1201 MORBIDITY-TERM VS. PRETERM NEONATE WITH "MATURE L/S". Gary R. Gutcher (Spon. by Richard D. Zachman), Univ. of Wisconsin Center for Health Sciences, Madison.

Though the lecithin/sphingomyelin ratio (L/S) has provided a powerful predictive tool of fetal lung maturity regarding respiratory distress syndrome (RDS), increasing dialogue between neonatologist and obstetrician in a perinatal approach has suggested the potentially dangerous tendency to equate "mature L/S" with "mature fetus". A retrospective study evaluated the relationship between infant outcome, infant maturity and L/S maturity. During a six year period 385 L/S were reported as "mature". Of these, 41 were excluded for inadequate data, 252 delivered at $>$37 wks gestation (term) and 93 at $<$ 37 wks (preterm) gestation.

Neonatal mortality was 0% in the 252 term infants and 2% in 93 preterms. Morbidity was 18% in term and 77% in preterm. In preterm, selected morbidity showed morbidity was: RDS 2%, RDS type II 22%, asphyxia 19%, apnea and bradycardia 5%, sepsis 4%, suspect sepsis 15%, feeding problems 31%, hypoglycemia 7%, hypocalcemia 14%, and hyperbilirubinemia 3%, and others $<$ 1%. Mean hospitalization time was 4 days in term and 12 days in preterm. Mean laboratory studies per infant was $<$2 in term and 15 in preterm. Thirty-nine percent of the preterm and 9% of the term had at least one x-ray.

Despite a "mature L/S", a high incidence of problems must still be anticipated in those infants born $<$37 wks. gestation.

1202 SUBCELLULAR PHOSPHOLIPID MATURATION IN RABBIT LUNG. Gary R. Gutcher, Francis Tsao (Spon. by Richard D. Zachman), University of Wisconsin Center for Health Sciences, Madison.

Total protein, total phospholipids (PL) and phosphatidyl choline (PC) were measured in crude homogenate (CH), lamellar body (LB), mitochondrial (MT), and microsomal (MC) fractions of lung from the 28 and 30 day gestation fetus and adult Albino New Zealand rabbits. Gas chromatography of the fatty acid methylesters (FAME) of the PC in LB and MC was also done.

	PL umole/mg Protein			PC-% of Total		
	28 d.	30 d.	Adult	28 d.	30 d.	Adult
CH	0.16	0.24	0.50	46.56	63.52	62.25
LB	1.73	7.89	9.38	59.69	83.66	83.60
MT	0.65	0.48	0.87	54.85	55.36	56.88
MC	0.46	0.49	0.94	51.95	55.83	64.92

Total PL in LB increased 4-5 fold from 28 to 30 da gestation, but did not increase in MT or MC. PC (% of total PL) increased in LB from 60% at 28 days gestation to 84% at 30 days gestation, but did not increase in MT or MC. Gas chromatography of FAME in LB revealed a decrease in C14:0 from 7% at 28 days to 3.5% in adult, an increase of C16:0 from 54% to 58% and a decrease of C16:1 from 12.4% to 6.5%. FAME in MC revealed a decrease of C16:0 from 40.2% at 28 days to 35.7% in the adult, a decrease of C18:1 from 25.2% to 18.1%, and an increase of C18:2 from 9.7% to 14.7%. Other trends were evident.

This data supports the hypotheses that LB is the major storage organelle for PC at all gestations, increasing with maturity, and that maturational changes in fatty acids of PC also occurs.

1203 PATTERNS OF HYPOXEMIA IN INFANTS WITH RESPIRATORY SYNCYTIAL VIRUS(RSV) BRONCHIOLITIS AND PNEUMONIA, MEASURED BY EAR OXIMETRY. Caroline B. Hall, William J. Hall, Donna M. Speers (Intr. by David H. Smith). Univ. of Rochester School of Med., Dept. of Ped. and Med., Rochester, New York 14642

The degree and duration of hypoxemia in babies with RSV has not been studied. We used an ear oximeter to measure daily the arterial satuation(% Sat)on 32 infants consecutively admitted with RSV bronchiolitis and pneumonia; median age 2 months. Oximetry readings compared to simultaneous arterial gases gave a correlation coefficient of 0.95, and 0.7 compared to capillary gases. On admission these infants' mean % Sat was 86%(pO_2=53 mm Hg), range 75-95%(pO_2 41-75). The lowest mean value was not until day 3 and was 85%(pO_2 51) with a range of 53-96%(pO_2 28-87). The severity of hypoxemia fluctuated in any given day and was prolonged. At discharge the mean % Sat=90%(pO_2 60) range 83-98% (pO_2 47-113); only 3 infants had values >93%(or >pO_2 66). Mean % Sat of 9 infants 3-7 weeks after discharge was 96%(pO_2 87), range 93-98%(pO_2 66-113). Clinical detection of hypoxemia was difficult. Marked hypoxemia existed without cyanosis. However, severity of hypoxemia correlated with cyanosis, respiratory rate, younger age and % bands. No correlation existed with total WBC, PMNs, nor clinical severity judged by retraction and lethargy. Thus, RSV hypoxemia may be severe, prolonged, and clinically occult. Ear oximetry is a valuable and non-invasive technic in the management of infants with RSV lower respiratory tract disease.

