Fisher & Paykel Oral Presentation Abstracts

1: A UK Survey of sedation and treatment methods used in Retinopathy of Prematurity (ROP)

Dr Julia Arthur[1], Ms Louise Allen[2]
[1]Luton And Dunstable University Hospital NHS Foundation Trust, Luton, United Kingdom, [2]Addenbrooke's University Hospital Cambridge, United Kingdom

2: Cumulative outcomes of extreme prematurity over a 5 year period from a tertiary neonatal unit - are they better than EPICURE 2?

Doctor Anna Darbyshire[1], Heather McMurchie[1], Alison Keeling-Smith[1], Doctor Pinki Surana[1]
[1]Heartlands Neonatal Unit, University Hospitals Birmingham NHS Foundation Trust, UK

3: Routine Use of Inhaled Budesonide reduces BPD and Home Oxygen Use in Preterm Babies

Magdalena Fuller[1], Vennila Ponnusamy[1], Dr Peter Reynolds[1], Claire Slater[1]
[1]Neonatal Intensive Care Unit, St. Peter's Hospital

4: A new approach to perinatal post mortem consent training

Dr Hannah Wood[1], Jo Cookson[2], Dr Asha Shenvi[1]
[1]University Hospitals of North Midlands NHS Trust, UK [2]Staffordshire, Shropshire and Black Country Neonatal Operational Delivery Network, UK

1: A UK Survey of sedation and treatment methods used in Retinopathy of Prematurity (ROP)

Dr Julia Arthur[1], Ms Louise Allen[2]
[1]Luton And Dunstable University Hospital NHS Foundation Trust, Luton, United Kingdom, [2]Addenbrooke's University Hospital Cambridge, United Kingdom

Biography:
I am a neonatal GRID trainee who is passionate about neonatology, practising evidence based medicine and improving neonatal outcome. I am 7 years into my paediatric training and 2 years into my neonatal GRID training. One of my interests is standardising care within the UK using evidence based guideline and shared learning thereby giving each baby the best quality care.

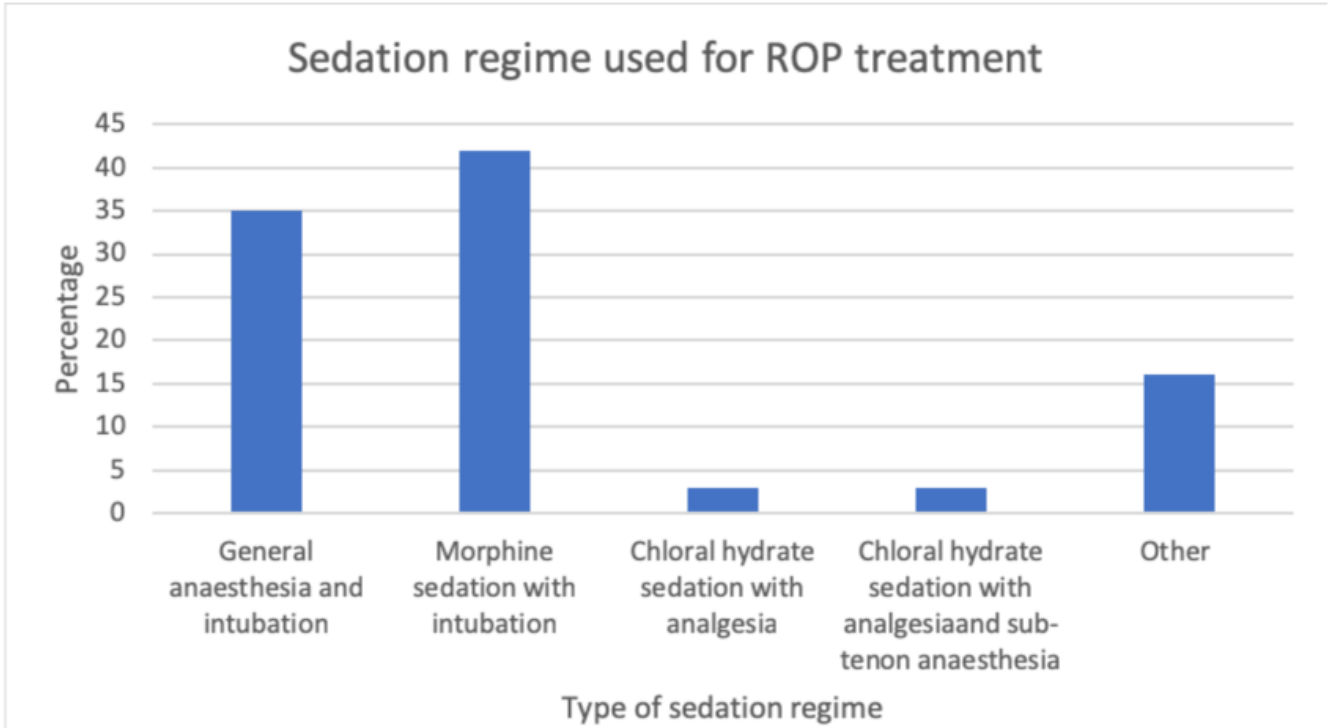
The treatment of retinopathy of prematurity (ROP) and the sedation/anaesthesia used for it vary across the world. Although intra-vitreal anti-Vascular Epithelial Growth Factor (anti-VEGF) agents are commonly used in some countries, the 2008 UK guidelines recommend laser as the primary therapy for Type 1 (severe) disease. This study ascertains current ROP treatment and sedation/anaesthesia practice in the UK and the factors that influence this.

