Improving Maternal and Child Health Outcomes:
Family Medicine Obstetrics and the HRSA Perinatal Collaborative Project

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Abstract

Maternal and child healthcare is experiencing great challenges, as many physicians are becoming increasingly reluctant to serve high-risk populations. From 2004 to 2006, the Health Resources and Services Administration (HRSA) led a quality improvement effort known as the Perinatal and Patient Safety Pilot Collaborative (PPSPC) to improve perinatal patient safety and reduce the ethnic disparities in low birth weight and infant mortality, focused on the historically under-served and high-risk populations. Constructing individualized health plans require recognition that pregnancy and childbirth are an important part of a continuum of life experiences. A myriad of events and circumstances both prior and subsequent to pregnancy are invariably linked to the eventual outcome for women and their children. Improving efficiency and effectiveness of care requires greater communication among different providers and the various community networks. Greater effort and emphasis must be placed on recruiting and retaining the health profession's workforce and training future family physicians as skilled in providing the full spectrum of maternal child healthcare.

Introduction

Maternal and child health is a field of care that is experiencing great challenges. There has been a declining interest in recent years in primary care specialties among medical school graduates in the United States. Statistics show that the number of physicians choosing primary care is not concordant with the needs of the general population.[1] Furthermore, an increasing number of family physician graduates have chosen not to practice obstetrics over the past decade.[2,3] The trend among obstetrician/gynecologists is also moving away from providing maternity care, due in part to the reluctance of providers to deal with high-risk patients. The lack of perinatal care, combined with the shortage of health professionals in a majority of regions in the United States, has resulted in a large discrepancy between need and availability of physicians providing perinatal and maternal care to at-risk, underserved, or rural communities.[4] The result is a crisis in maternal and child healthcare in communities most in need of care, as discussed in detail in the companion article, "Who Will Deliver Our Babies: Crisis in the Physician Workforce."

The disparities between need and availability of perinatal and maternal care have been associated with similar disparities in health outcomes among high-risk communities. Significant differences exist in perinatal outcomes between women in rural and urban areas.[5] The infant mortality rate among non-Hispanic black mothers is more than three times the rate for non-Hispanic white mothers.[6] Furthermore, the disparity in infant mortality rates between African-Americans and Caucasians has not only persisted but increased in recent history and is not expected to diminish in the near future.[7,8] Similar disparities in perinatal health outcomes exist among mothers of divergent income and educational statuses.[9] Recent research has suggested that a lack of adequate healthcare provision is to blame for the disparities in perinatal health outcomes.[10] Improvements in perinatal outcomes realized thus far have occurred primarily at Level 3 facilities.[11] The lack of availability of appropriate healthcare services in at-risk communities and for high-risk mothers has led to a major divide in the maternal and child health outcomes for patients in underserved and at-risk areas.

Issues of practicality prevent all patients in need of perinatal services from receiving specialized care by an obstetrician/gynecologist. Furthermore, the importance of continuity and follow-up care for both mother and child places family medicine physicians at a unique position to provide the most appropriate care for at-risk mothers.[12] Given the lack of adequate care in rural and otherwise underserved areas, family medicine physicians can fill an important need by providing both maternal and newborn health services, a task that cannot be rectified by obstetricians or nurse-midwives alone. A discussion of the Family Medicine Obstetrics Fellowship is discussed in the companion article, "The Maternal and Child Health Model:

Promoting Quality Improvement through a Family Medicine Obstetrics Fellowship."

