



Research Roundtable Summary



SEVENTH

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on MCHB-funded

Research Projects

Practice Variation in California's Comprehensive Perinatal Service Program

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Research Roundtable #7 Summary

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About This Series

The Research Roundtable Series, sponsored by the Maternal and Child Health Bureau (MCHB), is intended to disseminate the results of MCHB-funded research to policymakers, researchers, and practitioners in the public and private sectors. The results of these projects influence future service, research, and policy development. The Research Roundtable sessions provide an opportunity for researchers to discuss their findings with policymakers, MCH program directors, service providers, and other health professionals.

The Maternal and Child Health Bureau Research Program is directed by Dr. Gontran Lamberty and administered through the Division of Systems, Education, and Analysis, Maternal and Child Health Bureau, Health Resources and Services Administration (HRSA). HRSA is a component of the Public Health Service (PHS), U.S. Department of Health and Human Services (DHHS). The purpose of the research program is to support applied research relating to maternal and child health services that shows promise of making a substantial contribution to the advancement of these services.

Introduction

Carol Korenbrot, Ph.D., is an associate adjunct professor at the Institute for Health Policy Studies, University of California at San Francisco School of Medicine. She has a joint appointment in the Department of Obstetrics and Gynecology and Reproductive Sciences. Reaction was provided by Lorraine Klerman, Ph.D., chair of the Department of Maternal and Child Health at the University of Alabama at Birmingham School of Public Health. She has a secondary appointment at the School of Medicine in the Department of Pediatrics.

Presentation

Overview. Dr. Korenbrot has been the principal investigator on two MCHB-funded studies concerning California's Comprehensive Perinatal Service Program (CPSP): (1) Evaluation of the Implementation of the Medi-Cal Comprehensive Perinatal Services; and (2) Effectiveness of Components of Comprehensive Perinatal Care. Dr. Korenbrot presented the evaluation of component effectiveness. She discussed the provider-related effects, which have been studied very little and thus have not been well conceptualized.

Dr. Korenbrot's research objective was to use health outcomes of low-income pregnant women and their infants to develop indicators to monitor and evaluate the delivery of MCH and

prenatal services. These indicators could then be used to develop policies for better delivery of prenatal services, which are likely to reduce poor health outcomes.

Methodology. In the observational trial, Dr. Korenbrot and her colleagues looked at low birthweight outcomes. They compared outcomes that occurred in routine medicaid care in California with the outcomes from the CPSP pilot project and with outcomes from when the program was implemented statewide. When implemented statewide, the program became provider based—patients did not choose whether or not they received comprehensive services. Each patient received the whole package as the standard of care. Most providers believe that these services help women to achieve better outcomes.

The CPSP provider sample was drawn through a two-step process. First, the investigators sampled all of the CPSP providers who indicated on a 1990 survey that they had billed CPSP for services. Then information was selected from the providers who had at least 50 medicaid-eligible patients per year (to provide adequate amounts of data).

CPSP medical records constituted the data for the study. The investigators obtained permission from all 29 CPSP providers and collected outcome data. The maternal and child health and prenatal services that were documented in each medical record were examined, as well as the risks for poor health outcome. Risks included demographic characteristics, medical and obstetric data for poor obstetric history, and behavioral risks (since psychosocial and health education assessments were completed).

Findings.

Number of visits. The investigators used logistic regression for low birthweight (adjusted for age, parity, marital status, ethnicity, and infant gender) to compare the comprehensive program with routine medicaid care. They did not find significantly better outcomes with comprehensive perinatal services. Women who had eight or more visits (adjusted for the onset of care and the continuity of care) were compared with women who had eight or less visits. The investigators also compared those two groups between comprehensive care and routine medicaid. The research ultimately revealed that the statewide program is not different from the pilot project, and is only better than routine medicaid care if women receive at least eight visits of comprehensive care.

Types of provider settings. When the investigators looked at the subgroups of the type of provider setting, there were several arguments favoring the different groups of health care providers. Public health departments argued that they provide the best comprehensive perinatal care since they have provided it the longest and know the population. Community clinics said that they provided the best care for their populations because they know the women and do not have to serve the entire county, city, or State population of women. The clinics claimed to provide care to women in their communities and to be more flexible than health departments. The physicians responded that they provide the best care because they can treat and care for a high-risk condition as it arises without having to refer women elsewhere. Furthermore, private hospitals are the care sites where private physician groups take care of women. So the hospitals are CPSP sites for multiple physician groups such as obstetricians and family physicians.

Adjusting for differences in risk characterization and in use of care, which were confounders known to affect outcome, the investigators found no significant differences in low birthweight or preterm birth outcomes, except for women in public health department clinics. Women in these clinics had a very high odds ratio (nearly two times greater) for poor birth outcomes compared with women in the public hospital reference group. When analyzed by ethnicity, white women in the health department clinics had a 2.5 times greater chance of having a low birthweight baby than did the women in all other provider settings. The odds ratio of preterm birth followed a similar pattern.

