● **565** UNUSUAL SYNDROME IN PREMATURE INFANTS ASSOCIATED WITH INTRAVENOUS E-FEROL. Mary L. Mortensen, William J. Martone, Walter W. Williams, Robert P. Gaynes, John W. White, Renate D. Kimbrough, Vicien Lorch, M. Dianne Murphy, Donald J. Frank, Niki Kosmetatos, Carl J. Bodenstein.(Spon. by Godfrey P Oakley) Centers for Disease Control, Atlanta; Univ. Tenn. Memorial Research Center and Hospital, Knoxville; Good Samaritan Hospital, Cincinnati, OH; Sacred Heart Medical Center, Spokane, WA.

Three clusters of an unusual syndrome in premature infants in 3 intensive care nurseries were investigated. A case (C) was defined as an infant who developed ascites or at least 2 of the following in a 7-day period: serum direct bilirubin >2 mg/dl, blood urea nitrogen >40 mg/dl or serum creatinine >2 mg/dl, and platelet count <60,000/mm^3. Of 68 babies weighing < 1250 gm at birth and surviving beyond 72h, 17 cases occurred with 13 deaths. All cases occurred after the introduction and use of intravenous E-Ferol (EF). 17 of 17 (100%) C but only 23 of 51 (41%) noncase (NC) babies had received EF ($p<.001$). C and NC infants were similar with respect to other complications, medications, and parenteral nutrition. Significant differences between C and NC babies who received EF (EF NC) are shown as mean ± SE:

	EF dose (U/kg/day)	Postconceptive age at start of EF (weeks)
C (n=17)	34.8 ± 1.8	29.2 ± 0.6
EF NC (n=23)	21.8 ± 2.3	32.1 ± 1.1

EF therapy duration was similar among C and EF NC babies. A dose-response relationship was found with C occurring at EF doses exceeding 20 U/kg/day. Liver, kidney, and intestine routine histology from autopsied C had no uniformly specific abnormalities. No new C were reported after EF use was stopped in the nurseries.

566 THE PREVALENCE OF CYTOMEGALOVIRUS INFECTION IN A MIDWEST DAY CARE CENTER. Jody R. Murph, James F. Bale, Jr., Stanley Perlman, and Norman S. Swack (Sponsored by Fred G. Smith, Jr.). University of Iowa College of Medicine, and the University Hygienic Laboratory, Department of Pediatrics, Iowa City, IA.

Recent studies indicate that children in day care centers (DCC) have a frequency of CMV infection that exceeds 50%. Such CMV-infected children may pose a threat to the nonimmune day care worker of childbearing age. To determine whether CMV infection was highly prevalent in a DCC in a different geographic location than previously reported, we assessed CMV excretion in 40 children from middle and upper middle class homes attending a large midwestern DCC. The children were 88% caucasian and ranged in age from 4 to 66 mo. Urine and/or saliva samples were obtained for CMV culture from 39 children. Four of 39 children (10%) had CMV present in saliva. Seven of 24 children (29%) had CMV in their urine. CMV viruria was found in 4 of 8 children (50%) ≤ 24 mo. old; 1 of 6 children (16%) 25 to 36 mo. of age; and 2 of 10 children (20%) > 36 mo. None of the 7 day care workers had CMV in urine or saliva. Of 5 workers in whom serum was obtained only 1 (20%) had CMV antibody detected by complement fixation. These results indicate that the prevalence of CMV infection in this DCC may be lower than the prevalence rate previously reported. Nonetheless, this study supports the observation that CMV infection frequently occurs in children attending DCC and indicates that certain epidemiologic factors, such as age of the children and geographic location of the center may affect the frequency of CMV infection.

567 SURVIVAL AND TRANSMISSION OF HAEMOPHILUS INFLUENZAE TYPE B (Hib) IN DAY CARE. Trudy V. Murphy, Joe F. Clements, University of Texas Health Science Center at Dallas, Department of Pediatrics. (Spon. by J D Nelson, M.D.)

