**Background and Aims** Neonatal mortality is the leading cause of under-5 child deaths in China. The aim was to evaluate the effect of a pilot intervention on setting up long-term mechanism of neonatal resuscitation training in 4 counties in China.

**Methods** A neonatal resuscitation leading group was set up within each county level hospital to lead the in-hospital training, department coordination, resuscitation practices and cases audit. A random control survey was conducted in the intervention counties and 4 randomly selected control counties to evaluate the impact of the intervention. Indicators evaluated include knowledge and self-confidence score of health providers, in-hospital regulations, changes of asphyxia incidence and mortality.

**Results** Over 90% of intervention hospitals had carried out neonatal resuscitation related regulations requiring that trained paediatricians participate in case discussion of high-risk delivery and onsite resuscitation, while in control hospitals less than 55% had such requirements. The average knowledge score of health providers was significantly higher in the intervention counties than the control counties (9.1±2.18 VS 8.4±2.52). The average self-confidence score in the two groups were 57.2±3.5 and 54.0±4.8 respectively. The incidence of birth asphyxia (defined as Apgar score ≤7) over 9 months of age in intervention and control groups were 40.6% and 57.3% respectively. The incidence of asphyxial death (defined as Apgar score ≤2) in intervention and control groups were 3.2% and 5.2% respectively.

**Conclusions** Setting up long-term mechanism of neonatal resuscitation training is an effective method to strengthen in-hospital training, build up capability for neonatal resuscitation and therefore, can decrease the incidence of neonatal asphyxia.

**The Diameter of Coronary Arteries in Healthy Newborns at Birth, One and Six Months of Age**

**Objectives** The aim of this study was to determine accurate and validated z-score equations for the normal values of coronary diameters adjusted with growth changes of the neonates by testing three different time periods.

**Methods** Echocardiography was performed on 200 healthy neonates at birth, one and six months of age. Several regression models for the left (LCA) and right coronary artery (RCA) diameters were tested with weight, height, body surface area and aortic annulus diameter. Reliable standards for the coronary artery diameters for healthy newborns by determining z-score equations with appropriate statistical validations were established.

**Results** The coronary diameters on birth measurements were strongly correlated with birth weight, height, surface area and the diameter of the aortic annulus (Pearson's R>0.8, all p<0.01). There were significant associations between the mean data of weight, height, body surface area, aortic annulus and the LCA and RCA diameters measurements of study subjects at birth, one and six months of ages (p<0.05).

**Conclusion** We present a new set of equations for neonatal z-score calculation on the basis of a large number of healthy neonates on three different time period consisting of birth, one and six month of ages. It is clear with this study that the growth in caliber of the coronary arteries is definite and progressive during postnatal time.

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**Results** Over 90% of intervention hospitals had carried out neonatal resuscitation related regulations requiring that trained paediatricians participate in case discussion of high-risk delivery and onsite resuscitation, while in control hospitals less than 55% had such requirements. The average knowledge score of health providers was significantly higher in the intervention counties than the control counties (9.1±2.18 VS 8.4±2.52). The average self-confidence score in the two groups were 57.2±3.5 and 54.0±4.8 respectively. The incidence of birth asphyxia (defined as Apgar score ≤7) over 9 months of age in intervention and control groups were 40.6% and 57.3% respectively. The incidence of asphyxial death (defined as Apgar score ≤2) in intervention and control groups were 3.2% and 5.2% respectively.

**Conclusions** Setting up long-term mechanism of neonatal resuscitation training is an effective method to strengthen in-hospital training, build up capability for neonatal resuscitation and therefore, can decrease the incidence of neonatal asphyxia.
Background Duct dependent congenital heart disease (DDCHD) may be difficult to distinguish from other diagnoses, notably persistent pulmonary hypertension (PPHN). Affected infants born in regional hospitals require transfer to a tertiary paediatric centre for echocardiographic diagnosis. Identification of predictive factors to distinguish DDCHD would assist in appropriate early management during transport. 

