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## EFFECTIVENESS OF VARIOUS UMBELICAL CORD CARE REGIMEN ON STAPHYLOCOCCAL COLONIZATION OF THE NEWBORN INFANT.

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Over a five year period the effectiveness of various agents for umbelical cord care was evaluated in three wards (ABC) for normal newborns. Immediately after the first bath either 70% alcohol, triple dye or povidone iodine (Betadine) was applied to the cord and an inch of surrounding skin. Anterior nasal cultures were taken at random on the third hospital day. Blood levels of alcohol, triple dye and iodine were measured in independent studies.

Study I	Study II	Study III	Study IV	Study V	Study VI
Jan '73- Sept '73	Oct '73- May '75	June '75- Dec '75	Jan '76- Apr '76	Mar '77- May '77	June '77- Aug '77
Tripdye *412 (5%) NS	Alcohol X3 698 (8%) NS	Alcohol X3 246 (11%) NS	Betadine 108 (22%) ↑	Betadine 200 (41%) ↑	Tripdye 208 (23%) ↑
Tripdye *616 (7%) NS	Nothing 461 (15%) ↑	Betadine X3 268 (3%) ↓	Betadine 128 (26%) ↑	Tripdye 107 (15%)	Tripdye 110 (19%) ↑
Tripdye *344 (8%)	Tripdye 294 (8%)	Tripdye 130 (9%)	Tripdye 40 (8%)	Tripdye 188 (22%) ↑	Tripdye 202 (20%) ↑

\*Number studied and percent colonized. X3-Three applications/day for 3 days. Rest one application. NS-Not significant. Significant ↑(increase) or ↓(decreased)  $P < .05$ -.001. Triple dye and alcohol were not detected in the blood. Betadine which showed the lowest colonization with nine applications was ineffective when used only once. Significant absorbtion of iodine was seen with both regimens. Increase in colonization with triple dye in the last two study periods is unexplained, however no increase in disease rate was seen.

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## EVALUATION OF EDUCATIONAL PROGRAMS DESIGNED TO INCREASE PROTECTION OF INFANTS IN CARS. Keith S. Reisinger, and Allan F. Williams. Univ. of Pittsburgh

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Three in-hospital educational programs for post-partum women, designed to increase the crash protection of infants in cars, were evaluated in comparison to a group that received no education. The programs consisted of: (a) literature, plus making infant carriers readily accessible and convenient to purchase; (b) literature, plus a personal discussion, plus making infant carriers readily accessible and convenient to purchase; and (c) literature, plus the offer of a free infant carrier. The programs increased the extent to which infant carriers were used to transport babies in cars, but had little or no effect on the key outcome measure: use of infant carriers fastened by the car seat belt so that crash protection is provided. Rates of such use were low in all groups. It is concluded that ways of providing increased crash protection to infant and child travelers in addition to use of restraint systems requiring the active, voluntary cooperation of parents must be encouraged. "Passive" (automatic) protection techniques, such as air bags and vehicle interior modifications, have great potential in this regard.

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## PROGNOSIS OF INFANTS WHOSE MOTHERS HAD POSITIVE RAPID PLASMA REAGIN TESTS AT DELIVERY, R.S. Ramamurthy, G. Srinivasan, S. Bharathi and R.S. Pildes, Department

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Of 40 infants born to mothers with positive RPR tests three were symptomatic in the newborn period. After lumbar puncture (LP), these infants were treated with 50,000 u/kgm of procaine penicillin daily for 10 days. One infant died of syphilitic cirrhosis at 6 months of age; a second had psychomotor retardation at 15 months and one was normal. The remaining 37 infants were asymptomatic at birth. 23 with negative RPR or titers less than their mothers were untreated and did not have LP's. 14 with titers equal to or greater than their mothers had LP's and received one injection of 50,000 units/kgm benzathine penicillin. All were followed at three month intervals until titers were negative. Negative tests were observed in the asymptomatic infants at 6 months in 81 percent and at 12 months in 92 percent. Length of gestation ( $p < 0.05$ ) and birth weight ( $p < 0.05$ ) were lower and cord IgM ( $p < 0.01$ ) were greater in symptomatic infants. Spinal fluid VDRL was negative in all infants. Spinal fluid chemical values in symptomatic and asymptomatic infants were similar. Symptoms at birth was the best predictor of outcome. Currently recommended therapy could not be relied upon to prevent disease.

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## IMPROVED OUTLOOK FOR TRANSPORTED NEONATES. Neil Roy and Mary Brown. Royal Women's Hospital, Melbourne, Australia. (Intr. by J. C. Sinclair).

