1146 PREVENTION OF TRANSFUSION-ACQUIRED CYTOMEGALOVIRUS INFECTION IN THE NEWBORN USING FROZEN RECONSTITUTED BLOOD. Shyan Sun, Eric Wake, Frank Michalaski, Anita Baldomero, Minerva Castillo, James Oleske (Spons. F. Behrle) UMDNJ-N.J. Med. School, Neonatology, Newark, N.J.

There is evidence that CMV may be transmitted by transfusion of white blood cells which harbor viruses. Frozen reconstituted RBC are virtually free of leukocytes. This prospective study randomly selects neonates requiring blood transfusions. Group A infants received frozen reconstituted RBC, Group B regular blood with negative CMV titer and group C regular blood with positive CMV titers. Maternal, umbilical cord and donor's blood were tested for CMV complement fixation titers. Follow-up serologic studies were carried out at 8 and 18 weeks.Urine was cultured for CMV at birth and at the same follow-up schedule. Transfusion acquired infection is defined as seroconversion, a rising titer or a positive urine culture at 8 to 18 week follow-up period.

Donor's Blood & CMV Titer		Recepient	Infection (%)		
A Frozen RBC	0	43	0	(0)	
B Regular RBC	-	13	0	(0)	
C Regular RBC	+	40	10	(25)	p<0.005

None of 43 group A and 13 group B infants showed seroconversion or rising titer, while 10 of 40 group C infants did. Comparing those infected vs non-infected infants in group C, it became obvious that those who have received blood with higher CMV titer (>1:32) have significantly lower risk of infection (25%)compared to those who have received blood with lower CMV titer (risk >75%).

●1147 AMPICILLIN-GENTAMICIN SYNERGY IN TREATMENT OF GROUP B STREPTOCOCCAL MENINGITIS. Hanes M. Swingle, Richard L. Bucciarelli, and Ella M. Ayoub, University of Florida, Department of Pediatrics, Gainesville, Florida.

Ampicillin and gentamicin in combination accelerate killing of group B streptococci (GBS) in vitro. Penicillin-aminoglycoside combinations have been recommended for the treatment of GBS meningitis despite poor penetration of the aminoglycosides into the cerebrospinal fluid. Previous studies have demonstrated accelerated killing of GBS by combinations of penicillin or ampicillin and gentamicin. These studies utilized concentrations of aminoglycosides not consistently attainable in the CSF following systemic administration. We examined 20 strains of GBS for accelerated killing with gentamicin concentrations attainable in the CSF by systemic administration. All strains (Ia, Ib, Ic, II, III) were isolated from infants with sepsis or meningitis. Preliminary studies revealed that mean MIC's by tube dilution were: penicillin 0.02, ampicillin 0.16, and gentamicin 4.5ugm/ml. No synergy was detected by the checkerboard titration method. Killing kinetics were determined using 10ugm/ml of ampicillin or penicillin alone or in combination with 0.1 or 0.5ugm/ml of gentamicin.

	LD50 (hr)		LD100 (hr)		P
	Pen	Amp	Pen	Amp	
Pen or Amp 10ugm/ml	9.7	9.5	16.8	16.7	
Pen/Amp+0.1ugm/ml Gent	6.6	6.1	12.0	12.6	≤ 0.001
Pen/Amp+0.5ugm/ml Gent	4.6	4.7	8.9	9.6	≤ 0.0001

Fifteen of the 20 strains demonstrated accelerated killing with gentamicin concentrations comparable to those attained in the CSF. These findings provide a rationale for the use of a combination of a penicillin and gentamicin in treating GBS meningitis in spite of "subtherapeutic" levels of gentamicin in the CSF.

1148 EPIDEMIOLOGY OF PNEUMOCOCCAL DISEASE IN CHILDREN M.C. Thirumoorthi, Joyce Buckley and Adnan Dajani. Wayne State Univ. and Children's Hosp., Detroit, MI.

The pneumococcus is the pathogen recovered most often from blood cultures in our hospital. We identified 205 episodes of systemic pneumococcal infections in 201 children during a 34 mo. period. There were 54 infections in 1978 (10 months), 64 in 1979 and 87 in 1980. The frequency of infections was highest in May and April (mean number of episodes/month 10.3 and 9.3 respectively) and was lowest in August and September (1.3 and 1.6). Children with pneumococcal infection ranged in age from 1 month to 14 years (mean age of 20 months). There were 126 boys and 75 girls. Seventy six percent of the children were black. Occult bacteremia (128 episodes) was the most frequently seen illness. There were 40 instances of pneumonia with bacteremia, 31 of meningitis, 4 of cellulitis and 2 of septic arthritis. Three children had recurrent infections: one with sickle cell anemia had three separate episodes caused by type 23F despite having received pneumococcal vaccine. Four children died: two had meningitis, one (asplenic child) had bacteremia and one (with myocarditis) had bacteremic pneumonia. One hundred thirty isolates were serotyped. The serotypes encountered were: type 14(32%), type 4(13%), type 23F(9%), type 6B(8%), type 19F(8%), type 18C(7.7%), type 9V(7%), types 3, 6A and 22F (2%each), types 15C and 19A(1.5%each), types 8, 10A, 16, 21 and 33F(0.8%each). One isolate was nontypable. Seventy five percent of the isolates were vaccine types; however, almost 3/4 of these isolates belonged to serotypes 4, 6A, 14, and 23F that induce weak immune response in young children.

