541 DOES TYPE OF SUGAR INGESTED AFFECT OUTCOME IN INFANTS WITH MILD ACUTE GASTROENTERITIS? J.R. Groothuis and S. Berman, Department of Pediatrics, University of Colorado School of Medicine, Denver, Colorado.

Significant intolerance to lactose and sucrose has been reported in infants with severe gastroenteritis. Children with mild acute gastroenteritis (MAG) have not been studied, yet their diet is often changed to non-lactose or non-sucrose containing formulas. To determine whether such disruptive intervention is justified, 85 infants with MAG were studied prospectively. MAG was defined as >4 waterloss stools/day lasting <1 week with no clinical signs of dehydration. Epidemiologic and symptom data and a physical exam was obtained and stool was tested for blood, rotavirus and bacteria at the initial visit. Infants were blindly and randomly assigned to one of four sugar groups: lactose (L), sucrose(S), polycose(P), or sucrose-polycose(S-P). Mothers were instructed in mixing sugar, water and soy base (RCP-Ross) to make a 20 calorie/oz. formula. Follow-up examinations were scheduled ro 2,7, and 14 days. Mothers kept diaries recording number, volume and consistency of stools, and vomiting pattern. 78 infants completed the study; 19(L), 20(S), 19(P) and 20(S-P). No significant differences were found in age, race, family size, socioeconomics, status or initial symptoms. 23/78 grew rotavirus, 5/78 grew bacteria, and 5 infants were hospitalized in equal distribution, between groups. Symptoms resolved in most children within 7 days. Infants lost weight initially, but regained it by the 7th day in all groups. We conclude that formula changes for infants with MAG are probably unnecessary.

† 542 VALIDATION OF THE BODY MASS INDEX AND CURVES OF ADIPOSITY FOR CHILDREN AND ADOLESCENTS. Lawrence D. Hammer, Helena C. Kraemer, Darrell M. Wilson, Phillip L. Ritter, Sanford M. Dornbusch. (Spon. by Ruth T. Gross) Stanford Univ. Sch. of Med., Dept. of Pediatrics, Stanford, CA 94305.

A measure of adiposity is needed which can be applied longitudinally for clinical and epidemiologic purposes from childhood through adolescence and adulthood. Direct methods of body fatness are only of limited applicability in children due to their risks and inconvenience. Using data on 5,679 Caucasian subjects aged 1-19 years, from the National Health and Nutrition Examination Survey, 1971-1974, the validity of the Body Mass Index ($BMI=wt/ht^2$), Relative Weight (RW=wt/ht) and Skinfold Thickness (SF=ave. of triceps and subscap. measurements) were compared. Both the BMI and RW were found to have greater validity than SF in the age group under study. Since BMI has greater validity than RW for adults, the BMI is the preferred longitudinal measure of adiposity for clinical and epidemiological purposes. Three methodological features of the study are unique. First, an indirect criterion of validity was specified a priori (maximal correlation with weight and minimal correlation with height). Second, a Validity Coefficient was developed for the study in order to measure simultaneously the correlation of each measure with height and weight. Third, all calculations used Spearman rank correlations and were done separately by sex and year of age, rather than using combined age groups. In order to facilitate use of BMI, smoothed percentile curves of BMI by year of age for Caucasian males and females ages 1-19 were developed from these data. These curves can be used to monitor a child's change in adiposity over time and to compare the adiposity of children by age and sex.

543 RECURRENT WHEEZING RELATED TO PASSIVE SMOKING IN EARLY CHILDHOOD. Frederick W. Henderson. U. of North Carolina School of Medicine, Department of Pediatrics, Chapel Hill, NC.

Relationships between outpatient lower respiratory illness (LRI) history in the first 6 years of life and patterns of parental cigarette use during the first 2 years of the children's lives were sought in a sample of 170 children who had been followed from early infancy in a pediatric practice. Children with varying histories of wheezing and non-wheezing LRI documented in earlier studies of illness etiology and in practice records were recruited for study; histories of parental cigarette use were obtained by questionnaire. The intensity of maternal cigarette smoking in the first 2 years of life was increased in children with histories of wheezing LRI, particularly recurrent wheezing LRI, in the first 6 years of life ($p = .01$). This association was more evident in boys than in girls. No relationships were found between paternal smoking and wheezing LRI history or smoking by either parent and recurrent non-wheezing LRI. These data expand existing knowledge by associating tobacco smoke exposure more closely with wheezing illness experience than with non-wheezing LRI, and by relating passive smoking to outpatient and recurrent LRI. Knowledge of the mechanisms which link passive exposure to tobacco smoke to an increased risk of wheezing illness in childhood should be sought. Educational programs should be developed to protect children from passive tobacco smoke exposure.