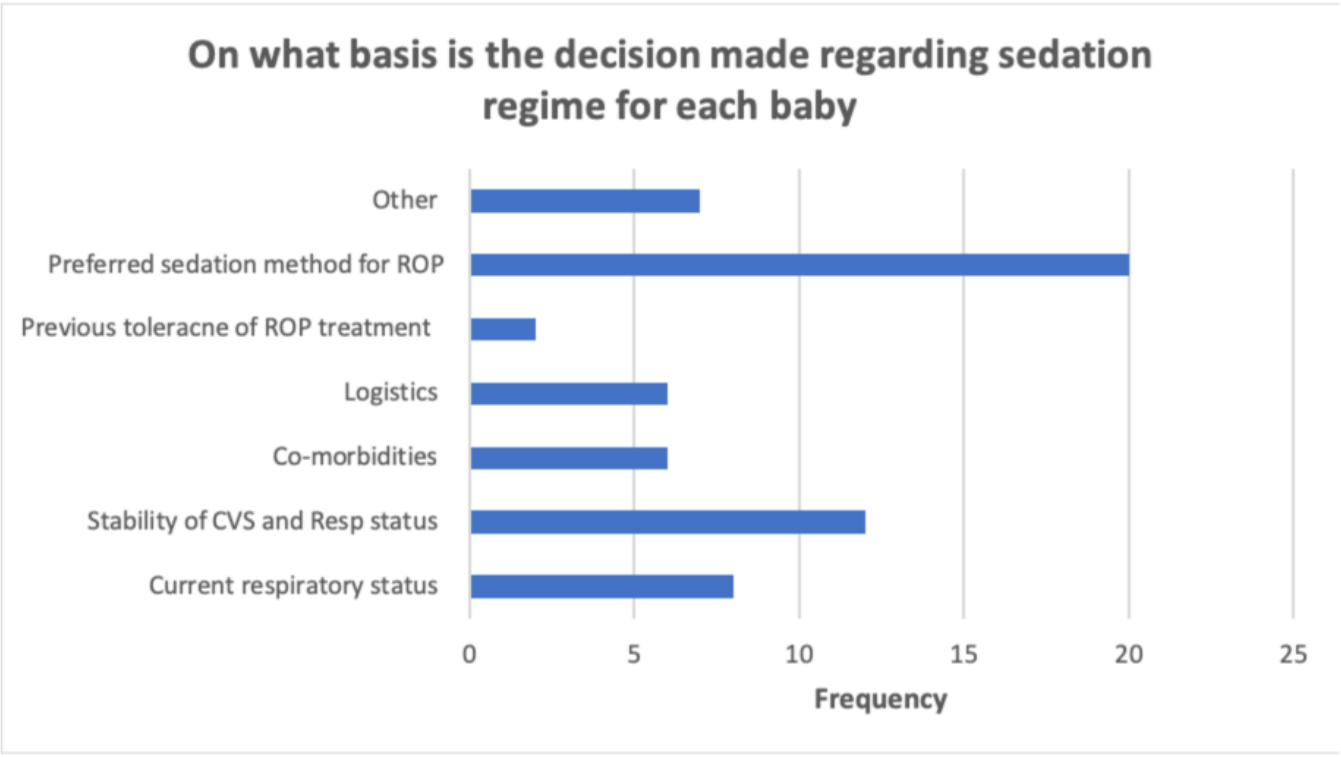
Methodology: Electronic surveys questioning current practices for the treatment of ROP were distributed using a survey portal to Ophthalmologists via the ROP-Special Interest group email and to Neonatologists via the BAPM contact list and website post.

