

**477** DAILY AND MONTHLY PATTERNS OF INTENSIVE CARE NURSERY ADMISSIONS. George A. Little and Denise R. Polivy (Spon. by R. Z. Klein). Dartmouth Medical School,

Dept. of Maternal and Child Health, Hanover, N. H. Analysis of temporal patterns of birth and intensive care nursery (ICN) admissions facilitates investigation of perinatal practice and administration of service units. 2,758 consecutive admissions between 1/1/76 and 12/31/79 to the two tertiary ICNs in Vermont and New Hampshire were classified by month and weekday of admission. Mean birth weight and gestational age were similar by month and day. No monthly pattern other than chance distribution for admissions and mortality was detected. However, admissions were distributed by day of the week in a pattern which differed significantly ( $p=0.004$ ) from chance. Inborns (local and maternal-fetal transports) also differed significantly ( $p=0.012$ ); outborns (intra transports) did not.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Admissions	406	405	436	407	405	375	324
%	14.7	14.7	15.8	14.8	14.7	13.6	11.7
Mortality by day of admission	36	46	51	39	30	32	31
%	8.9	11.4	11.7	9.6	7.4	8.5	9.6

Mortality rate by day of admission (not day of occurrence) does not differ significantly over the week ( $p=0.36$ ). Length of stay was similar by weekday of admission. We speculate that these findings indicate that perinatal medical management is influencing day of birth of babies at risk for ICN admission without producing a negative effect on mortality.

**478** SMOKING - A DETERMINANT OF UNSUCCESSFUL BREASTFEEDING. A. Harold Lubin, Ruth O. Shrock, Judith L. Bonner, Janet L. Kasler, The Ohio State University College of Medicine, Children's Hospital, Columbus, Ohio.

To identify breastfeeding "success" or "failure", we compared 22 successful with 22 unsuccessful breastfeeders. In the first group, breast milk provided the major nutrient source for at least six months. In the second, mothers quit breastfeeding before six weeks and expressed dissatisfaction with breastfeeding. Of numerous epidemiological factors assessed, significant differences between the groups included mothers' employment status  $P<.025$  (more unsuccessful breastfeeders planned to return to work after six weeks) and parents' education,  $P<.025$  (education was higher for parents in the successful group). The number of calls to the pediatrician requesting help with breastfeeding was higher among unsuccessful breastfeeders,  $P<.006$ . 46% of unsuccessful breastfeeders smoked 1/2 to 2 packs/day, but only 17% of successful breastfeeders smoked,  $P<.05$ . The only significant difference between smokers and non-smokers in the unsuccessful group were length of time breastfeeding ( $X = 3.25$  weeks for smokers; 1.7 weeks for non-smokers) and reason for discontinuing breastfeeding (73% of smokers stopped because of "infant dissatisfaction" or "inadequate milk supply"; only 25% of non-smokers felt milk supply was "inadequate"). Our data suggest smoking may be an important cause of breastfeeding failure.

**479** THE INCIDENCE OF DRUG USAGE IN LACTATING MOTHERS. A. Harold Lubin, David J. Waller, Janet S. Kasler, The Ohio State University College of Medicine, Children's Hospital, Columbus, Ohio.

To identify incidence and patterns of medication usage 134 breastfeeding mothers were surveyed 4-6 weeks after discharge from hospital. 96% were using one or more meds; 55% were self-medicated, non-Rx items, & 41% were physician prescribed. 64% of those breastfeeding had completed one or more yrs. of college although ed. level was not correlated with predictions of med. usage patterns. A significant ( $p<.025$ ) level of women with high school or less ed. had stopped breastfeeding within 4 wks. after their infant's birth. Less than 50% of the pediatricians knew the mother was taking any med. even though significant #'s of meds. for which adverse effect has been reported for the breastfeeding infant were being utilized & despite availability of safer alternatives. Of health professionals involved, only 22% of obstetricians, 19% of pediatricians, & 9% of pharmacists discussed med. with the mother. By category incidence of med. usage was: vitamins 50%, analgesics 20%, iron preparations 10%, laxatives 5%, antacids 2%. Info. supplied by manufacturers in their product labelling about drug excretion into breast milk was poor or non-existing; for many meds which were being utilized, published info did suggest that significant doses could be ingested by the breastfeeding infant. The study indicates the need for additional drug excretion info & health professional counseling for breastfeeding mothers to avoid potential adverse reactions for their infants.

**480** INFLUENZA IMMUNIZATION AND INFECTION IN IMMUNOSUPPRESSED CHILDREN. Noni E. MacDonald, Caroline B. Hall, Martin J. Klemperer, Lawrence J. Ettinger. University of Rochester, Department of Pediatrics, Rochester, New York.

