicester **NHS**
NHS Trust

Caring at its best

Nottingham University Hospitals **NHS**
NHS Trust

University Hospitals **NHS**
Coventry and Warwickshire
NHS Trust



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Highlight of the year

Successful fundraising campaign in collaboration with Leicester Hospitals Charity to raise funds to buy equipment to allow CenTre to offer in transit therapeutic hypothermia for infants suffering from hypoxic ischaemic encephalopathy

Thanks go to everyone, including families of infants transferred by CenTre, staff from our own transport service as well as from the neonatal unit at the Leicester Royal Infirmary staff, retail and commercial bodies who all helped to raise in excess of £50,000 within a 12 month period.

Other highlights this year include:

- ◆ The appointment of a new transport consultant based at University Hospitals Coventry and Warwickshire
- ◆ The appointment of several new transport nurses
- ◆ Numerous posters presentations on a variety of transport related topics displayed at local, national and international conferences

Introduction

Thanks for picking-up the CenTre Annual Report – I hope you find it interesting and it gives you a picture of the work that the service does.

It's five years since CenTre assumed responsibility for the transfer of neonatal patients for units within the Central Newborn and Trent Perinatal Network area so we have taken the opportunity in the data section of this report to look at some longer-term trends in our workload. Take a look at Table 1 in the data section – CenTre attended 1582 transfers in 2014-15, an average of 4 or 5 every day. This is up more than 20% from the workload of our first years, and we are doing all this with the same core funding we had right at the beginning.

If activity continues to increase CenTre will at some point be unable to meet demand for transport in a timely way. If requests for transport could be evenly spaced-out through the working week then all would be well, but of course we all know that isn't how this works. We are going to monitor the days when demand for transport significantly exceeds the CenTre supply to see if we can get a grip on what sort of extra transport resource might be needed in the not-too-distant future.

While the number of transfers per year has gone up by 20% there are some subtle variations in the increases which are worth further consideration. Table 2 makes these visible, showing that when transfers are split into their four key categories (OPA, uplift, repatriation & capacity) that it is repatriations, up by 29%, that account for almost half of the increase seen.

Much of our ability to respond to the increasing demand comes from running an ever-more efficient service. The nurses, doctors, ambulance crews and call-handlers who together make-up our front-line teams have all worked really hard to develop shared understandings of how to get the best solution to transport problems. Having our full complement of dedicated vehicles and crews has made a massive difference for us – you'll see our response times are all better and the efficiency this has brought us has helped us deal with the workload increase.

There's more detail of other aspects of the service in the reports and data that follow. Please have a look and feel free to come back to us with questions & comments. Five years ago we set-out to set a standard in the open & transparent reporting of what we do for the units we serve and I'm really proud that each year the team rises to those challenges.

Andy Leslie

Nurse Consultant & Service Lead.

Medical Review

This year has seen some changes to the consultant staffing for CenTre. We said goodbye to Prathap Chandra who left UHCW to take on a consultant role in India. We thank Andy Coe for his role as a transport consultant prior to the appointment of Puneet Nath who commenced in post in April 2015 and we welcome him into the team.

Congratulations to Anneli-Wynn Davies who is currently on maternity leave after the birth of her daughter Megan in January. During this time Dushyant Batra and Julia Edwards are continuing to support the transport service both clinically and supporting professional activities whilst Anneli is on maternity leave.



CenTre Neonatal Transport Consultant Team L to R: Puneet Nath, Jo Behrsin, Andy Leslie, Julia Edwards, & Dush Batra

Out of hours we are still reliant on consultant transport cover and cover for the respective tertiary neonatal units being combined. We acknowledge that, at times, this can be challenging but we would like to thank our consultant colleagues for their continued support for CenTre.

