

Selected Abstracts from the National Perinatal Association Meeting

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APPLIED OR BASIC RESEARCH

OBSTETRIC–GYNECOLOGY AND FAMILY PRACTICE PHYSICIAN'S AWARENESS AND PRACTICES REGARDING FOLIC ACID

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Introduction. The United States Public Health Service (USPHS) recommends that all women capable of becoming pregnant consume 400 mcg of folic acid daily to reduce the chance of having a neural tube defect-affected (NTD) pregnancy. This requires the involvement of health-care providers. The objective of this study is to determine awareness of, and response to, USPHS folic acid recommendation among a national sample of physicians.

Method. A pilot random sample telephone survey of 111 general obstetricians/gynecologists (OB/GYNs) was conducted in preparation for a larger survey among 610 OB-GYN and family practice physicians.

Results. In the pilot survey, the majority of providers were males (71%). Almost half (43%) had been in practice over 20 years. Respondents were typically board certified (86%) and in private practice (49%). About half (56%) of providers knew that approximately half of pregnancies are unplanned. Awareness of folic acid's benefits regarding some birth defects was very high (97%), although one-third misstated the correct dose, and approximately half misstated the correct dose for women with a previous NTD-affected pregnancy. A total of 90% of physicians recognized that folic acid supplementation should begin at least a month before conception. Although 79% reported always recommending folic acid to women planning pregnancies, only 18% of prenatal patients were seen preconceptionally. Only 32% of physicians always recommended folic acid to nonpregnant women. Physicians estimated that about half of patients comply with provider recommendations to take folic acid supplements. Results of the full survey will be available August 2002.

Discussion. Knowledge about folic acid was high among OB-GYNs, but more education about correct doses is needed. Promotion of

folic acid was greatest for women contemplating pregnancy; however, respondents reported that few women receive preconceptional care. Folic acid use could increase if physicians promoted the folic acid message to all women capable of having children, regardless of their pregnancy intention or reason for the visit.

BASIC RESEARCH

THE INFLUENCE OF IDEOLOGICAL INTEREST GROUPS ON CONGRESSIONAL SUPPORT OF INTERNATIONAL FAMILY PLANNING

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Introduction. Maternal health conditions are one of the three major causes of disease burden in the developing regions: it is a major public health problem for which policy-makers should increasingly be held accountable. The World Health Organization estimates that there are about 585,000 maternal deaths each year, with 98% of the maternal deaths in developing countries. In addition, approximately 20 million women suffer from severe morbidity resulting from being pregnant each year. Two-thirds of all infant deaths in developing countries are related to complications that occur during labor and delivery, and to the woman's general health and nutritional status before and during pregnancy. If the mother dies, this leaves children motherless with a multitude of additional problems. One of the means to decrease maternal mortality is for women to have access to family planning methods to space and limit the number of children they have. One of the factors that may sway policy-makers' decisions is the influence of ideological interest groups with their Political Action Committees (PACs) funding of federal candidates, and the influence of their lobbyists.

Methods. The relation between financial support of ideological interest groups' PACs and lobbyists, and the votes by members of the House of Representative on bills related to the financial support of international family planning in 1999 in the 106th Congress 1st Session was explored. Data from the Center for Responsive Politics web site www.opensecrets.org were utilized. The identity of the ideological interest groups, to whom the groups were providing funding, and the amount of funding these groups were providing were identified. How the members of the House of Representatives voted on bills that affected international family planning was

obtained from the web site of Population Action International. The information was analyzed from three perspectives. A general review to identify which ideological interest group PACs were providing funding in support of Federal Candidates in the 1997 to 1998 election cycle was carried out. The PACs were identified, the party they provided funding to, and the amount of funding they gave was itemized. Secondly, the ideological groups funding lobbyists and the amount of funding provided were itemized. Web sites of the groups were accessed and information on the groups was included to identify their agenda. Finally, how members of the Houses of Representatives voted on bills, which impacted on international family planning, was reviewed for a relation between how members voted and the amount of funding received.

Results. The Pro-choice funding of candidates was greater for five votes reviewed, with four of the votes coming out in favor of family planning. But the one vote, which did not favor international family planning, had major impact on this issue. In comparing the amount spent on lobbyists the Pro-choice lobbyist spending was \$185,000 vs the \$8,184,000 spent on lobbyists by the Pro-life ideological groups.

Discussion. Interest groups have influence on the votes of members of Congress based on the need for funding by the candidates to help them win and keep their seats. The Pro-choice PACs contributed more money to federal candidates than the Pro-life PACs, a possible reason that if their candidate is successful in their bid for a seat they are more likely to vote in accordance with the ideological PAC. Or these groups could have made more of their financial contributions via another means, supporting the groups who funded the lobbyist. Interest groups have the potential to dominate the policy-making process in favor of a narrow segment of the population and at the expense of the general public. Interest groups may also impact on the commitments made by government in international areas such as the International Conference of Population and Development in 1995 and at the Fourth World Conference on Women.

