

origin was 1.15:1 whereas the ratio for infants with infections acquired after birth was 1.58:1. Removal of the cases with antenatal infections from the analysis eliminated much of the sex ratio difference between whites and nonwhites and between the poor and the nonpoor. A decreasing incidence of such antenatal infections may well explain why the ratio of male to female neonatal deaths is increasing in the U.S. and other industrial societies and why U.S. poor whites and nonwhites have fewer excess male deaths than their more prosperous counterparts.

Preschool nutrition survey: Heights and weights of children. GEORGE M. OWEN and A. HAROLD LUBIN. *Ohio State Univ., Coll. of Med., Children's Hosp., Columbus, Ohio.*

Between November, 1968 and December, 1970, some 2300 children between 1 and 6 years old were examined in connection with overall evaluation of nutritional status. Measurements were made of height, weight, thoracic fatfold, and head circumference. X-rays of the hand-wrist were taken to assess skeletal maturation. Heights (standing) and weights were measured by one of five nurses using standard techniques. Data collected between November, 1968 and December, 1969 were analyzed, percentile (10th-90th) values for heights and weights were computed, and distance growth charts have been developed. These charts were based on 1106 children (538 girls and 568 boys with birth weights >2500 g) who represent a national probability sample. Median, 75th, and 90th percentile values were the same or slightly below those of the Boston chart while 25th and 10th percentile values were somewhat progressively more skewed below the Boston norms. Distribution of height values by percentiles shows some relationship to income as do various parameters of dietary intake and biochemical assessment.

Per capita income	Children	<10th P	<25th P	<50th P	<75th P	<90th P
(dollars/yr.)	(no.)			(no.)		
≤900	235	22	56	112	165	206
901-1300	238	23	52	107	175	218
1301-1900	306	24	67	137	225	268
≥1901	327	20	53	137	224	287

A test for lead poisoning based on increased osmotic resistance of erythrocytes. Q. H. QAZI and D. P. MADAFAR. *Downstate Med. Ctr., Brooklyn, N.Y.* (Intr. by E. S. Smithwick).

The proposed test is based on observations that lead, *in vitro* and *in vivo*, increases the osmotic resistance of erythrocytes.

Blood samples were collected in heparinized lead-free tubes from 32 patients admitted to the hospital with lead poisoning (blood lead level of 0.06 mg/100 ml, or higher). Samples obtained from 30 blood donors, 27 children without lead poisoning and 10 children with iron deficiency anemia served as controls. A hemoglobin pipetteful of blood is added to each of two tubes, one containing 5 ml of 0.4% buffered sodium chloride solution and the other, 5 ml of double distilled water. After 20 minutes, the tubes are centrifuged and the optical density (OD) of the supernatants determined at 540 mμ. The results are calculated and expressed as follows:

$$(\text{OD in 0.4\% saline} \div \text{OD in water}) \times 100 = \% \text{ hemolysis}$$

The results show that the mean hemolysis in children with lead poisoning (49.9, SD 18.7) was distinctly lower ($P < .01$) than

that in blood donors (95.2, SD 5.2), in unaffected children (92.2, SD 6.0) and in children with iron deficiency anemia (87.1, SD 9.2). The test identified 28 of 32 children with blood lead levels of 0.06 mg/100 ml, or higher, and each of ten children with blood lead levels of 0.09 mg/100 ml, or more.

Further data, derived from continued use of the test, will be presented.

Diagnostic value of laboratory tests in progressive protein malnutrition. VIJAY KUMAR, KEITH B. HAMMOND, and H. PETER CHASE. *Univ. of Colo. Med. Ctr., Denver, Colo.*

The order and magnitude of alterations in laboratory values occurring with progressive protein malnutrition are presently poorly understood. Four young female pig tail monkeys were given a 34% protein diet and four other young females an isocaloric protein free diet for 20 weeks. Fasting blood samples were obtained every 2 weeks for biochemical analyses. The mean body weights in the two groups were identical initially, but the protein deprived group steadily lost weight and were 20% below controls after 10 weeks and 39% after 20 weeks. Edema was present 15 weeks after initiation of protein deficient diet. The BUN and serum amylase levels were the first tests affected, and were significantly decreased ($p < .01$) after only two weeks of protein free diet. They were decreased a mean of 64-96% during the 20 weeks of observation. Serum transferrin levels have been reported to be the best screening test for kwashiorkor (Lancet, p. 392, 1969), but in this study were not significantly altered until after 6 weeks of protein deprivation. They were thereafter decreased a mean of 24-33%. Progressive reduction in total serum proteins (6.55 ± 0.51 g% at 2 weeks, 4.62 ± 0.78 g% at 20 weeks) and serum albumin (3.27 ± 0.39 g% at 2 weeks and 1.35 ± 0.44 g% at 20 weeks) occurred in the poorly nourished group, but were not consistently lower than control values until after 10 weeks of protein deprivation. Blood cholesterol levels were decreased significantly only after 16 weeks of protein free diet, and alkaline phosphatase and glucose values were not altered at any stage of deprivation. This study indicates that reduced BUN and serum amylase levels are good indices for the diagnosis of early protein malnutrition, whereas, reduction of transferrin, total serum proteins, and albumin are indicative of sustained deprivation.

Recognition of the humanistic student entering medical school.

K. C. MORTON and S. J. SCHAEFER. *Univ. of Calif., Irvine, Calif.* (Intro. by R. Greenberg).

Twenty-two of 57 freshmen medical students chose to attend a pediatric clinic once a week in the evening for six months. Responses to a structured questionnaire were scored on a positive-negative attitude continuum (from -7 to +7), a high score indicates a positive attitude. Those students electing to attend an evening pediatric learning experience without credit, scored 4.15 before and 4.30 after exposure. Those who did not attend the presentations scored 2.44 and 2.46 on the two questionnaires. The humanistic student can be identified on admission to medical school and those with this viewpoint may be guided towards appropriate learning experiences. The findings of this study indicate that it is possible to assess differences in expectations of students early in their first year and it is necessary to provide alternative electives to develop differing specialized interest.

Air and blood lead and the G6PD deficient. CAROL R. ANGLE and