Results: 59 responses were received from 34 Ophthalmologists and 25 Neonatologists from a total of 49 hospitals, (42 Level 3, 6 Level 2 and 1 Level 1 unit) between August 2017 and January 2018.

ROP treatment frequency ranges from 0-30 (median 8) cases per year in each unit. 76% of units identified as screening and treating, 18% are just screeners. Laser is the preferred primary treatment in all but one unit. Reasons for using anti-VEGF include its ease of administration without need for intubation, poor view of the retina and too sick for laser. Clinicians did express concerns regarding neurodevelopmental side effects with anti VEGF treatment. Over half of all ROP treatments takes place in a dedicated room on the neonatal unit with theatre being used instead where there is no laser facility, or a specific anaesthetist is available. Approximately 90% of babies are intubated for treatment, the majority having morphine or other intravenous sedation to ensure adequate analgesia and paralysis. Clinicians felt that this method of sedation allowed for minimal duration of laser treatment and less treatment failure. In 34% the decision for intravenous sedation was based on the units preferred methods. Oral sedation with sub-tenon anaesthesia is used infrequently, either when there are logistical issues such as insufficient beds, particularly for re-admission following discharge, or to prevent the need for re-intubation. One unit use oral sedation and sub-tenon injections as a first line. 80% of responding Neonatologists feel involved in decision making regarding treatment and anaesthesia. Most respondents report logistical problems in re-admitting babies for ROP treatment, with availability of theatre slots a problems for a quarter and poor availability of neonatal cots being a problem for a third.

Conclusion: Laser treatment using intra-venous sedation with intubation continues to be the preferred treatment for ROP which follows UK current recommendations. Re-admission from the community and insufficient cot space are common logistical issues for babies who have been discharged or requiring transport to a treatment centre.


Sedation regime used for ROP treatment
Percentage
45
40
35
30
25
20
15
10
5
0
General anaesthesia and intubation
Morphine sedation with intubation
Chloral hydrate sedation with analgesia
Chloral hydrate sedation with analgesiaand sub-tenon anaesthesia
Other
Type of sedation regime

