10 Hz and the amplitude set at equal to the MAP value at the beginning, was increased, if necessary, until the infant’s chest was seen to be “bouncing”. In the HFOV+VG mode, the VThf was set at 2 ml/kg initially on the basis of our clinical experience. The Amplitude limit was set at 15–20% above the average amplitude needed to achieve the target VThf. Moreover during each 2 h observation period, the following variables were continuously displayed at 5-min intervals: FiO2, MAR VThf, Carbon dioxide diffusion co efficiency (DCO2), Amplitude (DeltaPhf), from the ventilator records and heart rate, mean blood pressure, SpO2 from the standard cardiorespiratory monitor.

Results The mean gestational age was 28.2 (24–32) week and the mean gestational weight was 1087 (704–1960) gr. There was no significant difference in the mean PCO2, FiO2, DeltaPhf, MAR VThf, DCO2, Minute ventilation (MVe), Dynamic compliance (CDyn), Resistance (R). Hypocarbia event (PCO2 <40 mmHg) occurred eleven (%36) sample during HFOV+VG period against seven sample (%23) during HFOV period but not statistical significant.

Conclusion This preliminary result demonstrated that VG option, when combined with HFOV, a stable and feasible ventilation mode for neonatal patients and can achieve equivalent gas exchange. After a careful analysis of the results, a set VThf of 1.5 ml/kg seems to be successful achieving equivalent gas exchange using lower airway pressure.

PO-0742 HYPOTHERMIA A RISK FACTOR FOR RESPIRATORY DISTRESS SYNDROME IN PREMATURITY INFANTS?
1C Jensen, 2T Ebbesen, 3P Petersen, 4AS Sørensen, 5PH Henksen. 1Department of Pediatrics, Aarhus University Hospital, Aarhus, Denmark; 2Department of Pediatrics, Aalborg University Hospital, Aalborg, Denmark; 3Department of Pediatrics, Aarhus University Hospital, Aarhus, Denmark

Background Hypothermia is generally thought to be a risk factor of respiratory distress syndrome (RDS) in premature infants. However, previous studies have primarily investigated the association between hypothermia and death.

Aim To investigate the association between body temperature and severe RDS.

Methods The study population consists of all infants born before 32 weeks of gestation and admitted to the neonatal intensive care unit (NICU), Aalborg University Hospital, Denmark April 1997 and December 2011. Rectal temperature was measured daily. Severe RDS was defined as the need for surfactant treatment or death within the first 3 days of life in premature infants born before 32 weeks gestation. Data are provided by national registries and will be analysed by logistic regression while adjusting formarkers of infection, gestational age, clinical trials.

Results Preliminary results from 593 infants show that 64% (n = 381) had hypothermia (<36.5°C), 33% (n = 197) had a rectal temperature within the normal range (36.5°C - 37.5°C) and 3% (n = 15) had hyperthermia (>37.5°C). The unadjusted odds for need for surfactant treatment were almost twice the odds in normothermic newborns at admission (OR 1.92 95% CI: 1.34; 2.76). Further analyses are ongoing and refined results will be presented.

Conclusions In very preterm neonates the unadjusted odds of severe RDS was almost two times higher if they had hypothermia at admission compared to those with normothermia.

PO-0743 USE OF A NEW-GENERATION ELECTRONIC MICROPUMP NEBULISER TO DELIVER Budesonide IN CHRONIC LUNG DISEASE: A FEASIBLE ALTERNATIVE TO SYSTEMIC DEXAMETHASONE?
1S Job, 2A Kapuri, 3K Ives, 1P Clarke. 1Neonatal Unit, Norfolk and Norwich University Hospitals NHS Foundation Trust, Norwich, UK; 2Neonatal Unit, John Radcliffe Hospital Oxford University NHS Trust, Oxford, UK

Background and aim Inhaled corticosteroids reduce lung inflammation in chronic lung disease (CLD) and may be safer than systemic dexamethasone treatment, but evidence of better efficacy is lacking. State-of-the-art aerosol delivery systems may permit enhanced alveolar steroid delivery compared with traditional metered-dose inhalers/spacers or jet nebulisers. We evaluated a new-generation electronic micropump vibrating-mesh nebuliser for topical delivery of budesonide in infants with severe CLD requiring nasal high-flow respiratory support.

Methods We reviewed our units’ clinical experience of delivering budesonide via the Vapotherm ventilation circuit to infants with established CLD using the AeronPro-X (Aerogen, Ireland) nebuliser.

