was measured using standardised echo techniques. The NICaS monitor uses fluctuations in WBEB to calculate SV at 20-second intervals using a proprietary algorithm. The median of 15 minutes of NICaS data prior to the start of the echo for each baby was used in the analysis, since babies were more likely to become distressed during the echo, reducing the quality of the NICaS data through movement artefact. Extreme, non-physiological outlier values when babies were unsettled were excluded from NICaS SV data. R (R Core Team, 2019) software was used for data analysis, including descriptive statistics, Bland-Altman analysis and Pearson correlation.

Results 35 neonates were recruited (20 females), with a median (range) gestational age of 39^{+1} weeks ($35^{+6} - 42^{+2}$) and birth weight of 3.34kg (2.2–4.4kg). Monitoring was performed on day one for all babies, and additionally on day two for four babies who remained in the hospital. Five babies did not have NICaS data immediately prior to the echo due to the need to feed: therefore, we included 34/39 paired measurements in the final analysis. The mean (SD) echo LSVV was higher than that of NICaS SV (1.90 ± 0.44 vs 1.52 ± 0.38 ml/kg; 95% CI: -0.57 to -0.29; $p < 0.0001$). Bland-Altman bias was 0.43 ml/kg, with limits of agreement from -0.36 to 1.21 ml/kg. Mean percentage error was 40%, but when corrected for the percentage error of echo, the true precision was 27%. The Pearson correlation between the two measures was $r=0.54$ ($p=0.001$; 95% CI: 0.24 to 0.74).

Conclusions We postulate that the higher echo LSVV compared to NICaS may be because echo LSVV measurements were made pre-ductus arteriosus (patent in 28/34 measurements), while NICaS calculates SV from peripheral signals (post-ductus arteriosus). The NICaS' true precision was 27%, which is within the clinically acceptable percentage error for new devices (30%), and there was a significant correlation between the NICaS SV and echo LSVV measurements. These results indicate that the NICaS monitor may be reliable for SV monitoring in healthy term and late-preterm neonates. If validity is confirmed in term and preterm infants, we envisage that WBEB could be used as a complementary clinical tool for continuous haemodynamic monitoring in neonatal intensive care, resulting in a step-change in clinical practice.

British Association of Perinatal Medicine and Neonatal Society

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LESS INVASIVE SURFACTANT ADMINISTRATION (LISA) – OUTCOMES AND PROGNOSTIC FACTORS AT A LEVEL 3 NICU

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Background Less invasive surfactant administration (LISA) is delivered to neonates via a thin catheter, while the function of the glottis is maintained. There remains some debate as to which babies will benefit most from LISA, and the best threshold for undertaking this procedure.

Objectives We aimed to review the LISA procedures undertaken at our centre, analyse patient and procedure characteristics, and evaluate outcomes, prognostic factors and procedure complications.

Methods We reviewed all LISA procedures at our level 3 NICU from May 2018 (when LISA was introduced) until September 2020. Patients were identified on BadgerNet as having received surfactant, and case notes were reviewed to identify LISA patients. An audit proforma was completed retrospectively. Data were analysed using one-sample and two-sample Student's *t*-tests where appropriate.

Results LISA procedures were undertaken 86 times, including 7 repeat procedures. Median gestational age was 32 ± 1 weeks [range: 24 ± 5 to 41 ± 1]; birth weight 1.72 kg [0.66 kg to 4.29 kg]; time from birth to first LISA procedure 5.7 hours [1.1 hours to 45.0 hours]; and FiO₂ prior to LISA 0.35 [0.24 to 1.00]. Pre-medication included fentanyl [76 patients, 88%], atropine [14, 16%] and sucrose [7, 8%]. LISA was successful with a single procedure in 52 patients [66%], while 7 [9%] required repeat LISA and 20 [25%] required later intubation. Of the repeat LISA procedures, 5 [71%] were successful and 2 [29%] required later intubation. When successful LISA procedures were compared with those who required intubation, there was no difference in gestational age [$p=0.94$], birth weight [$p=0.49$], or time to first LISA [$p=0.53$]. FiO₂ prior to LISA was lower in the successful group [mean 0.35 vs. 0.42, $p=0.05$]. To assess for a specific cut off in FiO₂ than may predict treatment success, a ROC curve was analysed. The area under the ROC curve was small [0.64] and no specific cut off was possible. 72% had a documented desaturation or bradycardia during LISA. The vast majority responded to simple measures (pause, stimulation, chin lift, increased FiO₂). Atropine rescue was required in 5 patients [5.8%]; naloxone in 2 [2.3%]; and an artificial airway (LMA or intubation) in 3 [3.5%]. Bronchopulmonary dysplasia was present in 27.5% of the patients born at < 32 weeks gestation in our unit, compared with 20.5% of LISA patients.

Conclusions LISA was performed in a range of neonates from a gestational age of 24 ± 5 to post-dates babies. Most were pre-medicated with fentanyl, although a proportion were managed with sucrose alone – as is becoming increasingly common internationally. LISA was successful in around two-thirds of our patients, and success rates were similar in our second LISA procedures. FiO₂ prior to LISA was lower in the successful group, although no specific cut-off was possible. This suggests that a range of factors (such as antenatal steroids, gender, work of breathing) might also be important in determining likely response to LISA. Desaturation or bradycardia requiring significant intervention was rare. Bronchopulmonary dysplasia was less common in the LISA group than in our overall population, although this may be related to differences in baseline characteristics.

