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THE CONTINUING EFFECTS OF

LOW BIRTH WEIGHT

A THESIS SUBMITTED TO THE UNIVERSITY OF  
AUCKLAND IN FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY

BARTON A. MacARTHUR

1977

*The history of man for the nine months  
preceding his birth would, probably, be  
far more interesting and contain events  
of greater moment than all the three-score  
and ten years that follow it.*

Samuel Taylor Coleridge  
(1772-1834)

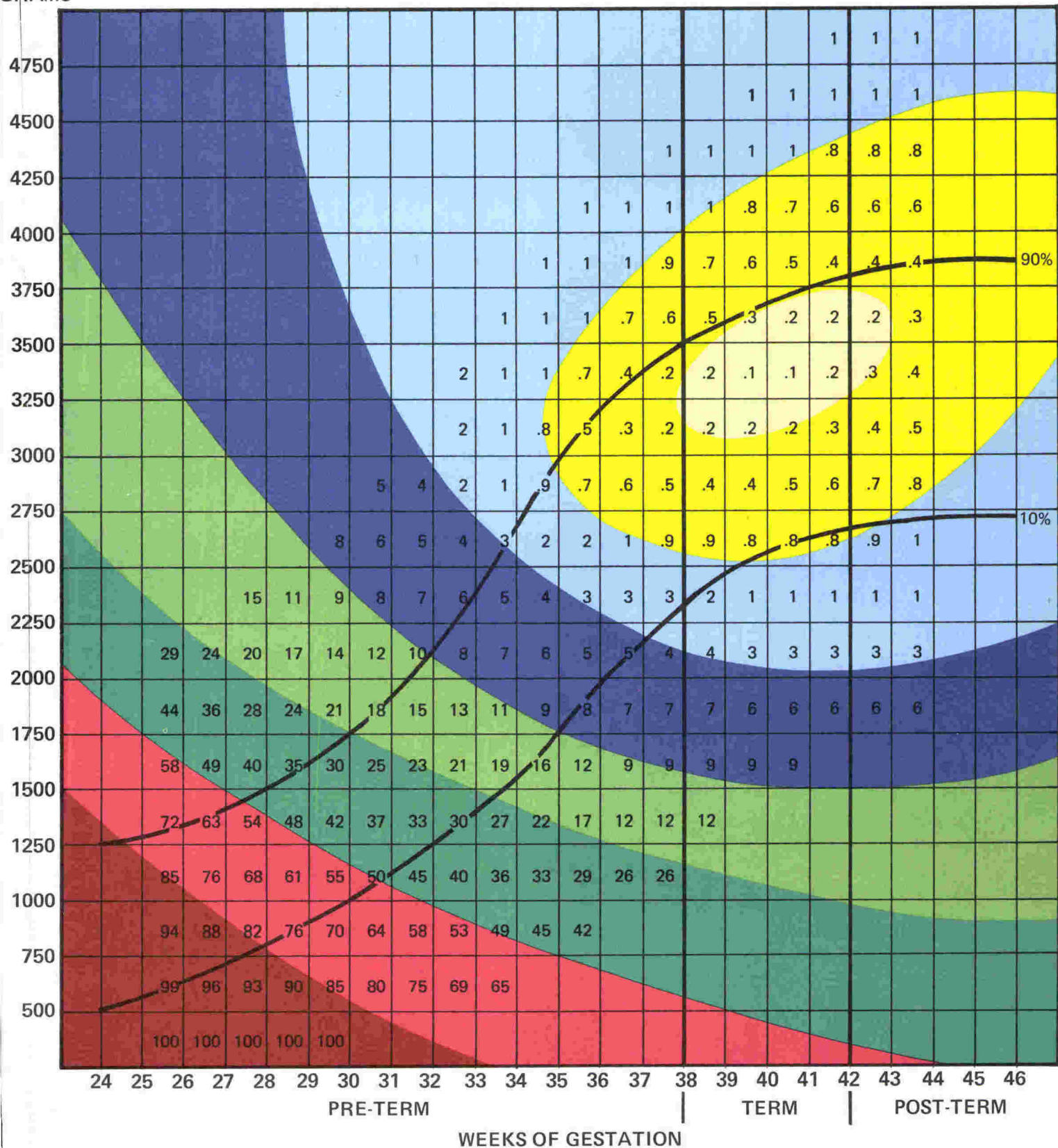
'Miscellanies, Aesthetic and Literary'