Health-care professionals need to be aware of the political processes that impact on health care — be aware that there are factors impacting on policy-makers' decisions beyond knowledge about an issue and the support of the majority of citizens. Given that the majority of citizens support the funding of international family planning, and the US had made financial commitments in the international arena to international family planning, individuals and groups will have to work to ensure that funding is not blocked by a few. The people who stand to lose in this situation have no power, they are not citizens of this county and they are poor. Advocacy from within the US can impact on these women and children and result in Safe Motherhood.

APPLIED OR BASIC RESEARCH

RACIAL DIFFERENCES IN MATERNAL INFECTIONS AND DELIVERY COMPLICATIONS

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Introduction. Black people have been found to have a higher incidence of infection during pregnancy. Maternal infection has been associated with pregnancy complications such as fetal distress, preterm labor and delivery, and preterm cervical change. This study examined racial differences in black people, white people, and Hispanics related to delivery complications in women exhibiting infection during pregnancy.

Method. A secondary data analysis using a clinical patient database (Perinatal Information System) at a tertiary care center was utilized. All in-born, live deliveries from 1999 to 2001 were included in the study sample ($N = 4229$). The sample was limited to Medicaid women to control for the case-mix reflective of a tertiary care center. Neonatal transfers were excluded because of a lack of maternal data on those deliveries. Descriptive statistics were conducted to explore racial differences in the occurrence of infection and in pregnancy complications (meconium, fetal distress, preterm labor, preterm delivery, Caesarian Section (C/S), and induction of labor) in women with infection.

Results. The study sample was predominantly black people (75%) and single (79%). Black people had the highest incidence of Group B Strep (GBS) and sexually transmitted disease (STD). Hispanics experienced the lowest incidence of STD and GBS. Hispanics with STD had the highest incidence of C/S delivery. Hispanics with an STD and those with GBS appear to have more of a problem with fetal distress and meconium than white or black people with STD or GBS. White people with GBS and those with STD had a significantly higher incidence of preterm labor, preterm delivery, and a higher incidence of induction of labor than both black people and Hispanics (Figure 1).

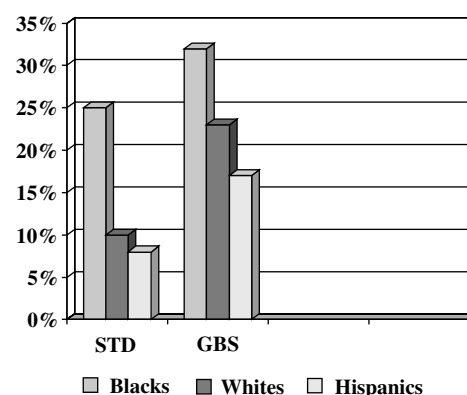


Figure 1. Racial Differences in STD and GBS during pregnancy.

Conclusions. The occurrence of infection (specifically, GBS and STD) during pregnancy differs by race. In addition, there appear to be racial differences in pregnancy complications and mode of delivery of women with infection during pregnancy. A better understanding of how infection affects pregnancy outcomes by race will assist in appropriate patient management of women with infection during pregnancy.

APPLIED OR BASIC RESEARCH

FACTORS ASSOCIATED WITH LOW BIRTH WEIGHT AND INFANT MORTALITY IN MEDICAID AND PRIVATELY INSURED WOMEN

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Introduction. Reducing low birth weight, infant mortality, and improving overall perinatal health are ongoing priorities for many state health officials. Clearly, knowledge of conditions most strongly related to poor perinatal outcomes is vital to guide program and policy development. The purpose of this study is to examine infant outcomes for 50,629 women who gave birth to live single gestation babies during years 1998 to 2000 and to describe differences found between the 28,362 women who were Medicaid recipients and the 22,267 women who were privately insured.

Methods. State resident 1998 to 2000 birth records and infant death records were matched to the state's newborn risk screening database to form a matched data set ($n = 53,404$). Records that identified multiple gestation pregnancies and records that contained unknown and/or self-pay as methods of payment for care were removed from the sample. Infant mortality, low birth weight (LBW = <2500 g) and 12 additional variables often associated with poor perinatal outcomes were examined. These variables included: parity, marital status, gestational age (GA), abnormal infant conditions, congenital anomalies, and maternal race, education, weight gain, alcohol use, smoking, maternal medical risks, and prenatal care utilization. χ^2 -tests were used to measure group differences and logistic regression analyses were applied to assess the variables effects on infant mortality and low birth weight.

Results. Factors strongly associated with infant mortality were: LBW, congenital anomalies, abnormal infant conditions, Medicaid enrollment and prematurity (GA <37 weeks). Medicaid enrollment was independently associated with a 3.8-fold increase in infant mortality. Medicaid clients were more likely to be single (five times), under 20 years of age (5.7 times), have less than 10 years formal education (eight times), to smoke (3.5 times) and to use

alcohol (2.2 times) during pregnancy, but did not differ in parity. When abnormal infant condition and congenital anomaly variables were excluded from the analyses, inadequate prenatal care utilization, and maternal medical risk emerged as additional risk factors for Medicaid clients, and maternal smoking emerged in the privately insured group. Infant mortality risks noted among term infants (GA ≥ 37 weeks) were: congenital anomalies for both groups and LBW, abnormal infant conditions, maternal education (<10 years), and maternal weight gain (<20 pounds) for the Medicaid group.

