



# Annual Report



**2020 – 2021**

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# 1. Foreword

As with all other parts of the health service, our year has been dominated by the Covid-19 pandemic. It has been a time of many contrasts and emotions, with much to be proud of but also sadness for those who have lost their lives or developed chronic illness around the world.

Neonates and children were not impacted in the same way as adult patients, and in fact our activity levels dropped significantly during the lockdowns, so our main focus was on helping to reduce the pressure on adult services, by widening our scope of care, and assist in the regional and national response. In the first wave our team supported the development of the Harrogate Nightingale Hospital and in the third wave we helped establish a regional adult transport team..

We look forward to the pandemic recovery phase. Healing and reflection will be required.

**Cath Harrison, Lead Consultant (Neonates)**

**Steve Hancock, Lead Consultant (Paediatrics)**

**Jo Whiston, Lead Nurse**



## 2. Highlights 2020/2021

- Embrace received 2504 referrals and activated teams for 1650 transfers of infants and children across Yorkshire, the Humber and beyond
- Embrace completed 18 helicopter and 10 fixed wing missions
- Fully accredited by the Commission on Accreditation of Medical Transport Systems ([camtsglobal.org](http://camtsglobal.org)) for critical care transport by ground, rotary wing and fixed wing
- Accredited partnerships with Yorkshire Ambulance Service NHS Trust, IAS Medical, Air Alliance and The Children's Air Ambulance
- Key performance reporting to PICANet, Neonatal Transport Group and the Ground and Air Medical qUality Transport (GAMUT) database
- Support to the rapid development of Harrogate Nightingale Hospital in pandemic wave one and the Y&H Adult Critical Care Transport Service @Embrace in wave three
- Staff immunisation programme to protect our team against Covid-19





### **3. Embrace service**

Embrace Yorkshire & Humber Infant & Children's Transport Service has been operational since 6<sup>th</sup> December 2009. The service meets the standards set by the UK Paediatric Intensive Care Society<sup>1</sup>, the National Institute for Health and Clinical Excellence Specialist Neonatal Care Quality Standard<sup>2</sup> and the Commission on Accreditation of Medical Transport Systems<sup>3</sup> for the provision of specialist transport services by ground and air.

The host organisation for Embrace is Sheffield Children's NHS Foundation Trust - one of only four independent children's Trusts in the UK.

#### **Mission statement**

Embrace aims to provide the highest quality paediatric and neonatal care for infants, children and their families from the first point of contact to arrival at the destination unit.

It is the mission of Embrace to provide:

- A single point of telephone contact for referring clinicians
- Access to immediate specialist clinical advice
- Triage to an appropriate level of transport provision and dispatch of transport teams within a clinically appropriate time window
- Identification of a suitable cot or bed so that the most appropriate care is provided in the most appropriate location for any infant or child requiring specialist care in the Yorkshire & Humber region
- Logistical support for high risk obstetric transfers by locating a suitable maternal bed and neonatal cot

<sup>1</sup> PICS Quality Standards for the Care of Critically Ill Children 5<sup>th</sup> Edition. Paediatric Intensive Care Society; 2016

<sup>2</sup> Specialist Neonatal Care Quality Standard. National Institute for Health and Clinical Excellence; 2010

<sup>3</sup> Commission on Accreditation of Medical Transport Systems standards 10<sup>th</sup> Ed [camtsglobal.org](http://camtsglobal.org)

To achieve this Embrace will:

- Maintain appropriate communication between all parties to ensure the efficient and effective continuity of patient care
- Ensure every transfer is carried out in a way that maximises patient safety, comfort and dignity and minimises patient pain, discomfort, or distress and that of parents/guardians

## **Background to Embrace**

Embrace provides specialised transport for all newborn infants and critically ill children from Yorkshire and the Humber who need moving between hospitals. The aim is to provide this service at the right time while providing the same high standards of care that they would receive in a specialist hospital. The vision was for a service separate from the receiving and referring hospital, enabling the team to be available on demand for the transfer of a critically ill infant or child. The service was founded on co-operation and collaboration between all parts of the Yorkshire & Humber NHS and this spirit has been fundamental to the continued success and growth of the service.

Embrace is part of the Surgery & Critical Care Division at Sheffield Children's NHS Foundation Trust which includes Paediatric Intensive Care, High Dependency Care, Neonatal Surgical Unit, Anaesthesia, Surgery, Theatres and the Pain Service. Working within a Division that specialises on the delivery of critical care to patients has allowed Embrace to develop strong clinical governance structures focussing on safety and quality.

## **Who we serve?**

Embrace serves the children of Yorkshire and the Humber region which covers an area of 15,400 square kilometres, has a population of 5.3 million, of which 17% are aged under 16 years, and an annual live birth rate of approximately 75,000. The community includes large urban settlements such as Hull, Leeds and Sheffield as well as rural

areas such as the East Riding of Yorkshire and North Yorkshire. We transfer newborn infants and critically ill children to and from the hospitals operated by the acute NHS Trusts in the region:

- ❖ Airedale General Hospital, Keighley
- ❖ Barnsley Hospital
- ❖ Bassetlaw Hospital, Worksop
- ❖ Bradford Royal Infirmary
- ❖ Dewsbury and District Hospital
- ❖ Calderdale Royal Hospital
- ❖ Chesterfield Royal Hospital, Halifax
- ❖ Diana Princess of Wales Hospital, Grimsby
- ❖ Doncaster Royal Infirmary
- ❖ Harrogate District Hospital
- ❖ Hull Royal Infirmary
- ❖ Jessop Wing, Sheffield Teaching Hospitals
- ❖ Leeds General Infirmary
- ❖ Pinderfields Hospital, Wakefield
- ❖ Rotherham General Hospital
- ❖ St. James University Hospital, Leeds
- ❖ Scarborough General Hospital
- ❖ Scunthorpe General Hospital
- ❖ Sheffield Children's Hospital
- ❖ The York Hospital

## **What is the role of Embrace?**

Most infants and children can be cared for close to home in their local hospitals, however there are some for whom this is not possible. Embrace provides a single point of contact by which clinicians caring for these infants and children can access regional services, get advice and arrange transfers.

A single phone number puts the clinician through to a call handler who takes some basic information before bringing in one of our specialist transport consultants. As more details are obtained a picture of the infant or child is put together. Other

specialists, such as neonatologist, cardiologists or intensive care physicians, can be 'conferenced' into the call by the call handler as required. Together these clinicians can make a plan for the care of the infant or child. All calls are recorded and these recordings form part of the clinical records.



When a plan involves moving the infant or child to more specialist care, the transport consultant and nurse co-ordinator decide upon the makeup of the transport team to provide the best possible care during the journey. This will depend on the level of critical care that the infant or child requires. The sickest children would have a team consisting of a transport consultant, middle grade doctor or Advanced Nurse Practitioner working with a transport nurse and ambulance driver; a more routine transfer may involve a transport nurse and a driver.

On arrival at the referring hospital the Embrace team take a handover from the referring team before assessing the child. The child can be moved onto the transport equipment once the team are satisfied that the patient is stable. The journey can then begin. Wherever possible, Embrace encourages a parent to accompany their child



during the journey. On arrival at the destination hospital the child is handed over to the receiving team and moved from the transport trolley into an appropriate bed or cot for their ongoing care. Once the transfer has been completed the Embrace team will liaise with the base to determine the next task to be completed.



