590 IRON STATUS OF BREASTFED AND FORMULA FED INFANTS AT AGE 6 MONTHS. A. Harold Lubin, Ruth O. Shrock, Judith L. Bonner, Janet L. Kasler, The Ohio State University College of Medicine, Children's Hospital, Columbus, Ohio.

We compared Fe status of 23 breastfed & 23 formula fed infants whose mothers were enrolled in the 2nd trimester of pregnancy in a study determining effects of maternal nutritional and environmental factors on the infants' growth & development. Full term infants, receiving no supplementary Fe, fed either breast milk or commercial Fe fortified formula were matched for race, sex, and social class. Results indicate breastfed infants exhibit higher Hct and Hmg values, lower EP and lower EP:Hmg ratios (N.S.)

6 MO Blood Values	Hct	Hmg	EP	EP/Hmg	Fe	TIBC	% Sat
Breast	36.7	12.6	28.7	2.3	63.8	361	18.0
Breast Alone	37.1	12.7	28.3	2.2	61.3	332	18.8
Breast + Solids	36.3	12.5	29.0	2.3	65.6	384	17.5
Formula	36.1	12.1	31.6	2.6	62.2	348	18.0

%Sat levels in both groups meet acceptable standards at age 6 mos. Our data suggest that Fe from breast milk is absorbed as well as Fe from formula and that breastfed infants are not generally Fe deficient by 4 months. In addition, infants fed breast milk alone had a significantly lower TIBC and a higher %Sat than infants given solids in addition to breast milk. The controversy regarding the need for prophylactic administration of Fe to all breastfed infants by age 4 months and possibly the need for supplementary Fe for infants on Fe fortified formula, alone, may be resolved by the continued dietary and biochemical observation of Fe status in these same infants through their first year of life.

591 EARLY NUTRITIONAL ASSESSMENT: EFFECTIVE MANAGEMENT FOR OVERWEIGHT AND OBESITY. A. Harold Lubin, Ruth O. Shrock, Janet S. Kasler, The Ohio State University College of Medicine, Children's Hospital, Columbus, Ohio.

25/261 children were identified as overweight or obese within the first two years of life during well-child care (provided to them from birth to four years.) Their mothers were enrolled during pregnancy in a longitudinal study to determine the effects of maternal nutrition and environmental factors on the infants' subsequent growth and development. At every routine visit growth assessment and nutritional guidance were provided. When growth was inappropriate, intervention occurred with increased emphasis on appropriate growth rate & specific dietary recommendations. Data indicate 1) considered alone, dietary intake, anthropometric assessment, growth velocity, or physical exam will not identify inappropriate growth rate as early as when all are considered together; 2) the earlier identification occurs, the greater possibility of problem resolution. Of the 25 identified with obese status, 9 have resolved, 13 are resolving; 3 have not. The pediatric literature indicates a success rate of between 25-50% for obesity intervention, compared to our rate of 88% with a minimum of six months follow-up. Characteristics of children and families influencing inappropriate growth included: excess parental weight status, poor eating patterns, excess maternal weight gain in pregnancy, presence of extended family or babysitter care. The investigation emphasizes the need for comprehensive nutritional assessment regularly throughout the first several years of life and the value of early intervention.

592 NUTRITIONAL SUPPORT OF CYSTIC FIBROSIS PATIENTS. Elizabeth Luder, Meyer Kattan, Richard J. Bonforte, Neal S. Leleiko (Spon. by H. L. Hodes). Mount Sinai School of Medicine, Mount Sinai Medical Center, Department of Pediatrics, New York, New York.

During the past 2 years, 30 patients and their families received intensive nutritional counseling in an ambulatory setting. The general approach was to provide individualized advice based on optimal enzyme replacement, manipulation of a normal unrestricted diet and careful follow-up. For 32 patients under age 18 years, height and weight were standardized, based on the Fels Composite Sheet. Standard scores were tabulated to indicate increase, decrease or no change in percentiles and then compared to a comparable time period before aggressive nutritional intervention.

	Percentile Change Weight			Percentile Change Height		
	-	0	+	-	0	+
Before Nutritional Therapy	4	14	0	2	16	0
Nutritional Therapy	0	14	8	0	14	8

For 8 patients between 18 and 32 years of age, change in weight was tabulated and compared to pre-therapy weight records.

	Weight Change		
	-	0	+
Before Nutritional Therapy	2	2	1
Nutritional Therapy	0	1	7

We conclude that: 1) all children were capable of either maintaining or improving linear growth and weight gain; 2) weight loss or failure to maintain growth are not acceptable in cystic fibrosis patients.