A regional neonatal transport system, the Neonatal Emergency Transport Service (NETS), commenced in Victoria in October 1976. In the first year, 544 infants were transported, including 12 sets of twins, 1 set of triplets and 1 set of quadruplets. The commonest reasons for transfer were prematurity (49%) and respiratory distress (48%). There were 245 infants < 2500 g (45%), of whom 103 (42%) were hypothermic ( $< 36^{\circ}\text{C}$ ) at the referring hospital; 101 of these were warmer after transport and 59 had returned to  $\geq 36^{\circ}\text{C}$ . Oxygen was required for 431 infants (79%), 80 (15%) were intubated, 53 receiving assisted ventilation.

All infants between 1000 and 2499 g with medical diagnoses transferred by NETS in the first 12 months from the metropolitan area (group B) were compared with similar infants transferred from the same area in the previous 12 months (group A), and show improved temperature and pH on admission, reduced mortality rate, and reduced length of stay of survivors. The shorter hospital stay defrays the additional cost of provision of the service.

	1000-1499g		1500-1999g		2000-2499g	
	A	B	A	B	A	B
No.	47	56	40	33	70	52
Temp. on admission ( $^{\circ}\text{C}$ )	35.4	36.5	35.9	36.6	36.3	36.6
pH on admission	7.25	7.27	7.22	7.27	7.29	7.29
Mortality (%)	32	23	13	9	9	8
Stay of Survivors (days)	73	63	40	37	25	21

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## MATERNAL ABO BLOOD GROUP B: A POSSIBLE PREDISPOSING FACTOR TO COLONIZATION WITH GROUP B STREPTOCOCCI. J.A. Regan, S. Chao, &amp; L. S. James, Coll. of

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In a prospective study of maternal genital colonization with Group B streptococci (GBS) at the time of onset of labor, epidemiological data, including ABO blood group were recorded for the 1062 patients studied. 124 (11.7%) of these patients had cervical cultures positive for GBS. A significantly higher incidence of the blood group B was noted in the colonized population compared to the total population studied (28% vs. 16.4%  $p < .005$ ,  $\chi^2 = 8.43$ , 1df). Estimated risk of being colonized at onset of labor for a woman whose blood group is B was twice that of those with group O or A.

The data was further analyzed with respect to factors influencing the incidence of both the blood group B, i.e. race, and group B streptococcal colonization i.e. absence of antenatal care & preterm labor. Increased incidence of colonization in the unregistered population (37%) and in those delivered at  $< 32$  weeks gestation (53%) vs. 11.7% in the total population studied failed to account for the association between the blood group B and GBS colonization.

The presence of ABO isohemagglutinins in the cervical secretions has been reported (Gershowitz, Solish, \*1963). On the basis of our findings we postulate a local (cervical) Anti-B antibody interaction with GBS which may suppress colonization. Thus, absence of Anti-B antibody in the cervical secretions of women whose blood group is B, may predispose them to Group B streptococcal colonization. (\*Proc. Soc. Exp. Biol. & Med., 108-645)

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## ENVIRONMENTAL CONTAMINATION OF CONTINUOUS DRIP FEEDING SYSTEMS. Richard Schreiner, Harold Eitzen, Mary Gaffel, Edwin Gresham, James Smith, Lemuel Moyer (Spon.

by Robert L. Baehner). Indiana Univ. Sch. of Med., Ind. Univ. Hospitals, Depts. of Pediatrics and Clinical Pathology, Indianapolis.

Continuous gastric and transpyloric feeding techniques have been advocated for low birth weight infants, but bacterial surveillance studies of these systems have not been reported. A preliminary investigation in our nursery showed that 176/576 (31%) of formula samples obtained from the drip chamber were contaminated. Using the same feeding system with a broth of E. coli simulating the infant's stomach, 0/151 specimens of formula were contaminated, thereby eliminating the ascending route as the bacterial source. No positive cultures were obtained from 40 randomly sampled bottles of formula which were opened and exposed to room air for 8 hours. A prospective study in 115 infants showed that 255/902 (28%) of cultures from formula drip chambers were positive, but the presence of a vacuum flutter valve in the reservoir and the number of times formula was added to the chamber did not significantly affect the incidence of positive cultures. Milk reservoirs changed every 24 hours did not have a significantly different contamination rate from those changed every 12 hours. When cultures of formula were obtained from the original mixing bottle after being discarded by the nurse, 50/64 (78%) powdered formulas and 94/339 (28%) liquid formulas were positive. This study demonstrates a very high rate of bacterial contamination of infant formulas administered by continuous drip, elucidates contributing environmental factors, and emphasizes the need for meticulous care in formula mixing techniques.