Abstract G169 Table 1 Primary outcome (mean/SD; 28-day survivors)

Age	SCAMP HC (n = 66)	SCAMP SDS (n = 66)	Control HC (n = 69)	Control SDS (n = 69)	P value
Randomisation	240mm (12)	−1.55 (0.73)	240mm (13)	−1.48 (0.68)	
ΔHC/ΔSDS Day 28	31mm (9)	+0.05 (0.66)	26mm (8)	−0.32(0.65)	<0.001

Differences in ΔHC are already apparent at day 7 ($p < 0.05$) with the greatest difference at 3–4 weeks (28-day-ΔHC difference equates to 6% difference head/brain volume). Group HC differences are still apparent at 36wCGA ($p < 0.05$).

Conclusion Early postnatal head growth failure in VPI can be prevented by optimising PN.

G170 RANDOMISED CONTROLLED TRIAL OF SYNCHRONISED INTERMITTENT POSITIVE AIRWAY PRESSURE (SIPAP™) VERSUS CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP) AS A PRIMARY MODE OF RESPIRATORY SUPPORT IN PRETERM INFANTS WITH RESPIRATORY DISTRESS SYNDROME

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Background Minimising exposure to factors contributing to chronic respiratory morbidity is a priority in preterm care. CPAP is established but alternatives are gaining popularity despite limited evaluation. SiPAP has not previously been compared to CPAP for first-line treatment of RDS.

Aims To compare SiPAP with CPAP as a primary mode of non-invasive respiratory support in premature infants with RDS.

Methods In this prospective two-centre trial, infants (GA 28^{+0} to 31^{+6}; inborn; <6hrs old; no prior intubation; no major congenital disorders) were assigned to either SiPAP (BiPhasic Tr©) or CPAP delivered by the Infant Flow® SiPAP™ device. Randomisation was stratified by centre and gestation. Crossover or use of other devices was not permitted.

The primary outcome was a pre-defined failure of non-invasive respiratory support, necessitating intubation and ventilation, in the first 72 hours of treatment. Strategies for initial settings, weaning, discontinuation and deterioration were specified. To detect a 50% reduction in failure (power 80%, $\alpha = 0.05$, 2 tailed), 116 participants were required. Analyses were by intention-to-treat.

Results We assessed 368 infants at admission and recruited 120 of 149 eligible (CPAP 60, SiPAP 60). Baseline characteristics were comparable.

Abstract G170 Table 1

Characteristic	CPAP	SiPAP	P value
Gestational age, mean (SD)	29.7 (1.2)	29.8 (1.1)	0.64
Birthweight, mean (SD)	1325 (335)	1324 (300)	0.99
Male gender, n(%)	34 (56.7)	36 (60)	0.71
Singleton pregnancy, n(%)	37 (61.7)	39 (65.0)	0.71
Antenatal Corticosteroids (any), n(%)	59 (98.3)	59 (98.3)	1.0
Chorioamnionitis, n(%)	9.0 (15.0)	11 (18.3)	0.62
CRIB 2, mean (SD)	4.3 (2.4)	4.8 (2.3)	0.31

Failure of non-invasive respiratory support, did not differ by allocated mode of respiratory support but occurred more frequently in the lower gestational age stratum (GA < 30^{+0}) ($p = 0.004$). Despite differing frequencies for some key morbidities there were no significant differences in secondary outcomes.

Abstract G170 Table 2

Outcome	CPAP (n,%)	SiPAP (n,%)	P value
Primary outcome	7 (11.7)	8 (13.3)	0.78
Death	2 (3.3)	0 (–)	0.50
Pneumothorax	0 (–)	4 (6.7)	0.12
BPD	7 (11.9)	5 (8.3)	0.52
NEC	5 (8.3)	1 (1.7)	0.21

Conclusions For the very preterm infant, using SiPAP for first-line treatment of RDS does not confer any benefit in short-term respiratory outcome as compared to CPAP. Preterm morbidities and complications of non-invasive respiratory support were similar irrespective of allocation in this study.

G171 SURVIVAL OF PRETERM INFANTS ADMITTED TO NEONATAL CARE IN ENGLAND: A POPULATION-BASED STUDY USING NHS ELECTRONIC CLINICAL RECORDS

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Aims The survival of preterm infants is a matter of wide public interest. Survival prediction is important for clinicians when advising parents and for risk adjustment when comparing providers. Prediction models are generally based on historical data, often from hospital rather than population-based cohorts. Here we demonstrate the use of near-contemporaneous electronic National Health Service (NHS) clinical data to provide a practical, up-to-date, web-based survival prediction tool for preterm infants admitted to neonatal units in England. We compared this with existing UK and US predictors and evaluated the change in survival over recent years for extremely preterm babies from 22^{+0}–25^{+6} week gestational age (GA) admitted to neonatal care, in comparison with previous published data.

Methods Data for infants born ≤31^{+6} weeks GA that died or were discharged in 2009–2011 were received with Caldicott Guardian permission from English neonatal units in the UK Neonatal Collaborative. A multivariable logistic regression model was developed using known predictors. Discrimination and calibration were evaluated internally and on independent data. A web-based tool was written in Javascript. Survival was compared against data from the EPICure 2 study in 2006.

Results There were 17,491 infants included in the cohort, of whom 16,164 (92%) survived. Birth weight, GA, sex, antenatal steroids, and multiple birth were factors included in the final model. The interactive tool is available online for open access. The model showed good discrimination internally (area under ROC curve (AUC) = 0.89, 95% CI 0.88 to 0.90) and on independent data (AUC = 0.87, 95% CI 0.82 to 0.91). Predictive performance was similar to previous UK models and improved over a US model. There has been no statistically significant increase in survival to discharge of admitted infants born at 22^{+0}–25^{+6} weeks gestation in England since 2006 (Relative Risk 1.10, 95% CI 0.98 to 1.22, $p = 0.11$).

Conclusions We have established the feasibility of employing contemporaneous, population-based, routinely collected, electronic NHS data for survival modelling for preterm babies admitted to neonatal care. The model is available in a web tool readily accessible to clinicians, parents, and healthcare managers and can be regularly updated to readily assess population changes in neonatal survival.