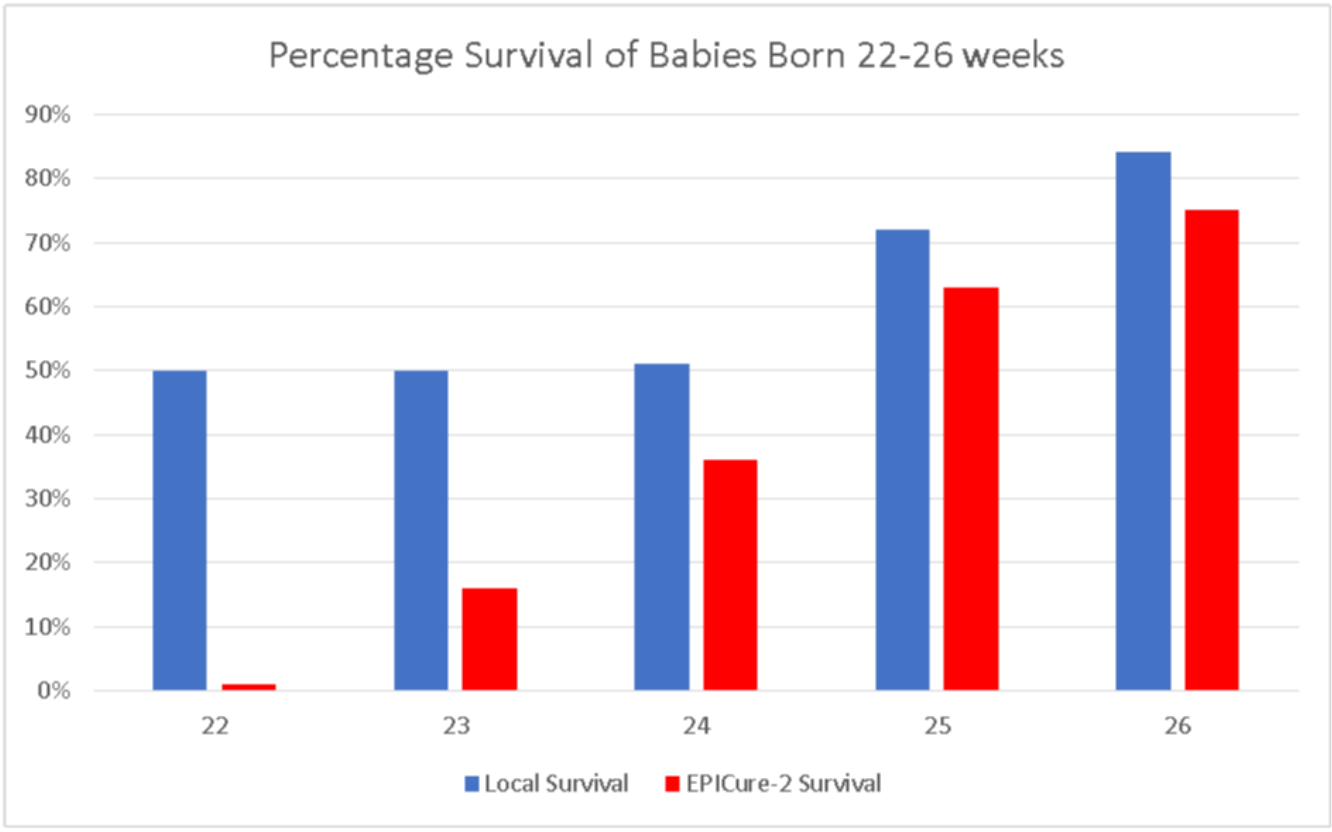

On what basis is the decision made regarding sedation regime for each baby
Other
Preferred sedation method for ROP
Previous toleracne of ROP treatment
Logistics
Co-morbidities
Stability of CVS and Resp status
Current respiratory status
0
5
10
15
20
25
Frequency

