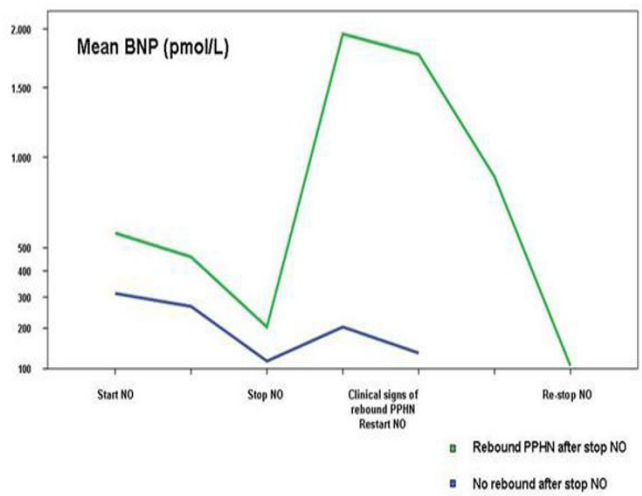
Design/ methods: 24 patients with PPHN were treated. Serum BNP levels were determined longitudinally. 3 patients were excluded because of the need for ECMO. In 6 patients a rebound of PPHN occurred after treatment was terminated. BNP levels were compared between infants with or without rebound PPHN (n=15).

Results: All PPHN infants had similar BNP levels at the start of initial NO. BNP levels decreased in both groups during NO treatment. In the infants who developed a rebound PPHN an increase was found in BNP shortly after cessation of NO treatment. This occurred well before the onset of clinical deterioration. BNP again decreased significantly during NO treatment ($p< 0.05$). Figure 1 provides the course of BNP.

Figure 1



[FIgure 1]

Conclusion: BNP, as a biomarker of cardiac ventricular strain, proved to be useful in evaluating the course and treatment of PPHN and can serve as a predictor of rebound PPHN.

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SHOULD INFANTS WHO HAVE EARLY MAJOR SURGERY BE ENROLLED IN FOLLOW-UP CLINICS?

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Background: Survival following major surgery in early infancy is over 97% in Australia. This has focussed attention on the long term outcomes for these infants. Although there are many studies regarding developmental outcome of babies who have undergone cardiac surgery, the outcomes for babies who undergo other types of major surgery have been neglected. Unlike their preterm counterparts, infants who undergo major surgery are not routinely enrolled in newborn developmental follow-up clinics.

Objective: To compare the early developmental outcome of infants who underwent cardiac surgery with those who underwent major non-cardiac surgery and healthy controls.

Method: This prospective population-based study enrolled 784 infants between August 2006 and December 2008 from the three Children's Hospitals in New South Wales and their co-located maternity units. They were assessed at one year of age (corrected) using the five subscales (cognition, expressive and receptive language, gross and fine motor) of the Bayley Scales of Infants and Toddler Development (Version-III).

Results: Infants who underwent cardiac surgery scored significantly lower on all subscales than control infants ($p< 0.001$). Similarly, infants who underwent non-cardiac surgery also scored lower than the control infants on all subscales ($p< 0.05$). Infants who underwent cardiac surgery scored significantly lower than the infants who underwent non-cardiac surgery on four of the subscales ($p< .05$).**Conclusion:** These important early findings suggest that Infants who undergo non-cardiac major surgery and cardiac surgery are at high risk of developmental impairment. Infants who undergo major surgery warrant systematic

neurodevelopmental follow-up to determine their long term outcomes.

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INCIDENCE, RISK FACTORS AND SEVERITY OF PULMONARY MORBIDITY IN INFANTS WITH CONGENITAL DIAPHRAGMATIC HERNIA BORN IN HIGH-VOLUME CENTRES IN EUROPE

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Background and aims: Newborns with congenital diaphragmatic hernia (CDH) may develop chronic lung disease (CLD). Our aim was to determine the incidence, severity and risk factors of CLD in infants with CDH.

Methods: Data were collected about 426 CDH patients born between 2005 and 2008 at 8 high-volume centres (> 10 admissions of infants with CDH per year) in Europe. The primary endpoint was CLD, defined as oxygen dependency at day 28. The severity of CLD (mild: FiO_2 0.21; moderate: FiO_2 0.22-0.29; severe: FiO_2 ≥ 0.30 or CPAP/ mechanical ventilation) was determined at day 56 or at discharge, whichever came first.

Results: At day 28, the mortality rate was 28% and the CLD incidence was 31%. Of all patients with CLD, 31% had severe CLD, 15% moderate CLD and 54% had mild CLD. Compared to patients without CLD, patients with CLD had a lower lung-to-head ratio (p< 0.001), more often had an intrathoracic liver position (p< 0.001), required treatment for pulmonary hypertension (p< 0.001), had a patch repair (p< 0.001), developed a pneumothorax (p< 0.001) and required ECMO (p< 0.001). Independent risk factors for CLD were an intrathoracic liver position (OR 5.9, 95% CI 3.9-10.4) and a lower gestational age at birth (OR 0.86, 95% CI 0.73-0.97). Patients with severe CLD more often had a pneumothorax (p< 0.001), patch repair (p=0.035) and ECMO treatment (p< 0.001) than patients with mild to moderate CLD.

Conclusion: Pulmonary morbidity, which is a major problem in infants with CDH, can be identified antenatally.

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CLINICAL AND GROWTH OUTCOMES FROM THE DINO (DHA FOR THE IMPROVEMENT OF NEURODEVELOPMENTAL OUTCOME IN PRETERM INFANTS) TRIAL

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Background and aims: Higher-dose docosahexaenoic acid, DHA, (~1% total fats) compared with standard-dose (~0.3%) in infants born < 33 weeks gestation improved the mental development of girls (JAMA, 2009). We report the effect on growth, allergic and respiratory symptoms.

Methods: Multicentre randomised controlled trial, stratified for sex, birth-weight (< 1250g, ≥1250g) and centre. Lactating women took tuna oil capsules (higher-dose DHA) or soy oil (standard); preterm infant formula with matching DHA composition was given if needed. Data collection included weight, length and head circumference weekly in-hospital and at term, 4, 12 and 18 months corrected age (CA); oxygen supplementation at 36 weeks post menstrual age (PMA) and parental reporting of medical diagnosis or drug treatment for atopic conditions.

Results: 657 infants were enrolled, 93.5% completed 18-month follow-up. Significant benefits were seen in infants receiving higher-DHA, including greater length (0.7 cm) at 18 months CA (95% CI 0.1, 1.4 cm, P=0.02); increases in length at 4 months CA