Risk assessments. The components of care assessed for effectiveness included nutrition and psychosocial risk assessments. These assessments were followed by further nutrition and psychosocial services and by health education. Since risk groups must be defined first so that differences in risk can be adjusted for, the investigators looked at the risk assessment outcomes to understand which groups had which characteristics. Unexpectedly, this became a focus of the research because so much variation was found in risk assessment.

Nutritional. An objective characteristic for these assessments, the presence of which would identify women as being in a certain risk category, is the most ideal. Examples of the objective characteristics for nutrition that the investigators used included being underweight, obese, or anemic. Since maternal low prepregnancy weight is most highly associated with low birthweight, Dr. Korenbrot chose to focus on this characteristic.

Of all the women who were underweight by the Institute of Medicine's anthropometric standards (1990) of prepregnancy weight for height body mass index, only a quarter of these women were identified as such in the CPSP nutrition assessment. The CPSP program gave providers model instruments for nutrition and psychosocial risk assessments but allowed them to choose their own as long as they contained certain elements. One of these was that obesity and underweight were assessed by anthropometric measures. CPSP had its own version based on the Institute of Medicine standards, which included weight gain charts and instructions on how providers should go about nutrition risk assessment. However, registered dietitians were not required to conduct the nutrition risk assessment; a lay health worker, nurse, nurse practitioner, physician assistant, or certified nurse-midwife could do this assessment.

So the issue was, does it make a difference who performs the risk assessment? Is it the provider setting type that makes a difference? Does it have to do with the race of the women being assessed? Although the charts and tools exist, the investigators found that in many field assessments the assessors do not use the tool.

The investigators found ethnic group status affected misclassification for obesity but not for underweight. Also, appropriate weight gain outcomes as defined by the Institute of Medicine were significantly worse in white women and far worse in African-American women. This was a surprising outcome since the CPSP program is an intervention program in which everybody receives intervention services (i.e., counseling, education, individual attention) in addition to the assessments.

Provider settings were also tested for effects on misclassification. When private settings were combined, community clinics kept separate, and public settings made as the reference group, no significant difference was found by feature of the provider. Nursing credentials were examined in a number of different ways: Registered nurses alone, registered nurses and nurse practitioners, and registered nurses and certified nurse-midwives. Significant differences in assessment accuracy were not revealed. Similarly no differences in accurate assessment of obesity were found with perinatal lay health workers based on their credentials. Those individuals on-site who were allowed to run the initial risk assessment, such as social workers and bachelor's-level individuals, were also compared with a reference group of registered dietitians, but still no significant difference by credentials in the assessment of underweight or overweight was found. However, after examining interactions in logistic regression models, researchers found that an important predictor of accuracy in nutritional assessments was the combination of both provider setting characteristics and risk assessor credentials.

Psychosocial. Psychosocial services are more difficult than nutritional services to evaluate. An objective measure, such as anthropometrics used for nutritional assessment, is not available for psychosocial assessment. Thus, the investigators instead relied on collecting different instruments that different providers used for psychosocial risk assessments. These were grouped several times in many different ways to improve the models and explain the variance and outcomes. These models were used

to study the biases of nonclient factors (i.e., geographical location and abstractor, assessor, and service provider characteristics) in psychosocial risk assessments.

Unexpectedly, the researchers found that women who were in nonmetropolitan areas were more likely to have psychosocial risks and a supportive partner than women living in the metropolitan area. These findings could be explained by the assessment biases of nonclient factors. If abstractor credentials were adjusted for, then differences in support variables (lack of social support and supportive partner) between metropolitan and nonmetropolitan regions disappeared. Although the abstractors were hired by the investigators and were trained together in three sessions to assess records in the same way, the abstractors found the assessment records so confusing that they ended up abstracting records differently. For unplanned pregnancy, the academic credentials of the assessor and the provider setting all had to be adjusted for to remove the variation that was observed between metropolitan and nonmetropolitan sites. Adjustments for nonclient factors reversed the regional effect for financial problems in that women in the metropolitan regions were more likely (two times more), not less likely, to have financial problems. Even after dealing with these three nonclient factors, all of the differences between metropolitan and nonmetropolitan were not completely eliminated. Regional variation in potential or existing parenting problems and psychological problems remained regardless of adjustment.

From these findings, it seems that a greater standardization of groupings of psychosocial risks within the perinatal social work area is needed. Without this, it becomes impossible to evaluate appropriately the associated impact of psychosocial services in practice.

Reaction

Dr. Klerman complimented Dr. Korenbrot on her challenging research and voiced hope that this and similar studies would alert the public health community to the weaknesses of current approaches—which are too simplistic—in preventing infant mortality and low birthweight. For example, one *Healthy People 2000* objective is to increase to 90 percent the percentage of women who receive care in the first trimester of pregnancy. But given Dr. Korenbrot's findings, an increase in first trimester care might not appreciably reduce infant mortality or low birthweight.

Weaknesses in current methodology. Dr. Klerman pointed out several weaknesses in the current approaches to low birthweight and infant mortality prevention. The first weakness is that what is measured is what is easy to measure rather than what is important to measure. Two examples of this are the measures used for outcomes of pregnancy and for the adequacy of prenatal care.