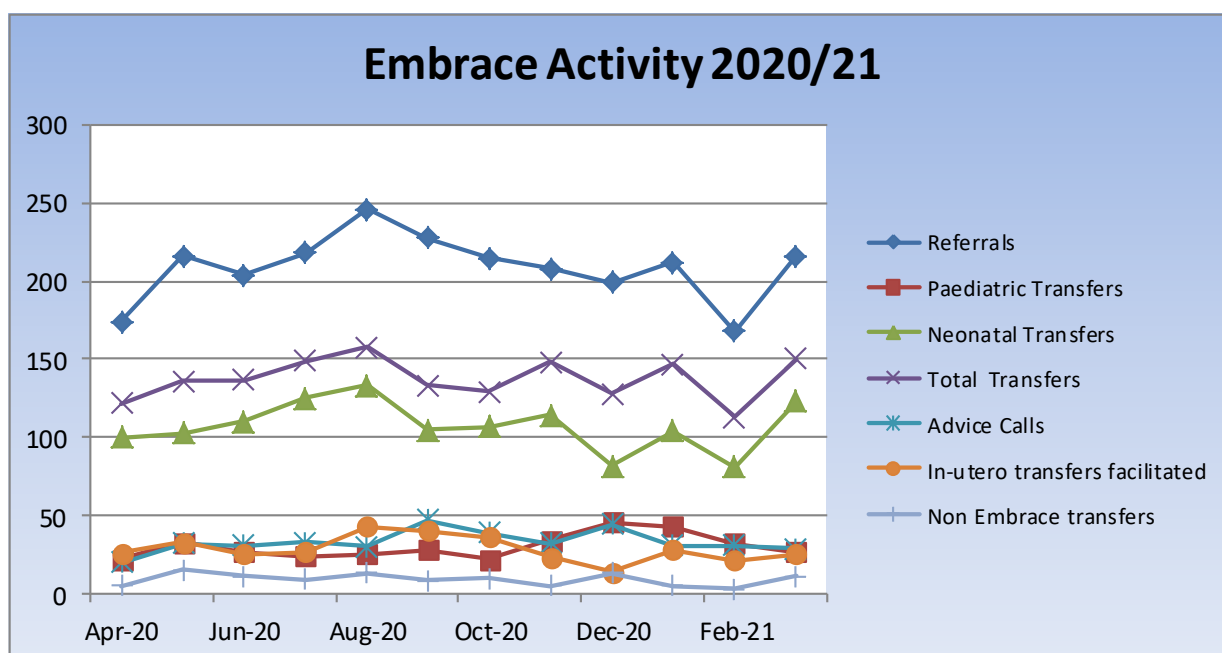
Air transport is provided in collaboration with specialist partners, by either fixed wing or rotary wing.

Regular feedback from the referring and receiving hospital teams as well as parents has enabled Embrace to be responsive to the needs of those it serves and to modify our service.

## Activity 2020/2021

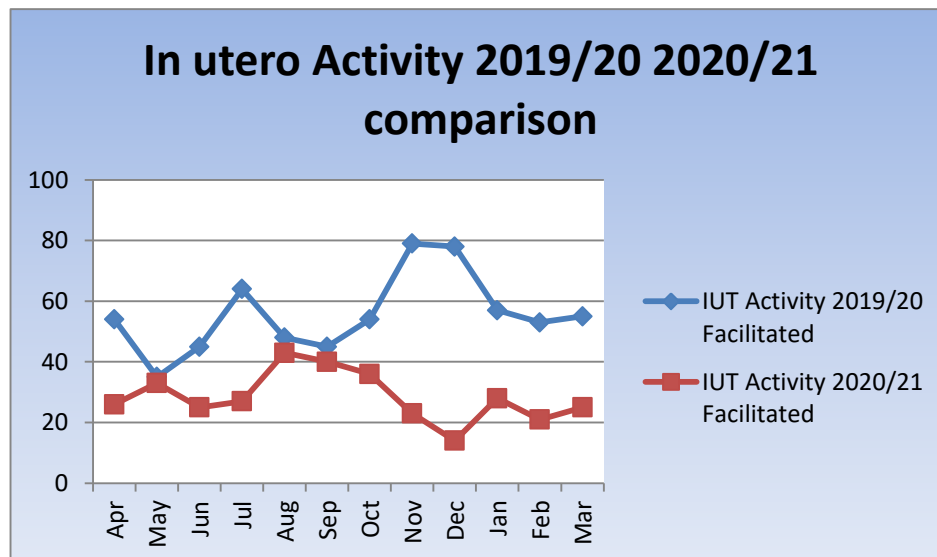
During the report period Embrace took 2504 referrals which resulted in 1650 transfers: 1287 neonatal & 363 paediatric transfers. 341 of the referrals related to in-utero transfer requests. The following graphs and tables show this activity in greater detail.

Consolidated activity	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Year to Date
Referrals	174	216	204	218	246	228	215	208	199	212	168	216	2504
Paediatric Transfers	22	33	27	24	25	28	22	34	46	43	32	27	363
Neonatal Transfers	100	103	110	125	133	105	107	114	82	104	81	123	1287
<b>Total Transfers</b>	<b>122</b>	<b>136</b>	<b>137</b>	<b>149</b>	<b>158</b>	<b>133</b>	<b>129</b>	<b>148</b>	<b>128</b>	<b>147</b>	<b>113</b>	<b>150</b>	<b>1650</b>
Advice Calls	20	32	31	33	30	47	39	32	44	31	31	29	398
In-utero referrals facilitated	26	33	25	27	43	40	36	23	14	28	21	25	341
Non Embrace transfers	5	15	11	9	13	8	10	5	13	5	3	11	112



The following table shows the break down between neonatal and paediatric work compared between 2019/20 and 2020/21, with further break down between in utero and advice calls. Part of Embrace’s role is to provide an in-utero bed finding service and facilitate obstetrician to obstetrician discussions. Embrace work closely with the Neonatal Operational Delivery Network and the regional Maternity Strategic Clinical Network to ensure effective use of all the available cots in the region.

<b>Embrace activity comparison</b>	<b>Total</b>
<b>Total referrals 2019/20</b>	3400
<b>Total referrals 2020/21</b>	2504
Embrace paediatric transfers 2019/20	447
Embrace paediatric transfers 2020/21	363
Embrace neonatal transfers 2019/20	1529
Embrace neonatal transfers 2020/21	1287
Embrace total transfers 2019/20	1976
Embrace total transfers 2020/21	1650
No transfer/advice 2019/20	577
No transfer/advice 2020/21	398
In utero referrals facilitated 2019/20	667
In utero referrals facilitated 2020/21	341
Other transfers 2019/20	180
Other transfers 2020/21	112



## 4. Covid-19 pandemic response

As with all other parts of the health service, our year has been dominated by the Covid-19 pandemic. It has been a time of many contrasts and emotions, with much to be proud of but also sadness for those who have lost their lives or developed chronic illness around the world.

Around the world, providers of neonatal and paediatric healthcare experienced a reduction in demand during the pandemic, and during lockdown in particular. Our main focus was on helping to reduce the pressure on adult services. We widened our scope of care to include paediatric low dependency transfers to assist local children's services and the ambulance system. In addition, we transferred young adults who were accepted to regional PICUs to help decompress adult critical care units.

In the first wave our team supported the development of the Harrogate Nightingale Hospital, using their experience to help in the planning of the transport model. This included work with Sheffield Hallam University to 3-D print a ventilator circuit component that would have allowed for emergency use of a large stock of transport ventilators.

In the third wave we provided support, knowledge, infrastructure and staff to set up an adult transport team in Yorkshire and the Humber with two weeks notice. We were incredibly proud of our contribution both in planning and delivery of this service in collaboration with the Critical Care Operational Delivery Network. The Adult Critical Care Transport Service @ Embrace made a significant impact in decompressing intensive care units which were over surge capacity. Embrace have been asked to help plan and deliver a permanent service in 2021/22.

We look forward to the pandemic recovery phase. Healing and reflection will be required. We have learnt a lot about ourselves and each other and we hope to use the experience to improve the care we deliver to patients as the health service recovers.



## 5. Embrace road transport service

Embrace have worked in partnership with Yorkshire Ambulance Service NHS Trust (YAS) since the start of the service in 2009. Our team of YAS drivers is a vital part of the group and provides professional driving skills, including transfer under blue light exemptions, as well as assistance with preparing equipment, moving and handling and support of parents.



YAS provide 4 specialist mobile intensive care ambulances and one rapid response vehicle under the terms of the service level agreement. During 2018/19 we took ownership of 3 new ambulances with a plan to replace our 4<sup>th</sup> ambulance in 2021/22 financial year.



Charitable funds allowed us to decorate the interior of the vehicles to make them more child-friendly for our patients and families.

Embrace are able to track all vehicles independently from YAS using the Ingenium Dynamics system supplied by FMG a local company in Huddersfield. Ingenium Dynamics is a driver behaviour based telematics system designed to reduce the frequency of motor incidents significantly through improving driver behaviour. The system was designed and created by incident management specialist FMG, who has supplied 5 Ingenium Dynamics devices to Embrace free of charge. This is part of FMG's ongoing pledge to support local charities and one example of their commitment to preventing vehicle incidents from occurring in the first place, rather than managing them when they do.

Ingenium Dynamics enables Embrace to track our ambulances and monitor the ways in which our vehicles are being driven. An on-board device in every vehicle captures and interprets information relating to vehicle location, journey times, speed, acceleration, braking and cornering. Our drivers are encouraged to take responsibility for their own driving style and have access to online training modules to address any specific issues highlighted through the system, such as speeding or harsh braking.

