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The Regionalization of Perinatal Care

The rationale underlying the current approach to the management of high-risk pregnancies and neonates can be summarized as follows:

- The onset of the recent dramatic decline in infant, especially neonatal, mortality coincides with the introduction of modern techniques of perinatal and neonatal medicine. Although other changes occurred in this period, a significant proportion of the decline, particularly in view of the decreases in birth-weight-specific mortality rates,^{1, 2} has been attributed to these shifts in management.

- In order to make further gains in reducing perinatal mortality, perinatal services must be organized into regional networks so that problems developing in pregnant women and neonates throughout a defined population are identified at the earliest possible point and effective medical management undertaken including, when necessary, referral to perinatal centers where the most sophisticated of intensive techniques can be mobilized.^{3, 4}

As pointed out recently by Gillings, *et al.*,⁵ however, there is little evidence linking the changes in perinatal mortality rates to changes in the type and use of perinatal services.

Specific diagnostic and therapeutic maneuvers have certainly received their share of scientific attention. This has ranged from the massive study of the antenatal, intrapartum, and neonatal antecedents of perinatal mortality and childhood neurologic dysfunction known as the Collaborative Perinatal Study^{6, 7} to a large number of smaller studies reporting the experience of particular services or assessing various specific techniques of intensive care. What has received much less attention is the effect of organizational changes designed to assure the flow of patients among the various levels of care within a given region. Studies of this type must include not only an examination of the outcome of mothers and/or infants referred to the perinatal center, but also an assessment of outcomes in the remainder of the population served by the perinatal network.

The paper by Vogt, *et al.*,⁸ in this issue of the Journal represents one effort in this direction. In this report, the authors evaluate the experience of an Infant Medical Dispatch Center (IMDC) for facilitating arrangements of neonatal transport in Southern California. To assess the effect of the introduction of this service, they focused on the neonatal mortality rate of neonates weighing 701-2000 grams in participating and non-participating hospitals in Los Angeles County, and that for infants with hyaline membrane disease only in the participating hospitals, before and after the IMDC was introduced. In both comparisons, the decreases in neonatal mortality demonstrated the effectiveness of the IMDC. They go on to document one of the ways in which this may have occurred, using the age of the infant when the transport team arrived as a measure of efficiency of arranging transport. The decrease in the average age and the variation in the age at the arrival of transport team was consistent with an increase in efficiency.

One important aspect of this report is the examination of the changes in an entire population, in this case all the hospitals with obstetrical services in a large county. In partitioning this population into those using the IMDC and those choosing not to do so, the investigators provide insight into the question posed earlier: linkages between

the decreases in neonatal mortality and increased access to the available technology. All the hospitals experienced a decrease in neonatal mortality, but the decrease is more dramatic for those with the presumably increased access through the IMDC. This approach bypasses the questions raised by both the reports based solely on the mortality experience of tertiary centers where the factors affecting the selection of the patient population remain imperfectly defined, and those based solely on hospital of birth without any notion of the range of services provided directly or indirectly through closer referral ties to more specialized medical centers.

As in any report involving "volunteers," caution must be used in generalizing the results. In this case, the characteristics and motives of the hospitals which "volunteered" to use the IMDC, and the circumstances in which the IMDC appeared to be most useful—some of which the investigators mention—would be of importance, particularly in view of the higher previous mortality experience among the participating hospitals. The results are consistent with other data which suggest that access to intensive neonatal services has been instrumental in reducing mortality among high-risk infants. This evidence has come from studies on the decrease in birthweight-specific mortality,¹⁻² hospital-based data in California,⁹ at least one randomized trial,¹⁰ and the mortality data in specific regions or hospitals with the introduction of intensive care services.^{11, 12}

What this study by Vogt, *et al*, documents is that such decreases in mortality through access to intensive care units may be achieved without the care unit necessarily being located in the hospital of birth. The mortality experience of transferred infants was less than that of comparable infants not transferred, i.e., the outcome of low birthweight infants with hyaline membrane disease, (similar to that shown in other studies),¹² in addition, the improvement is reflected in the overall mortality rate of the referring hospital. The demonstration that community hospitals may benefit from formal referral ties between their hospitals and tertiary centers supports the centralization of tertiary services, one part of the regionalization model, and counters the tendency to proliferate costly intensive-care units in order to achieve the benefits of access to such care.

Until the birth of a premature infant or an infant with life-threatening anomalies can be prevented, all neonates must have access to intensive care services. The present study indicates that one way to secure this access is by

increasing the efficiency of neonatal transport. Experience elsewhere suggests that additional benefits may be obtained by extending such a referral to include maternal transport for those situations where the birth of a high-risk infant may be anticipated.¹³ Results of both approaches lend support to the regionalization of care for high-risk pregnancies and neonates as a means of reducing early mortality among infants.

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Breast Self-Examination: An Adjuvant to Early Cancer Detection

Breast cancer is a major cause of death among both White and non-White women in the Western world. In the United States in 1977, deaths from breast cancer accounted for 6.1 per cent of all deaths among women ages 30 through 79.¹ Among Whites, breast cancer mortality rates have been stable since 1950, while among non-Whites they have in-

creased steadily. Age-adjusted breast cancer mortality rates are now nearly identical for Whites and non-Whites.

At present the only demonstrably valid method for reducing breast cancer mortality is early detection and treatment of the disease. The efficacy of screening for breast cancer was demonstrated by a controlled trial initiated in