Maternal risks associated with LBW ($p < 0.001$) were: smoking, medical risk, low weight gain (<20 pounds), nonwhite race, Medicaid enrollment, and primiparity. Risk factors in the Medicaid and privately insured groups were essentially the same. However, among the Medicaid multiparous clients, maternal education (<10 years) and age (<20 years) became contributing factors not evident in the privately insured group. In the combined primiparous population, smoking ranked above low weight gain and maternal medical risk. In the Medicaid primiparous group, nonwhite race and maternal alcohol use also emerged as significant LBW risk factors.

Discussion. Clearly, Medicaid recipients were at significantly greater risk for poor perinatal outcomes. Continued emphasis on strategies to reduce prematurity and low birth weight for both groups of women is indicated. Noting that primiparous women appear at greater risk for delivering LBW infants suggests implementation of risk reduction interventions that target first-time moms both prior to conception and during pregnancy. The effect of low maternal weight gain on infant mortality and LBW strengthens arguments for further study into the nutritional needs of pregnant women and the significance of nutritional counseling for women who are anticipating pregnancy. The effects of maternal smoking on LBW emerged as a powerful risk factor second only to prematurity for multiparous women. This suggests a need for targeted application of possibly newer or more innovative smoking cessation approaches for these women.

APPLIED OR BASIC RESEARCH

AN EVALUATION OF FETAL AND INFANT MORTALITY REVIEW (FIMR) PROGRAMS NATIONWIDE Donna Strobino, PhD, Women's and Children's Health Policy Center, Bloomberg School of Public Health

Introduction. Fetal and Infant Mortality Review (FIMR) is a community-based strategy for identifying and addressing deficiencies in the perinatal health-care system that contribute to cases of fetal and infant death within a community. The FIMR process provides a forum for multidisciplinary discussion concerning the underlying causes of cases of fetal and infant death,

as well as a vehicle for the development and implementation of effective policies, programs, and services for improving the health and well-being of women and infants. Funded by the Federal Maternal and Child Health Bureau, the Women's and Children's Health Policy Center (WCHPC) at the Johns Hopkins University School of Public Health conducted an evaluation of community-level FIMR programs across the US in order to determine the impact of FIMR on perinatal health-care systems. This evaluation not only examined the improvements within community perinatal health-care systems resulting from FIMR, but also provided an assessment of the factors associated with the effectiveness of such programs.

Methods. Using a cross-sectional observational study design, local health department involvement in addressing essential public health functions was assessed based on the presence or absence of an FIMR program and/or other type of perinatal systems initiative (PI) within a community. Telephone interviews were completed with local health department (LHD) representatives in 193 communities. These interviews provided information on the organization, structure, and activities of local health departments; the organization and structure of perinatal services in sample communities; and the implementation of public health functions by LHDs. Additional interviews were conducted with representatives from 74 FIMR programs and 62 PIs concerning the organizational characteristics of these individual programs and their impact on public health activities and perinatal services, programs, and policies within the community. Analysis of the interview data from LHD, FIMR, and PI respondents involved quantitative, as well as qualitative methods. Community comparisons were made to determine the effects of FIMR on perinatal health-care systems and to assess the possible synergy of having both an FIMR program and a PI within a community. A total of 10 case studies were also conducted to augment the structured telephone interviews with more qualitative data, providing a more thorough understanding of FIMR programs within their community contexts.

Results. After adjusting for geographic region and population density, there were six public health functions in which LHDs in communities with an FIMR program were more likely to report public health activity as compared to LHDs in communities without an FIMR program: (1) data assessment and analysis; (2) client services and access; (3) quality improvement for systems of care; (4) partnerships and collaborations; (5) population advocacy and policy development; and (6) enhancement of the workforce. Similar results were also noted when comparing communities with a PI to communities without a PI. While FIMR programs and PIs each exhibited independent effects on the likelihood that an LHD engaged in specified public health activities, an even greater impact was documented for some activities within communities

having both types of programs. Among communities with FIMR programs, the length of time an FIMR program had been in existence; the extent to which FIMR directors, staff, and members had received training; and perceptions concerning the roles and attributes of individual FIMR programs each showed an influence on the extent to which LHDs engaged in specified public health activities.

Discussion. While findings from this evaluation indicate that FIMR can be an effective strategy for facilitating improvements within perinatal health-care systems through enhanced public health activities, the effectiveness of such programs appears to be strengthened when implemented in conjunction with other types of community-level perinatal system initiatives. FIMR provides an important mechanism for enhancing communication among providers of care, community agencies/organizations, and policy-makers, often resulting in the implementation of strategies to improve the systems of care available to women, infants, and their families.

APPLIED OR BASIC RESEARCH

LOCAL HEALTH DEPARTMENT PERSPECTIVES ON LINKAGES AMONG BIRTHING HOSPITALS

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Introduction. For the past several years, concerns have arisen about the organization of perinatal health care in communities across the country. These concerns focus on increases in the numbers of hospitals providing more specialized perinatal health care, disruptions in linkages among hospitals, and the dearth of information on the organization of hospital-based perinatal care in local communities. The purpose of this report is to describe these aspects of the perinatal health-care system in local communities, focusing on linkages among hospitals, the nature of these linkages and their relation to state guidelines for perinatal care. Components of the perinatal health services system and collaborations among hospitals and agencies were assessed in local communities as part of a nationwide evaluation of Fetal and Infant Mortality Review (FIMR) programs, funded by the federal Maternal and Child Health Bureau.