Ingenium Dynamics data recorded the total miles travelled March 2020 to April 2021 as 137,809, which is enough to drive around the world 5.5 times!

**Embrace 1** - 38,197 miles

**Embrace 2** - 24,586 miles

**Embrace 3** - 37,348 miles

**Embrace 4** - 37,678 miles



## 6. Embrace aeromedical service

The philosophy behind Embrace's aeromedical service is to ensure that our patients have access to the best form of transport depending on clinical condition, distance, weather and logistics. This will often be a road ambulance, but may be a fixed wing aircraft or helicopter.

Working with our partners we are able to provide a comprehensive NHS service and have developed the capability to transfer ventilated patients by fixed wing aircraft (IAS Medical<sup>4</sup> and Air Alliance<sup>5</sup>) and by helicopter (The Children's Air Ambulance<sup>6</sup>). The important relationship with our local HEMS service (Yorkshire Air Ambulance<sup>7</sup>) continued, allowing us to get specialist teams and equipment out to the patient's bedside at our more distant hospitals. We also have a partnership with a government search and rescue contractor (Bristow<sup>8</sup>). When working with TCAA, IAS and Air Alliance we are fully accredited by the Commission on Accreditation of Medical Transport Systems.

We are grateful to the Lucy Air Ambulance for Children<sup>9</sup> charity for funding the transfer of babies and children in the UK who require a fixed wing aircraft. Working with IAS Medical and Air Alliance this has allowed us to provide this service for patients across the UK at no cost to the NHS.

In 2020/21 Embrace transferred 10 patients by fixed wing aircraft and 17 patients by helicopter. In addition we used a helicopter to fly an Embrace team and equipment to 1 critically ill patient.

Please see overpage for a detailed utilisation review.

## Embrace aeromedical utilisation data 2020/21

2020 - 2021	Neonatal Team	Neonatal Patient	Paediatric Team	Paediatric Patient	Totals
	1	12	0	14	27
<b>Type</b>					
Repatriation		7		5	12
Planned		2		7	9
Emergency	1	4		2	7
					28
<b>Acuity</b>					
Low dependancy		6		6	12
High dependancy		3		4	7
Intensive Care	1	4		4	9
					28
<b>Reason</b>					
Cardiac				6	6
ENT/Airway	1	2			3
Liver				1	1
Post Treatment Return		7		3	10
Oncology				1	1
Prematurity		1			1
Respiratory		2		1	3
Medical				1	1
Surgical		1		1	2
					28
<b>Mode</b>					
Rotary	1	8		9	18
Fixed Wing		5		5	10
					28
<b>Operator</b>					
YAA	1				1
TCAA		8		9	17
IAS		1		3	4
Air Alliance		4		2	6
					28

<sup>4</sup> [jasmedical.com](http://jasmedical.com)

<sup>5</sup> [air-alliance.de](http://air-alliance.de)

<sup>6</sup> [thechildrensairambulance.org.ok](http://thechildrensairambulance.org.ok)

<sup>7</sup> [yorkshireairambulance.org.uk](http://yorkshireairambulance.org.uk)

<sup>8</sup> [bristow.com/](http://bristow.com/)

<sup>9</sup> [lucyaac.org.uk](http://lucyaac.org.uk)

## **7. Feedback**

Since Embrace was first established we have invited feedback from stakeholders including patients, parents and referring/receiving hospital staff results of which are detailed below. Embrace have also been participating in the UK study DEPICT recruiting parents of children admitted into PICUs to review their experiences.

There are feedback forms on our website which can be completed and emailed directly to the service.



### **Embracing parents & carers**

Embrace aims to offer one parent or carer the opportunity to travel with their baby/child. Unfortunately this had to be suspended during the pandemic but we expect to allow parents to travel again routinely in 2021. Parent's and carer's views of the service are collected throughout the year using an anonymous feedback form. Parents and carers are able to email their feedback regarding their experience, or complete a

feedback form that is handed out on the transfer or via a QI code that is in all our ambulances.

Overall, forms were distributed in 47% of Embrace transfers, a decrease of 20% from transfers for the year 2019/2020. Transport staff, are able to use their discretion in deciding when a feedback form may be inappropriate. COVID-19 has made this more difficult as parents have not been able to travel with us except under exceptional circumstances. These situations include:

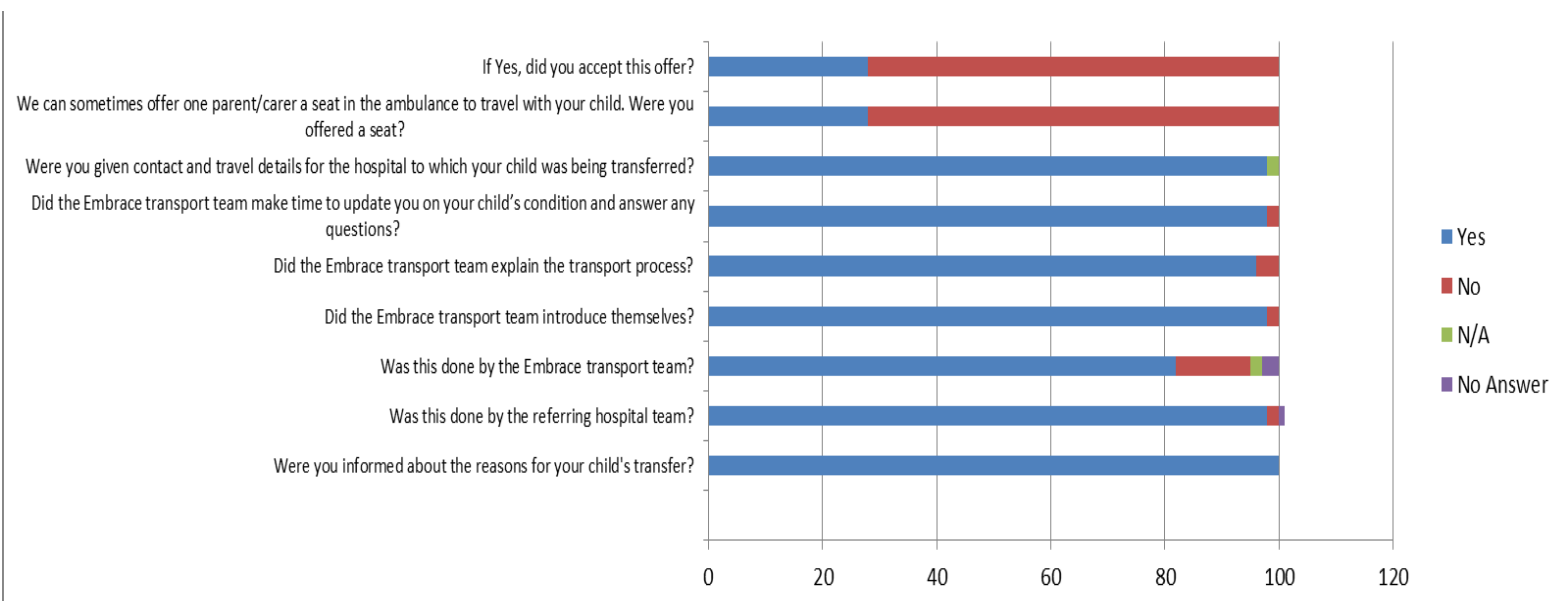
- Transfers for end of life care
- Multiple transfers of the same infant
- Transfers of twins & triples (one form per family is usually given out)
- In some cases where the family cannot speak or read English then some staff may choose not to give the family a feedback form. However we have addressed this and have identified the four most common languages spoken within the region and have translated leaflets to give out.

The table below shows the results from our parental/carer feedback work.

	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Referrals	174	216	201	218	246	228	215	208	199	212	168	216
Paediatric Transfers	22	33	26	24	25	28	22	34	46	43	32	27
Neonatal Transfers	100	103	109	125	133	105	107	114	82	104	81	123
<b>Total Transfers</b>	<b>122</b>	<b>136</b>	<b>135</b>	<b>149</b>	<b>158</b>	<b>133</b>	<b>129</b>	<b>148</b>	<b>128</b>	<b>147</b>	<b>113</b>	<b>150</b>
Forms Distributed	44	65	56	81	84	60	51	61	54	79	61	78
Forms Returned	3	6	4	9	4	7	7	9	5	6	5	6
Distribution Rate	36%	48%	41%	54%	53%	45%	40%	41%	42%	54%	54%	52%
Response Rate (from issued forms)	7%	9%	7%	11%	5%	12%	14%	15%	9%	7.5%	8%	8%



## Parent feedback responses April 2020 to March 2021



### You said, we did

Communication difficulties between patients, families and healthcare staff can result in complaints, criticism and dissatisfaction with the service that has been provided. Therefore, following a review of feedback received, Embrace has ensured the following actions have been completed.