The HRSA Perinatal Collaborative Pilot Project

Over a two-year period ending in 2006 the Health Resources and Services Administration (HRSA) led a national quality improvement effort known as the Perinatal and Patient Safety Pilot Collaborative (PPSPC). This pilot project focused on strategies to improve perinatal patient safety in general and, more specifically, to reduce the racial and ethnic disparities in low birth weight and infant mortality. In this pilot project the Maternal and Child Health Bureau (MCHB), the HIV/AIDS Bureau (HAB), the Bureau of Primary Health Care (BPHC) (three bureaus within HRSA) as well as the HRSA Office of Rural Health Policy (ORHP) collaborated with the Office of Minority Health in the Office of the Secretary of the Department of Health and Human Services (DHHS) to sponsor a new community of practice that followed the approach for improvement developed through the Health Disparities Collaboratives (HDC) that have been widely disseminated among the nation's federally qualified Community Health Centers (CHC).[13,14,15] The HDC targeted conditions including diabetes, cardiovascular disease, depression, asthma and cancer that are known to disproportionately affect minority and historically underserved populations. The quality improvement model as developed in the HDC combined Ed Wagner's Chronic Care Model developed at the McColl Institute,[16] the Improvement Model developed by Associates in Process Improvement; and the Breakthrough Collaborative developed by the Institute for Healthcare Improvement (IHI) and have been written at length elsewhere.[17,18,19,20]

The Perinatal and Patient Safety Pilot Collaborative (PPSPC), as with the other HDC collaboratives, was initially developed with the assistance of recognized national leaders in both healthcare improvement and the specific clinical conditions. In prior HDC projects this role was fulfilled by the Institute for Healthcare Improvement (IHI), and in the PPSPC it was carried out by leaders from the National Institute for Child Healthcare Quality (NICHQ). HRSA and NICHQ assembled a faculty with expertise in the subject matter and then recruited five CHCs. The CHCs were selected based on factors including experience serving the target population, an infrastructure for performance improvement, and prior experience with the HDC models. In addition, a priority was to include communities focused on improving the rate of outcomes of African-American Infant Mortality, which was worsening in the national trend lines. The lead author served as Chief Medical Officer for one of the five CHCs, PCC Community Wellness Center in Chicago, Illinois, and worked closely with the Faculty, NICHQ, and HRSA team throughout the pilot project.

One of the main reasons PCC Community Wellness Center was selected as a site for the PPSPC is the community which it serves. Austin, an overwhelmingly African-American community located on the western border of Chicago, is the largest urban Chicago community. Like many inner-city communities, it contains a large, underserved healthcare population. Compared with the greater Chicago area, Austin suffers from higher rates of infant mortality, teen births, and low birth weight neonates. The academic linkage PCC has to OB training programs was also a decisive factor.

This paper describes the "lessons learned" in three specific content areas of the Perinatal and Patient Safety Pilot Collaborative (PPSPC) that are of particular relevance to the field of Family Medicine Obstetrics and does not represent a detailed analysis and review of the PPSPC in its entirety. It is imperative to note that the three content areas are offered in support of the standard and customary clinical approach to perinatal care, which form the foundation for patient safety and risk management, and are in no way intended to represent an alternative or deviation from those standards.

The first content area arises from the recognition that pregnancy and childbirth are an important part of a continuum of life experiences and that a myriad of events and circumstances, both prior to pregnancy and subsequently, are invariably linked to the eventual outcome for women and their children (see Figure 1). This has been referred to as the "life course perspective" and is well described by Michael Lu and others.[21] We know, for instance, that the traditional tools to assess and stratify for clinical risk factors during pregnancy fail to predict poor outcome more than half of the time. Including attention to the life course perspective in terms of the organization and content of perinatal care requires a more comprehensive approach than has been the norm. Environmental, social, psychological, and educational factors can be at least as important to the pregnancy outcome as are the customary medical and genetic conditions we appropriately and routinely screen for and attempt to address. Nowhere is this more apparent, it seems, than in the very populations which continue to suffer the worst perinatal outcomes – poor outcomes that persist despite increasing availability of "world class" institutions, providers, and technology. Inherent in a comprehensive perinatal model is a thoughtful and patient-centered coordination of care for the mother and her child. Support for both the psychological and physical well-being of the mother is thought to favorably impact the health of the child. A detailed discussion of the psychosocial factors affecting maternal health can be found in the companion article, "Addressing Psychosocial Determinants in Poor Birth Outcomes: Enhanced Screening in Family Medicine Obstetrics."