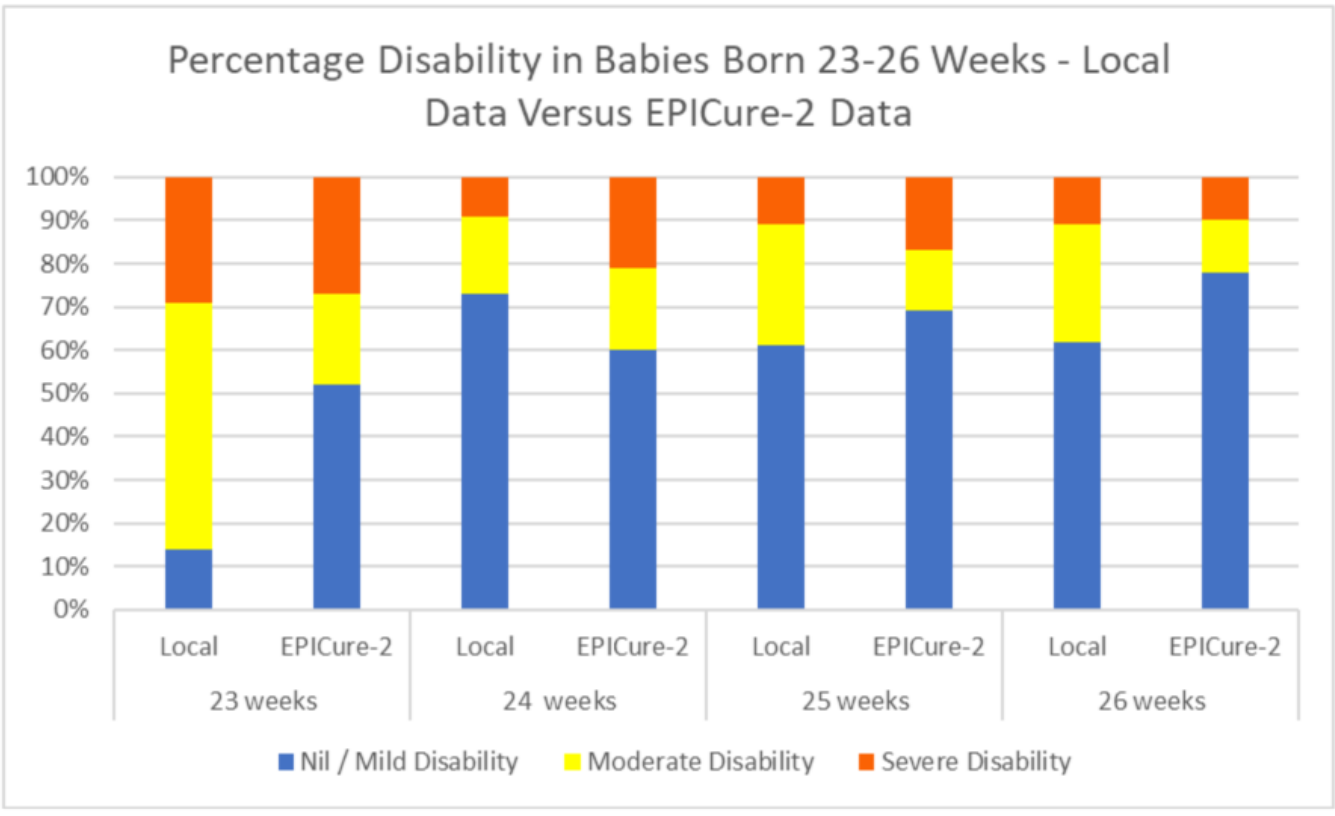
2: Cumulative outcomes of extreme prematurity over a 5 year period from a tertiary neonatal unit - are they better than EPICURE 2?

Doctor Anna Darbyshire[1], Heather McMurchie[1], Alison Keeling-Smith[1], Doctor Pinki Surana[1]
[1]*Heartlands Neonatal Unit, University Hospitals Birmingham NHS Foundation Trust, UK*