Methods. The FIMR evaluation was a cross-sectional observational study, in which geographic units were sampled based on the presence or absence of an FIMR or other perinatal systems initiative (PI). To draw the sample, 254 US counties and metropolitan areas were divided into four types of communities using data collected from a survey of state and metropolitan Maternal and Child Health program directors, and information from the National FIMR program. They were communities: (1)

with an FIMR and another PI; (2) with an FIMR only; (3) with a PI only; and (4) with neither an FIMR nor a PI. Other factors considered in sample selection were: geographic region (East, Midwest, South, West); state representation; metropolitan areas versus counties; and population density (for counties only). For each community, a representative of the LHD was contacted to participate in a telephone interview, of which 76% ($N = 193$) agreed to do so, and 188 provided data about hospitals in their communities. The LHD interview contained questions about community interactions, structure and organization of the LHD, and the structure and organization of perinatal services in the community for 1996 to 1999. Many questions used for this study were included as background to measure the context of communities in which FIMR programs were implemented.

Results. There was at least one hospital that provided maternity care in all but 12 sample communities. In the 48 communities with only one hospital, 52% were Level I hospitals and the majority of the remainder, Level III/IV hospitals. There was a change in the number of hospitals providing perinatal care in 49 (26%) communities; among the 31 communities in which there were changes in the number of Level I hospitals, two-thirds of the changes were decreases, while for the 26 communities in which there were changes in the number of Level II or Level III/IV hospitals, over half were increases in numbers. Changes in provider relationships in these communities were related to referrals of medically high-risk mothers and newborns but not to referrals of women to psychosocial services.

A total of 63% of LHD respondents reported that there were state guidelines for the designation of levels of perinatal care. In all, 76% reported linkages among local hospitals providing maternity care, and 65% reported linkages among tertiary (regardless of location) and nontertiary hospitals. Where linkages were reported, they included: emergency transport of women with pregnancy complications (66%) or in preterm labor (70%), obstetric consultation and referral (69%), pediatric or NICU consultation (74%), emergency transport of newborns (75%), and back transport of infants (50%). Hospital linkages were more frequently reported in areas where there were state guidelines (87%), regardless of whether or not they were formal, than where there were none or unknown (58%). Linkages among hospitals were noted related to the number of hospitals in the community or the location of the nearest tertiary hospital.

Discussion. Our study findings indicate there were changes in the number of maternity care hospitals in at least one-quarter of our sample communities, and that these changes were accompanied by changes in relationships among providers of high-risk care for pregnant women and newborns. State guidelines for levels of perinatal hospital care appear to be a positive influence on linkages among local hospitals.

MODELS OF CARE

DEVELOPMENT OF A LINKED EARLY HEARING DETECTION AND INTERVENTION (EHDI) REGISTRY

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Introduction. To develop a model of care to ensure early identification and intervention for infants and children with hearing loss, through development of a comprehensive EHDI registry, linking data from the Electronic Birth Certificate (EBC) system, follow-up diagnostic evaluation forms, the Special Child Health Services (SCHS) Registry, and early intervention programs.

Methods. Mandatory universal newborn hearing screening legislation became effective on January 1, 2002 in New Jersey. The New Jersey Department of Health and Senior Services (NJDHSS) is establishing an EHDI registry to ensure that all children are appropriately screened, diagnosed, and enrolled in early intervention services.

New Jersey's EBC system includes data on risk factors for hearing loss and hearing screening information. Follow-up forms are submitted to the NJDHSS by audiologists and physicians performing the diagnostic exam on children who failed screening. This information is entered into a database and matched to EBC data.

Children diagnosed with hearing loss are cross-linked with the SCHS registry, an existing confidential registry in New Jersey of children who have special health-care needs or who are at risk for developing such needs. State law requires that children with a birth defect diagnosed by age 1 year be reported to the registry, and all children aged 0 to 21 years with any hearing loss must also be reported to the registry. All registered children are referred to case management within 10 days of registration.

The final linkage for the hearing screening registry is a match with the Early Intervention Program. Data will be linked with a statewide initiative called One EZ Link to ensure that children are receiving timely and appropriate EI services.

Results. The New Jersey EHDI Program is implementing this data linkage and tracking system. First-quarter 2002 preliminary registry data indicates that 93.1% of infants received hearing screening, with a screening failure rate of 5.2% (1021 infants). Diagnostic follow-up forms have been received for approximately 500 infants. Historically, the SCHS registry each year received reports of 113 to 205 children with hearing loss, and previously 12.8% were registered by the child's third month of life. The expectation is that the EHDI program will promote earlier registration and intervention. There are currently 106 children with hearing loss actively receiving Early Intervention Services in New Jersey.

Conclusions. The development of an early hearing detection registry will help ensure that children with early hearing loss are identified, provided necessary services, and that service gaps are identified and remedied. The use of existing databases (EBC, SCHS Registry, Early Intervention), integrated with the newly developed hearing follow-up database, yields a cost-effective and highly efficient method of developing a newborn hearing screening tracking system.

