APHA 135th Annual Meeting – Scientific Session

Disparity in Access to Perinatal Tertiary Care in a Regionalized System

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INTRODUCTION

Design of the Illinois Regionalized Perinatal System

- A statewide organization of hospitals providing obstetric and neonatal care was accomplished in the 1970's (March of Dimes 93)
- Hospitals with higher concentration of technology and sub-specialists (designated Level 3 - perinatal tertiary care centers) were to receive transfers of mothers and infants from hospitals (Level 1 and 2) in their designated regions (Public Act 78-557-Illinois, Turnock 86).
- **Patients with complications potentially resulting in, or requiring delivery would be eligible for transfer to perinatal tertiary care centers.**

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INTRODUCTION

- The Decision to initiate a transfer is made by physicians at the lower level hospitals depending on state defined criteria of estimated fetal weight and gestational age.

  (Public Act 78-557-Illinois)

- As more deliveries of low birthweight infants occurred at tertiary centers with neonatal intensive care units and subspecialized obstetric services in the 1980s , neonatal mortality decreased

  (Bowes 81, Goldenberg 85, Gortmaker 83)

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Problem:

Race and Socioeconomic status influence on healthcare decisions and access:

- Equality of access would be an important quality assurance measure of regionalized perinatal care.
- Medical decisions, however, have been shown to be influenced by the race or socioeconomic status (SES) of the patient (Freeman 00)
- Access to specialized technology in other areas of acute medical care has been shown to be restricted by medical decision-making influenced by race. (Canto 00)
- Groups denied access had worse outcomes. (Bach 99)

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Non-white race and SES may prove to be risk factors for inappropriate transfer decisions.

- Hypothesis rationale:

We reasoned that if race or SES were a factor in the decision or timing of perinatal transfer, then the racial composition of the group transferred to perinatal centers would be different than in the group not transferred.

- Hypothesis (null):

Racial composition and SES of the group transferred to level 3 centers is the same as the group of parturients not transferred.

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METHODS

Study design

Retrospective case/ control study of 3 years of The University of Illinois Perinatal Center (UICPC) data set of all perinatal deaths (2000, 2001, 2002)

Data set

The only computerized data set available that systematically identifies pregnant patients eligible for transfer is the record of fetal and neonatal deaths in the Perinatal Mortality Report (PMR).

The UIC perinatal center collects and submits the data to the Illinois Department of Public Health for compilation (Public Act 78-557-Illinois), but retains control of and access to its own data.

The study was approved by the University of Illinois IRB.

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Primary Categorical Variables

Case definition: A less than 1500g neonatal death, not transferred in utero from Level 1 or 2 hospitals to the level 3 tertiary care perinatal center.

Control definition: a less than 1500g neonatal death, transferred to a Level 3 center in utero.

Primary Analysis Variables:

Race = African American versus any other

Socioeconomic Status = Method of payment as 1: Medicaid or selfpay or unknown vs 2: private or managed care

Method of payment is used as a proxy for SES.

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Statistical Comparisons:

Chi square test for significance was performed for the categorical variables of case or control, SES and Race.

Tables are arranged considering race or SES as a risk factor for not being transferred (a case) or being transferred (a control)

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RESULTS

All Neonatal mortalities <1500g Originating at L1+L2 hosps	Not Transferred (cases) N	Transferred (controls) N	Odds of being a case=not transf
Risk Factor - RACE			
African American	28	19	Odds 1.47 / 1
Non-African American	28	13	Odds 2.15 / 1

60% of African American patients were not transferred, in contrast to 68 % of patients of any other race. The odds ratio is 0.68 (P=0.39).

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RESULTS

All Neonatal mortalities <1500g Originating at L1+L2 hosps	Not Transferred (cases) N	Transferred (controls) N	Odds of being a case=not transf
Risk Factor - SES			
Medicaid or uninsured	28	11	Odds 2.54/ 1
Private or managed care	28	21	Odds 1.33 / 1

72% of low SES patients were not transferred, in contrast to 57 % of higher SES patients. The odds ratio is 1.9 (P=0.16).

Given the N in each group, the level of significance of 0.5, and the % change in the study, a power of 86 % was reached.

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Summary

- We tested the hypothesis that racial composition and SES of the group transferred to level 3 centers is the same as the group of parturients not transferred.
- If proven to be true, then management decisions are not likely to be influenced by race or socioeconomic status. It follows that the odds of being transferred to a tertiary care center would not diminished by lower socioeconomic status or African American race.
- In our results, no differences were detected in racial distribution or in distribution of insurance status in the group of eligible patients transferred compared with the group denied transfer to the tertiary care center.
- Race or SES is not likely to be a factor in management decisions regarding transfer of patients to tertiary perinatal care in the UIC system.

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Comment and Speculation

- A trend towards discrimination against low socioeconomic status was apparent. Analysis of the larger State of Illinois data set would further clarify.
- The high rate of inappropriate management (not transferring those eligible) suggests that in this group of neonatal deaths, transfer of care may be a factor in outcome. Assessment of these odds of transfer across populations, hospitals or perinatal systems may be an important quality indicator.

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