

A Multiphasic Prenatal Program to Improve the Pregnancy Outcome in High Risk Patients in a United States City

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The population in the core of United States cities contain many multiproblem families with an infant mortality rate so high, it approaches that of developing countries. Surviving infants of this population suffer a multitude of neurologic deficits, including epilepsy, cerebral palsy, mental retardation and paralysis. Studies, which have attempted to correlate this poor reproductive performance with the quality and/or quantity of maternal nutrition, generally have been negative. One study even proclaims that with the history of one poor pregnancy outcome, increased ingestion of protein will negatively impact on a subsequent pregnancy.

At the Deaconess Division of the Buffalo General Hospital, we observed an unacceptable perinatal mortality of 40.6 per 1000 live births for 1976.

To reduce neurologic deficits and infant mortality, a multiphasic prenatal program was instituted.

This included:

1. A reduction in the use of general anesthesia and analgesia for routine deliveries, which was accomplished by a program to promote the use of natural childbirth techniques with special noonday and evening classes organized for clinic patients. (See Table I)
2. A nutritional intervention and education program aimed at the high risk pregnant patient attending the clinics.

TABLE I  
OBSTETRIC ANESTHESIA  
DEACONESS HOSPITAL, BUFFALO, NEW YORK

	<u>1976</u>		<u>1977</u>		<u>1978</u>	
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
Natural Childbirth with and without local anesthesia	501	51%	610	64%	760	73%
Conduction Anesthesia	227	23%	248	26%	151	15%
General Anesthesia	264	26%	102	10%	130	12%
TOTAL NUMBER OF CONFINEMENTS	992		960		1041	

Newborns of mothers who received a special nutritional supplement, achieved greater gestational age, greater birth weights, and larger head circumferences than babies born from mothers who did not receive this nutritional supplement (a control group). (See Table II) The differences between the two groups were statistically significant ( $p=.03$ )

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TABLE II  
FETAL OUTCOME IN NUTRITIONALLY SUPPLEMENTED MOTHERS VERSUS CONTROLS

	<u>TREATED</u>	<u>CONTROL</u>
Gestational age--babies delivered less than 37 weeks gestation	5%	19%
Babies weighing less than 2500 grams	12%	20%
Head circumference greater than 35 cm.	18%	10%

(Data from Deaconess Hospital, Buffalo, NY 1976-78)

With this longitudinal multiphasic approach, over a three year period, from 1976 through 1978, we observed the following beneficial results:

1. Stillbirth rates dropped from 22.3 to 11.5 per 1000 live births.
2. Neonatal mortality dropped from 18.3 to 9.6 per 1000 live births.
3. Perinatal mortality dropped from 40.6 to 21.1 per 1000 live births.

TABLE III  
INFANT MORTALITY RATES  
DEACONESS HOSPITAL, BUFFALO, NEW YORK  
1976 - 1978

	<u>1976</u>	<u>1977</u>	<u>1978</u>
Stillbirth Rate	22.3	10.4	11.5
Neonatal Mortality Rate	18.3	10.4	9.6
Perinatal Mortality Rate	40.6	20.8	21.1.
TOTAL LIVE BIRTHS	985	958	1042

The only other factor to be weighed was the contribution of fetal monitoring in all this. Since our hospital has been utilizing fetal monitoring since 1971 and the multiphasic prenatal program was instituted in 1976, we conclude that a multiphasic prenatal program, which reduces the use of anesthesia, analgesics and provides quality nutritional supplementation can dramatically improve pregnancy outcome, in a high risk population, such as exists in the core of United States cities. The cost of this preventive program was small, while the benefits were great. Thus, the multiphasic prenatal and nutritional supplementation program were cost effective in reducing infant mortality and improving pregnancy outcome.

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