Patient Identification:

# NEWBORN CLASSIFICATION AND NEONATAL MORTALITY RISK

BY BIRTH WEIGHT AND GESTATIONAL AGE

GRAMS



Interpolated data based on mathematical fit from original data  
University of Colorado Medical Center newborns. 7/1/58 - 7/1/69

Lubchenco, L.O., Searls, D.T., and Brazie, J.V., Jr. *J. of Pediat.*,  
81:4, pp 814-822 (Oct) 1972, C.V. Mosby Co., St. Louis, Mo.

Distributed by Mead Johnson Laboratories—Evansville, Indiana 47721 U.S.A.

## INSTRUCTIONS

At the time of admission to the nursery, the infant's birth weight and gestational age are plotted on the Chart by the nurse, using the estimated age calculated from the first day of the last menstrual period.

The method described in the reprint provides a convenient means of defining Pre-Term, Term, and Post-Term infants. And, the mortality risk makes possible a decision as to type of nursery care needed for an individual infant. In addition, all infants who have any significant clinical problem, regardless of classification, should be admitted to a high-risk nursery.

The advantages of setting up such a routine on a nursery service are considerable. First, it ensures that all infants in a high Neonatal Mortality Rate group will be observed closely. Secondly, it makes it a great deal more convenient for house staff or attending staff to identify small-for-gestational-age and large-for-gestational-age infants . . . particularly in separating small-for-gestational-age Term infants from appropriate-for-gestational-age Pre-Term infants.

Battaglia, F. C., Lubchenco, L. O., *J. Pediat.*, **71**:159, 1967

Lubchenco, L. O., Searls, D. T., Lubchenco, L. O., *J. Pediat.*, **81**:814, 1972

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To these may be added the mothers of the children in the study, headmasters and teachers and all those who helped with the arrangement of visits, the tracing of subjects, the translation of articles and many other tasks.

## ABSTRACT

Perinatal associations of low birth weight and its long term sequelae were surveyed and the resulting hypotheses examined in a study of 240 children classified by birth weight, gestational age and sex.

Subjects were placed in small for gestational age, pre-term appropriate for gestational age, control, pre-term small for gestational age, low birth weight with gastroenteritis and very low birth weight groups.

Assessment was blind and, where necessary, groups were randomly selected. Data were gathered from four stages of the subjects' development; the pregnancy, the newborn period, pre+school and school age.

Analysis of pregnancy data showed that some aspects of the intrauterine environment provided by a number of mothers was less than optimal.

In the neonatal period, the low birth weight groups were at some disadvantage and, further, there were aspects where there was some evidence that either the treatment or the condition for which it was required could possibly influence subsequent development.

The pre-school period was marked by sex differences, particularly in cognitive functioning. Disadvantage in all instances was confined to the low birth weight male groups. Some events in the prenatal, perinatal and

neonatal periods appeared to be associated with poorer performance on intelligence tests more than four years later.

Among these influences were mothers' smoking habits, temperature, duration of tube feeding and gastroenteritis while in hospital.

Assessment at school revealed the same pattern of cognitive development among the subgroups that had been apparent at the pre-school stage.

The pre-term males found adjustment to school difficult and made slow progress in reading in comparison with the females belonging to the same group. At this age the term - small for gestational age group was still lagging behind in physical development.

It was concluded that the low birth weight males constituted a group who were 'at risk' because of slower cognitive development. This was particularly evident in so far as the pre-term males were concerned.



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