† 544 **INTRA-HOUSEHOLD TRANSMISSION OF HEPATITIS B VIRUS (HBV) INFECTION.** **William L. Heyward, David B. Hall, Brian J. McMahon, (Spon. by Joel I. Ward). Centers for Disease Control, Arctic Investigations Lab., Anchorage, AK.**

To evaluate factors for intra-household transmission of HBV in Alaskan Eskimos, 93 households were identified in which at least one member was positive for HBsAg and at least one member was negative for HBsAg, anti-HBs, and anti-HBc. After 6 months, 25 (11.7%) of the 213 seronegative persons sero-converted (annual incidence of 221 infections per 1,000 persons). Using logistic regression models, the significant factors involved with intra-household transmission of HBV were the age of the person positive for HBsAg, the presence of HBeAg, and the age of the susceptible person. Shown below is the proportion of persons infected with HBV (by age) in relation to the age of the HBsAg-positive household member. Transmission of HBV commonly occurred if an HBsAg-positive household member was less than 10-years-old ($p<0.0001$) and was also positive for HBeAg ($p=0.0015$). Also, if a member became a chronic carrier (HBsAg-positive $\geq$ 1 year), the risk of infection extended to a broader age group ($p=0.025$). In Alaskan Eskimos, sibling-to-sibling transmission of HBV infection is the predominant type. Therefore, infants and children should be considered the highest priority group for HBV vaccination.

Proportion of seronegative persons with new HBV infection

Age (years)	0-9	10-19	20-29	30+	Total
HBsAg+ child <10	13/29	3/16	4/12	0/16	20/73
HBsAg+ child ≥10	2/59	1/34	0/16	2/31	4/140
Total	15/88	4/50	4/28	2/47	25/213

545 COMPARISON OF DEVELOPMENTAL OUTCOME AND FAMILY BACKGROUND OF "NEAR-MISS SIDS" AND SIBLINGS OF SIDS INFANTS. Joan H. Hittelman, Sheela G. Languani, Lorraine Moreno, Richard E. Kravath, Millard Bass and Leonard Glass. S.U.N.Y-Downstate Medical Center, Depts. of Psychiatry and Pediatrics, Brooklyn, N.Y.

Developmental outcome and family background of 10 infants who were referred to the Infant Apnea Program, D.M.C. because a sibling died of Sudden Infant Death Syndrome (SIDS) were compared to 10 infants who entered the program with "near miss episodes" of SIDS (NME). No differences were found in the following infant variables: gestational age, race, birth weight, referral source, or delays in mental and/or motor development. There were no differences in maternal marital or economic status as measured by Medicaid eligibility. However, there was a difference between the two groups in the number of families identified as having serious social problems ($p<.05$ on a Fisher Exact Test). Eight of the families of the siblings of SIDS as compared to two of the families of the infants with NME had been identified as having one or more of the following social problems: substance abuse in the mother and/or father, referrals made by outside agencies to child protective services for abuse or neglect, placement of the patient and/or siblings into foster care because of abuse or neglect, referral of the mother to a social agency because of a parenting disorder. Thus while the two groups do not differ on most measures, the families of the siblings of SIDS have more serious social problems than families of NME infants. Although it is possible that the prior sudden death of an infant led to social disruption, it is also possible that an adverse home environment is a contributing factor in SIDS. The role of social pathology in SIDS thus requires further evaluation.

† 546 PERSISTENT RESPIRATORY SYMPTOMS AND WOODBURNING STOVES. Richard E. Honicky and J. Scott Osborne, III. (Spon. by Marshall Klaus). Michigan State University College of Human Medicine, Department of Pediatrics/Human Development, East Lansing.

The occurrence of persistent respiratory symptoms in children living in homes heated by woodburning stoves (WBS) was prospectively investigated during the winters of 1982 and 1984. Thirty-one randomly selected children from WBS-heated homes in mid-Michigan (study group) were matched for age, sex, and residence with an internal comparison group of 31 children from homes heated by conventional furnaces (control group). Data was collected by interviewing the children's parents; sample attrition (from migration) was 24% (less than the expected 25% over a 2 yr. study). The occurrence of persistent coughing was significantly greater in the study group in 1982 and 1984 ($p < .001$) with an overall increase in the frequency of coughing in 1984 for both groups. The occurrence of persistent wheezing was also significantly greater in the study group in 1982 ($p < .001$) and 1984 ($p < .05$) although there was a decrease in wheezing in 1984 in both groups. These differences could not be accounted for by socioeconomic factors, medical histories, or use of other reported sources of indoor air pollution (parental smoking, cooking with gas, urea-formaldehyde insulation). Findings suggest that heating with woodburning stoves may be a significant risk factor for persistent coughing and wheezing symptoms in children.