MODELS OF CARE

COMMUNITY COLLABORATION IN THE EARLY HEARING SCREENING PROGRAM

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Introduction. Congenital hearing loss has been recognized for years as a serious disability for affected children. Many children have experienced a delay in diagnosis for up to 24 to 36 months of age. Since 1995, there has been impetus to promote screening all newborns for hearing loss. The Michigan Department of Community Health, in conjunction with the Michigan Department of Education, the Michigan Health and Hospital Association, state and community advocacy groups initiated a program in 1997 to promote early identification of hearing impairment through voluntary hospital-based screening.

Methods. In 1997, only five hospitals had implemented hearing screening for all infants. Michigan now has 102 of 103 hospitals providing screening for a total of 93.81% of all infants. In 2000, 72% of newborns with bilateral refer screens received diagnostic outcomes. Public health nurses, infant and family services and medical home play an important role in encouraging families to seek follow-up. In 2000, 175 infants (1.92 per 1000) were diagnosed with hearing loss. In 2002, 52% of infants with hearing loss, had documented enrollment in early intervention services. Michigan's birth rate is approximately 134,000 per year.

Results. Community collaboration involves the grassroots networking efforts to establish the program's foundation. The multidisciplinary community educational approach has contributed to the success of this endeavor. The program established a statewide comprehensive system sustainable over time which reflects consumer and provider input to assure a continuum of community-based, family-centered, culturally competent service.

Discussion. The design assures screening for all Michigan newborns with linkages to the medical home and appropriate intervention, increased public awareness, enhanced professional knowledge and refined collaborative services to meet national provider and parent goals. The goals of the program are: (1) to

screen all newborns by 1 month of age; (2) have diagnostic outcomes for rescreen by 3 months of age; and (3) early intervention for children with hearing loss by 6 months of age.

MODELS OF CARE

PEER COUNSELING & SUPPORT PROGRAM FOR PARENTS OF BABIES IN INTENSIVE CARE

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Introduction. Parents Reaching Out, Inc., a nonprofit, community-based organization, provides support and encouragement to women experiencing a high-risk pregnancy and to parents of premature or critically ill newborns in a neonatal intensive care unit (NICU). The Peer Counseling & Support program is aimed at long-term solutions in the area of preventive health care for both parents and premature babies with the goal of helping parents become more effective caregivers so that babies receive more intensive and cost-effective health care. Parents Reaching Out was founded in 1983 by Derenda Hodge, RN, MSN, and clinical nurse specialist in the NICU at Vanderbilt Children's Hospital. In 1997, another aspect of services began with a weekly support group meeting at Vanderbilt at the request of social workers and NICU staff. The program has grown from serving 34 families in 1983 to serving 2228 families in 2001.

Methods. The program offers counseling by volunteer parents who have faced similar challenges with the birth of a premature baby or critically ill newborn. Peer counselors are screened and trained to listen and to share caregiving tips and coping strategies that worked for them. The Director of Outreach Services matches as closely as possible the medical conditions faced by new parents with a Peer counselor who has faced similar conditions and who listens with understanding and offers both practical and emotional support. Peer counseling is offered at the bedside in the hospital, through a weekly hospital support group, and by telephone. Services for parents include cards of encouragement, book loan program, and referrals to other agencies for special needs beyond Peer Counseling.

Results. For the program to serve large numbers of parents effectively, the following are necessary components of the Peer Counseling & Support program:

- a paid coordinator to direct the program
- collaboration with the hospital that includes presence of peer counselors at bedside;
- a variety of services to meet the many different needs of families.

Discussion. Peer Counseling & Support Program is a model of care for those wanting to offer support to parents who experience

high-risk pregnancy or the birth of a premature or critically ill infant. Implication for parents of babies in intensive care includes, but is not limited to the following:

- reduced stress through increased feelings of control over their lives and their baby's life and increased awareness of choices to ensure parent/child bonding;
- increased feeling of hope for a positive outcome for their baby;
- increased awareness and ability to be a parent advocate for their high-risk baby;
- increased confidence in their ability to perform basic to complex caregiving tasks when their child goes home;
- increased awareness of the importance of postdischarge primary health care, including selection of a pediatrician, follow-up exams, immunizations, and community resources available to help after discharge.

Implication for hospital staff includes the following:

- improved rapport between staff and patients' families;
- increased awareness of parents' need to relate to other parents of babies in intensive care;
- decreased stress for staff trying to fulfil emotional needs of families.

MODELS OF CARE

COMMUNITY BABY SHOWER AND BABY SAFETY SHOWER: USING CELEBRATORY EVENTS TO DELIVER HEALTH EDUCATION MESSAGES

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Introduction. Healthy Mothers Healthy Babies Atlantic City (HBMHBAC), the recipient of a Healthy Start grant to address racial disparities in infant mortality, provides outreach, case management services and community and individual education to pregnant women and young families in Atlantic City New Jersey. HMHBAC is a program of the Southern New Jersey Perinatal Cooperative, a licensed Maternal Child Health Consortium. HMHBAC outreach staff realized that many of their clients and families did not have a social support network that would organize a baby shower for them.