Aims To describe transport of infants with suspected DDCHD and investigate early predictors of DDCHD. 

Methods A retrospective study of infants with suspected DDCHD/PPHN transferred by NETS. Clinical, physiological and investigation data were compared between DDCHD and non-DDCHD (including PPHN) groups. 

Results Of 142 eligible infants, 81 had DDCHD and 61 had non-DDCHD, of whom 51 had PPHN. There was no significant difference in median gestation, birth weight, sex, or distance of transfer between DDCHD and non-DDCHD groups. DDCHD infants were more often transferred by air than land.

At univariate analysis, presence of heart murmur, abnormal pulses, upper and lower limb BP difference >10 mmHg, cardiomegaly, initial SpO2 of <92% and pre-post ductal SpO2 difference >10% were significantly associated with DDCHD. Labile SpO2, abnormal lung parenchyma, mean blood pressure <40 mmHg, pH <7.25, lactate >5, PaO2 <50 mmHg and FeO2 >0.5 were significantly associated with non-DDCHD.

On multivariate analysis, only labile SpO2 and mean BP <40 mmHg were significantly associated with non-DDCHD. 

Conclusion Labile saturations and mean BP<40 mmHg at the time of referral were significantly associated with non-DDCHD/PPHN. Other clinical features and physiological measures did not distinguish DDCHD from non-DDCHD.

Introduction To investigate the impact of a haemodynamically significant patent ductus arteriosus (PDA) and its treatment with ibuprofen on regional tissue oxygenation, both cerebral and somatic (gut) using near infrared spectroscopy (NIRS).

Method A prospective observational study in the neonatal intensive care unit of Rotunda Maternity Hospital from May 2011 to April 2012. Infants <34 weeks and <1500g with a haemodynamically significant PDA confirmed on echocardiogram by Consultant Paediatric Cardiologist (OF) were eligible for the study. The machine used was the Somatics INVOS system. NIRS sensors were applied to the head and liver for a minimum of 5 hours pre and 12 hours post treatment. Control patients were infants who met the above criteria but had a contraindication to ibuprofen therapy.

Results Total of 18 recordings for 15 infants, 10 in treatment group and 8 in control group. 2 infants received ibuprofen on 2 occasions. 9 male, 6 female. The mean gestational age was 26.63 (23.71–28.12) weeks and birth weight 798(550–1230)grams. The average recording was 13.46 hours pre-treatment, 39.78 hours post treatment and 39.97 hours in the control group. The median [range] cerebral regional oxygenation (cRO) pre-treatment was 68 [60–79] and post treatment was 70 [56.6–78.5]. The median [range] somatic regional oxygenation (sRO) pre-treatment was 50 [15–79] and post treatment was 54 [15–69.5]. In the control group, the median [range] cRO was 69.75 [62–78] and sRO was 40 [14–71.5].

Conclusion There was no statistically significant difference in regional tissue oxygenation (cerebral and somatic) pre and post treatment with ibuprofen.

Background and Aims Congenital heart diseases (CHD) are the most common life-threatening anomalies with significant morbid-ity and mortality in newborns. The aim of this study was to evaluate the effect of PBNP levels before and after cardiac interventions.

Methods A prospective study was performed on hospitalized newborns diagnosed with CHD. Oxygen saturation (SaO2), PL, heart rate and serum NT-proBNP levels were obtained before and 6th hour after cardiac interventions (catheterization or surgery) in all patients, by using Masimo Rainbow SET Radia 17 Monitor (Masimo Corp., Irvine, CA, USA). Duration of mechanical ventilation, morbidity and mortality rates were documented.

Results Thirty-four CHD diagnosed newborns were included. Pulmonary atresia (20.6%), aortic coarctation (14.7%), and transposition of great arteries (11.82%) are the most common and ivasive methods of diagnostic and follow up on CHD cardiac diseases.