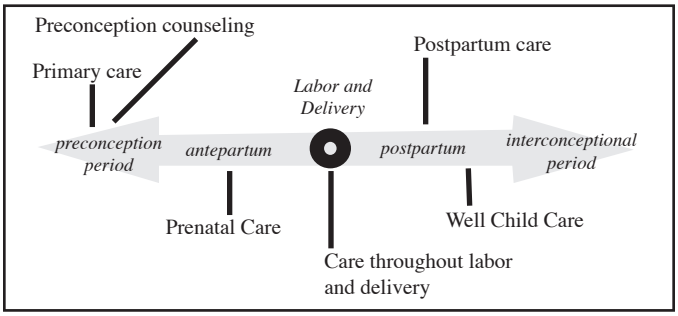

Figure 1: Life Course Perspective

The second content area involves the process for communication among and between different providers and the various sources of care for perinatal patients. In our setting this includes the community health center sites, the affiliated community hospital, the emergency department at our hospital and others in the area, referrals to several different regional medical centers, as well as various community resources and service agencies. Sharing appropriate information among these sources through established protocols can be essential to providing optimal care for those most in need.[22] For the past several decades family physicians across the country have been extraordinary in attending their patients through the entirety of pregnancy, labor and delivery, and subsequent care for mother and child. However, for many reasons the call to fulfill this expectation is answered by fewer and fewer. In many settings, including ours, continuity of care is severely challenged by shared call schedules, busy clinics, and competing personal and professional obligations, such that the care of a patient cannot be dependent upon the memory of the primary provider. Though promising and much anticipated, access to a shared electronic health record across the breadth of providers and agencies as described above is far from a reality. The combination of various paper and electronic forms of health information for our patients are securely and separately stored by each organization and shared with caution, under penalty of law, which can easily become a barrier to comprehensive, patient-centered care.

The third content area involves aspects of the workforce as it relates to perinatal care. At our program this involves the training of future family physicians as skilled in providing the full spectrum of maternal child healthcare as described herein. We are facing physician shortages, particularly in rural and at-risk urban communities, at a time when the need for comprehensive, evidence-based and patient-centered primary care has never been greater. In communities that lack access to Obstetricians, either due to physician shortages or restrictions based on financial indicators, Family Medicine physicians must be able to provide care for both routine and complicated perinatal patients. This skill set includes diagnosing and treating medical and psychosocial conditions for perinatal women and children as well as operative delivery.

Perinatal Care: Before, During, and After Birth

The Perinatal and Patient Safety Pilot Collaborative (PPSPC), as it has been applied in our setting, is based on a Family Medicine model of care that focuses comprehensively on improving maternal and child health outcomes in underserved communities. The clinical programs are staffed primarily by Family Medicine physicians, including many with Maternal Child Health/Obstetrics (MCH/OB) fellowship training, but also includes Obstetricians, Pediatricians, Psychiatrists, Nurse Practitioners, and Social Workers. The range of faculty and providers works collaboratively to provide evidence-based comprehensive care.

One of the foundations of the collaborative care model is providing care at the earliest possible stage. Even before conception, maternal counseling provides the necessary preparation for the perinatal period. PCC and its partners emphasize the importance of individualized care as well as ongoing and prospective care management. Furthermore, active patient participation, coupled with a proactive healthcare team, and the setting of patient self-management goals result in increased adherence to a healthcare plan that, ideally, patients help to develop. In many inner-city communities, the rates of crime, such as violence and illicit drugs, can be high. Many opportunities exist for healthcare providers to advocate for a safe and healthy environment for the mother during the antepartum period, as shown in Figure 2. The mother's mental and physical health is extremely influential on the health of the child. Therefore, healthcare providers must be trained to identify high-risk lifestyle behaviors, stressors, and health misconceptions, and provide the most supportive environment possible to rectify behavior that might endanger maternal and child health. Preconception and prenatal periods are opportunities for education, when the physician and other staff can provide important maternal child health resources and information and can reinforce the importance of identifying and reducing the cause or impact of stress.

