

at admission were independently associated with differences in survival.

PS-044 NEONATAL UNIT ADMISSION VOLUME IMPACTS IN-HOSPITAL MORTALITY FOR VERY PRETERM INFANTS IN EUROPE: RESULTS FROM THE EPICE COHORT

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Background and aims Studies have shown that very preterm infants (VPTI) have higher survival when they are born in a maternity unit associated with a high volume neonatal unit. We sought to analyse the impact of nursery volume on in-hospital mortality in Europe.

Methods Data come from the EPICE (Effective Perinatal Intensive Care in Europe) project, a population-based study of VPTI born in 19 European regions over 12 months in 2012–2013. We included all live births between 24 and 31 weeks of gestation without severe congenital anomalies (n = 7383) born in 350 maternity units. Volume was defined as the number of observed admissions to the neonatal unit associated with the delivery hospital. Our outcome was death before discharge home. We assessed the impact of volume, analysed as a continuous variable, using multi-level logistic regression and considering case-mix (gestational age, sex, small for gestational age, multiple pregnancy, maternal age and parity).

Results 8% of VPTI were born in maternity units with less than 10 neonatal admissions, 8% in units with 10 to 29 admissions, 11% in units with 30 to 49 admissions, 42% in units with 50 to 99 admissions and 31% in units with ≥100 admissions. After adjustment, we found a significant linear association between volume and in-hospital mortality, with an odds ratio of 0.95 (0.91–0.98) for 20 additional admissions.

Conclusions VPTI born in maternity units associated with high volume neonatal units had better survival. Delivery in maternity units with larger neonatal units may contribute to improved outcomes in this population.

PS-045 EXPLAINING THE DIFFERENCES IN MORTALITY RATES FOR VERY PRETERM BIRTHS ACROSS EUROPE: THE EPICE STUDY

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Background Mortality rates for very preterm births (VPTBs) show wide variation across Europe. Some, of this variation can be explained by a lack of standardised data collection and reporting. Using the standardised EPICE population-based cohort of VPTBs we investigate the potential explanatory factors for the variation in the in-hospital mortality rates between 19 European study regions.

Methods All births between 22⁺⁰ and 31⁺⁶ weeks of gestational age were included in the EPICE birth cohorts in 19 regions in

11 European countries. A standardised data collection system was established in each of the regions; ascertainment was validated against birth registers. All VPTBs were followed to death or discharge home from neonatal care. Mortality rates were calculated for the total cohort (~10,000), live born infants and those admitted for neonatal care. Assessment of the potential maternal and infant explanatory factors for the variations in standardised mortality rates were investigated using multilevel logistic regression.

Results Crude in-hospital mortality rates for (i) total very pre-term birth cohort 22⁺⁰ to 31⁺⁶ weeks gestation (excluding TOPs for congenital anomaly), ranged from 19.5% to 48.9% by region; (ii) all live births: 6.7–20.9% and (iii) for admissions to neonatal care: 4.9–18.3%. Following adjustment for maternal and infant characteristics the variation in these rates reduced to: total cohort 23.5–39.3%; live births 10.2–17.7% and NIC admissions 7.5–15.2%.

Conclusions Only a small proportion of the variation in the standardised mortality rates was explained by the maternal and infant characteristics. Further work will investigate variation in the timing of death.

PS-046 FIRST DAY HEART RATE CHARACTERISTICS PREDICT DEATH AND ADVERSE EVENTS IN PRETERM INFANTS

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Purpose Abnormal heart rate characteristics (HRC) of decreased variability and decelerations occur in preterm infants with sepsis and other pathologic conditions. We sought to determine whether an HRC index (HeRO score) in the first day after birth predicts death and morbidities and to compare it to an established risk index, the Score for Neonatal Acute Physiology (SNAP-II).

Methods The HRC index was analysed within 24 h of birth in 163 extremely low birth weight infants, and SNAP-II was calculated when data were available. Associations between the maximum HRC index (HRC-1), SNAP-II, and death and major morbidities were analysed using logistic regression to correct for gestational age.

Results HRC-1 was significantly associated with death, severe head ultrasound abnormalities (sHUS = grade 3–4 intraventricular haemorrhage or cystic periventricular leukomalacia), and late-onset septicemia (LOS) (Table). SNAP-II could be calculated in 122 cases (75%) and was correlated with HRC-1 (r = 0.50, p < 0.0001) and with death, sHUS, and bronchopulmonary dysplasia

Abstract PS-046 Table 1

Outcome	% with Outcome	HRC-1 p = *	SNAP p = *
Death	19%	0.009	<0.001
Severe HUS	19%	0.006	0.001
Late-onset septicemia	24%	0.049	0.714
NEC/SIP	13%	0.565	0.142
BPD	55%	0.186	0.018
Severe ROP	8%	0.555	0.204
Survival, No Morbidities	25%	0.029	0.010

* corrected for gestational age