In terms of the outcome of pregnancy, low birthweight is usually measured because it is easy to measure. It is much more difficult to measure the two contributors to low birthweight: Preterm birth and intrauterine growth retardation. Measuring these two components requires adequate information on birth certificates and hospital records. Fortunately, Dr. Korenbrot has been able to measure preterm birth.

Why should these two components be measured, rather than low birthweight? First, preterm birth and intrauterine growth retardation often have different causes. Some preterm deliveries are due to early induction of labor or cesarean sections. In these cases, a physician decides that a particular infant or particular woman would be better off if the child was delivered. So if a study is seeking to determine the impact of prenatal care on outcomes, it is important to know if low birthweight was due to elective early termination of pregnancy. In these cases the low birthweight is usually unrelated to a woman's decision about prenatal care but rather to a physician's decision about delivery. The tendency to group all low birthweight infants, regardless of type, makes it difficult to determine the causes of low birthweight.

Another reason not to focus exclusively on low birthweight as the indicator is that these two components may have different consequences. Clinicians are more concerned when the baby is born

too early than when it is born too small. Their primary concern is with babies who are major contributors to infant mortality—those born before 25 weeks' gestation.

A second example of a simplistic measure is adequacy of prenatal care, usually measured by the month that the care was initiated and the number of visits. A major contribution of Dr. Korenbrot's study is the recognition of the need to measure what is in the package of prenatal care and also the qualifications of the caregiver. Is it a registered nurse with no additional training? A board-certified obstetrician? What kinds of equipment were available and used? Using only time of initiation and the number of visits assumes that all prenatal care is the same and ignores quality and content. Furthermore, birth certificates are assumed to provide reasonably reliable and valid information about prenatal care. Yet this has been disproved in studies that compared birth certificates with medical records.

Another important question raised by Dr. Korenbrot's research is the importance of early prenatal visits. The Public Health Service Expert Panel on the Content of Prenatal Care recommended many services during the first pregnancy visit, but stated that it is mostly the health promotion activities (nutrition, smoking cessation, alcohol and drug abuse prevention and treatment) that should not be delayed until a later time, at least for healthy women. For that reason, many obstetricians are not enthusiastic about an early trimester visit. They often suggest that a woman wait until she misses two or more periods before she seeks care. The evidence is weak that women who come in during the first trimester have better outcomes than women who seek care during the second trimester. This may be because clinicians in private practice and in public settings are not using the early visits appropriately (i.e., for health promotion activities as well as routine obstetric care).

Dr. Klerman indicated the difficulty in determining the number of prenatal visits necessary for a program to be effective. Infants are considered to be preterm if they are delivered before 37 completed weeks of gestation. If prenatal care is to reduce preterm deliveries, a major reason for infant mortality, then the visits must occur before the 37th week. Dr. Klerman cited three separate standards for how many visits a pregnant woman should have by the 37th week of pregnancy: The American College of Obstetricians and Gynecologists suggests about 11; the Expert Panel on Prenatal Care suggests 8 visits for primigravidas and 6 for multigravidas; and the United States Preventive Services Task Force suggests 6 visits for the primigravida and 5 for the multigravida.

Programs need to consider what services should be offered if women are urged to make the first prenatal visit during the first trimester. Programs also need to consider the timing of the visits. Reducing the incidence of low birthweight and infant mortality will require a focus on preventing preterm delivery.

Dr. Klerman noted that Dr. Korenbrot's study forces researchers and program planners to examine whether the right things are being measured and being measured in the right places. The research also forces researchers and program planners to determine what is to be accomplished by early prenatal care and how it will reduce the incidence of preterm birth. These are important questions that further research should address.

An obstetrician among the participants agreed that more attention should be placed on the preconception and interconception periods, particularly with women who have chronic illnesses. For example, for a woman with diabetes, health care providers could stabilize her before pregnancy and help the woman plan the pregnancy. Adolescents are a group to whom programs reach out to provide contraceptive methods, which many accept, but a large percentage of adolescents still become pregnant a year later.

Dr. Klerman stated that women are not told that care between pregnancies is important. The focus is on seeking prenatal care early, not on seeking care between pregnancies. Also, in most programs, outreach workers and case managers contact women who are already pregnant. It might be

better, however, to approach the woman who has just delivered and help her decide whether she wants another child. If she does, then the goal should be to keep following her the way pregnant women are followed in order to assist her in reaching her goal.

One participant pointed out that many women at significant risk for delivering low birthweight babies are noncompliant and difficult to follow. Another participant commented that focus group testing among women and health care providers revealed that until a woman is pregnant, providers cannot reach her with preconception messages. The problem becomes how do you reach a woman with a message that she does not really want to hear?

Dr. Klerman noted that interconception counseling could be provided in the pediatrician's office. The average CPSP participant does not see an obstetrician between births, but she does make at least one and often more pediatric visits because of the immunization schedule.

Publication

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