Results 7 babies with severe CLD received nebulised budesonide since 2013. Median (range) birth gestational age was 26.9 (23.1–27.7) weeks, birthweight 720 (490–830) g. Nebulisation commenced at age 62 (29–104) days postnatal, by which time 6 babies had accumulated 33 (10–49) days’ systemic dexamethasone. Initial budesonide dosage was 0.5 mg/dose administered 2–4 times/day. Duration of nebulisation prior to discharge/back transfer was 55 (9–69) days. Nebulisation permitted successful weaning from dexamethasone within 8 (0–20) days in 6 babies and obviated the need for systemic dexamethasone in another. After starting nebulisation, no baby needed a subsequent oral dexamethasone course before discharge/back transfer.

Conclusion Use of a new-generation electronic micropump nebuliser for topical aerosols budesonide delivery to nasal high-flow dependent infants is feasible and may avoid the need for systemic dexamethasone. The comparative safety and efficacy of this new technology for steroid delivery to ventilatory support-dependent CLD babies should now be formally examined in clinical trials.

PO-0744 GENOME-WIDE ASSOCIATION STUDY OF BRONCHOPULMONARY DYSPLASIA
1MK Karjalainen, 1M Mahlan, 1M Huusko, 1TS Andersson, 1A Kari, 1L Lehtonen, 1O Sankila, 2O Tammela, 2R Marttila, 1M Rämet, 1M Hallman. 1Department of Pediatrics, University of Oulu and Oulu University Hospital, Oulu, Finland; 2Children’s Hospital, Helsinki University Central Hospital and University of Helsinki, Helsinki, Finland; 3Department of Pediatrics, Turku University Hospital, Turku, Finland; 4Department of Pediatrics, Kuopio University Hospital, Kuopio, Finland; 5Department of Pediatrics, Tampere University Hospital, Tampere, Finland

Background and aims Bronchopulmonary dysplasia (BPD) is the most common chronic disease associated with very preterm birth. BPD has a significant genetic background but the predisposing genes are insufficiently known. The aim is to find genetic factors that predispose to moderate-severe BPD using a hypothesis-free, genome-wide approach.

Methods The study populations included preterm infants (gestational age <31 weeks) born during 1997–2013 in Oulu...
University Hospital and during 2010–2013 in other Finnish University Hospitals (Helsinki, Kuopio, Tampere, Turku). DNA samples were genotyped using the Illumina HumanCoreExome BeadChip consisting of approximately 550,000 single-nucleotide polymorphisms (SNPs); after quality control, 60 cases (moderate-severe BPD) and 114 controls (no or mild BPD) remained for a genome-wide association study (GWAS). In the next step, approximately 200 SNPs showing suggestive signals were genotyped in additional infants (n = 116/232) to determine which associations are replicated.

**Results** In GWAS, we detected suggestive association signals (p < 1×10^-5) for several SNPs; many of these SNPs were located within or near genes that can be considered as plausible candidate genes for BPD (e.g. the CRP and PTEN genes encoding C-reactive protein and protein-tyrosine phosphatase SHP-1, respectively). Some of the SNPs showing suggestive associations in two previous GWASs of BPD showed weak associations (e.g. those within the PALM2 and CTNNA3 genes).

**Conclusions** In genome-wide association study of BPD, we detected several suggestive associations. These initial results require verification in subsequent studies, including replication in additional populations and functional studies of the arising candidate genes.

**PO-0745 CONGENITAL DIAPHRAGMATIC HERNIA IN NEONATES – FIRST TIME ASSESSMENT OF OUTCOME AMONG PALESTINIAN BABIES**

**1** H Khamash, **2** A Atawna, **3** R Al-Shari, **4** Abdelehame, **5** A Deesi. **1** Pediatric, Al-Quds University, Jerusalem, Palestine (Via Israel); **2** Neonatology, Makassed Hospital, Jerusalem, Palestine (Via Israel); **3** School of Medicine, Al-Quds University, Jerusalem, Palestine (Via Israel); **4** Pediatrics, Makassed Hospital, Jerusalem, Palestine (Via Israel); **5** Pediatric Surgery, Makassed Hospital, Jerusalem, Palestine (Via Israel)

**Objectives** To review our NICU and surgical experience of all cases of CDH that was admitted to our hospital in last 10 years. To identify the risk factors for morbidity and mortality.

