immunization was performed under continuous cardiorespiratory monitoring.

Conclusions Preterm infants who received diphtheria-tetanus-pertussis-inactivated polio-Haemophilus influenzae type B and pneumococcal vaccine before discharge were more likely to temporarily experience prolonged apnea and bradycardia after immunization. Continuous mobile event monitoring of these infants was a helpful tool to detect clinically significant cardiorespiratory events.

81 EASY FOR YOU TO SAY! ADHERENCE ISSUES IN ADOLESCENCE

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Adherence to treatment (defined as the active, voluntary, collaborative involvement of the patient in a mutually acceptable course of behavior to produce a desired preventive or therapeutic result) is not always simple, and for adolescents suffering from chronic conditions even less.

Adolescence is a time of transitions: from childhood to adulthood, from education to employment, from pediatrics to adult health, from controlled treatment to treatment control. This means that they have to manage their treatment (which may cause problems with their parents who had this function until then) and have the right to disagree (which may cause problems with their health care providers).

In fact, among adolescents with chronic diseases, treatment adherence rates vary widely depending on the condition: from 98–99% for cancer to 77% for mild asthma or 55–86% for renal transplant recipients, for example. Nevertheless, and although self-report is often overestimated, part of the variation among adherence rates is also due to what kind of cut-off point for good/acceptable adherence is used.

Although there are many factors influencing adherence (such as side effects, taste, motivation or severity of the condition to mention a few), there is fair amount of literature related to the predictors of a good or a poor adherence. This presentation will explore the main causes of non-adherence among youths and practical and relatively simple ways to increase their adherence rate.

82 STABILITY OF LUNG FUNCTION TESTS BETWEEN 8 AND 18 YEARS OF AGE OF EPT/ELBW SURVIVORS COMPARED WITH TERM CONTROLS

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Aims To determine the stability of lung function test results of extremely preterm (EPT; < 28 weeks' gestational age) or extremely low birthweight (ELBW; birthweight < 1000g) survivors between 8 and 18 years of age compared with term controls.

Methods Eighteen-year follow-up of participants born either EPT/ELBW in 1991–92 in the state of Victoria and randomly selected term, normal birthweight controls. Lung volumes and flows, including the forced expired volume in 1 second (FEV₁), forced vital capacity (FVC), the FEV₁/FVC, and the forced expiratory flow (FEF_{25–75%}) were measured at 8 and 18 years of age according to standard guidelines and results converted to Z-scores for age, height and gender.

Results Lung function data were obtained from 187/298 (63%) EPT/ELBW subjects and 147/262 (56%) controls at both 8 and 18 years. There were strong positive relationships between lung function results at 18 years with results obtained at 8 years in both groups (Table).

Abstract 82 Table 1

Lung function variable	EPT/ELBW	% variance	Controls	% variance
FEV ₁	0.887 (0.058)*	56.0%	0.554 (0.071)*	29.4%
FVC	0.676 (0.058)*	42.2%	0.586 (0.067)*	34.5%
FEV ₁ /FVC	0.422 (0.051)*	26.8%	0.384 (0.063)*	20.5%
FEF _{25–75%}	0.772 (0.057)*	50.3%	0.561 (0.070)*	30.7%

Changes in Respiratory Variables Between 8 and 18

Data are regression coefficients (SE); *P<0.001

Relationships between 8 and 18 years were significantly stronger for EPT/ELBW subjects for both FEV₁ and FEF_{25–75%} compared with controls.

Conclusions There are strong linear relationships between lung function values at 8 and 18 years in both EPT/ELBW survivors and controls.

83 LEVEL OF SELF-SUFFICIENCY OF YOUNG PEOPLE WITH DOWN SYNDROME (AGE 16–19 YEARS OLD)

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Background and aims Becoming independent is for young people with Down syndrome (DS) not a standard development, because of their intellectual impairment. Parents often wonder what level their child with DS might reach. This study aims to measure the level of self-sufficiency and problem behaviour in a large population based sample of 16–19-year-old people with DS.

Methods Parents of Dutch children with DS born in 1992, 1993 and 1994 were invited to participate (n=513). Data were collected by a written questionnaire for the parents, containing the Dutch SRZ (measuring social independence), the Child Behaviour Checklist, the Children's Social Behaviour Questionnaire, and additional questions on skills and background. Differences between mean values were evaluated using t-tests.

Results Mean age of the 322 participating young people with DS was 18.3 years (52.8% boys). Considering their basic daily skills, they reached a level of around 70% of independent functioning. Girls had a higher level of functioning than boys (p<0.001), except for the subscale social orientation. With regards to behaviour problems the young people with DS had more behavioural problems on the subscales social problems, thought problems and attention problems. Only on the subscale anxious/depressed young people with DS scored fewer problems (p<0.001). Social problems were most present in the subscales orientation problems, not understanding social situations, and resistance to changes.

Conclusions Young people with DS do not reach a complete level of independent functioning. Behavioural and social problems have an important contribution to the limited self-sufficiency of this group.

84 HOW CAN WE IMPROVE TISSUE PERFUSION AFTER CARDIAC SURGERY

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Tissue perfusion is the ultimate goal of a functional cardio-circulatory system and its integrity should remain the essential endeavor of all caregivers in charge of hemodynamically compromised patients. The postoperative cardiac patients are not the exception. Optimization of tissue perfusion after cardiac surgery is multifactorial and should be based upon invasive and non-invasive markers. Physiological elements to be considered and supported with medical therapy include: pre and afterload, cardiac contractility, heart rate and rhythm (determining cardiac output), analysis of systemic and pulmonary vascular resistances, evaluation of the systolic but also the diastolic function, and optimization of oxygen content, transport, extraction and consumption. All of the latter are to be managed taking into account elements related to microcirculation, cardiopulmonary and interventricular interactions and the neuro-humoral mechanisms triggered by the shock status. This conference will review decision-making processes, and therapeutic strategies related to general management principles, drugs (inotropic, lusitropic, vasodilator and vasoconstrictor medications), ventilation, and salvage therapies, amongst others.

