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CORD BLOOD SCREENING FOR SICKLE HEMOGLOBINS: EVIDENCE FOR FEMALE PREPONDERANCE OF HEMOGLOBIN S. Michael S. Kramer, Yolanda Rooks, and Howard A. Pearson, Yale University School of Medicine, Yale-New Haven Hospital, Department of Pediatrics, New Haven.

Since June, 1972, we have conducted a comprehensive umbilical cord blood screening program for sickle hemoglobinopathies at Yale-New Haven Hospital. When we recently noticed an apparent preponderance of females with hemoglobins AS and SS, we decided to analyze the results of the first 65 months of screening. An FAS hemoglobin pattern (sickle cell trait) was detected in 162/1959 black females vs. 129/2017 in black males (χ^2=5.14,P<.05). For the FS hemoglobin pattern (sickle cell anemia and sickle β-thalassemia), the difference was even more striking: 15/1959 in black females vs. 4/2017 in black males (χ^2=6.73,P<.01). For 704 Puerto Rican newborns, the incidence of sickle cell trait was very low (2.1% overall), and there were no significant female-male differences.

Excluding the two children with FS cord blood electrophoreses who were subsequently shown to have sickle β-thalassemia, there were 17 black newborns with hemoglobin SS among the first 3976 black births since the inception of the screening program. This represents an incidence of 1 in 234 live births, which far exceeds the 1 in 750 predicted by the Hardy-Weinberg equation. The excess of observed over predicted SS newborns is almost entirely accounted for by the high incidence in black females, 1 in 150. Hemoglobin S may confer a selective advantage in utero that is more marked in females.

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EPIDEMIC MEASLES 1976-1977: EPIDEMIOLOGIC, SEROLOGIC AND REVACCINATION STUDIES. Peter J. Krause, Jaime Deseda-Tous, James D. Cherry, Mark Strassburg, Connie Sullivan, Mary Spencer, Yvonne J. Bryson, Robert C. Welliver, Kenneth M. Boyer, UCLA Sch. of Med., Dept. of Peds., Los Angeles.

During 1976-1977, we obtained measles historical and HAI antibody titers in 421 children and 875 UCLA students and employees and revaccinated those with HAI titers <5. Seventy-five percent of 421 subjects at County clinics had measles antibody (≥5) prior to vaccination. Of 89 individuals with undetectable antibody (HAI titer <5), 21 had no antibody response 3 weeks after vaccination while 3/6 of this group had titers of ≥5 one year later. Post-vaccination GMT's were 67 and 30 at 3 weeks and 10-12 months respectively in 31 subjects with a primary immune response (IgM antibody) and 18 and 8 in 37 subjects with a secondary response (only IgG antibody). A measles epidemic occurred on the UCLA campus even though 91% of 502 students tested during the first week of the epidemic had antibody. At a campus clinic, followup data on vaccine reactions were available from 211 subjects; 42% reported no reaction, 58% reported minor reactions and 3% developed fever and rash. The occurrence of epidemic measles in a college population in which 91% were immune would suggest that our present National goal to immunize 90% of children is inadequate. The large number of older children with measles antibody seeking immunization in public programs, and the minimal response to booster immunization suggests that serologic screening programs to identify susceptibles might be preferable to mass vaccination of older persons.

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EPIDEMIOLOGY OF MORTALITY IN A REFERRAL NICU. Krauss, A.N., Boozan, W., Auld, P.A.M. N.Y.Hosp-Cornell Med. Cent. Perinatology Cent., Dept. Peds., New York, N.Y.

Two hospitals in the same county and 50 miles from New York City referred consecutive admissions in 1976 with a mortality of 38.5% (10/26)-Hospital A; and 4.3%(1/23)-Hospital B. Infants from Hospital A had a mean birth weight of 1813±783 gm, and 6/26 under 1000 gm. Hospital B infants had a mean birth weight of 2347±857 gm, and none weighed less than 1000 gm. 6/10 non-surviving infants weighed less than 1000 gm., and arrived at a mean age of 13±10 hours; surviving infants from this hospital arrived at a mean age of 67±163 hours. These weight differences are statistically significant (p<0.05). No other statistically significant differences were found in the distribution of maternal complications, mode of delivery, method of transport, Apgar scores, or diagnoses on arrival. Hospital A serves a community of 24,900 with 251 beds, 92 physicians, 6 pediatricians, and a per capita income of $6044. Hospital B is located in a city of 9268 with 146 beds, 32 physicians, 2 pediatricians, and a per capita income of $6411. Review of records from hospital B suggests that all high-risk infants are referred. These data indicate (1) high risk infants are being referred in a timely and appropriate fashion; (2) the incidence of low birth weight infants largely determines the mortality rate in referred patients in a referral NICU; (3) these figures may be used to determine which communities are in the greatest need of antenatal and perinatal services.