**Setup** Makassed Charitable Hospital, main tertiary hospital for Palestinian Territories (West Bank, Gaza and East Jerusalem).

**Material and methods** Retrospective Review of all cases of CDH that was admitted to our NICU between January 2003 and December 2013. Data about: Antenatal diagnosis, gestational age, birth weight, Apgar score, Blood gas at delivery, time of surgery; finding at surgery, ventilation days, mortality outcome and several other items were recorded and analysed. Primary outcome was: mortality, total days of ventilation and total days of Oxygen requirement.

**Results** Thirty three (n = 33) cases of CDH were reviewed. Twenty two cases were inborn (67%). Mortality was 10 cases (30%). Twenty three cases were discharged home alive and off oxygen therapy (70%). Better survival rate after 2009 (77% Vs 63%) this could be due to gentle ventilation strategies, better use of antenatal ultrasound for diagnosis. Lower mortality and less ventilation days were significantly associated with lower initial PaCO2 (p < 0.001) and higher PH (p < 0.001) and higher Gestational age (P 0.05). Presence of liver and/or spleen as part of hernia contents correlates negatively with the primary outcome (p < 0.05).

**Conclusion** This is the first study that outlines the mortality and morbidity and their risk factors in Palestinian Territories with no ECMO is used demonstrating fairly good outcome with gentle ventilation strategies and antenatal diagnosis.

**PO-0746 RESPIRATORY SUPPORT IN TERM NEWBORNS AFTER C-SECTION**

D Konstantelos, J Dinger, S Hlaender, M Rüdiger. Department of Neonatology and Pediatric Intensive Care, Medizinische Fakultät Carl Gustav Carus an Der TU Dresden, Dresden, Germany

**Background and aims** After c-section term newborns are at risk of respiratory problems. Whereas some newborns require respiratory support only for a short time in the delivery room (DR), others are admitted to the NICU for prolonged therapy. Our aim was to compare differences between newborns with respiratory support in DR only and those admitted to the NICU.

**Methods** Retrospective analysis of video recorded DR-management of term newborns born between January 2012 and November 2013 via c-section.

**Results** 368 newborns were analysed with 82 (22%) receiving respiratory support. From them, 26 (32%) were transported to NICU for further treatment, the remaining 56 (68%) were stabilised after a short period of CPAP treatment. There were no demographic differences between both groups. CPAP-administration started after a median of 3.4 (0.2–27) in NICU and 3.7 (0.03–17) minutes in DR infants. At the start of CPAP administration infants had a median heart rate of 161 (75–195) in NICU and 133 (56–200) in DR newborns and SpO2 of 69 (41–100) and 80 (55–100) respectively (p = 0.01). 8 (31%) NICU and 15 (27%) DR newborns received a sustained inflation; mechanical ventilation via face-mask received 4 and 6 newborns respectively. In infants remaining in the DR respiratory support was stopped after a median of 7.6 (0.2–21) minutes, infants were transferred to the NICU after a supportive period of 17.7 (4–29.6) minutes respectively.

**Discussion** Except for lower SpO2 values there are no parameters to predict the need for the length of treatment in respiratory depressed term newborns.

**PO-0747 THE STUDY OF OXIDATIVE STRESS AT PRETERM NEWBORNS WITH RESPIRATORY DISTRESS SYNDROME**

M Matyas, I Blaga, M Hasmansan, G Zaharie. Neonatology Department, University of Medicine and Pharmacy, CLUJ-NAPOCA, Romania

**Aim** The diseases of newborns which involve oxidative stress are: respiratory distress (RDS), bronchopulmonary dysplasia, retinopathy and necrotizing enterocolitis. The aim of the study was to evaluate the oxidative stress trough the lipid peroxidation at preterm newborns with RDS.

**Material and methods** We conducted a prospective, non-randomised study. The study group was represented by sixty preterm newborns with RDS. The control was represented by 20 healthy late preterm newborns. For all patients family’s consent was obtained. The study of the oxidative stress was performed by the measurement of malondialdehyde (MDA) by Satoh’s method. For each newborn we determined the MDA on the first and third day of life. For the control was carried out one determination on the first day of life. The statistical analysis was done using the SPSS program.

**Results** The RDS was present in mild form at 35% newborns, medium form at 42% and severe form at 23%. Seven newborns presented neonatal septicemia. Cerebral haemorrhage was present at 12 newborns of the study group. At 13 preterm the