ventilation, 59% were not switched and 7% were started initially on volume targeted ventilation. 8.3% of neonates not switched to volume targeted ventilation had a documented reason for this. 28.6% of neonates changed to volume targeted ventilation were changed in accordance with our departmental guideline.

Conclusion This audit demonstrated poor compliance in switching suitable neonates to volume targeted ventilation. Those that are switched are rarely switched according to the guideline. There is inadequate documentation of the reason for not switching to volume targeted ventilation. These results emphasise the need for ongoing training and education on volume targeted ventilation for all neonatal staff to ensure that our neonates receive the optimum ventilatory care.

PO-0763 THE PREVALENCE AND OUTCOME OF BABIES WITH BRONCHOPULMONARY DYSPLASIA IN A UK TERTIARY NEONATAL UNIT

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Background Bronchopulmonary dysplasia (BPD) is one of the most important adverse sequelae of premature birth and the most common form of chronic lung disease of infancy. It is relevant in the current health care climate due to the health care costs it may generate owing to the long-term respiratory and neurodevelopmental complications.

Aims To understand the prevalence, characteristics and outcomes of BPD cases in a UK tertiary neonatal unit.

Methods The Badger neonatal database was analysed for BPD and cases included if they required oxygen at corrected gestational age of 36 weeks. Their outcome and impact on neonatal services were studied over the past 4 years, after categorisation into inborn and outborn babies.

Results In the last 4 years we had 5342 admissions to our neonatal unit, 159 of who had BPD. The results are as below:

Conclusion BPD is a major morbidity among preterm babies. The cases are increasing in number due to increasing survival of extremely preterm babies. The increasing demand for home oxygen and associated comorbidities in these babies have implications for paediatric community service teams.

Abstract PO-0763 Table 1

	Inborn	Outborn
N	81	78
Mean Gestational Age in weeks (range)	26	25
Mean Birth Weight in grams (range)	810	830
Male/ Female	45/36	44/34
Mean Ventilation Days (range)	22.8	27.3
Mean CPAP days (range)	37.8	38.6
Postnatal Steroid	26	15
Evidence of Pulmonary Hypertension	5	4
Total Deaths	6	2
Home oxygen	36	30
Average length of stay (days)	107	116

PO-0764 MATERNAL SMOKING AND THE RISK OF BRONCHOPULMONARY DYSPLASIA (BPD) IN THE VERY LOW BIRTH WEIGHT (VLBW) PRETERM INFANTS

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Background and aim Among other risk factors the intrauterine smoke exposure has been suggested to influence BPD development. The aim of the study was to analyse the prevalence of BPD as well as other related variables in a group of preterm infants born by smoking and non-smoking women.

Methods A retrospective analysis based on medical records was performed. Data of VLBW preterm newborns <32 weeks gestational age, born during one year and hospitalised in the neonatal intensive care unit of a tertiary perinatal centre were collected and statistically analysed using Mann-Whitney and Pearson's Chi-square tests.

Results Analysis included 185 newborns. Mothers admitted smoking in 22 cases (12%). Gestational age and birth weight were similar in both groups (28 vs 27.5 weeks and 1203 g vs 1108 g, $p > 0.05$). BPD prevalence did not differ significantly between both groups (36% vs 39%, $p > 0.05$). Among newborns in the smoking group there was a higher mortality (27% vs 18%, $p > 0.05$) but this was not statistically significant. There were no significant differences between groups in the need for surfactant therapy (36% vs 43%, $p > 0.05$) or the length of mechanical ventilation (mean 15.6 vs 12.9 days, $p > 0.05$).

Conclusion Smoking was not confirmed as a definite risk factor of BPD in this study. This may be due to the multifactorial pathogenesis of the disease but possibly also associated with the methodology that was based on mothers' declaration regarding smoking without a laboratory screening.

PO-0765 INTRODUCTION OF INSURE THERAPY – EXPERIENCES AND LIMITATIONS

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10.1136/archdischild-2014-307384.1404

Background and aims Respiratory Distress Syndrome is the most frequent cause of respiratory insufficiency in premature infants. The essentials of INSURE therapy are INtubation after noticing the condition of RDS, SURfactant therapy and Extubation to non-invasive respiration. At our ward INSURE therapy was introduced in 2012.

Patients and methods We analysed our patients who received INSURE therapy during the 21-month-long period from July 1. 2012 until March 31. 2014. INSURE therapy was considered effective, if the patient did not require invasive ventilation within 1 week. During the examined period 398 patients were admitted to our 18-bed tertiary Neonatal Intensive Care Unit. INSURE therapy was applied in the case of 82 prematures (gestational age: 29 ± 3 weeks, birthweight 1358 ± 404 g; mean ±SD).

Results A surfactant (Curosurf ®) dose of 168 ± 39 mg/kg was administered. There was no need for repeated intubation in 57 cases, in 13 cases a second dose was surfactant was also

necessary. In 21/82 cases INSURE was not successful. In the unsuccessful group patients were not significantly younger and smaller. Procalcitonin levels at the age of one day were significantly higher the group of unsuccessful cases. III-IV Gr. IVH occurred in 6/82 necrotizing enterocolitis in 7/82 and bronchopulmonary dysplasia in 7/82 cases. Complications were more frequent in those cases whose INSURE therapy was unsuccessful.