- Certificates and Badges for older patients.
- Soft toys for neonatal patients and special occasions.
- Embrace number on Feedback forms to assist the ability to be able to reply to parents who leave comments.
- Guidelines are in place at Embrace [CAEC 1452] which provides guidance for staff regarding parent/caregiver travelling in the ambulances. Specific guidance is also provided on maternal condition; in particular the timing of travel post normal vaginal delivery and C-section.
- Next of Kin's contact details for the Parent/caregiver who is accompanying their child, is documented and reported to base to mitigate the risks associated with untoward incidents/RTC.
- The Parent information booklet is update and has the appropriate information pathways for contacting PALS.

- Parent information is available on the SCH web page in the Embrace section and includes the feedback form in an on-line format.
- Maps and travel information/directions for family have been updated and are available on the Embrace web page.
- Photographs taken and explanations written and added to the website for parents information following suggestions from parents. “Add more photos of the pods that the babies will travel in on the website – I had no idea when we were flying that they would be in a rocket shaped thing! Nor did I know how the pods worked”

Embrace continues to develop its aeromedical transport capability and continues to have interaction with other service providers. We therefore need to ensure that Embrace’s core values of family centred care are maintained.

- Parent leaflets are available for both fixed wing and rotary air transfers.
- There is discussion on a case by case basis as to taking a family member on the flight.

Literature provided by Embrace is supplied in English, Urdu, Bengali, Polish and Slovak. The population of Yorkshire & Humber is culturally diverse and some families cannot speak or understand English so the additional leaflets were produced to assist as many people as possible.

### **Sharing of feedback**

Parent feedback is reported quarterly to the Embrace Reference Group. In addition, the feedback and learning points are shared with Embrace staff and link nurses from across Yorkshire & Humber. Embrace have established links with the Patient Advice and Liaison Service (PALS) at SC(NHS)FT for parents who may wish for Embrace to provide a formal response.

## **What the parents say about Embrace**

### **Reassuring**

*“The Embrace team that dealt with our child Joshua were fantastic. They were extremely calm under pressure and eased our tensions as much as possible at a traumatic time. Special mention must be given to our driver who was amazing - chatting to us and came to speak to us at our destination explaining how hard she had to concentrate to ensure Joshua arrived safely. Thank you all for the incredible work you do - it is truly humbling and we can't thank you enough.”*

### **Compassionate**

*“Just to say thank you for all the love and care you showed our baby. The team brought her to my hospital bedside. The team were amazing and we cant say thank you enough.”*

### **Safe**

*“The team were so informative and confident in their work. We felt very safe in their care and very happy with the transfer. Thank you so so much for your care.”*

### **Professional**

*“They were very helpful and professional. They know what they are doing and made everything easy.”*

*“The Embrace team were absolutely fantastic. They were clear about every step of the process and brought us safely to our destination. We are so grateful for the Embrace team, thank you to everyone for providing us with peace of mind when transferring our son. It means the world to us.!”*

### **Supportive**

*“Couldn't have asked for more kind and compassionate team. Explained everything, checked husband was ok following. Brought my baby to see me before she went. My first glimpse of her. Gave me time to adjust to seeing her but knew the right time to take her away. Transportation was done well, unpacked at BRI beautifully.”*

*“It was lovely how a member of the team called the ward the following day to check on my daughter's progress.”*

### **Put at ease**

*“The team were brilliant and explained everything clearly they put me at ease which helped me not to worry so much and feel better about the whole situation.”*

*“The transport team members were all so lovely and put me at ease in such an anxious and stressful time. So thank you very much. I will never forget it. Keep up the amazing work”.*

## **Referring and receiving unit feedback**

Feedback forms are available online, but once a year Embrace aims to produce a snapshot. The questionnaire was distributed on transfers throughout September and October 2020 to referring and receiving hospitals. Professionals were asked to complete this on a mobile device handed to them on transfer or by providing them with a QR code to scan and complete at the time or retrospectively when appropriate.

Throughout the study period Embrace performed 262 transfers (acute and repatriations). We received feedback from 19 referring units and 42 receiving units.

Feedback about the Embrace service is extremely positive. Considering the circumstances surrounding the Covid-19 pandemic, it is a great achievement as a team to have collected this data, ensuring infection control policies were adhered to at all times. It is probably fair to say, this was not a normal 2 months at Embrace and there are improvements that need to be addressed moving forward if we continue to go paperless, including access to the internet, workload at time of completion and presence of Embrace staff whilst the form is completed.

The results have been broken down into; referring hospital unplanned transfers, referring hospital planned transfers, receiving hospital unplanned transfers and receiving hospital planned transfers. These are detailed below along with comments from the free text boxes.

### **Referring unit unplanned feedback to Embrace**

Respondent's professional group:

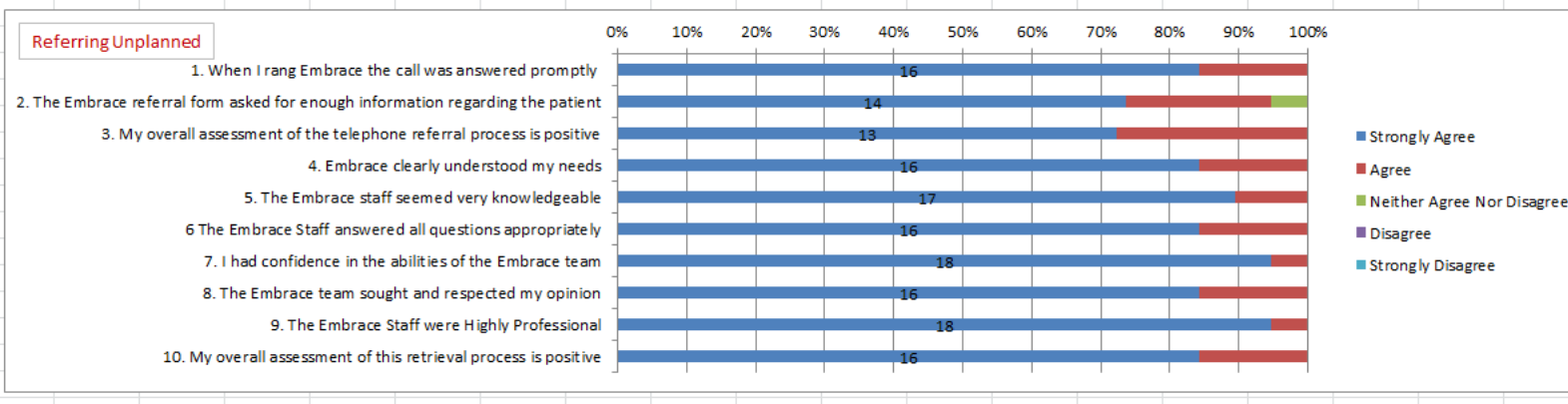
Nurse: 9

Specialist Trainee/ANP: 3

Consultant/Associate Specialist: 4

Unknown: 3





## They said:

*“Friendly, helpful team”*

*“Thank you for coming”*

*“The embrace team were amazing and calm when facing a very tricky situation. They were very clear with instructions and were outstanding in intubating the baby with an extremely difficult airway”*

*“Always very helpful”*

*“Excellent. Very prompt, friendly”*

*“Amazing Embrace team today”*

*“Smooth stabilisation and reintubation prior to transfer. Calm under pressure”*

*“Well co-ordinated”*

*“This was a very stressful situation with a difficult airway. The team were prompt in arrival, and calm and helpful despite the need to transfer an unstable baby with only an LMA in situ”*