Hib is thought to be a fastidious organism. Transmission in institutional settings is assumed to be via large droplet respitory secretions. The role of environmental surfaces and fomites in transmission is unknown. Cultures were obtained from Hib carrier (Hib-C) children and their freshly handled fomites at three day care centers. Hib was recovered from 5/5 cultures of moist nasal secretions (NS), 1/5 cough plates held 10 inches from the mouth, but not from 27 cultures of saliva, hands, cribs and toys of Hib-C. Pooled NS from 3 Hib-C contained 1.6×10^7 Hib CFU/ml. Infected NS were smeared onto dry and premoistened washrags (WR) and Kleenex®. Survival of Hib was determined by growth in supplemented overnight BHI broth at intervals 0-5 hr WR and 0-18 hr Kleenex®. Hib in NS were recovered from dry WR for 3 hr, from moistened WR for 5 hr and Kleenex® for 18 hr. A pharyngeal Hib strain was diluted to 6×10^6 CFU/ml in unsupplemented BHI broth and 50 µl were placed on moisten gauze (MG) and dry gauze (DG) and wax paper (WP). Colony counts were determined for 6-7 days. There was no drop in CFU in broth on gauze or WP until dried (0.5-3 hr). Thereafter dried Hib survived on MG at 10^2 CFU/ml for 3 days and was still recovered on day 6. Hib was recovered from DG and WP at 10^2 CFU/ml at seven days. NS of Hib-C contain high concentrations of Hib and support prolonged survival. Use of WR and Kleenex® for more than one child may contribute to transmission of Hib.

† **568** A NEW MODEL FOR DETERMINING THE RELATIVE IMPORTANCE OF GENES AND ENVIRONMENT AS CAUSES OF BIRTH DEFECTS. Thomas B. Newman (Spon. by Melvin M. Grumbach). Univ. of Calif., Mellon Program in Clinical Epidemiology and Dept. of Pediatrics, San Francisco.

The epidemiologic approach to determining the causes of disease involves identification of potential risk factors, and then comparison of disease incidence among people with varying levels of the risk factors. In this presentation, I define risk factors which correspond to different levels of genetic and environmental proximity to index cases of birth defects. Genetic proximity is estimated by the coefficient of relationship, i.e. 0.5 for siblings and dizygotic twins, and 1.0 for monozygotic twins. Environmental proximity is measured by a combination of two dichotomous variables which reflect sharing of potentially preventable environmental risk factors: one variable for those risk factors common to siblings and the other for those common only to twins.

The association between these risk factors and birth defects is estimated using a linear model of the correlation of liability for different relatives. The coefficients derived from this model reflect the relative importance of genetic and different types of environmental risk factors as causes for the defects. Information so obtained could direct further study to those birth defects most likely to be preventable.

569 EPIDEMIOLOGIC EVIDENCE THAT VENTRICULAR SEPTAL DEFECTS OCCUR PARTLY AT RANDOM. Thomas B. Newman (Spon. by Melvin M. Grumbach), University of California, Mellon Program in Clinical Epidemiology and Department of Pediatrics, San Francisco.

To investigate possible reasons for the recent increase in the reported incidence of ventricular septal defects (VSDs) in the U.S., the epidemiology of VSDs was examined. The known risk factors explain few cases. Incidence rates are similar in different countries, races and seasons, and are unrelated to maternal age, birth order, sex and socioeconomic status. Despite identical genes and similar prenatal environments, the concordance rate in identical twins is only about 10%.

The reported increase probably reflects more complete case finding rather than a true increase in the occurrence of VSD. The consistency of incidence in differing environments and the frequency of discordance in identical twins call into question the widely accepted multifactorial inheritance hypothesis. Instead, these findings suggest that, in addition to genes and environment, chance plays a major role in the etiology of VSDs. This hypothesis has two major implications for clinical practice: many VSDs are not preventable, and parents need not feel responsible for VSDs in their children.

● **570** DECLINING LOW BIRTH WEIGHT (LBW) IS ASSOCIATED WITH DECLINING SOCIODEMOGRAPHIC RISK. Richard S. Olney, and Richard J. David. (Spon. by Carl E. Hunt). Northwestern Univ., Department of Pediatrics, Chicago, IL.

Cross-sectional studies have shown numerous sociodemographic risk factors for LBW (<2500g). We studied changes over time in LBW rates and risk factors by analyzing two North Carolina birth cohorts a decade apart totaling over 350,000 births. Whites and non-whites showed nearly identical improvements in the percentage of deliveries < 36 weeks, but whites showed more improvement in LBW rates (mean 16% decline in LBW compared to 11% for non-whites). Maternal age and birth order distributions and educational attainments generally improved for both racial groups. Births to unwed mothers increased, however, especially among non-whites. Linear regression analysis of geographic- and race-specific sub-populations confirmed the association between 11 known risk factors and LBW for whites. Significant correlations existed for only 4 of the same factors for non-whites. We also found correlations between trends in 8 of the stronger risk factors and trends in LBW over time for whites; the only such association demonstrable for non-whites was with the change in fetal death ratio. Conclusions: (1) LBW rates declined in N.C., 1968-1980, more for whites than non-whites; (2) declines over time in the known risk factors for LBW correlated with declines in LBW; (3) traditional risk factors for LBW are better predictors for whites than for non-whites, suggesting that these traditional indicators fail to capture important social, environmental or medical risks that continue to place non-whites at much higher risk for LBW.