We are moving towards more robust middle-grade cover but there are still occasions when we require staffing from locums due to rota gaps. This is now on the UHL risk register and we record any gaps in medical cover using the Datix system. Thankfully these occasions of being unable to dispatch a team due to lack of staff are rare. We have successfully joined the Royal College of Paediatrics and Child Health Medical Training Initiative Scheme and have appointed a rotational post from August 2015 jointly with the

Medical Review cont'd

neonatal service to south base. We continue to have good feedback on the post from fellows in terms of clinical transport experience and provision of opportunities to enhance career development. We are grateful for the support of our tertiary neonatal services in contributing advanced nurse practitioners and medical staff to middle-grade rotas.

We have continued to participate in audit and service reviews. The focus this year has been on closing the loop on two projects – over-ventilation and oxygen saturation targeting. Guidance produced by Dr Gareth Penman was effective in reducing the rate of over-ventilation. We are currently looking at three areas: 1) hypocarbia in cooling transfers, 2) a review of our ventilator provision and 3) looking at whether to implement transcutaneous CO₂ monitoring in transport to further reduce the rate of hypocarbia (this is a nationally reported quality index). Education for the transport teams about the oxygen saturation targets also improved compliance with the target range during transport. We have presented lots of our audit and service review work both nationally and internationally with posters and presentations at British Association of Perinatal Medicine Perinatology meeting in Harrogate (June 2014), at the National Transport Group Meeting in Belfast (November 2015) and at the inaugural Transportation of High Risk Neonates European conference in Genoa in January 2015, as well as Midland Matters in January 2015.

We have recognised the potential issue of managing a difficult airway in transport and have purchased the I-gel laryngeal mask airway for all kit bags as well as other specialist equipment (in line with the neonatal service at UHL) to manage the airway. Training to staff has been given and a guideline has been written on the use of this equipment. To date we have fortunately not required to use this but are in the process of prospectively auditing its use.

This year we have been working closely with the Paediatric Intensive Care Units in our area as well as other stakeholders to form and appraise options to facilitate provision of a sustainable solution to their transport. Issues. This work is on-going.

We have continued to provide support to Julie Gallagher with in-house nurse education and also outreach provision and plan to incorporate simulation training into more of these sessions.

On-going projects for 2015/16

- We are in the process of working closely with IT to develop a website for CenTre transport that will be accessible to all stakeholders

- Work is underway to try and review and improve the quality of transport handovers - this will continue

- We have recently purchased two Criticool machines to deliver active cooling in transport - the medical team will support its implementation

- Work closely as a consultant team to review options for more sustainable solutions for middle-grade medical staffing

Jo Behrsin

Puneet Nath

Dush Batra

Julia Edwards

Consultant Neonatologists UHL, NUH, UHCW

Nursing Review

The last twelve months has seen many comings and goings within our nursing team. During the year we said goodbye to Rhina Bhakta, Lee Khosa, Digna Briones and Robbie Simmons who all left for new challenges. We wish them all well with their careers in the future.

On a positive note we welcomed Ann Marie Boyce, Hannah Burton, Roxanne Purdue, Jennie Roberts, Reena Singh and Sophie Sharpe to our team. Robbie Simmons also re-joined CenTre as part of the nursing team from UHCW. Recruitment has gone well and we are anticipating the arrival of 3 new trainee transport nurses towards the end of the year. Along with new nursing team members we have also had two weddings (Michelle Bartles and Ann Marie Boyce), four babies (Michelle Bartles, Louise Wright, Jo Waterfall and Lisa Heywood), one engagement (Sophie Sharpe) and another two babies on the way (Hannah Burton and Ann Marie Boyce) within our small team! Not surprisingly this has all put a strain on our nursing team. I would like to personally thank all of the nursing team for their continued support, commitment and flexibility in ensuring we can provide a safe, professional service.

We have strived to obtain feedback from those families we transfer as often we are seen as an extension of the neonatal services we serve. This is testament to the rotational commitment of our nurses in that families see them not only in a transport role but also as a member of the neonatal service where their baby is being looked after. We have been successful for the first time this year in receiving family feedback via our Survey Monkey parents' questionnaire. Initially the response rate was low, however once the CNN / TPN network administrator, Lindsay Hill, started to advertise the link to the survey on the network Facebook page the replies started flooding in.