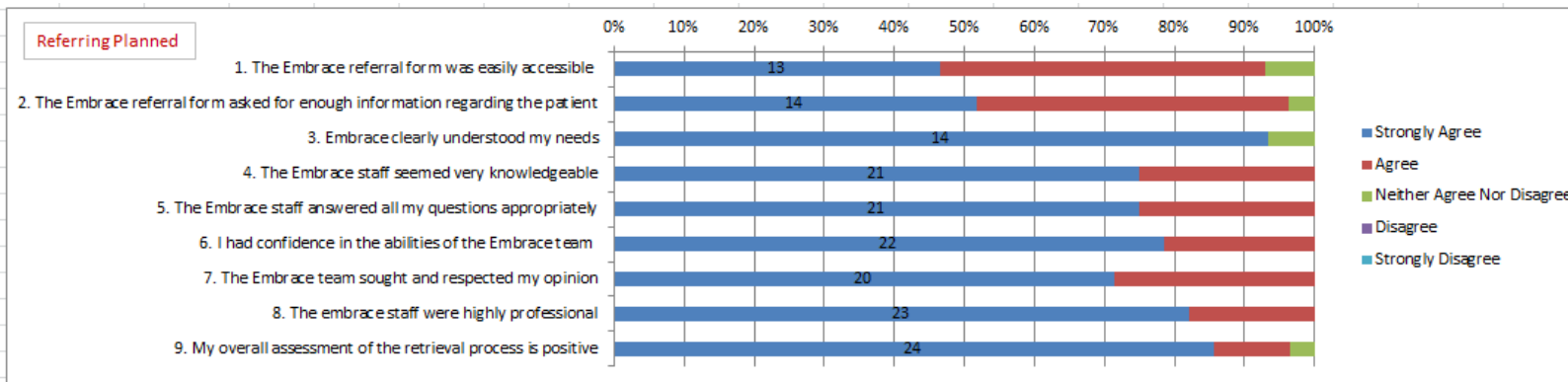
*“Fantastic nurses who spoke to both staff and relatives. Fantastic with the child very professional in every way”*

## Referring unit planned feedback to Embrace

HCA: 1

Nurse: 22

Unknown: 5



### **They said:**

*"Embrace arrived on ward and we had not been informed they were setting off so nothing was prepared for transfer (eg patient feed, meds, paperwork). However the transport team were very understanding and helpful towards us despite the chaos".*

*"We were awaiting a phone call to say the team had set off"*

*"Very easy transfer. The staff were understanding and compassionate towards mum who was very anxious and emotional"*

*"Very thorough and approachable. Very nice"*

*"Transfer process was smooth and quick. Friendly team"*

*"Very friendly and highly skilled team"*

*"Understanding and patient team. Explained process to parents well and calmed their anxieties"*

*"Thank you"*

*“The Embrace form cannot be type/edited on our computer. We have to print it out, complete it and scan it then email. The old form held more information that helped telephone handovers. The staff on transfer however were fantastic, great communication with parents”*

*“Efficient team, thank you”*

*“Supported mum wonderfully”*

### **Receiving unit feedback to Embrace**

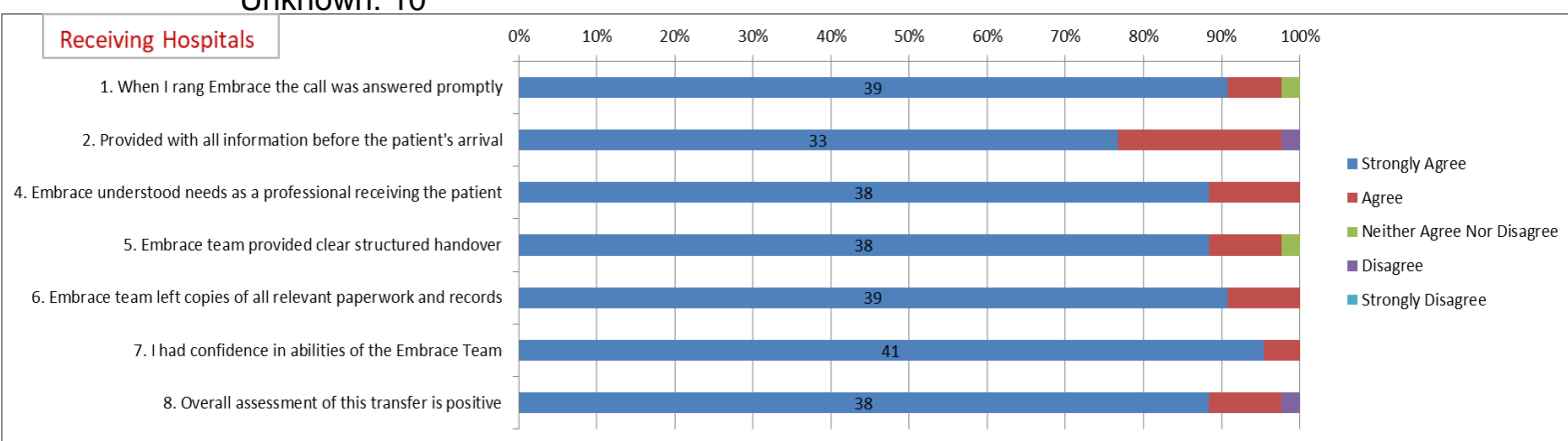
HCA: 1

Nurse: 20

Specialist Trainee/ANP: 10

Consultant/Associate Specialist: 1

Unknown: 10



### **They said:**

*“Very informative handover”*

*“Very organised and good handover of relevant information”*

*“Very professional excellent handover”*

*“Smooth uneventful transfer”*

*“Thank you for a loving greeting and handover”*

*“Shown patient pre transfer into our cot to get baseline of their work of breathing which was useful. No maternal group and save sent with patient”*

**We did:**

Following the feedback received, Embrace plan to add a reminder to the clinical governance newsletter for telephone calls to be made once we have finalised plans for setting off to both referring and receiving units, and to give feedback to the Embrace team via the monthly Quality Improvement meeting. The online feedback form was publicised and education regarding the referral and triage process for repatriations through the Link Nurse study days run by the Educators.



## **8. Clinical governance and quality improvement**

Embrace has a robust clinical governance structure focussed on safety and quality. We are accredited for critical care transport by ground, fixed wing and rotary wing from the Commission on Accreditation of Medical Transport Systems ([camts.org](http://camts.org) and [camtsglobal.org](http://camtsglobal.org)). In 2020 we applied for re-accreditation with CAMTS Global only and underwent a virtual site survey in February 2021. We expect an accreditation decision in late spring. Since 2018 Embrace have used SC(NHS)FT Datix web-based incident reporting and risk management software into our safety management system.

### **Utilisation review**

All referrals and transfers are reviewed the day after by a consultant to identify any issues that needs urgent action or clarification. Safety reports are completed and a trigger list flags up cases for more detailed analysis in a multi-professional forum.

### **Safety review meetings**

Incident reports can be filled in by any member of the team and an open, just culture is promoted. All reports are initially reviewed by the Lead Nurse, acting as the Safety Officer and an appropriate action plan made. There is follow-up on the results of actions for all events at the monthly Safety Review Meeting to ensure loop closure is achieved. A summary is presented at the monthly Quality Improvement Meetings.

The reports are also reviewed weekly by the SC(NHS)FT incident grading group. Any re-grading, clarifications and further action points are communicated back to Embrace. Embrace is represented at the monthly Divisional Clinical Quality Meeting.

### **Quality improvement meetings**

Monthly meetings chaired by the governance lead occur with representation from every staff group (medical, nursing, call handling and drivers). The meeting covers quality improvement, audit, service evaluation, guideline development, risk management, safety and equipment.

Our service partners also attend Embrace Quality Improvement Meetings on a rotational basis to ensure sharing of governance issues and loop closures.

## **Quality improvement data**

Embrace continues to submit data to three benchmarking organisations to help drive quality improvement. Links to the reports from these organisations can be found at [sheffieldchildrens.nhs.uk/embrace](http://sheffieldchildrens.nhs.uk/embrace)

### a) Paediatric Intensive Care Audit Network (PICANet)

Every PICU and paediatric transport team in the UK and Eire submit quality data to this national organisation which publishes an annual report.

### b) Neonatal Transport Group (NTG)

The UK Neonatal Transport Group collates data from every neonatal transport team in the UK over a 12 month period January to January every year. Previously only 6 months of data was collated each year. The annual returns are presented to allow comparison data and benchmarking relating to activity, key performance indicators and service provision.

### c) Ground and Air Medical qUality Transport (GAMUT)

GAMUT is a US based database which tracks, reports and analyses performance on key transport specific quality metrics allowing comparison with other teams. Metrics apply to adult, paediatric and neonatal transport. It is hosted by Cincinnati Children's Hospital with support from the Air Medical Physicians Association (AMPA) and the American Academy of Pediatrics Section on Transport Medicine. Embrace began submitting data in January 2015, the first transport service in Europe to do so.

## **Regional meetings**

There is Embrace representation by a member of the consultant team at regional clinical expert groups and strategy group meetings. These include trauma, surgery, anaesthesia, paediatrics, critical care, neonatology and maternity services.