Influenza vaccine has been routinely recommended for immunosuppressed children. But the spectrum of illness and vaccine efficacy need better definition in this group. A 4 year prospective study included 65 patients (average age 8 yr; range 9 mo-19 yr) with malignancies (32 on chemotherapy, 18 off) or hematologic disorders (12). 45 received in '76 A/Victoria/75-A/New Jersey/76 vaccine; 25 in '78 split dose A/Russian-A/Texas-B/Hong Kong. Sera were collected in '76, '78, '80. All were followed regularly. Immunization with previously circulating strain (A/Vic vs A/NJ) and no chemotherapy correlated with titers  $>20$  as well as with titers  $>20$  at 4 year follow-up. A/Russ and B/HK immunization gave similar results. Influenza naturally occurred in 20. 16 acquired B/HK in '80; 5 had had B/HK vaccine in '78 with no response. All 16 developed titers  $>20$ , though 6 were immunosuppressed. None was seriously ill. In summary, vaccine response and duration were related to disease, chemotherapy and antigen. Natural infection could immunize suppressed patients where vaccine had failed. Despite varying levels of antibodies and suppression, no serious natural influenza illness was seen over 4 years in these 65 patients.

Post	% WITH TITER $>20$
Vac	off Rx: 100%
'76	on Rx: 72%
	Follow up
'80	off Rx: 72%
	on Rx: 50%
Post	A/NEW JERSEY
Vac	off Rx: 91%
'76	on Rx: 25%
	Follow up
'80	off Rx: 42%
	+on Rx: <5%

**481** MATERNAL SMOKING MAY IMPAIR FETAL NUTRITION. Jack Metcalf, Paul Costiloe, Warren Crosby, Harold Sandstead, C.E. Bodwell, Frances Weaver, Seshachalam Dutta & Larry Bentle. U. of Oklahoma Health Sci. Ctr., Oklahoma City, OK & USDA/SEA Labs Grand Forks, ND & Beltsville, MD.

Cigarette smoking by pregnant women is known to significantly reduce birth weight of their babies. The effect appears dose-related. The mechanism is uncertain. We have shown previously that maternal plasma nutrient & amino acid levels, & some polymorphonuclear leukocyte (PMNL) enzyme & metabolite levels at midpregnancy are closely related to, predictive of, & account for, about 20% of the variance in birth weight of the baby. In a prospective study of ~600 mother/baby pairs who had complete demographic & biochemical data, 294 mothers were non-smokers, 285 smoked. Birth weight, adjusted for gestational age & sex of the baby, & for race, age, prepregnant height, weight, & parity of the mother, was significantly reduced in proportion to the number of cigarettes reportedly smoked daily. A two-tailed t test showed that smoking mothers had significantly decreased PMNL G6PDH activity, ATP & ADP levels. Hair root protein content was reduced, as were plasma total protein, albumin,  $\beta$  &  $\gamma$  globulins, & cholesterol. The levels of plasma free amino acids ALA, CYS & LYS also were significantly reduced. Analysis of variance showed significant differences between standardized scores for nonsmokers & those who smoked 1-10, 11-20, 21-30, >30 cigarettes/d for education, hematocrits, diet calorie & protein intakes (recall), PMNL G6PDH & ATP, hair root protein & DNA, plasma total protein,  $\alpha$ ,  $\beta$  &  $\gamma$  globulin, & the amino acids: GLU, LYS, HIS, & ORN. We conclude that smoking during pregnancy alters maternal plasma nutrient levels, protein stores & cell PMNL metabolism. These nutritional effects might account for the reduced birth weight.

**482** UNUSUAL CAUSE OF NEONATAL MENINGITIS (NM): SALMONELLA ENTERITIDIS SEROTYPE POONA. REPORT OF A NOSOCOMIAL OUTBREAK. Gerardo Cabrera-Meza, Luis Felipe Meneses, Jorge Mario Rosales, Roberto Melgar. Newborn Section, Department of Pediatrics, Roosevelt Hospital, Guatemala City, Guatemala. Sponsored by Arnold J. Rudolph, M.D., Baylor College of Medicine, Houston, Texas.

From Feb. through Oct. 1979, 23 cases of NM occurred in the Special Care Nursery Units (SCNU) at Roosevelt Hospital in Guatemala City, Guatemala; 16 of these were caused by one serotype: Salmonella enteritidis type Poona. All cases were fulminant in onset and resulted in 100% mortality.

	AGE IN DAYS AT ONSET OF SYMPTOMS			AGE AT TIME OF DEATH		
	Range	$\bar{x}$	S.D.	Range	$\bar{x}$	S.D.
Preterm	3-24	9.7	+6.29	3-24	10.4	+6.09
Term	8-17	12.6	+3.65	9-17	13.6	+3.20

No cases were found in infants less than 48 hours of age. Symptoms were characterized by acute onset of lethargy (93%), seizures (53%), full fontanelle (33%), vomiting (20%) and irritability (20%). Only 13% had fever or diarrhea. The organism was resistant to all antibiotics tested except chloramphenicol by the Kirby-Bauer method. Bacterial surveillance studies suggested that the epidemic was introduced either by maternal-infant colonization or from other hospital units into the SCNU. The outbreak was controlled by strict cohorting and strict handwashing. No further cases of neonatal disease due to this serotype occurred in the SCNU despite continuing evidence of disease in the community.