Method. In order to help these women celebrate the impending birth of their babies, HMHBAC invited 30 first-time mothers to a Community Baby Shower. This day-long event interspersed traditional baby shower games with more formal presentations on health issues, such as choosing a pediatrician, newborn care, infant feeding choices, and nutrition during pregnancy. Participants were encouraged to enrol in childbirth classes.

Community agencies participated by providing speakers or take home information. HMHBAC members contributed door prizes and nutritious foods were offered throughout the day. The Baby Safety Shower was a follow-up event that addressed home safety issues and infant development topics. Fathers were welcomed at both events.

Results. The first year HMHBAC sponsored the event, attendance was disappointing, despite a large advance registration. Based on this, staff over-recruited for the second year and involved fathers as well. As a result attendance doubled. Participant evaluations were taken into consideration when planning subsequent events.

Discussion. Traditional health education methods can be delivered during the course of fun celebratory events. These events are often more attractive to the target audience and can also gain participation of other family members.

MODELS OF CARE

MOM'S QUIT CONNECTION: A CONSORTIA BASED PERINATAL SMOKING CESSATION PROGRAM

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Description. The Southern New Jersey Perinatal Cooperative (SNJPC) is a nonprofit consortium of health-care professionals and consumers joined by a common interest in improving the health of pregnant women, infants, children, and adolescents in the seven counties of Southern New Jersey. Funding became available in the summer of 2001 from the Tobacco Master Settlement Agreement and the New Jersey Department of Health and Senior Services, Comprehensive Tobacco Control Program, for SNJPC to develop a demonstration project addressing the problem of perinatal smoking. The goal of the program is to reduce smoking amongst pregnant women, mothers of young children and other caregivers. After conducting an informal needs assessment amongst providers and formal focus groups of pregnant women and new mothers, Mom's Quit Connection (MQC) was created.

Method. Mom's Quit Connection uses several strategies to reach providers and consumers. MQC staff utilize the Cooperative's extensive professional and community networks to involve maternal child health physicians, clinical and office staff, Healthy Mothers/Healthy Babies outreach staff, WIC offices, and day-care providers in educating and referring maternal smokers to cessation support services. Efforts focus on increasing awareness among MCH providers (including OB/PEDS clinicians, nurses, office and support staff) of the need to consistently assess smoking status, educate about the risks of smoking and facilitate referral to

treatment. MQC staff conduct ongoing hospital Open Houses, and office-based Lunch and Learns for the staff of OB Clinics, private OB offices, and WIC and Healthy Mothers/Healthy Babies sites. All providers are given client referral packets, which include a rolodex card, brochures, posters for waiting and exam rooms, and preprinted Rx pads to facilitate referral. Providers are also supplied with preprinted, prestamped postcards to be signed by the client, serving as consent for MQC staff to follow up with the client and provide additional information about the MQC program.

Clients who express interest in reducing or quitting smoking are seen by the MQC certified cessation counselor who uses case management skills to develop a personal quit plan. Individual counseling helps clients to identify barriers to quitting, potential triggers, and a plan of action to overcome triggers. Since relapse is so high among new mothers (almost 70% return to smoking by the baby's first birthday), a postpartum plan to remain smoke free is discussed. MQC has created a special mom's journal, since writing down one's thoughts is a successful cessation strategy. Since many pregnant women have issues with transportation and child care, case management sessions are scheduled in convenient locations familiar to the pregnant women, such as OB offices, clinic offices, hospitals, and WIC offices.

Clients are also offered the option of participating in Mom's Support Groups. Group topics focus on life skills needed to empower new mothers to quit and remain quit, addressing issues of stress management, communication, and self-esteem.

Client education and community outreach represent another key component of MQC program. Information and educational programs about the dangers of maternal smoking and the association of smoking with childhood illnesses are offered in a variety of settings: classrooms of alternative high schools, drug treatment programs, hospital wellness programs, and community-based health fairs. Client education may be in the form of a game played in the OB clinic waiting room, or occur on the road in the specially equipped 'Quitmobile', a large van that serves as a mobile counseling unit, and resource library.

Discussion. Having a baby can be an excellent incentive to motivate women in making the positive lifestyle changes, including quitting smoking. It is also a time when women are intimately connected to the health-care system, providing key opportunities for intervention. It is also a time, however, of considerable change, since pregnancy affects family relationships, lifestyle, and financial circumstances. Stress is consistently cited as the number one reason that pregnant and parenting women are unable to quit smoking.

This challenge is further complicated by the fact that cessation treatment (i.e. nicotine replacement products and Pharmaceuticals) is more limited for pregnant women. Many OB practitioners are unfamiliar with nicotine replacement products, unaware that "clean nicotine" in these products is considered less

harmful than the known carcinogens in cigarettes. Providers must be educated about treatment options and the importance of their role in assisting pregnant and parenting women to quit smoking. Smoking cessation programs must collaborate with other health care, education and community-based efforts to increase awareness of the dangers of maternal smoking and harmful effects to young children.