Embrace sit on the Neonatal ODN and Paediatric Critical Care ODN executive boards, as well as being represented at clinical forums.



## Audit

All staff groups are encouraged to be involved in audit projects. Most Specialist Trainees carry out an audit project in their 6 month placement supervised by a consultant. Projects are registered through the Clinical Governance Department at SC(NHS)FT.



The majority of audits have resulted in changes to our practice and have been presented at local, regional and international meetings.

### **Completed & presented audit and service evaluation projects 2020/2021**

#### **Level 1 Rolling projects**

*PICANet*

R Trent, F Rajah, S Hancock

*GAMUT*

S Hancock, F Brearley, N Evans, L Jordan, F Rajah

#### **Level 2 Trust/commissioned projects**

*Parental views of transport service*

L Kay, J Hervo

*Questionnaire for referring and receiving hospitals*

J Sharpe

### **Level 3 National Accreditation projects**

*National Neonatal Transport Group (NTG) annual data return*  
C Harrison, S Hancock, F Rajah, R Trent

### **Level 4 Clinician and Divisional Interest**

*“Just to let you know....”*  
H Talbot, F Rajah

*Is Embrace meeting your needs?” questionnaire for referring and receiving hospitals*  
S Gilmore, H Talbot

*Unplanned extubations: identifying risk factors*  
A Aich, S Hancock

*Identify Experiences, Attitudes and Practices Around Limitation of Treatment Agreement (LOTA) Decisions Among Paediatric Professionals in the Yorkshire and Humber Region*  
M Ali, F Rajah

*Comparing Paediatric Early Warning Scores with PIM3 Scoring for PICU Transport Referrals*  
S Arghode, F Rajah

*Transport of Paediatric High Dependency Unit in Yorkshire: Are There Any Recurrent Themes?*  
B Schoner

*Embrace electronic whiteboard*  
A Fester

*Shift overrun monitoring*  
R Kent , H Talbot

*Umbilical catheters placement*  
L Whiteman, C Harrison

### **Mortality meetings**

Embrace have monthly internal mortality review meetings. We also attend mortality & morbidity meetings in hospitals around our region when Embrace has been involved in the care of the infant or child. These are invaluable in developing relationships between Embrace and referring and receiving units and help to encourage a learning environment. Embrace also sit on regional ODN mortality review panels.

## Guidelines

Guideline development is managed through a quarterly Guideline Group meeting. All guidelines are reviewed annually in-house, and 3 yearly through the SC(NHS)FT Quality and Audit department. Completed guidelines and standard operating procedures are ratified through the SC(NHS)FT Clinical Effectiveness and Audit Committee. Guidelines are available on SC(NHS)FT intranet and relevant guidelines are also available publicly on the Embrace website [sheffieldchildrens.nhs.uk/embrace](https://sheffieldchildrens.nhs.uk/embrace)



## Research

Embrace promotes a research culture and have encouraged the multi-professional team to collaborate on projects. A number of papers have been presented and published during 2020/2021.

## **National research projects**

DEPICT – Differences in access to Emergency Paediatric Intensive Care and care during Transport [depict-study.org.uk](http://depict-study.org.uk)  
Principle Investigator for Embrace: F Rajah

## **International research projects**

PRIME -NIHR Global Health Research Group on PReterm blrth prevention and manageMEnt)  
UK Neonatologist: C Harrison

## **Publications**

Choi J, Dusabimana R, Urubuto F, Agaba F, Langer D, Harrison CM, O'Callahan C, Cartledge P  
A standardised neonatal admission record (NAR) - increasing quality of neonatal care in Rwanda-a retrospective observational study  
PAMJ Clinical Medicine. 2020;2:161

Harrison, CM – member of working group  
British Association of Perinatal Medicine: Antenatal Optimisation at Birth Toolkit  
February 2021

Harrison CM, Blythe CL  
Not measuring residual gastric volumes in preterm infants can increase the progression of enteral nutrition with earlier discharge from hospital  
Archives of Disease in Childhood - Education and Practice Published Online First: 27 May 2020. doi: 10.1136/archdischild-2019-318671

Toone R, Harrison CM.  
Enteral lactoferrin supplementation did not reduce the risk of late onset infection  
Arch Dis Child Educ Pract Ed. 2020 Oct;105(5):315-316

Hurley A, Harrison CM  
Kangaroo care was as effective as sucrose for painful procedures for babies in the neonatal intensive care unit  
Arch Dis Child Educ Pract Ed. 2020 Oct;105(5):317-318

Lu AS, Harrison CM  
Formula feeding results in better growth and weight gain compared to donor breast milk in preterm and low birthweight infants, with a greater risk in necrotising enterocolitis.  
Arch Dis Child Educ Pract Ed. 2020 Dec;105(6):381-382.

Kent R, Harrison CM

Embrace: supporting the health and wellbeing of our staff  
Infant. 2020; 16 ( 6)

Busha TE, Coppieters Y, Mitangala NP, Vandenberg O, Vermeulen F, Harrison CM,  
Byl B

Analysis of Knowledge and Practice on Antibiotics Prescribing with Physicians in  
Hospitals Goma, RD Congo  
Europaen Modern Studies Journal 2020;4(6)

S Seaton, P Ramnarayan, P Davies, E Hudson, S Morris, C Pagel, F Rajah, J Wray, E  
S Draper

Does time taken by paediatric critical care transport teams to reach the bedside of  
critically ill children affect survival? A retrospective cohort study from England and  
Wales

BMC Pediatrics 2020 Jun 19;20(1):301

P Dickens, S Hancock, I Brathwaite, D Clegg, T Fox, M Collier

COVID-19 Positive End-Expiratory Pressure (PEEP) Valve Adapters

– NIHR Children and Young People MedTech Co-operative online May 2020

<https://cypmedtech.nihr.ac.uk/2020/05/14/covid-19-positive-end-expiratory-pressure-peep-valve-adapters/>

### **Oral presentations**

SC(NHS)FT Clinical Summit, October 2020

How we supported each other through lockdown

Hazel Talbot, Louise Pymer

### **Poster presentations**

RCPCH Conference online March 2021

Fadi Maghrabia, Cath Harrison

Using extubation checklist in NICU to improve the successful extubation rate

E-PCCS Conference, October 2020

The First National Training Day for the Children's Air Ambulance and Their Clinical  
Partner Teams in England, United Kingdom

Cathy Roberts, Ian Braithwaite, Richard Clayton, Karen Starkie, Colin Veal

10th Congress World Federation of Paediatric Intensive and Critical Care Societies, December 2020

Do discussions regarding organ donation occur in paediatric and neonatal transport when withdrawal of care is advised in district general hospitals?

Fatemah Rajah, Katie Mann

Identifying experiences, attitudes and practices around the limitation of treatment agreement (LOTA) decisions among paediatric professionals in the Yorkshire and Humber region

Muhammed Ali, Fatemah Rajah

Identifying common barriers around the limitation of treatment (LOTA) decisions among paediatric professionals in the Yorkshire & Humber region

Muhammed Ali, Fatemah Rajah

Factors related to timeliness of access to paediatric intensive care-parent and staff perspectives

Victoria Barber, Ruth Evans, Fatemah Rajah, Pad Ramnarayan, Jo Wray

Does time taken by paediatric critical care transport teams to reach the child's bedside affect their outcomes?