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NOSOCOMIAL NICU KLEBSIELLA INFECTIONS. R.D. Leake, R.M. Rosenblatt, W.Yoshimori, B.F. Anthony, and A.W. Chow, Department of Pediatrics, UCLA/Harbor General Hospital, Torrance, California.

Previous studies have demonstrated the virulence of multiply resistent Klebsiella pneumoniae strains for newborns, but optimal management of nursery outbreaks has not been defined. We have experienced 2 outbreaks of Kanamycin resistent Klebsiella (Serotypes 60 + 2) in which 13 infants were bacteremic and 72 infants were colonized. Each episode was characterized by significant virulence(9 deaths)and a high colonization rate(15-90%). Colonization occurred earliest and most frequently in the infant's stools. Stool cultures of 77 personnel and 26 inanimate sites showed the infants alone acted as the reservoir. Colonization occurred from 1-9 weeks after admission to the NICU (mean = 3 wks). Prior antibiotic usage did not predispose to colonization. Stool colonization continued for 1 to 8 months after acquisition (mean = 5 months). Monthly telephone and/or clinic follow up visits of 42 chronically colonized infants revealed no mortality or significant morbidity.

Ordinary control methods (increased emphasis on handwashing, segregating infants within the NICU, cohorting nurses, and use of povidone-iodine soap) did not prevent a 19-month endemic following the first outbreak, whereas establishing an "annex room" for infected and colonized infants away from the NICU eliminated the organism within 2 months following a second outbreak.

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AN APPROACH TO THE EVALUATION OF NEONATAL MORTALITY RATES (NMR). Kwang-sun Lee, Nigel Paneth, Mark A. Pearlman, and Lawrence M. Gartner. Albert Einstein College of Medicine, Department of Pediatrics, Bronx, New York.

The role of improved neonatal care in the recent reduction in the U.S. NMR remains unclear. Although many socio-demographic factors affect the NMR, these appear to have little effect once birth weight (BW) is held constant, thus making BW-specific NMR's legitimate indicators of medical care and ideal for comparison. Most states, however, at present do not link infant birth and death records and thus cannot generate BW-specific NMR's.

We have found that a simple risk-adjusting index, the relationship between the NMR and the incidence of very-low-birth-weight infants (≤1500 grams, VLBW) has enabled us to assess the effectiveness of care at our institution during a period of fluctuating NMR's (AJDC 130:842, 1976). Annual changes in the NMR at our institution correlate strongly with annual variations in the incidence of VLBW newborns. Analysis of the relationship between these two variables, however, showed a decline over the past ten years toward a lower NMR for a given VLBW rate, indicating improving neonatal care.

This index has been applied to 1974 NMR and VLBW rate data from each of the 50 states and Washington, D.C.. Significant deviation of some states from the regression line linking the two variables is likely to be a better indicator of statewide neonatal care than the crude NMR.

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FAMILIAL AGGREGATION OF BLOOD PRESSURE IN NEWBORN INFANTS. Yhu-Hsiung Lee, Bernard Rosner, Stephen H. Zinner, Jeffrey B. Gould, Ernest W. Lowe and Edward H. Kass. Channing Laboratory, Harvard Medical School, Boston University School of Medicine and Brown University; Peter Bent Brigham, Boston City and Roger Williams General Hospitals, Boston, MA. and Providence, RI.

The blood pressures and pulse rates of 398 normal full term sleeping infants and their mothers were measured two to four days after birth using an ultrasound Doppler device with a print out recorder. The mean systolic and diastolic (K4 & K5) blood pressure were 72.3 ± 10.1, 52.4 ± 8.4 and 49.0 ± 8.3 mm Hg respectively. Birth weight was correlated with systolic and muffle (K4) blood pressure (p<0.001 & <0.05 respectively), but not with disappearance (K5) blood pressure. The pulse rates of black infants were significantly higher than those of white infants (p = 0.006), but were not correlated with blood pressure. Sex, race, body length and type of feeding did not influence infant's blood pressure. Maternal systolic and diastolic (K5) blood pressure correlated weakly with infant's systolic and diastolic (K5) blood pressure (regression coefficient 0.123, p <0.05 and 0.113, p <0.05 respectively). Significant correlation was also found for maternal against infant's diastolic blood pressure at one month home visit (K4 = 0.302, p< 0.001, K5 = 0.264, p <0.01). Thus a familial effect on blood pressure can be detected as early as the first few days of life.