Smoking cessation efforts for expectant and parenting women must be conveniently located, accessible, affordable and flexible in order to compete with the conflicting priorities of being a new mom. Cessation treatment services must also be made available for other family members living in the home. Every small step toward quitting must be applauded if moms are going to believe in themselves and successfully become and remain smoke free.

YOUNG INVESTIGATORS

AN EXPLORATORY FACTOR ANALYSIS OF THE PERINATAL POSTTRAUMATIC STRESS DISORDER QUESTIONNAIRE, REVISED

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Introduction. Many quantitative and qualitative studies have identified symptoms of post-traumatic stress disorder (PTSD) in mothers after the birth of both full-term babies and premature infants hospitalized in a neonatal intensive care unit. The Perinatal PTSD Questionnaire (PPQ) is a self-report inventory designed to identify symptoms of PTSD that are related to the childbirth experience and the ensuing postnatal period. Using the PPQ, DeMier, Hynan, Harris, and Maniello (1996) and DeMier, Hynan, Hatfield, Varner, Harris, and Maniello (2000) found that mothers of high-risk infants reported more PTSD symptoms than mothers of full-term, healthy infants. These findings were later replicated in two separate investigations. Additionally, investigations of the convergent and divergent validity of the PPQ suggest the instrument has sound construct validity.

Research question. The PPQ was revised (now called the PPQ-II) from a yes/no answer format to a 5-point Likert scale rating of each question to facilitate factor analyses. This investigation sought to determine if the three primary symptom categories of PTSD (intrusive recollections, avoidance with numbing of responsiveness, and hyperarousal) would be reflected in the factor structure of the PPQ-II.

Methods. Both mothers and fathers of full-term, premature, and otherwise medically fragile infants were surveyed regarding their experience of the perinatal period. Parents were recruited from (a) conferences that parents of premature infants often attend,

(b) undergraduate psychology classes at the University of Wisconsin-Milwaukee, and (c) the Internet.

Results. Data from 89 participants were analyzed. Exploratory principal components analysis identified three components with eigenvalues greater than 1. An examination of the scree plot indicated strong evidence for a primary factor (accounting for 43.6% of the total variance). Two additional factors accounted for 10.9, and 8.8% of the variance, respectively. Every item on the PPQ-II had factor loadings >0.35 on the first factor, interpreted as symptom severity. The second factor consisted of a mixture of intrusive (upsetting memories), avoidance (of both thoughts related to childbirth and activities that might stimulate such thoughts and feelings), and guilt components; but a denial of other hyper arousal symptoms. The third factor was comprised primarily of intrusive symptoms along with a denial of cognitive avoidance of thoughts about childbirth and the baby's hospitalization.

Discussion. The factor analytic findings are considered preliminary, with more participants required to determine a reliable factor structure for the PPQ-II. Early results suggest that the three symptom groups of PTSD (intrusions, avoidance, and hyperarousal) do not clearly emerge in the factor analysis as distinct factors. There are a number of possible reasons for this. Previous research has shown strong correlations of other measures of PTSD with a general neuroticism factor. The large first factor extracted in our factor analysis is consistent with this view.

YOUNG INVESTIGATORS

INFORMATION AND SUPPORT GIVEN BY INPATIENT NURSES, MATERNAL FACTORS, AND BREASTFEEDING SUCCESS

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Introduction. The importance of breastfeeding has been well documented in the literature. Physiological benefits are decreased risk for postpartum hemorrhage in the newly delivered mother, and decreased risk of infection in the infant. Indirect benefits of breastfeeding result from reduced cost of infant feeding. Breastfeeding has also been found to enhance the maternal/infant psychologic bonding process. In 1999, the Association of Women's Health, Obstetrical, and Neonatal Nurses supported the role of nurses in breastfeeding and stated it is the nurse's responsibility to foster an environment conducive to breastfeeding. However, it is unclear in the literature what impact inpatient nurses have on the success of breastfeeding. Some studies indicate nurses have a positive impact, while others demonstrate nurses either have little impact or a detrimental influence on breastfeeding success.

Research questions. A prospective, exploratory design was used to answer the following four research questions: (1) What is the relation between information provided by in-patient nurses and breastfeeding success at 6 weeks postpartum? (2) What is the relation between support provided by in-patient nurses and breastfeeding success at 6 weeks postpartum? (3) Is there a difference in breastfeeding success between exclusive and mixed feeders? (4) What are the maternal factors that predict breastfeeding success at 6 weeks postpartum? The maternal factors used were based on a review of the literature and organized within the framework of Cox's Interaction Model of Client Behavior (1982).

Methods. Mothers were recruited from eight hospitals in two metropolitan Southwestern cities between April and August 2001. Prior to recruitment, permission to conduct the study was obtained from each facility, the Institutional Review Board at Arizona State University, and the researcher's thesis committee. The researcher attended 64 childbirth classes to invite volunteers to participate. To be included in the study, mothers needed to be 18 years of age or older, delivering a singleton gestation, planning to breastfeed, able to read and write in English, and volunteering to participate in the study once informed consent was obtained. To continue participation in the study, mothers needed to deliver a term infant between 37 and 42 weeks gestation without maternal or neonatal complications that would require intensive care.

