49 DESIGN OF A CLINICAL COMPUTER DATABASE FOR A NEONATAL INTENSIVE CARE UNIT (NICU). Michael Maurer, Charles Mead, Janet Johnson, Edward Bartlett, Robert Brouillette, Wm. Stratton and Richard Marshall (Spon. by Harold Zarkowsky) Washington Univ. Sch. of Med., Dept. of Pediat., Biomedical Computer Lab., St. Louis, Mo. 63110

Hospitalization in a NICU averages 1 mo. but may extend to 8-9 mos. Voluminous amounts of data makes it difficult to systematically study disease processes with the conventional medical record. A computer system is being developed to aid in the analysis of the incidence, course, interrelationships and demographic features of the various newborn illnesses seen in a referral NICU averaging 600 admissions/year. How does this computer system provide information about newborn problems which would otherwise be difficult to acquire? Each infant's database is divided into 4 categories: 1) Admission history and physical exam 2) In-hospital clinical events 3) Laboratory data 4) Outpatient follow-up. Complete information from each category is entered into separate computer files. Information is assessed via bit-mapped (inverted) files which allow acquisition of single or multiple pieces of data common to some subset of the total of patients. Laboratory data collected on a daily basis is available for analysis as an interface with clinical data. These file structures favor rapid searches of the entire database but will still permit display of all or part of an individual patient's complex hospital course. The major advantage of this system is that it permits the user to explore rapidly a large number of possibly significant relationships in a large population of newborn infants.

50 CLASSROOM MANAGEMENT OF CHILDREN WITH LEUKEMIA - T.D. Miale, P.J. Barnard, N.B. Najar, Introd. by G. L. Schiebler, University of Florida, Gainesville, Fl.32610

A team comprised of physicians, physician-assistants, and a social worker visited 14 schools and 117 educators of 13 children with leukemia (ages 5-17). 55/117 of the educators were directly involved (Group I), others were principals counselors, coaches (Group II). 21/55 in Gr. I and 45/62 in Gr. II were previously unaware of the child's diagnosis. 18/34 of Gr. I and 12/45 in Gr. II were informed by parents. 15/55 in Gr. I and 3/62 in Gr. II had sought additional information previously from books (13), health professionals (3) and periodicals (2). 15/55 in Gr. I and 10/62 in Gr. II were unaware that long-term survival was a possibility in childhood leukemia. 115/117 in both groups requested additional information.

Therefore, an audiovisual self-instructional program was prepared and field-tested with 73 of these same educators, as well as 36 adolescent classmates. This program consisted of a pamphlet, 35mm slides, cassette-tape and a structured questionnaire. 26/73 responding educators and 26/36 classmates wished the program expanded to cover the following topics: survival (10), physical education (7), infectious disease exposure (3), alopecia (3), side-effects of medications (7), weight gain (2).

9/13 of the leukemia children were achieving above-average marks, 1 was considered "gifted", and 1 was below his age-level. No dominant themes were discerned in the drawings, writings, behavior, or music of the children with leukemia.

51 PEDIATRICIANS' AWARENESS OF HOSPITAL COSTS. Phillip I. Nieburg, Howard L. Weinberger, and Arthur M. Stockman, (Spon. by Frank A. Oski), Dept. of Peds., SUNY, Upstate Medical Center, Syracuse, N.Y.

Health care costs are a focus of increasing discussion and debate in medical and lay circles. There have been few efforts to assess physician awareness of such costs. We have evaluated awareness of actual hospitalization charges (HC) by 27 pediatric house officers (PL), 29 pediatricians in practice (PP) and 14 full time pediatric faculty (FAC). Case histories reflecting all HC and physician charges were prepared from 4 representative pediatric admissions (croup, meningitis, dehydration, premature neonate). PL, PP, and FAC were asked to estimate HC in various categories: total bill, room charge, laboratory studies, medications, IV fluids and physicians fees. Results indicate: 1) FAC most accurately estimated total HC. 2) More than half of each group was within ± 30% of the actual total bills for 3 of 4 cases. 3) All 3 groups markedly underestimated room charges and total HC for the premature neonate; PP underestimates exceeded PL or FAC. 4) All groups attributed an amount of HC to medications and IV fluids in excess of actual amounts. 5) All groups estimated laboratory test fees with equivalent accuracy; large underestimates were common. 6) Although most physicians expressed interest in seeing copies of their patients hospital bills, few, if any, now do so. Our results indicate wide variation in awareness of various aspects of HC by physicians. Efforts to increase such awareness should be encouraged.