Sarah Seaton, Pad Ramnarayan, Emma Hudson, Stephen Morris, Christina Pagel, Fatemah Rajah, Jo Wray, Elizabeth Draper

Vaping associated lung disease- a case presentation

John Conyers, Fatemah Rajah

## **Lectures, presentations, academic and community engagement**

Victoria Phillips

Tracheo-oesophageal fistula teaching

University of Sheffield Trainee ACP Group, January 2021

Stabilisation prior to transfer teaching

University of Sheffield 405/QIS Neonatal Students, March 2021

Steve Hancock

Case presentation

PCCS ATG education session, September 2020

Time critical transfers

SY&B children's surgery and anaesthesia network, September 2020



### Ian Braithwaite

An Introduction to CRM for Paediatric and Neonatal Transport  
Presented virtually to PaNDR (Cambridge), March 2021

### Cath Harrison

Advances in newborn care  
Medico-chirological society Spring meeting, March 2021

Respiratory management of the neonate  
University of Leeds February 2021

Challenges of In utero transfers  
MAT Neo SIP conference February 2021

ReaSoN conference  
Scientific committee and Chair of innovation session June 2020

## **International and national committees and working groups**

### Jo Whiston

UK Neonatal Transport Group  
PCCS Nurse Manager's Group

### Steve Hancock

PCCS Acute Transport Group  
ALSG NAPSTaR course working group member  
Board member, Air Medical Physicians Association (AMPA)  
Board member (AMPA representative), Commission on Accreditation of Medical Transport  
Systems - Global

### Cath Harrison

UK Neonatal Transport Group Chair  
Training advisor of UK Neonatology College Specialty Advisor Committee for RCPCH  
Member of RCPCH Invited Review Panels for UK  
Lead Neonatologist for Birthlink charity  
NLS Course Director – Rotherham, Leeds, Gibraltar  
CESR advisor for GMC

Editorial Board, Infant Journal  
Scientific Committee member REaSOon  
MBRRACE panel member  
Neonatologist for Prime Research group  
BAPM working group member for Antenatal Optimisation of Birth  
RCPCH AAC member  
Member of PCC ECMO group  
Yorkshire & Humber School of Paediatrics Educational Supervisor of the Year

Fatemah Rajah

Embrace PICANet representative  
CAMTS Global site surveyor

Ian Braithwaite

CAMTS Global site surveyor  
NTG Representative for BSI Committee on Medical Vehicles and their Equipment

Jan Hervo

PCCS Champion working group  
Advanced Practice group, PCCS  
Honorary lecturer/OSCE Examiner, University of Sheffield, MSc Advanced Practice course

## **9. Education and training**

The on-going education and development of all team members remains a priority for Embrace. To achieve this goal the education team have developed an education plan reflecting SC(NHS)FT, PICS, NTG and CAMTS guidance to achieve local national and international standards.

The education plan has been delivered at both a trust level in mandatory training sessions and by the Embrace education team.

### **In-house education**

A continued focus for the education team has been to maintain the requirements to achieve CAMTS re-accreditation. Clinical procedures highlighting high risk, low frequency events remain a key part of the education plan to maintain high standards of knowledge and skills throughout the Embrace team.

The Crisis Resource Management (CRM) courses have been utilised to reinforce key standard operating procedures and develop team situational awareness and communication.

Our competency document has been revised and updated to incorporate both neonatal and paediatric national standards. Rotating Specialist Trainees all completed the new competency document, attended the SC(NHS)FT induction for medical staff as well as a two week induction programme at Embrace combining theoretical knowledge and practical skills and scenarios training and testing. Our quarterly Procedures, Equipment, and Skills Training continues to drive our team forwards.



## **Outreach education**

Members of the Embrace team from all disciplines have delivered regional outreach education in the form of talks, small group teaching, in situ simulation and OSCE's covering the Embrace process, reviewing data and clinical cases. We have had an increasing number of observers visit and accompany the transport team from nursing specialities, anaesthesia, emergency medicine, neonatal and paediatric backgrounds.

Members of the Embrace team also provide their time and expertise to teach on accredited life support and resuscitation courses regionally, nationally and internationally, as well as specialist airway courses.

- European Paediatric Life Support (EPLS)
- Advanced Paediatric Life Support (APLS)
- Neonatal Life Support (NLS)
- Advanced Trauma Life Support (ATLS)
- Paediatric and Infant Critical Care Transport (PICCTS)
- Sheffield Children's Advanced Trauma (CAT)
- Generic Instructor Course (GIC)
- Advanced Resuscitation of the Newborn Infant (ARNI)
- Leeds Neonatal Airway course

Embrace continues to work closely with the Neonatal and Paediatric Operational Delivery Networks to assist with the delivery of regional training relating to transport.

### **Link nurse days**

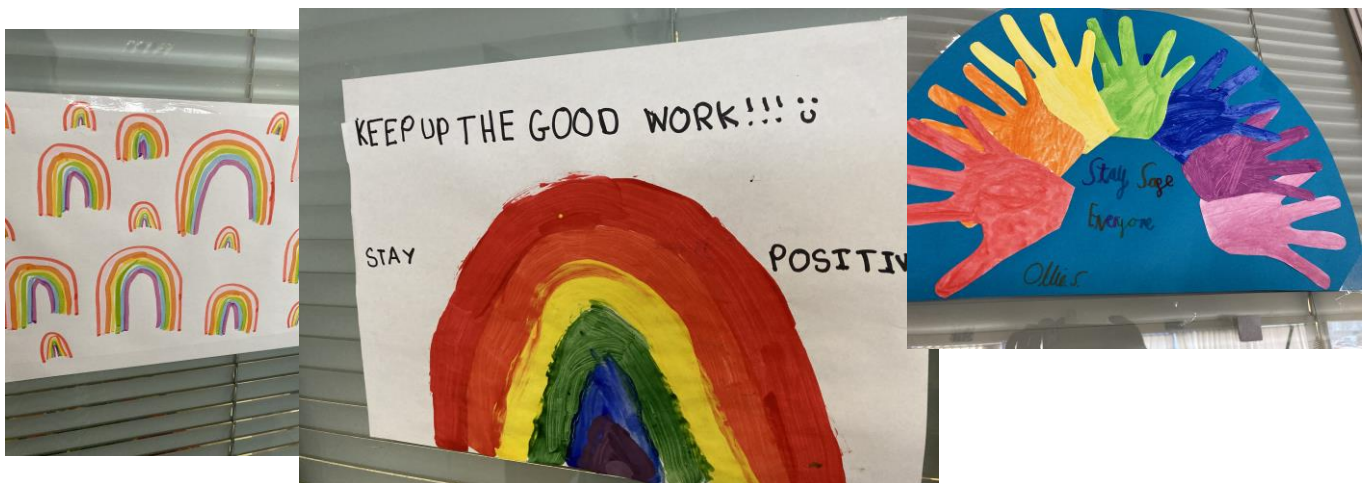
We held two link nurse days over the year providing a platform for education and discussion for all nurses involved with resuscitation, stabilisation and transfer of neonates and children. These were well attended and are an ideal way to share information and learn. The days also provide a forum for clinical governance issues to be discussed and allow direct feedback to Embrace to help develop our service.

## 10. Health and wellbeing

### Throughout this year

The Embrace Health & wellbeing group have increased their support and signposting for the team in order to help reduce the stress and anxiety felt through the pandemic year. From virtual coffee mornings to offering psychology sessions, monthly almanac's to Easter egg treats, organised plant swaps to break out spaces with tea and coffee facilities, colleague's mental health has been at the forefront of the work the group has done.

Morale boosts from colleagues and their families included uplifting artwork, which was added to the seminar room walls, and free McDonalds when the restaurant had to close during the first lockdown.



Whilst social distancing led to colleagues working from home and taking staggered breaks apart, it was important to keep checking in with the team. Help from the psychology department at Trust was offered and regular virtual coffee mornings were organised, as well as using the Slack app to keep in touch.

The impact of COVID-19 on colleagues was significant, and feelings of guilt, anxiety and loss were talked about openly. As we come out of the pandemic year, monthly wellbeing meetings for all staff to attend are being arranged, offering a safe space to voice any concerns, worries and issues to keep us all talking and gaining skills to use to cope with life's challenges and stresses.



## 11. Charity

Embrace hold regular Charity meetings to discuss donations and the use of funds to improve the service and safety of our patients. We now write to people who have made contributions to thank them and inform them of what their generous donations have funded.

Many of the people who have donated to Embrace over the years have had family members transferred by the teams, and as a way of saying thank you, have raised fantastic sums.