●1149 MOLECULAR EPIDEMIOLOGY OF ACQUIRED CYTOMEGALOVIRUS (CMV) DISEASE IN A NEONATAL INTENSIVE CARE UNIT (NICU). Mark D. Tolpin, John A. Stewart, Dora Warren, Mary A. Collins, Cirilo Cabradilla, Jr., Victoria Schauf, Tonse N.K. Raju, and Kenrad Nelson. The University of Chicago, Wyler Children's Hospital and University of Illinois Medical Center, Departments of Pediatrics and Preventive Medicine, Chicago, Illinois and Centers for Disease Control, Atlanta, Georgia.

During a 19 day period in 1982, 4 of 12 infants in an NICU room at the University of Illinois developed hyperbilirubinemia with or without thrombocytopenia, fever or respiratory distress. Each of the 4 infants was viruric with CMV. All 4 were premature (gestational ages 26-31 weeks), were at least 1 month old at onset of symptoms (range 36-79 days) and had received multiple transfusions of packed red blood cells (range 4-11 transfusions; 94-150 cc total volume). Although the mothers of all 4 infants had IgG to CMV, none had anti-CMV IgM; cervical cultures were obtained from 2 of the 4 mothers, and CMV was not recovered. BamHl restriction-endonuclease analysis of all 4 CMV isolates showed identical banding patterns in the CMV's of 2 infants who had received blood from a common donor. The other 8 infants were followed for acquisition of CMV; none developed viruria. Of the 11 female health-care personnel in closest contact with the CMV-infected infants, 2 had anti-CMV IgG, but neither showed rises in titer or developed anti-CMV IgM. The other 9 remained seronegative 1 month following their exposure. Restriction-endonuclease analysis, used here in conjunction with conventional epidemiology indicates a low risk of CMV transmission from infected, tertiary-care NICU infants to other neonates or to health-care personnel.

●1150 ENHANCED IMMUNOGENICITY IN YOUNG INFANTS OF A NEW HAEMOPHILUS INFLUENZAE TYPE B(HIB) CAPSULAR POLYSACCHARIDE(PRP)-DIPHTHERIA TOXOID(D) CONJUGATE VACCINE. Joel Ward, Carol Berkowitz, John Pescetti, Kelly Burkart, Joel Samuelson, Lance Gordon. UCLA School of Medicine,Harbor-UCLA Med. Center, Dept.Peds.,Torrance,CA, Connaught Labs.,Swiftwater, PA.

To enhance the immune response to PRP in young infants, we employed a conjugate vaccine whose synthesis is based upon the hapten-carrier principle for inducing T-cell immune responses. PRP was covalently coupled to D to make the PRP-D conjugate vaccine. To evaluate immunogenicity and safety in the crucial age group <6months we enrolled 60 newborns into a double blind placebo(saline)controlled trial to receive PRP-D vaccine at ages 2,4,and 6 mos. concurrent with DTP. Shown is the GMT anti-PRP AB conc.(ng/ml)by RIA and the proportion of vaccine responders(>2fold rise):

Vaccine	Pre	Post 1 dose	Post 2 doses	Post 3 doses
PRP-D	⌜134ng/ml	⌜80(0/8)	⌜320(7/8)	⌜1198(5/6)
	NS	NS	p<.01	p<.01
Placebo	⌞110ng/ml	⌞59(0/7)	⌞<50(0/7)	⌞<50(0/5)

Immune responses were observed after the 2nd dose and all responders then boosted after the 3rd dose(avg.6fold). To date,individual PRP-D responses at 7 mos. were: <.05, 0.4, 0.8, 3.3, 4.6 and 13.5µg/ml. Preliminary ELISA data suggests the highest responses were IgG. There was no difference in reaction rates(local or systemic) between PRP-D or saline groups.

In the population of young infants at greatest HIB disease risk, PRP-D appears to be safe and have enhanced immunogenicity. Presence of an AB boost and IgG AB suggests a T-cell amplification of the PRP immune response with conjugate vaccines.

●1151 PASSIVE PROTECTION FOR HAEMOPHILUS INFLUENZAE TYPE B (HIB) DISEASE: ANTIBODY LEVELS IN INFANTS GIVEN HYPERIMMUNE GLOBULIN. Joel I. Ward*, Donna Ambrosino, Kelly Burkart, Barbara Sonne, Joan Dengrove, George Siber, Harbor-UCLA Medical Center, Dept. Peds., Torrance, CA, Dana-Farber Cancer Institute and Massachusetts Public Biologic Labs, Boston, MA.

Administration of HIB hyperimmune globulin (HIG) to children at high HIB disease risk may provide protective immunity for several months. Groups at high risk include: household contacts daycare center contacts, Eskimo and Indian infants, sickle cell and immunocompromised patients. HIG, prepared from pooled sera of adults immunized with PRP, contains a 10-20 fold increase in anti-PRP AB (600µg/ml) compared to standard I.G. To evaluate the safety and pharmacokinetics of HIG, we gave 2 doses to 14 infants at 2 and 6 mos. of age. The GMT anti-PRP AB levels measured by RIA(ng/ml) were:

AB Dose	Age	N	Pre	Peak	Pk.Increment	1 Mo.	2 Mo.	4 Mo.
115µg/kg	2 mos.	10	202	996	627	626	407	90
	6 mos.	10	106	1162	1009	557	376	-
300µg/kg	2 mos.	3	89	2119	2090	947	-	-

There was little variability in dose response. Assuming a protective level of 150ng/ml, the low dose and high dose regimens would be expected to provide 3 mos. and 4 mos. protection, respectively. No adverse effects were observed and immune responses to tetanus at 7 mos. were similar in HIG recipients and controls.

Passive prophylaxis for HIB disease with HIG offers an attractive approach to protecting high risk groups until effective active immunization is possible.