52 POST-PARTUM EXTENDED MATERNAL-INFANT CONTACT: SUBSEQUENT MOTHERING AND CHILD HEALTH. Susan M. O'Connor, Peter M. Vietze, John B. Hopkins, William A. Altemeier Vanderbilt University, Nashville General Hospital, Department of Pediatrics, and Peabody College for Teachers, Department of Psychology, Nashville, Tennessee.

In a double-blind study, 301 low-income primiparous women were randomly assigned to rooming-in (RI) or control (C) post-partum (PP) beds. C mother-infant dyads (N=158) were together for 20 minutes every 4 hours for feedings during the first 2 PP days; RI dyads (N=143) were together 6 additional hours each day. Duration of data collection from medical and agency records after delivery (12-21 months) is equivalent between the 2 groups, as are the descriptive data. Analysis is based upon 134 RI and 143 C dyads; 9 RI (6%) and 15 C (9.5%) were lost to follow-up.

RI and C children did not differ in average age, frequency of outpatient visits, or frequency of well baby or acute illness diagnoses. No RI and 6 C (4%) were seen for either pertussis or the common exanthematous diseases of childhood ($p < 0.05$). One RI and 9 C (6%) experienced parenting failure (PF) ($p < 0.05$); no RI and 8 C were hospitalized for PF ($p < 0.01$). No RI and 9 C experienced abuse, neglect, abandonment or nonorganic failure-to-thrive ($p < 0.01$). One RI and 5 C were referred to social agencies for possible child maltreatment. No RI and 5 C children either died (1) or experienced foster care ($p < 0.05$).

Extended post-partum maternal-infant contact may benefit subsequent mothering and child health.

53 THE EFFECTS OF THERAPY ON THE DEVELOPMENTAL SCORES OF IRON DEFICIENT INFANTS. Frank A. Oski and Alice M. Honig. SUNY, Upstate Medical Center, and the College of Human Development, Syracuse Univ., Syracuse, N.Y.

It has been proposed that iron deficiency in infants and children is associated with behavioral alterations. To test this hypothesis, 24 infants with iron deficiency anemia, ages 9 to 26 mos, were randomly assigned to a treatment and control group. Bayley Scales of Infant Development were administered before the institution of treatment with intramuscular iron or placebo and the test was readministered in 5 to 8 days. Mean hemoglobin level in the 2 groups was similar. It averaged 8.6 in the controls and 8.7 gm/dl in the treatment group. The 2 groups did not differ with respect to age, sex, racial composition, or initial Bayley scores of Mental Development Index or Physical Development Index.

Infants treated with iron showed a statistically significant ($p = .01$) increase in their scores on the Mental Development Index averaging a mean gain of 13.6 points in a mean time of 6.8 days. No changes were observed in the control group. The treated group was also found to become more alert and responsive and demonstrated improvement in tests of gross and fine motor coordination. All improvement occurred independent of significant increases in hemoglobin level. These findings support the hypothesis that iron deficiency, and not anemia, in infants produces developmental alterations and that these changes are rapidly reversible with iron therapy.

54 COSTS OF EDUCATING CHILD HEALTH ASSOCIATES. John E. Ott and George K. Knox. Sponsored by Henry K. Silver University of Colorado Medical Center, Department of Pediatrics, Denver.

The direct costs of training child health associates were determined by analyzing the actual expenses for a seven year period (July, 1968 - June, 1975) of the three-year, University of Colorado School of Medicine's Child Health Associate Program. Costs were allocated into six categories: start-up, teaching, administration, evaluation, deployment and student support. The costs were calculated per trainee (N = 61) per year of training. The estimated time spent by the faculty in administrative, teaching and research activities was also determined.

Administrative and teaching expenses of the Child Health Associate Program were $4655/student/year. Start-up, evaluation, deployment and student support costs totaled $3848/student/year.

Conclusion: Child health associates are fully prepared to diagnose and treat more than 90% of ambulatory pediatric patients at a cost of less than one-third the expense of educating a pediatrician to perform the same functions and activities. A rational health planning policy should include the extensive utilization of child health associates as primary health care providers for children.