85 ADRENAL DYSFUNCTION IN CHILDREN REQUIRING CATECHOLAMINES AFTER CARDIAC SURGERY

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Background Adrenal dysfunction is associated with increased inotrope requirement and worse clinical outcome in children with sepsis. In children after bypass surgery a very low incidence of adrenal dysfunction is reported. However, use of hydrocortisone has been shown to improve hemodynamics of children requiring catecholamine after cardiac surgery. We aimed to evaluate the adrenal function of this subgroup of children requiring catecholamines after cardiac surgery.

Methods Retrospective analysis of adrenal function testing of children requiring catecholamine after cardiac surgery at the Royal Brompton Hospital from 2006 to 2011. Adrenal function was assessed using a 250µg/1.73m² ACTH stimulation test. Two definitions of adrenal dysfunction were used: physiological (peak cortisol after ACTH stimulation < 500nmol/L) and critical care (difference between cortisol post-stimulation and baseline cortisol < 250nmol/L). Children that received corticosteroids or etomidate, and children with known endocrine dysfunction were excluded.

Results 62 children were included in the study. Median (interquartile range) age was 3.2(0.9–6.5)months and weight 3.9(3.3–7.2)Kg. The mean RACHS was 2.5±0.7 and median catecholamine score 0.11(0.06–0.18). Seven (11.3%) children had adrenal dysfunction according to the physiological definition and 9 (14.5%) according to the critical care definition. Children with physiological adrenal dysfunction had significantly higher catecholamine requirement than children with normal adrenal function (p<0.01). There was no difference in catecholamine requirement in children with normal or abnormal adrenal function according to critical care definition.

Conclusions In children requiring catecholamines after cardiac surgery, adrenal dysfunction according to a physiological definition (but not critical care definition) is associated with higher catecholamine requirement.

86 LOW-DOSE VASOPRESSIN IS CARDIOPROTECTIVE IN AN ACUTE SWINE MODEL OF NEONATAL HYPOXIA-REOXYGENATION

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Background Cardiovascular dysfunction, a consequence of perinatal asphyxia, contributes significantly to its morbidity and mortality. The use of vasopressin, an endogenous hormone commonly given to adults with refractory shock, in neonates is limited by concerns over mesenteric perfusion. We recently showed that vasopressin had dose-dependent baro-specific effects with possible cardioprotection at low doses (0.005–0.01 units/kg/h) in a swine model of neonatal hypoxia-reoxygenation (H-R). We aimed to compare systemic and regional hemodynamic effects of low-dose vasopressin and dobutamine, a synthetic beta-adrenoceptor agonist.

Methods Piglets (1–5 day-old, 1.6–2.2kg) were anesthetized and instrumented to continuously monitor systemic hemodynamic parameters including cardiac output (CO), and carotid and mesenteric flow indices. After 2h of hypoxia (10–15% O₂), piglets had normoxic reoxygenation for 4h. In a blinded randomized fashion, piglets received either vasopressin (0.01 units/kg/h started at 30min of reoxygenation) or dobutamine (20 mcg/kg/min started at 2h of reoxygenation)(n=8/group). H-R controls (placebo) and sham-operated piglets were also performed. Plasma troponin-I levels, tissue lactate levels and histology of left ventricle and small bowel were analyzed.

Results H-R piglets had cardiogenic shock and metabolic acidosis, which recovered upon reoxygenation. During recovery CO, carotid and mesenteric flows gradually deteriorated and were increased similarly in vasopressin- and dobutamine-treated piglets (p<0.05 vs. controls). Troponin, ventricular and intestinal lactate levels were reduced in vasopressin-treated piglets (p<0.05 vs. controls), with no difference in histological analysis among groups.

Conclusion Low-dose vasopressin improves systemic and regional hemodynamics similarly to dobutamine and confers a cardioprotective effect in a swine model of neonatal H-R.

87 ADVERSE DRUG EVENTS IN A PEDIATRIC INTENSIVE CARE UNIT: A PROSPECTIVE SURVEY

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Background and aims Little is known about drugs pharmacokinetics and pharmacodynamics in children. Renal and hepatic functions are not mature yet. Many drugs are used “off-label”. So, children are more susceptible to adverse drug events (ADE) than adults. As many drugs are used in pediatric intensive care units (PICU), we expect to find many ADE in this setting. Our aims are to describe ADE found in PICU and identify risk factors for their development.

Methods Six-month prospective cohort of all patients admitted to a single PICU. ADE were identified by active search and classified by Naranjo’s algorithm. Risk factors were identified by multivariate analysis.

Results 240 pediatric admissions occurred and 110 ADE were observed in 84 patients. Median age was 51 months. Only 39 of 240 patients didn’t have chronic status. Principal ADE were hyponatremia, hyperglycemia, hypokalemia. Drugs involved in most ADE were antibiotics, diuretics, antiepileptic, sedatives and analgesics and steroids. Age under 4 years, length of stay in PICU and number of drugs used are risk factors to ADE.

Conclusions There were 64.7 ADE/1000 patients-day in the present study. Hyponatremia, hypokalemia and hyperglycemia are the