Biography:
Speciality Trainee Year 4 in the West Midlands

Background:
Since EPICure 2 in 2006, no large-scale research study has been conducted in the UK evaluating outcomes of extreme prematurity. It is unclear whether any advances in outcomes have been achieved since 2006. There are also significant regional variations in survival and outcomes of extreme prematurity.
Aims:
To assess the survival and 2-year outcomes of extreme prematurity over a 5 year period (Mar 2014-Mar 2019) for a cohort of infants born between Jan 2012-Dec 2016 in a tertiary neonatal unit and compare with EPICure-2 results.
Methods:
All infants born at less than 27 weeks gestational age between Jan 2012- Dec 2016 were invited at 2 years corrected age for a Bayley-III assessment as part of their neurodevelopmental follow-up. If the family was unable to attend for Bayley-III assessment, then outcome information was collected via Parent Report of Children's Abilities-Revised for preterm infants (PARCA-R), Health Visitor Questionnaire or a paediatrician assessment. Their outcomes were analysed as per British Association of Perinatal Medicine (BAPM) 2008 recommendations and compared with EPICure-2 results.
Results:
Of the 182 infants born <27 weeks, (124) 64% survived to discharge and all survived to 2 years compared to the EPICure-2 data of 65% and 64.4% respectively. Subgroup analysis revealed improved survival when compared to EPICure 2 at 23 weeks gestation (50% vs 29%) but only marginal improvement from 24 weeks onwards- at 24 weeks (51% vs 46%), at 25 weeks (72% vs 69%) and at 26 weeks (84% vs 78%). Of the 124 survivors, 73 (59%) were evaluated at 2 years, of which 77% had structured Bayley assessments, 15% had a paediatrician assessment, 5% had PARCA-R and 3% had Health Visitor Questionnaire.
28% had moderate and 12% had severe disability compared to 13.4% and 11.8% respectively in the EPICure-2 study. 6.8% of the assessed survivors had cerebral palsy compared to 14% in EPICure-2. Language impairment was present in 32.9% of survivors while cognitive impairment was present in 8.2%. 4.1% had moderate to severe hearing impairment and there were no babies with visual impairment. Figure 1 shows the survival rates and figure 2 shows the disability rates amongst survivors in comparison to EPICure-2 data.
Conclusions:
Survival rates have improved at 23 weeks and marginally between 24-26 weeks however possibly at the cost of increased disability when compared to EPICure 2. Language was the most likley domain affected. Cerebral palsy rates were lower when compared to EPICure 2. Whilst waiting for a possible EPICure 3- collecting local contemporary cumulative data is beneficial not only for perinatal preterm parental counselling but also for benchmarking.


Percentage Survival of Babies Born 22-26 weeks
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
22
23
24
25
26
Local Survival
EPICure-2 Survival


Percentage Disability in Babies Born 23-26 Weeks - Local Data Versus EPICure-2 Data
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Local
EPICure-2
23 weeks
24 weeks
25 weeks
26 weeks
Nil / Mild Disability
Moderate Disability
Severe Disability

3: Routine Use of Inhaled Budesonide reduces BPD and Home Oxygen Use in Preterm Babies

Magdalena Fuller[1], Vennila Ponnusamy[1], Dr Peter Reynolds[1], Claire Slater[1]
[1]*Neonatal Intensive Care Unit, St. Peter's Hospital*

Introduction:
As a sequela of prematurity, BPD is the most common chronic lung disease in children. The RCPCH NNAP uses a pragmatic definition of BPD which includes being born at less than 32 weeks gestation and still requiring oxygen or respiratory support at 36 weeks corrected gestation. To address this important condition, we decided to initiate the routine use of inhaled budesonide to support endogenous surfactant production and reduce lung inflammation.
Methods:
We are established users of nasal High Flow (Vapotherm Precision Flow) as a primary treatment for RDS. We have been administering surfactant (Curosurf) using a less invasive approach for over 3 years, and in 2017 we reduced the FiO2 threshold for this to 30%. During 2018 we also prepared a guideline and implemented the use of inhaled budesonide for babies. Unit level BadgerNet data was used to monitor the primary outcome (oxygen or respiratory support at 36 weeks in eligible babies) of this new approach. We also examined the proportion of babies being sent home on oxygen, and explored the differences between babies booked at or transferred in-utero into our NICU. Ex-utero transfers were excluded (as they are assigned to the hospital of delivery) as were deaths before 36 weeks.