We continue to attract a steady stream of student nurses, new neonatal nurses and other observers who all want to come along to see what we do. Hopefully this will provide a rich source for future transport nurses. If anyone would like to spend a day with us please speak to one of the transport nurses and we can arrange a convenient date.

Nicky Davey

Matron

Fundraising Review

August 2014 saw the launch of our charitable fund—"Little Lives Big Journeys". This is supported by the Leicester Hospitals Charity.

The initial target was to raise sufficient funds to purchase two Criticool machines to allow us to provide in transit active cooling for those infants with suspected hypoxic ischaemic encephalopathy. The money quickly started to come in thanks to the hard working team in the charitable funds department at the University Hospitals of Leicester. We have also received lots of donations from families of infants the service has transferred over the last five years. People have been doing all sort of amazing things from holding raffles, a ladies evening at Ragdale Hall, jumping out of aeroplanes, running the Great North Run, cycling from Leicester to Skegness or completing a self-imposed triathlon to help raise funds for our service.

The John Lewis store in Leicester chose our appeal as one of their Community Matters charities for May, June and July 2015. This meant we would receive a proportion of the £3000 on offer. The final amount we are receiving is in excess of £1290.

Such has been the success of our appeal that after only 8 months we were able to place an order for the first of our cooling machines. I am very pleased to tell you all that within 12 months of launching our appeal we have now purchased our second Criticool. It is hoped that they will shortly be in service and bringing benefit to our patients. We are now concentrating on raising funds for other pieces of equipment to continue to improve the service. We would like to thank everyone who has helped raise money for our appeal; it will certainly make a difference to the lives of the babies we transfer.

www.justgiving.com/LittleLivesBigJourneys

Nicky Davey

Matron

Activity 1

Table 1 Total CenTre workload

All transfers where the team were dispatched are shown. Subset data for paediatric transfers are infants transferred where the journey neither started nor finished at a neonatal unit. The figures in brackets show infants not moved but team dispatched from base

	2010-11 (49 weeks)	2011-12	2012-13	2013 - 14	2014-15
Total CenTre transfers	1263 (17) 1246 moved	1298 (11) 1287 moved	1406 (17) 1389 moved	1518 (8) 1510	1582 (28) 1554
Neonatal	1256	1292	1401	1515	1568
Paediatric	7	6	5	3	14

Table 2 Trends over time

There has been a year-on-year increase in the workload for CenTre. This table compares 2011-12 data with 2014-15 for completed transfers only.

	2011 - 12	2014 - 15	Difference n= (% change)
Total Transfers (n=)	1287	1554	Up 267 (21%)
Repatriation n= (%)	456 (35%)	586 (38%)	Up 130 (29%)
Uplift n= (%)	498 (39%)	589 (38%)	Up 91 (18%)
Capacity n= (%)	279 (22%)	329 (21%)	Up 50 (18%)
OPA n= (%)	54 (4%)	50 (3%)	Down 4 (-7%)
Support			
Ventilated n= (%)	310 (24%)	397 (25%)	Up 87 (28%)
CPAP n= (%)	123 (10%)	171 (11%)	Up 48 (39%)
Inotropes n= (%)	76 (6%)	69 (4%)	Down 7 (-9%)
Transfers done by			
North team n= (%)	627 (49%)	738 (47.5%)	Up 111 (18%)
South team n= (%)	660 (51%)	816 (52.2%)	Up 156 (24%)
In-city transfers			
Leicester to Leicester n= (%)	167 (13%)	184 (12%)	Up 17 (10%)
Nottingham to Nottingham n= (%)	124 (10%)	155 (10%)	Up 31 (25%)
Capacity & networks			
Capacity, ventilated n= (%)	64(5%)	84 (5%)	Up 20 (31%)
Capacity, ventilated, moved out of level 3 unit n= (%)	58 (4%)	57(4%)	Down 1

Activity 2

Table 3 Activity classified by clinical and operational reason 2013-14 compared to 2014-15.