1204 PROLONGED PULMONARY FUNCTION ABNORMALITIES FOLLOWING ATYPICAL MEASLES (AM). William J. Hall, Caroline B. Hall. (Spon. by David H. Smith) Univ. of Rochester, Sch. of Med. Dept. of Pediatrics and Medicine. Rochester, N.Y.

Pulmonary involvement is known to occur in AM including extensive and prolonged x-ray findings. The physiologic severity and long-term significance of these abnormalities is unknown. We performed serial pulmonary function tests (PFT) in 6 previously healthy children (mean age 11) hospitalized with AM confirmed serologically. Four of 6 had no specific respiratory symptoms, while 1 child presented with acute respiratory failure. Chest x-rays demonstrated infiltrates and nodules, but no effusions. In addition to arterial blood gases, PFT's included spirometry, lung volumes, and diffusing capacity performed 1, 4, 8, and 12 weeks after admission. Mean PaO_2 on admission was 59 mm Hg (range 42-70). PaO_2 reverted to normal in 4 children by 2 weeks, and in all 6 by 4 weeks. PFT's initially were severely restricted. Values as % of predicted were: Vital Capacity 55%; Total Lung Capacity 59%; Diffusion Capacity 47%. Decreased exercise tolerance correlated with PFT changes, but x-ray findings did not. PFT's reverted to normal in 3 of 6 by 4 weeks, and in the remaining 3 by 8, 8, and 12 weeks. These studies suggest that the physiologic changes associated with AM are extremely variable. AM may be a cause of life-threatening respiratory insufficiency in previously healthy children. Physiologic changes of the restrictive type may exist despite lack of symptoms. These abnormalities may persist for months, but do not result in permanent damage despite persistence of x-ray abnormalities.

1205 THE SPECTRUM OF INCREASED PULMONARY VASCULAR RESISTANCE IN THE NEWBORN. H. Halliday, S. Hirschfeld, T. Riggs, and A. Fanaroff, CWRU, School of Medicine, Dept. of Pediatrics, Cleveland, Ohio

Right ventricular systolic time intervals have been measured from pulmonary valve echograms and ↑ right pre-ejection period/right ventricular ejection time (RPEP/RVET) correlated with ↑ pulmonary vascular resistance (PVR) in children with cardiac disease. In the postnatal period two groups of infants with ↑ PVR were identified by ↑ RPEP/RVET: (a) term infants with hypoxemia, evidence of right to left shunting and minimal pulmonary parenchymal disease--persistent fetal circulation (PFC, N=20) and (b) preterm infants with respiratory distress, diffuse reticulogranular mottling on chest radiograph and requiring assisted ventilation--severe respiratory distress syndrome (RDS, N=23). Mean RPEP/RVET in PFC was significantly elevated ($p<0.01$) when compared to values in 38 normal neonates less than 96 hours of age (12 hours 0.67 to 0.39; 96 hours 0.47 to 0.28). In severe RDS, RPEP/RVET was significantly increased ($p<.005$) when compared to 22 preterm infants without respiratory distress during the first 24-48 hours (12 hours 0.58 to 0.33; 48 hours 0.39 to 0.28). Preterm infants with severe RDS were a heterogenous group, 12 having ↑ RPEP/RVET and 11 normal ratios. Those with ↑ RPEP/RVET had a mortality of 5/12 while those with normal ratios had a mortality of 1/11. Echocardiography non-invasively identified ↑ PVR in newborns with PFC and severe RDS and may identify neonates who would benefit from therapy aimed at reducing PVR.

1206 DESQUAMATIVE INTERSTITIAL PNEUMONIA IN INFANCY AND CHILDHOOD. Ivan R. Harwood, Nancy Olmsted, Samuel T. Giammona. University of California Medical Center - Department of Pediatrics, San Diego, California

Five cases of desquamative interstitial pneumonia diagnosed in children aged 2 months to 3 years have been followed over a 4 year period. The variable clinical presentations included cough, tachypnea, cyanosis and failure to thrive associated with apparent preceeding viral respiratory infections developing over a period ranging from less than 24 hours to several weeks. One infant had probable Wiskott-Aldrich syndrome. Another child, becoming symptomatic in 24 hours, required ventilatory assistance and recovered rapidly with therapy. All chest radiographs showed a diffuse ground glass appearance with accentuated perihilar markings and variable patchy infiltrates. Diagnosis was confirmed by open lung biopsy, showing characteristic packing of alveoli with granular pneumocytes in a monotonous pattern. Initial therapy was 2-4 mg/kg of prednisone in 5/5. 4/5 had an initial good response with clinical and radiographic clearing. 2 of these subsequently relapsed and expired; one in 19 months after additional chloroquine therapy, the other with Wiskott-Aldrich syndrome died in 5 months of pseudomonas sepsis. One has remained well on no therapy for 2 years, and the one who had no response initially has had progressive hypoxemia over 4 years. Open lung biopsy should be considered in children with tachypnea, cyanosis and compatible x-ray findings, of obscure etiology, for only with a definitive diagnosis can aggressive therapy with high dose steroids, and possibly immunosupressants, be pursued.