Results:

(See table in attachment)

The results show a sustained fall in the rates of BPD with an equivalent fall in the babies requiring home oxygen. Babies subsequently transferred back to their referring hospital had consistently higher rates of BPD and home oxygen use, although the downward trend persisted.
Summary:
We have achieved a substantial reduction in BPD and home oxygen use that is attributable to our respiratory policy which aims to minimise lung injury.

	2016	**2017**	**2018**
St. Peter's Hospital Booked BPD	44%	30%	24%
IUT BPD	56%	41%	39%
St. Peter's Hospital Booked Home oxygen	29%	20%	10%
IUT Home oxygen	33%	19%	15%
St. Peter's Hospital Booked Home O2 Corrected gestation at Discharge (mean)	38+2	41+3	38+3
IUT Home O2 Corrected gestation at Discharge (mean)	41+3	40+3	40+2

4: A new approach to perinatal post mortem consent training

Dr Hannah Wood[1], Jo Cookson[2], Dr Asha Shenvi[1]
[1]University Hospitals of North Midlands NHS Trust, UK [2]Staffordshire, Shropshire and Black Country Neonatal Operational Delivery Network, UK

Biography:
Dr Asha Shenvi is a Consultant Neonatologist at University Hospitals of North Midlands NHS Trust and Jo Cookson is the Practice Educator for the Staffordshire, Shropshire and Black Country Neonatal Operational Delivery Network. Together, they have worked with multi-disciplinary professionals nationally to lead the SSBC Neonatal ODN's working group on perinatal post mortem consent training. Dr Hannah Wood is a Neonatal Grid Trainee from the West Midlands who joined the working group to lead the national survey on health professionals' experiences of obtaining consent for perinatal post mortem. They are looking forward to sharing their work at the 2019 REaSoN meeting.

Background

All parents should be offered a post mortem examination of their baby. In 2016, MBRRACE-UK reported that post mortem was offered in 81.3% of neonatal deaths but consent was obtained in only 28.6%. Our network's experience is similar with offer and uptake rates as low as 67% and 18% respectively in some units. Published evidence identifies multiple barriers to consent including issues related to training. Lack of knowledge among consent takers impacts the uptake of post mortem. In our region, pathology training days are too infrequent to meet demand. A working group was formed to develop a new e-learning training package that aims to meet the educational needs of consent takers and improve the post mortem rates.

Method

A national online survey was designed to gather information on health professionals' current experiences of consent taking. The survey was hosted on the SurveyMonkey website between May and October 2018. Health professionals who were expected to obtain consent from paediatric, neonatal, obstetric, midwifery and bereavement communities were invited to participate.

The results of the survey were used to inform the development of the new e-learning training package. Multi-disciplinary input was obtained from perinatal pathologists, neonatologists, obstetricians, bereavement midwives, the local learning disability team, the national organ donation team and the Stillbirth and neonatal death charity (Sands).

Results

Survey responses were analysed from 122 health professionals. Most agreed parents should be offered post mortem (94%). 43% have not been trained to take consent, and those who have listed 18 different types of training. A perinatal post mortem has not been observed by 51%. There was lack of consistency on what should be discussed with parents while obtaining consent. Confidence levels were variable with 28% feeling "not so confident" or "not at all confident". 82% felt more extensive and accessible training is needed.

The e-learning training package will be available to all consent takers. Content includes 5-6 modules that are mapped to the Sands and the Human Tissue Authority (HTA) guidance. A multi model

approach to learning is included with case studies, case vignettes, question and answer, videos and animations. The learner will also be required to observe a perinatal post mortem. Optional content will be available for parents.

Conclusion

The uptake of perinatal post mortem remains low. Our national survey identified that the Sands prerequisites for consent takers are not being met and highlighted the need for standardised training. We have developed a multi-model e-learning training package that will be freely available to consent takers. We anticipate this will improve health professionals' ability to offer post mortem and subsequently impact uptake rates positively.