	Medical		Surgical		Cardiac		Neurological		TOTAL		Diff
	2013	2014-	2013-	2014-	2013-	2014-	2013-	2014	2013-	2014-	
Uplift	196	230	210	195	79	106	60	59	545	590	Up 45
Repat	569	584	6	0	0	0	0	2	575	586	Up 11
Capacity	283	327	2	0	0	0	0	1	285	329	Up 44
OPA	21	17	11	9	23	19	4	5	50	50	No
TOTAL	1069	1158	229	204	102	125	64	67	1464	1554	Up 90
DIFF	Up 89		Down 25		Up 23		Up 3		Up 90		

Table 4 Despatch time for time critical transfers (n= 31)

	2010 – 11	2011 – 12	2012 - 13	2013 - 14	2014 - 15
Despatch time (minutes) median (interquartile)	64 (40,111)	65 (46,87)	52 (30,86)	50 (30,58)	40 (25, 55)

Despatch time = time from call receipt at CenTre to team leaving office en-route to referring unit.

Nationally agreed criteria for time critical transfers are:

- Gastroschisis
- Ventilated infant with TOF +/- Atresia
- Intestinal perforation
- Suspected duct dependant lesion not responding to Prostin infusion

Unstable respiratory or cardiac failure not responding to appropriate management

Activity 3

Table 5 Transfers done by other teams/units

We count the occasions where we know another team was involved in a transfer that CenTre might have undertaken. It is 's important to emphasise that these are not "refusals" - CenTre appropriate referrals are not refused

The data in this table are of occasions where we know patients started or finished their journey at a CNN or TPN unit but where CenTre did not undertake the transfer. In all cases the decision that another team will undertake the transfer has resulted from a discussion between referring unit, the transport consultant, CenTre teams and other clinical teams. The end result of those discussions is that it is best for clinical or logistic reasons for another team to undertake the transfer.

2010 – 11	2011 – 12	2012 - 13	2013 - 14	2014 - 15
34	50	62	26	33

Table 6 Transfers into or out of a PICU

These are transfers that a PICU transport team might have undertaken. Transfers completed by CenTre that either started or ended in a PICU for 2014 – 15 have been scrutinized thoroughly for this report, hence the reduction in numbers.

2010 – 11	2011 – 12	2012 - 13	2013 - 14	2014 - 15
58	60	44	46	9

National Comparisons

Each year the UK Neonatal Transport Group compiles annual comparisons of all UK neonatal transport teams, including details of workload collated and compared using the standardised BAPM/NTG dataset. The full presentation of these comparisons is available on request, but two key figures are copied below.

Table 1. Total transport workload/team Jan-June each year shown.

