

**Methods** A survey was designed and sent by email to neonatal units which were applying nCPAP. The survey collected information about the devices, the indications of use and the ventilatory parameters used when delivering nasal ventilation over 2010. It was also questioned whether a guideline was followed.

**Results** 87 out of 115 questionnaires were answered and returned (75.6%). All the surveyed units used nCPAP and the most frequent indications were: apnoea treatment (87/87; 100%) and respiratory distress before surfactant therapy (85/8; 97.7%). 71 units used nIPPV (81.6%) in order to succeed in extubation (66/71; 92.9%) and for treatment of apnoeas (63/71; 88.7%). Most of the units used variable flow devices to deliver nCPAP (64/87; 73.5%) and nIPPV (48/71; 67.6%). 72 units (82.7%) followed national guidelines at the time of starting non invasive ventilation. The most used interface was short binasal prongs (58/87; 66.6%).

**Conclusion** Both nCPAP and nIPPV are significantly used in Spanish neonatal units following the recommendations of the available national guidelines.

### 1802 RANDOMISED TRIAL OF SINGLE NASAL PRONG OR FACE MASK FOR RESPIRATORY SUPPORT FOR PRETERM INFANTS IN DELIVERY ROOM (ISRCTN59061709)

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**Background** ILCOR recommends that newborns with inadequate breathing or HR < 100 bpm be given respiratory support via a face mask in the delivery room (DR); however, it may be more effective if given to preterm infants via a single nasal prong (AKA short nasal tube, nasopharyngeal tube).

**Aims** To determine whether giving respiratory support to preterm infants via a nasal prong rather than a face mask results in fewer infants being intubated in the DR.

**Methods** Normally formed infants < 31 weeks' are eligible for inclusion. Randomisation is stratified by gestational age (< 28 weeks, 28–30<sup>+</sup>) and allocation is concealed in sealed opaque envelopes. With parental consent, infants are randomised just prior to delivery to single nasal prong (ETT shortened to 5cm) or face mask (Fisher & Paykel, Auckland NZ). Infants who have apnoea, respiratory distress and/or a HR < 100 bpm receive respiratory support with a t-piece. Infants are only intubated in the DR for apnoea and/or bradycardia despite PPV, not for surfactant administration. All other aspects of treatment in the DR and NICU are the same for both groups. Relevant secondary outcomes are recorded.

**Results** Since enrollment began (19.07.2010), 121 infants have been recruited and had the primary outcome determined. We expect the primary outcome will be determinable for the total sample of 142 infants by August 2012.

**Conclusions** This randomised trial will provide valuable information about the preferred interface to use when giving respiratory support to newborn preterm infants in the DR.

### 1803 DOES VOLUME OF THE MASK VARY AND INFLUENCE MEASUREMENTS DURING NEONATAL RESUSCITATION?

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**Background** Respiratory function monitoring (RFM) could improve the efficiency of mask ventilation in preterm infants at birth. However, dead space of a mask could vary, depending on rate

of pressurization and variation in hand hold, influencing measurements.

**Aim** To investigate whether mask volume varies during mask ventilation and influences measured tidal volumes and calculated mask leak.

**Methods** Thirty caregivers of the neonatal unit were asked to mask-ventilate a leak free manikin with pressures 25/5 cm H<sub>2</sub>O and a gas flow rate of 6 and 10 L/min. A Laerdal 0/1 mask (40 mL) was glued leak free on the face in the right position but the participant was unaware why the mask position was fixed. The participant was told that mask hold, not positioning, was tested and that it was still possible to have leak. Tidal volumes were measured using a RFM.

**Results** Inspired tidal volume (V<sub>Ti</sub>) increased from 8.05 mL (0.76) at 6 L/min to 8.76 mL (0.75) at 10 L/min (p<0.01) and expired tidal volume (V<sub>Te</sub>) from 8.15 mL (0.81) at 6 L/min to 8.85 mL (0.75) at 10 L/min (p<0.001). Median (IQR) leak was -0.90 (-3.90–1.40) % with 6 L/min and did not increase with 10 L/min (-0.62 (-3.43–1.80) %; ns) Coefficient of variance showed good to acceptable agreement for all results.

**Conclusion** During mask ventilation there is very little variation in mask volume which does not influence respiratory function monitoring.

### 1804 WHICH MUSICAL TUNE IMPROVES SYNCHRONIZATION OF RESPIRATORY SUPPORT DURING SIMULATED CARDIO-PULMONARY RESUSCITATION OF NEONATES?

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**Introduction** The need to provide chest compressions and assisted inflations occurs infrequently during neonatal resuscitation. A mannequin study of cardiopulmonary resuscitation (CPR) in adults showed that listening to music improved the coordination of inflations and chest compressions.

**Aim** To compare several musical tunes during simulated CPR and the effect on coordinating inflations and chest compression during two helper CPR.

**Methods** Five different tunes ("I will survive" (120 bpm), "Radetzkimarsch" (105 bpm), "Jingle Bells" (120 bpm), "Stayin' alive" (105 bpm), and "S.O.S." (120 bpm)) were played during simulated neonatal CPR. The order in which the tunes were played was randomized. Mask leak and tidal volume was measured using a respiratory function monitor and used to investigate the degree of synchronization of two-helper CPR. Measurements were recorded at baseline (no music) and with individual tunes, each played for one minute during which CPR was provided by neonatal staff.

**Results** During baseline median (SD) chest compressions and inflations were 80 (6) and 28 (2) per minute, respectively. 43% of chest compressions occurred during expiration, 16% during inspiration and 41% between expiration and inspiration. Only listening to "S.O.S." improved the number of delivered chest compressions and inflations significantly compared to baseline. Mask leak and tidal volume delivery was similar while listening to any of the five musical tunes.

**Conclusion** ABBA's S.O.S significantly improved the number of chest compressions and inflations. Musical mnemonics apparently have the potential to improve mask ventilation when cardiac compressions are required. Their use should be further investigated.