Mothers were asked to complete a prenatal survey and record keeping card. They were then provided a 2- and 6-week postpartum survey to be completed and returned to the researcher at their respective times in the return envelopes provided. At that time, participation in the study would be complete. The record keeping card was used to track delivery date and receipt of the 2- and 6-week surveys. If the researcher had not received the surveys in a timely manner, every effort would be made to contact the participants to ensure their input was included in the study.

Data collected from the prenatal, 2-, and 6-week postpartum surveys included demographic data, a social support instrument developed by the researcher, and six established instruments. The Breastfeeding Knowledge Questionnaire, Form A, and Form B assessed prenatal and postnatal breastfeeding knowledge. These questionnaires were created by Hill in 1987. The breastfeeding coping confidence scale was developed by Lawson and Tulloch in 1995, which measured the affective response to breastfeeding. Information and support scales developed by Cornett in 1989 were used to assess the breastfeeding information and support given by inpatient nurses. The Maternal Breastfeeding Evaluation Scale designed by Leff, Jefferis, and Gagne in 1994 was used to measure the independent variable, breastfeeding success.

Analysis of Research Questions One and Two was completed using the Pearson product-moment correlation. The independent *t*-test was used to analyze Research Question Three, and a simultaneous multiple regression analysis was used to test

Research Question Four. Univariate and bivariate analyses, and cross-tabulation was used to examine demographic and other informational data collected in the study.

Results. A total of 420 women were initially recruited. At 6 weeks postpartum, 89 women had discontinued breastfeeding, 22 women were excluded because of eligibility requirements, and 73 women either desired to be withdrawn from the study or were unable to be contacted by the researcher, leaving 230 mothers for analysis. The sample was primarily Caucasian and married. Median age was 28 years, with the median education category of either having some college or possessing an associates degree. The median income category was \$60,000 to \$69,000. Most participants were first-time mothers who experienced a vaginal delivery.

There was a significant, but weak positive correlation between information given by in-patient nurses and breastfeeding success at 6 weeks postpartum ($r = 0.242, p < 0.001$). This finding explained 5.9% of the variance ($r^2 = 0.59$) between information given by in-patient nurses and breastfeeding success. A similar correlation was found between support given by in-patient nurses and breastfeeding success at 6 weeks postpartum ($r = 0.217, p < 0.000$), explaining 4.7% of the variance in breastfeeding success.

No difference was found in breastfeeding success for mothers who were considered exclusive breastfeeders (feeding breast milk in any form) or mixed feeders (feeding breast milk and formula in any form) ($t(228) = 1.169, p = 0.24$). The majority of mothers exclusively breastfed their infants from birth to 2 weeks. This rate decreased by 13.4% at 6 weeks postpartum. Despite a range in patterns of infant feeding, no difference was noted between exclusive and mixed feeders for infant weight gain at 6 weeks postpartum.

To answer Research Question Four, 19 predictor variables were entered into a multiple regression model and analyzed simultaneously. This method of analysis was felt to best address the multidimensionality of the breastfeeding process. Possessing breastfeeding confidence and having positive social supports for breastfeeding were found to be predictor variables of breastfeeding success in this sample. The overall adjusted R^2 was 0.257, accounting for 25.7% of the variance. The model was significant at the 0.000 level.

Additional findings revealed mothers relied on use of the father of the baby, their mother, and friends for the greatest amount of social support. Also the number of mothers who pumped to feed or supplement their infants with breast milk increased by almost 50%

between 2 and 6 weeks postpartum. However, when surveyed, mothers stated the most significant social supports for breastfeeding were not included in breastfeeding instruction while in the hospital. Mothers also indicated the need for more information on let down, maternal nutrition, and how to pump breast milk.

Discussion. These findings suggest that the information and support in-patient nurses provide do positively impact breastfeeding success at 6 weeks postpartum. Finding innovative ways to provide the breastfeeding information and support that empowers a mother's breastfeeding confidence can enhance her breastfeeding efforts. Utilizing the mother's closest social supports in her breastfeeding efforts may also serve to provide a beneficial resource both in the hospital and once discharged to home. Through tailoring of information and support offered, nurses can provide the anticipatory guidance mothers need to establish and maintain breastfeeding success.

This study was limited by generalizability of the sample. Mothers in this study were primarily Caucasian, affluent, married, and 18 years of age or older, which was not representative of the population as a whole. Further, since intent to breastfeed was a criterion for inclusion in the study, there was a natural selection bias. These mothers may have been more motivated to initiate and continue breastfeeding.

Inclusion of several variables was used to capture the complexities of the theoretical framework. However, using several variables within the regression model can make it difficult to replicate and reproduce the same set of predictor variables in a different population. Additionally, entry of a large number of variables in the model may have tended to underestimate the predictive capacity of variables that might otherwise have been significant. Low reliability of the Breastfeeding Knowledge Questionnaire, Form B in this sample may have further decreased the magnitude of the correlation coefficient.

Due to these recognized limitations, recommendations for future studies include sampling from varying demographic backgrounds, to include those younger than 18 years of age, who are less affluent, with limited social supports, and with greater cultural diversity. Finally, future research should include research utilization studies based on the findings from this study. Since regions in which this study were conducted have high breastfeeding rates, ideal locations may be places where breastfeeding rates continue to be low.