British Association of General Paediatrics

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PERCEPTION OF PPE (PERSONAL PROTECTIVE EQUIPMENT) AMONGST PAEDIATRICIANS

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Background PPE (Personal Protective equipment) use has been mandatory due to the current pandemic with Covid-19 and has been in use for the past 1 year. Use of PPE in paediatrics comes with its own challenges but is likely to be used more

frequently in future. At this juncture it would be useful to collect feedback from the paediatricians to improve our understanding of the practical issues with use of PPE so that as a group changes or alterations could be considered if at all necessary.

Objectives To understand practical difficulties with use of PPE if any and review personal experience from paediatricians who have been using them in the current pandemic

Methods Survey regarding PPE specific questions were sent to multiple Paediatricians and the results analysed

Results 96 paediatricians responded to the survey. Of the 96 doctors who responded, 61 were consultants and 35 were at a middle grade level. 27% of the respondents said wearing face masks did not affect their interactions with children. 73% of the respondents noted difficulties with increased stranger anxiety, difficulties with communication and establishing rapport with their patients. Of the 73% who had difficulties with interaction this was highest in the 1–3 year patient age group. 61% of the respondents did not feel that having face masks interferes with handovers although 39% felt it does. Almost 80% of the respondents felt that having full PPE interfered with their procedural skills with particular difficulties with intubation (33%) and cannulation (56%). 54% respondents preferred goggles and 46% preferred visor for eye protection. 30% of the respondents said that they would still prefer to continue to use PPE even after the pandemic.

Conclusions This survey brings out some very interesting facts (and many other comments) about use of PPE in our professional life. A large majority felt that it affects their interactions with children particularly the 1–3 year age group due to the difficulty in reading expressions and communication. It would be important to look at having alternative face masks which are child friendly. A significant proportion felt that having full PPE interferes with their procedural skills and it is important that this is urgently addressed as it could have significant patient safety implications. Fogging, poor visual clarity etc. were many of the issues reported and the wider paediatric group needs to escalate these concerns so that alternatives could be considered. PPE is likely to remain a long term piece of equipment to be used in paediatrics and it is important that we now ensure that they are tailored based on feedback from its users.

Paediatric Clinical Leaders: Service Planning, Provision and Best Practice

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VIRTUAL CONSULTATIONS IN PAEDIATRICS- WHAT HAVE WE LEARNT?

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Background With the current pandemic there have been many changes in the way we work. The most obvious one is use of remote clinics with the likelihood that this would remain with us in the long term. There have been wide spread acceptance of this way of working in a very short time with benefits in cost efficiency and patient attendance described. Remote consultations in paediatrics has its own challenges and this would be a good time to analyse how it works, the practical

challenges and to see if any changes are needed with the how it is provided in the future.

Objectives To get feedback from paediatricians regarding their use of remote consultations so that we could plan our services for future

Methods A questionnaire Survey was sent to paediatricians regarding their experience of use of virtual consultations and their responses were analysed

Results 66 doctors responded to request for feedback and provided answers to the questions. 78% of the respondents were paediatric consultants, 6% were neonatal consultants, 6% community consultants and 10% were specialist registrars. 94% of the respondents hadn't done remote clinics before the pandemic. Over 60% of the respondents had done more than 50% of their outpatient clinics over the last one year remotely. 75% of the respondents also provide specialist clinics apart from general clinics. 15% of the respondents used only video clinics, 28% only telephone clinics and 50% did both video and telephone clinics. 27% of the general paediatric patients and 39% of the speciality paediatric patients seen remotely were called in for a face to face consultation subsequently. Main problems with telephone clinics were calls not being answered, safe guarding concerns not being evident, difficulty in diagnosis and patient rapport. Amongst video clinic users difficulty with use of technology and network issues were the most frequent problems encountered. 55% would prefer face to face clinics in comparison to remote clinics. 73% used NHS attend anywhere platform for video consultations. The overall prediction was that 37% of the general and 31% of the speciality paediatric outpatient consultations could be done remotely in future. 55% of the respondents reported that the non attendance rate has gone down with use of virtual clinics

Conclusions In our survey it is clear that virtual consultations were done by most paediatricians over the last 1 year with the majority doing a mix of video and telephone clinics. There were practical difficulties with use of both telephone and videos amongst the respondents with approximately a third of the patients being called for face to face consultations subsequently. More than half of the group would prefer face to face over virtual consultations as it ensures better communication, rapport, review of safe guarding concerns and better diagnostic results. However there is a vast proportion of consultations which could be easily completed remotely thereby reducing patient journeys and improving attendance rate. An agreed list of conditions where remote consultations are equally effective would be a helpful way forward along with attempts to improve current technology.

British Paediatric Respiratory Society

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VIRAL ETIOLOGY OF MODERATE TO SEVERE ACUTE LOWER RESPIRATORY TRACT INFECTION IN CHILDREN FROM A TERTIARY CARE HOSPITAL OF EASTERN INDIA

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Background Viral infections are the common source of lower respiratory tract infection worldwide. Rapid and accurate detection of viral infections can prevent antibiotics abuse