Conclusions The introduction of INSURE-therapy grossly decreased the need for invasive respiratory support. High procalcitonin levels and clinical manifestations of early neonatal infections as well as low birth weight negatively influenced the success of INSURE-therapy.

PO-0766 EXPLORING A PHYSIOLOGICAL DEFINITION FOR BRONCHOPULMONARY DYSPLASIA

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Background and aims Current definitions for bronchopulmonary dysplasia (BPD) lack objectivity. A physiological definition for BPD where the level of shunt and the reduction in ventilation-perfusion ratio serve as an objective grading of severity has been suggested. Shunt and reduced VA:Q can be measured non-invasively by determining the relationship of arterial oxygen saturations (SpO2) to the fraction of inspired oxygen (FiO2). Our aims were to: 1. quantify shunt and reduced VA:Q in infants with BPD and in preterm infants without BPD. 2.correlate shunt and VA:Q to clinical grading of severity where possible

Methods The group study population consisted of 10 infants (two with 'No BPD', two with 'Mild BPD' and six with 'Severe BPD') based on the NIH grades of BPD severity. Stepwise alterations in FiO2 were made, whilst ensuring infants stayed within the Monash Newborn SpO2 alarm limits. A two compartmental model of gas exchange was used to derive the SpO2 vs. FiO2 curves and values for shunt and VA:Q.

Results Five out of six infants with 'Severe BPD' and one infant with 'Mild BPD' had VA:Q well below normal, range 0.34 to 0.56. Two infants with 'No BPD' and two infants with BPD, had SpO2 vs. FiO2 curves suggesting no impairment in gas exchange. The level of shunt and reduction in VA:Q did not consistently reflect the clinical grading of BPD.

Conclusions Our results reinforce the need for a more objective definition of BPD as the possibility of misclassification using the clinical definition occurred on three occasions.

PO-0767 OVERNIGHT PULSE OXIMETRY STUDIES FOR PRETERM INFANTS WITH CHRONIC NEONATAL LUNG DISEASE – AN AUDIT FROM A LEVEL III NICU

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Background and aims Infants with chronic neonatal lung disease (CNLD) often require home oxygen therapy. Overnight pulse oximetry monitoring (12–18 h duration) is useful for confirming need for oxygen therapy. We aimed to audit practise in our NICU after implementation of changes in our unit's overnight oximetry monitoring policy (Masimo Rad 7 pulse oximeters, PROFOX analysis software and new clinical protocol).

Methods We conducted a retrospective review of overnight oximetry from two full year (Jan 2012–Dec 2013). Clinical data were abstracted from medical records and archived oximetry reports generated from PROFOX were also retrieved.

Results 57 infants with CNLD had overnight oximetry performed in our centre with about two studies each.

Abstract PO-0767 Table 1

	2012	2013	p-value
Infants with CNLD	27	30	
Number of studies	61	64	
Median Gestational Age (days)	27 (23–32)	26.5 (23–30)	
Median Postnatal Age Studied (days)	110 (14–326)	104.5 (20–822)	
Median time from discharge of oximetry (days)	8.1 ± 7.5	7.9 ± 5.3	0.88
Median oxygen flow-rate (L/min)	0.125 (0–0.5)	0.05 (0–0.5)	0.41
No of studies changing oxygen therapy (%)	19 (31.1)	29 (45.3)	0.19
Infants -home oxygen therapy (%)	16 (59.3)	22 (73.3)	0.19
Median Recording Time (Hr)	12.3 (0.08–25.5)	12.5 (7.4–111.5)	0.12
Desaturation Events >3 min	6 (0–19)	7 (0–50)	
Desaturation Events <3 min	212 (25–1102)	313.5 (28–1605)	

Conclusions Overnight oximetry studies were performed just over 7 days from discharge; with the PROFOX reports increasingly affecting a change in oxygen therapy (flow rate delivered). These infants also experienced numerous brief oxygen desaturations. There was an increased trend of infants discharged home with oxygen.

PO-0768 EVALUATION OF VENTILATORY PARAMETERS, SHORT AND LONG TERM MORBIDITIES IN PRETERMS VENTILATED WITH EITHER PSV+VG OR SIMV+VG

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Introduction Volume guarantee (VG) ventilation is frequently used for newborns, mostly combined with SIMV or A/C modes. Aim of this study was to compare effect of SIMV+VG or PSV +VG ventilation on ventilatory and laboratory parameters and clinical findings.

Patients and methods Preterms with RDS < 34thgestational age (GA)requiring mechanical ventilation in the first 12 h were randomised to either SIMV+VG or PSV+VG after surfactant treatment. Patients were ventilated with Draeger Babylog 8000+. Set and measured ventilatory parameters were downloaded by Babyview® software for 72 h unless extubation or need for HFO ventilation occurred. Actual peak inspiratory pressure (PIP), set and measured tidal volume (TV), mean airway pressure (MAP) and FiO_2 were analysed. If measured TV percentage was between 80–120% of set TV, it was considered appropriate.