593 UNIQUE HEPATIC PATHOLOGY IN CHILDREN WITH BOTH EXTRA-HEPATIC BILIARY ATRESIA (EHBA) AND ARTERIOHEPATIC DYSPLASIA (AHD). J. Markowitz, M. Silverberg, E. Kahn, G. Alperstein, H. Aiges, F. Daum. Cornell Univ. Med. Coll., North Shore Univ. Hosp., Depts. of Peds. & Lab., Manhasset, NY.

Despite sophisticated surgery for EHBA, prognosis remains poor. However, a subgroup of pts. with typical clinical, lab. and surgical features of EHBA but with unique hepatic histology may have a more optimistic prognosis. Laparotomy in 3 children age 1-3 mos. revealed atretic extrahepatic ducts with patent gallbladder, cystic and common bile duct. Light microscopy demonstrated normal distal common duct with increasing cellularity and fibrosis of the lamina propria and luminal obliteration of the more proximal ducts. Liver biopsy revealed severe cholestasis, incipient destruction of interlobular bile ducts, and absence of bile ductular proliferation. All 3 had clinical features of AHD including mid-thoracic vertebral arch deformities, ophthalmologic evidence of posterior embryotoxon or pigmentary retinopathy, peripheral pulmonary stenosis, and typical facies. After portoenterostomy, all 3 had persistent cholestasis whether or not bile flow was established. Serial liver biopsies at age 8-27 mos. revealed persistent paucity of interlobular bile ducts, marked cholestasis, and mild periportal fibrosis not associated with collagen type I fibers. The association of AHD in these children with EHBA appears to alter the usual progression to cirrhosis and may delineate a subset of pts. with EHBA with a relatively benign course. All infants with EHBA and a paucity of intrahepatic bile ducts should be evaluated for stigmata of AHD.

594 ZINC (Zn) REPLACEMENT DOSAGES IN CHILDREN. S. Zia-adin Chavami-Maibodi, Mariano Castro-Magana, and Platon J. Collipp. Nassau County Med Ctr, SUNY, Stony Brook Health Sci Ctr, Dept of Ped, E. Meadow, NY 11554.

Short children with constitutional growth delay were found to be Zn deficient, and we investigated two different dosages for replacement. Group 1 (9 children aged 11) received 50 mg elemental Zn (220 mg Zn SO₄) daily for 2 months and then once each week. Group 2 (5 children aged 12) received 100 mg elemental Zn (440 mg Zn SO₄) daily for 6 months. Their hair, serum, and urine Zn was determined at 0, 2 and 6 months.

Months	Hair (ug/gm)		Serum (ug/ml)		Urine (ug/gm creat.)	
0	124±35	144±9	110±21	89±19	702±363	701±127
2	144±31	184±13	128±32	177±22	1188±494	2088±313
3	162±39	189±15	118±9	236±78	492±403	2096±178
Normal Levels	185	120	400-800			

Apparently the 100 mg dose results in levels of Zn in serum and urine which are elevated by 2 months and still elevated at 6 months. Since prolonged high Zn intake may lead to deficiency in copper and possibly other metal ions, this dose is probably excessive.

595 NECROTIZING ENTEROCOLITIS (N.E.C.) AND GASTROENTERITIS IN POST-NEONATAL TERM INFANTS. E.W. Malphus, G.S. Krishna, B.L. Nichols, Baylor College of Medicine, Ben Taub General Hospital, Department of Pediatrics, Houston, TX.

During a two year period, 8 infants developed N.E.C. following hospitalization for diarrhea and dehydration. All had a normal neonatal course. The mean age on admission was 40 ± 32 days (mean ± S.D.) with a range of 17 to 106 days. The infants were diagnosed as having N.E.C. at 2 to 64 days (mean 13.7 ± 20) after admission for gastroenteritis. All of the infants were significantly malnourished with weight less than 3%ile for age, and an Arm/F.O.C. ratio of 0.25 ± 0.01 in 5 of 8 patients measured. All of the infants were in the refeeding process following their acute diarrhea when they were found to develop N.E.C. Carbohydrate intolerance was found in 3 of 8 patients and guaiac positive stools in 7 of 8 patients. Radiographically, pneumatosis intestinales was reported in 5 of 8 with edema of the bowel wall in 8 of 8 cases. A mean WBC count of 13.75 ± 4.73 (x10³), with 28.2 ± 17.3% bands was noted. Malnutrition seems to be a significant risk factor in developing N.E.C. in post-neonatal infants. Infants admitted with malnutrition and diarrheal disease should be evaluated carefully for N.E.C. if guaiac positive stools and a bandemia are noted during the refeeding period.