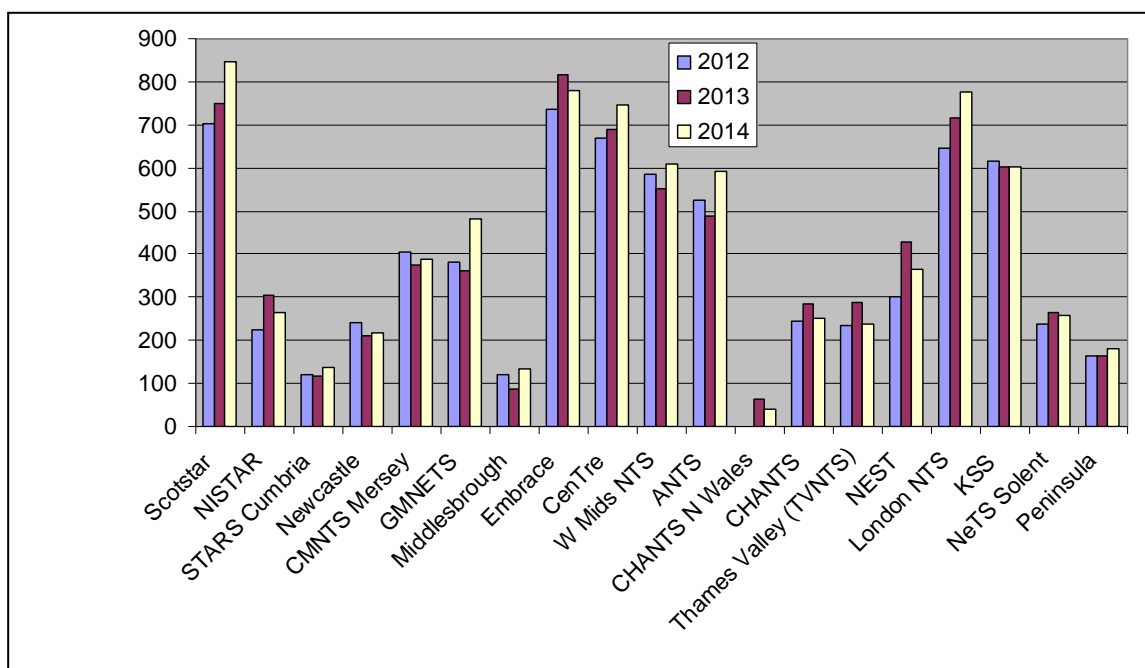
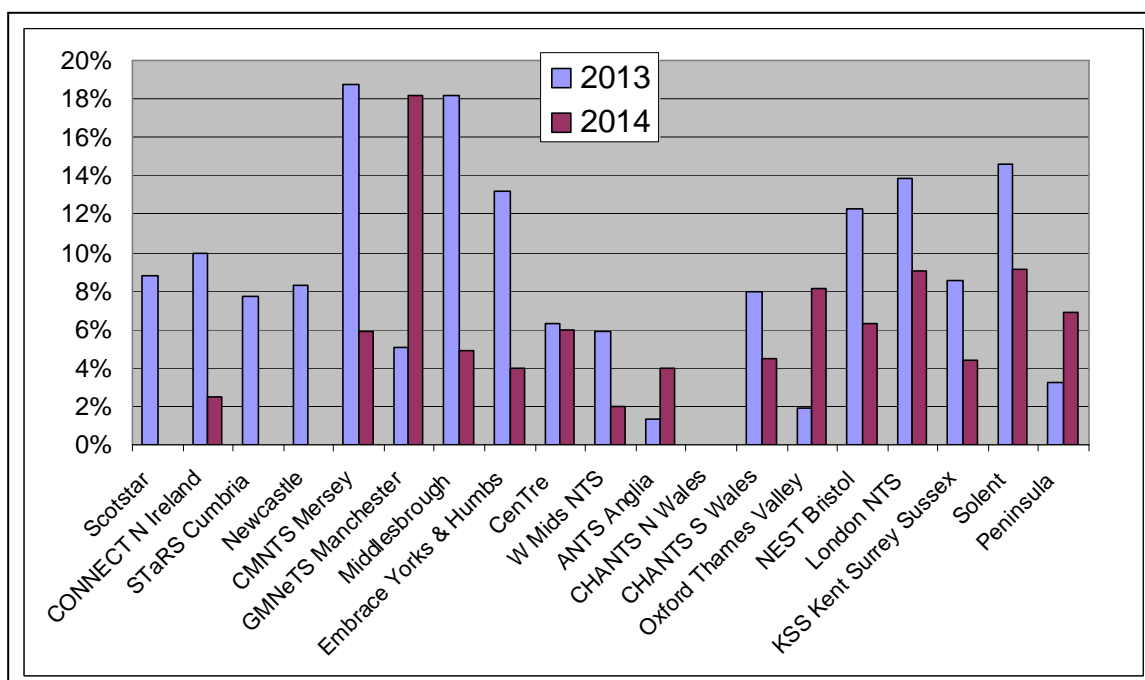


Table 2. Percent of transported infants with pCO₂ <4 kPa on completion of transfer, per service, Jan – June 2013, 2014.



Governance

The quality dashboard below shows month by month how CenTre is performing against both nationally set targets, such as time critical response times and transfers for intensive care classified as either uplift or resource where it took longer than 210 minutes from initial referral to reaching the infant, and locally set markers such as low CO₂ levels in all infants receiving respiratory support (ventilation or CPAP) during transfer.