## 12. Work in progress for 2021/2022

A number of projects are underway at Embrace for the year 2021/2022:

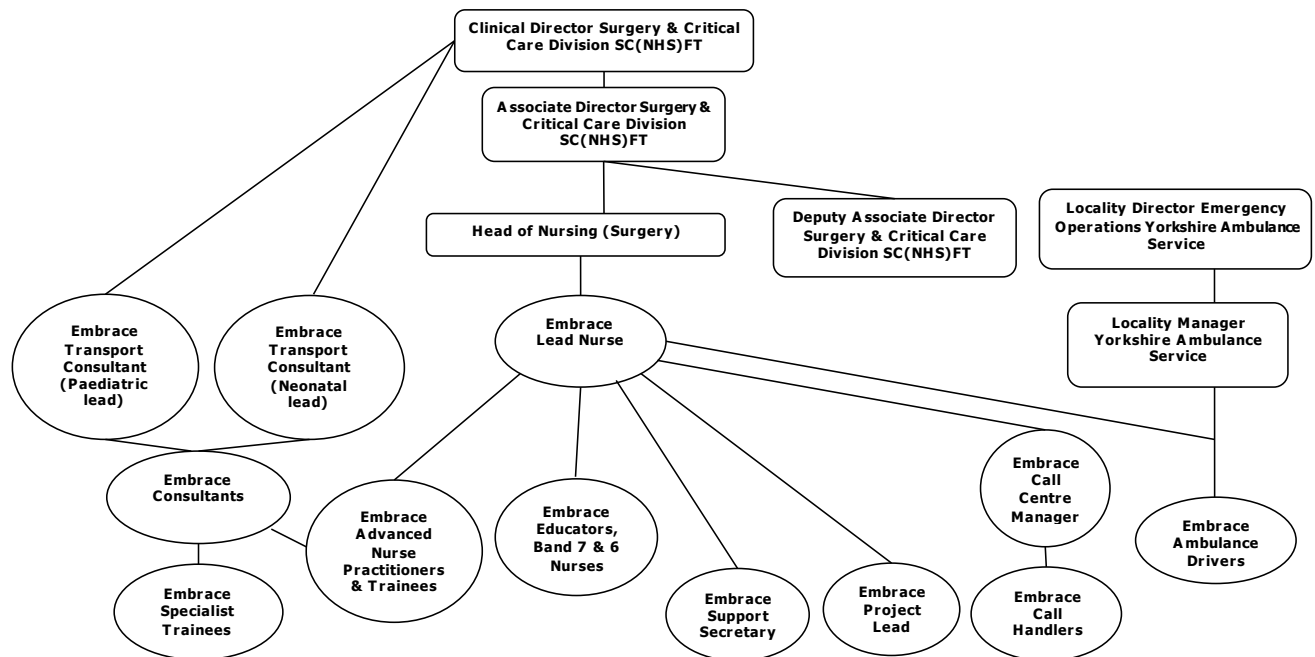
- Development of an adult transport service for Y&H
- Collaborating on development of a flight incubator for TCAA
- Optional appraisal for new trolleys and incubators
- Quality Improvement project to improve stabilisation times
- Business case to procure Clinical Information System



# 13. Appendices

## Appendix 1

### Embrace organisational chart and team profile



Associate Clinical Director Surgery & Critical Care Division SC(NHS)FT  
Mr Hesham Zaki

Associate Director Surgery & Critical Care Division SC(NHS)FT  
Jim Butler

Deputy Director Surgery & Critical Care Division SC(NHS)FT  
Samantha Maher

Embrace Lead Nurse  
Jo Whiston

Embrace Lead Consultant (Neonates)  
Dr Cath Harrison

Embrace Lead Consultant (Paediatrics)  
Dr Steve Hancock

Locality Manager YAS  
Matthew Lomas

## Appendix 2

### Embrace staff profile

The Embrace team that delivers this front line service consists of:-

- Consultants from specialist backgrounds in Paediatric and Neonatal Critical Care who are skilled and experienced in managing the medical care of very sick infants and children
- Specialist Trainee doctors who rotate from the regional paediatric rota; these doctors bring with them general paediatric experience and they leave with enhanced skills in triage, leadership, stabilisation and transfer to take back to the regional hospitals
- Advanced Nurse Practitioners with backgrounds in Paediatric and Neonatal Critical Care who are experienced in managing the medical care of very sick infants and children during transport
- Nursing staff who have come from both neonatal and paediatric critical care backgrounds so have vast skills and experience in caring for critically ill babies & children
- Call handlers and a call centre manager to ensure that the telecommunications system runs smoothly; the call handlers provide a professional and reassuring first point of contact
- Yorkshire Ambulance Service (YAS) drivers; Embrace is an integrated team and the drivers play a key part ensuring the transfers are safe and efficient

## Appendix 3

### Embrace staff list 2020/21

#### Consultants

Dr Steve Hancock	Dr Cath Harrison	Dr Jessica Oldfield
Dr Fatemah Rajah	Dr Hazel Talbot	Dr Louise Jordan
Dr Ross Cronin		

#### Specialist trainees

Dr Vikram Shetty	Dr Laura Riddick	Dr Jo Hemingway
Dr Chukwudumedi Duru	Dr Arindom Aich	Dr Eleanor Peirce
Dr Amy McCallum	Dr Carla Pimintel	Dr Mark Winton
Dr Jennifer Salvanos	Dr Mahmoud Soultan	Dr Omar Irfan
Dr Ben Richardson		

#### Lead nurse

Jo Whiston

#### Clinical nurse educators

Ian Braithwaite	Claire McLean	Natalie Webb
Karen Fletcher		

#### Advanced nurse practitioners

Jan Hervo	Rose Kent	Nia Evans
Sally Courtney	Helen Doyle	Lydia Whiteman
Jo Chubb	Justine Redhead (trainee)	Victoria Webb (trainee)

#### Senior transport nurses

Jo Sharpe	Tracey Carolan	Ann Jackson
Hayley Smith		

#### Transport nurses

Alison Clay	Charmaine Hamer	Natalie Wilby
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Francois Brearley  
Catherine Sutcliffe  
Lucy Eggington  
Hannah Law

Louise Kay  
Rebecca Russell-Ward  
Ellie Harrison  
Samantha Burns

Chloe Fisher  
Rebecca Thompson  
Jasmine Hopper

**Call centre manager**

Ray Trent

**Call handlers**

Audrey Pike  
Sheila Holland  
Lindsey Lynthall  
Lindsay Pepper

Jesssica Butler  
Louise Roper  
Jessica Green  
Leah Materna

Jessica Medlam  
Amy Stephenson  
Charlotte Batty

**Administrative support**

Lisa Cooke

**Project Lead**

Louise Pymer

**YAS drivers**

Sally Mitchell  
Paul Summerscales  
Pete Fox  
Richard Eaton  
Steve Jones

Kevin Hirst  
Paul Vickers  
Julie Coddington  
Natalie Jones  
Peter Blyth

Steven O'Marr  
Lisa Walledge  
Fiona Thornton  
Tracy Hilton  
Peter Jackson



## Appendix 4

### Embrace Transport Service Work Programme 2020/21

Category	Objective/Action	Comments
<b>Service improvement &amp; development</b>	Long Term Ventilation group – working with PCC ODN to identify and utilise resources to improve care of LTV patients	PCC ODN LTV group set up and functioning well. 3 month hiatus for Covid-19 pandemic. Meeting September 2020 delayed again due to pandemic. Work continues in 20/21
	Trolleys and Incubators – working group to design new trolleys and incubators, with consideration of new equipment technology, reducing noise and vibration, safety and the interface between road and air systems	User survey completed March 2021 Work continues in 21/22
	<b>Vehicles: Design of replacement for Embrace 2</b>	<b>Delivery expected Dec 2021</b>
	Identification of new premises and project plan to manage transition	Review of options due to Covid delay and potential for co-location with adult service. Work continues in 21/22
	Development as 1 of 3 national neonatal air transport teams, providing increased availability and equity of access to air transport for England	October 2020 Agreed plan with Lucy AAC for triage of referrals March 2021 Meeting with NTG air providers to discuss referral, triage and delivery options Work continues in 21/22
	Development of Clinical Information System including Electronic Patient Record	October 2020 Draft paperwork revision, with improved flow, put out for consultation November 2020 Soft marketing events with 3 potential suppliers supported by IT Procurement team December 2020 New paperwork established in use March 2021 Change in divisional management structure. Requires meeting with new manager and revision of plan and timescales Work continues in 21/22
<b>Education</b>	Outreach- time critical training programme	Work continues in 21/22
	Student nurse program with Sheffield Hallam University	Covid hiatus. Looking to restart in 2021
<b>Peer review &amp; accreditation</b>	<b>CAMTS re-accreditation</b>	<b>Fully re-accredited by CAMTS-Global April 2021</b>
	Participate in NHSE peer review cycle	Await proposals for re-starting peer review process. On hold.
	Participate in review of national service	March 2021 Planned revision of

	specifications	both neonatal and PCC transport service specifications in 2021. Collaboration to agree common areas of terminology, KPIs etc. Work continues in 21/22
<b>Audit</b>	National status epilepticus audit	National audit supported by Paediatric Critical Care Society Acute Transport Group February 2021 – presented at QI, data submitted to national team.
	Referring and receiving unit feedback cycle	2 month snapshot survey using web based data collection. Submitted to Annual Report
<b>Patient and carer feedback</b>	Routine collection of parent/carer feedback	Leaflet provided at each transfer Parent pack provided for acute transfers including links to on-line reporting Quarterly and annual report