Number of:	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	Total
total number of transfers	147	108	125	149	120	117	121	130	149	152	117	147	1582
Transfers where a CO ₂ of less than 4kPa at end of transfer was recorded	4	1	3	3	1	1	2	2	3	0	2	1	23
Transfers where an axilla temperature of less than 36C was recorded at end of transfer in an uncooled baby	1	0	0	1	1	0	0	0	0	0	0	0	3
Time Critical transfers with a dispatch time MORE than 60 mins / total time critical transfers e.g. 1/3	0 out of 4	0 out of 3	1 out of 3	1 out of 2	2 out of 3	1 out of 1	1 out of 3	0 out of 1	0	0 out of 1	0 out of 3	0 out of 3	6 out of 27 22%
Transfers where it took MORE than 3.5 hrs to reach the baby (referral time to arrival at referring unit time - UPLIFT / RESOURCE / ITU ONLY)	27/83 33%	19 /74 26%	17/58 29%	25/41 61%	14/49 26%	6/33 18%	9/31 29%	15/37 40%	14/39 36%	1/42 2%	15/40 37%	2/43 5%	164 out of 570 29%
Days in the month that less than 3 daytime teams available	4/30 13*	19/31 61%*	12/30 40%	7/31 23%	7/31 23%*	7/30 23%	4/31 13%	6/30 20%	7/31 22.5%*	7/31 22.5*	11/28 39%	5/31 16%	96 out of 365 26%
Completed governance reviews forms from previous month completed e.g.1= 2=	40/40 100%	35/40 87%	30/40 75%	45/45 100%	40/40 100%	40/40 100%	30/40 75%	30/40 75%	30/40 75%	40/40 100%	40/40 100%	20/40 50%	420 out of 485 87%
Documentation review scores RED = AMBER = GREEN =	4,10, 26	8, 7, 20	6, 5, 19	5, 20,20	5, 11, 24	7, 6, 27	5, 8, 17	7, 8, 15	7, 8, 15	9, 5, 26	15, 7, 18	3, 1, 16	81 (19%), 96 (23%), 243 (58%)
Datix forms submitted	11	5	4	8	5	3	3	6	4	2	3	2	56

Monthly documentation reviews continue as a means of identifying learning points for all team members and ensuring the quality of the written notes.

Education Review

The transport educator and the medical team have provided many sessions in-house and throughout the network units. This period has included the induction and training of 3 new transport nurses, one from each of the supporting hospital trusts (UHL, NUH, UHCW). Below are some examples of what the Transport Educator and the medical team have been doing this year.

In-house education

Five study days were delivered alternating between north and south bases. There were an average of 10 transport nurses, ambulance crews, transport fellows, ANNP's & registrars on each day.

Topics delivered included

- How transport affects the neonate (physiology)
- Difficult intubation
- The practicalities of a nitric transfer (case review)
- Transport humidification
- Saturation targeting during transport
- Ventilator pressures
- The handover process
- Care close to home
- Blood transfusion and transport
- Clinical governance

Feedback received included comments such as: *"This was a really good day, thank you for inviting me to join in. It was very well organised, interesting and relevant"* (ANNP NUH)

Outreach education

Education sessions around stabilisation for transfer have been delivered at all the units in our networks. We are able to utilise a variety of teaching methods including the more traditional format of PowerPoint presentations and small group face to face sessions as well as structured clinical simulations. Our education team are happy to assist with any education needs surrounding the stabilisation and transfer of babies. Please contact julie.gallagher@uhl-tr.nhs.uk with any education requirements.

The medical team have facilitated two transport days for registrars, and undertaken simulations with medical staff. Other activities have included small group seminars, lectures, discussion of interesting cases & simulation workshops. They have also contributed to the East Midlands Paediatric regional training days, teaching transport stabilisation.

This year saw the introduction of a poster display in all local and special care baby units. Each poster highlights the preparation and stabilisation of babies with specific conditions for transport. The first poster circulated was focussed on transferring the baby with a duct dependent heart lesion. Further posters are planned covering such topics as transferring the surgical patient, cooling patient and premature baby.

The education team have also facilitated sessions on registrar training days and on the intensive care modules at UHCW.

Education Review

The education team have also facilitated sessions on registrar training days and on the intensive care modules at UHCW.

Feedback received included these: *"All very well presented and useful, very informative, great learning opportunity and visual prompts, I have a better understanding of how we need to work, thank you for your enthusiasm!"*

Plans for 2015-16

The Education team have recently surveyed user units to obtain suggestions for sessions for the forthcoming year. We will continue to support the East Midlands simulation programme with transport related scenarios at units' request. Innovations such as possibly providing a locally run neonatal transport module are being considered - so watch this space!

Our service is currently developing a website with the aid of the IT team at UHL it is hoped that, in the future, this might contain useful educational resources which can be made available for the network units to access. The education team are working on interactive teaching packages which will allow the user to work through them independently at their own pace. The packages will give an overview of conditions commonly associated with neonates, explain signs and symptoms and the considerations required for transporting the infant.

We will continue to provide:

- bi-monthly education sessions for the CenTre Transport Team
- induction for trainee transport nurses
- training sessions for registrars / fellows joining CenTre
- poster presentations and face to face sessions supporting stabilisation
- simulation sessions

Why not utilise us to provide sessions to assist with continuing professional development in your unit or suggest staff spend a day with the transport team as part of their appraisal process? These can all be used as part of the new nurse re-validation process which goes live in April 2016.

Julie Gallagher

Transport Educator

Publications, Presentations & Posters

Publications

Stark Z, Behrsin J, Burgess T, Ritchie A, Yeung A, Tan TY, Brown NJ, Savarirayan, R, Patel N. 2015. **SNP microarray abnormalities in a cohort of 28 infants with congenital diaphragmatic hernia.** Am J Med Genet Part A 9999A:1–8.

National & international presentations

National Transport Data. Leslie A, Invited presentation to UK Neonatal Transport Group annual meeting, Belfast Nov 2014.

Transport of neonates with pneumothorax - experience of CenTre transport service Andrew Leslie, Dr W Shinwari, P Chandra, 1st Transport of High Risk Neonates Conference, Genoa, Italy, 23-25 Jan 2015.

Excessive exposure of the preterm head to shock and vibration during inter-hospital transport M Yeo, C Henry, S Hill, L Blaxter, B Hayes-Gill, D McNally, J Crowe, A Leslie, D Sharkey. 1st Transport of High Risk Neonates Conference, Genoa, Italy, 23-25 Jan 2015.

Overcoming Medical Recruitment Challenges in Neonatal Transport. J. Behrsin
1st Transport of High Risk Neonates Conference, Genoa, Italy, 23-25 Jan 2015.

Do mechanical and human factors combine to overventilate transported infants? Andrew Leslie, Joanna Behrsin, Anup Kage, Gareth Penman, 1st Transport of High Risk Neonates Conference, Genoa, Italy, 23-25 Jan 2015.

Posters at regional / national/international meetings

Oxygen saturation Targeting in Neonatal Transport: Improving Compliance with Targets. Batey N, Hughes S, Leslie A, Behrsin J, Wynn-Davies A. Neonatal Transport Group Annual Meeting November 2014. Belfast.

Reduced incidence of iatrogenic hypocarbia following service review, education and guidance. Penman G, Behrsin J, Wynn-Davies A, Leslie A. Neonatal Transport Group Annual Meeting November 2014. Belfast.

Transported ventilated newborn infants are at risk of iatrogenic hypocarbia. Penman G, Kage A, Behrsin J, Leslie A. Perinatology 2014, Harrogate

PDA “away days” – service review of the transport process and clinical outcome
A Kage, SJ Hughes, A Leslie, J Behrsin. Perinatology 2014, Harrogate

Five year review of diagnosis and outcome of Tracheoesophageal fistula (TOF) and/or Oesophageal atresia (OA) at a UK Tertiary Centre and survey of routine practice to rule out TOF/OA by passage of NG tube in UK tertiary units. Singh N, Dejemai H, Broomes N, Grahame E, Behrsin J. Reason Conference, Warwick June 2015