During the delivery period, Family Medicine physicians trained in maternal child health or obstetrics can provide both routine and specialized care. The primary care physician, with diverse knowledge and experience, can continue to provide through the pediatric postnatal and maternal postpartum continuum.

Building Teamwork: Communication and Systems Development

The collaborative model improves communication between the patients and the various providers, locations, and agencies. This requires commitment and participation from the administration and clinical leaders across all sites and in partnership with community agencies. The perinatal care model frames the health network in context of the community. Open lines of communication and community networking allow physicians to call upon local resources to improve the mother's social, legal, and spiritual support system. Since electronic health medical records are not yet widespread, community providers and healthcare institutions must be able to efficiently streamline and share health information. For example, "red folders" were created through a combined effort between the hospital and clinic to identify high-risk, unattached patients presenting for urgent care. Several process improvements arose from this initiative including the initiation of prenatal care and risk assessment at the acute care visit, intensive outreach to connect the patient to a medical home, and a mechanism to alert providers and staff regarding the need to share information and enhance efforts at care coordination.

Community networking and continued social support for the mother and child form a firm foundation from which challenges and disruptions in mental and physical health can be addressed. For example, the postpartum period can be a time of significant stress for both the mother and child and can be further complicated by psychosocial challenges and depressive symptoms.

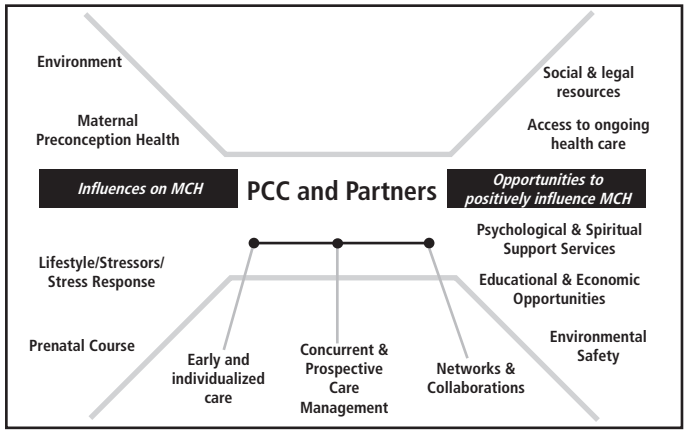

Figure 2: Opportunities to positively influence MCH.

Enhanced efforts to identify depression are indicated and should be done so in connection with ongoing surveillance to identify factors which may be causing difficulty, but which might not be detected on depression-specific screening alone. These factors may include financial burdens, emotional stress, physical exhaustion, and other determinants.

The integrated referral system allows for better diagnostics of patients. Furthermore, integration of information among sites allows for the outreach to those most at risk. To improve outcomes, service and delivery must be integrated. Standardization and development of protocols and processes across the clinics and institutions facilitate more reliable communication. Ideally, processes and protocols developed at community clinics are integrated into the larger institutions and hospitals. Practice tools are also developed, and all physicians and healthcare providers have access to "best practice" knowledge, algorithms, simulations, and drills.

Looking to the Future: Improving Physician Training

The collaborative offers benefits to both medical centers and community clinics by deliberately integrating the community clinics and training programs, in this case a Family Medicine residency and a Family Medicine Obstetrics fellowship program. Students and residents are directly exposed to high-risk communities and receive training and mentoring from experienced physicians. While providing much valued maternal child healthcare to the underserved community, the physician-in-training is gaining valuable individualized primary care experiences that would be difficult to obtain at an academic medical center. With the assistance of protocols and guidelines, residents and fellows are taught to incorporate decision support into their practice and receive training based on what has been shown to be most effective and efficient in the delivery of care. Hospitals and medical centers benefit from data collection and experiences gained from the community centers as well as access to strong primary care training for medical students and residents. Direct exposure to the tremendously rewarding aspects of providing this type of primary care to high-risk populations helps to increase enrollment and retention of students and residents in primary care and, in particular, family medicine. [23]

Conclusion

Important Lessons from the Perinatal Collaborative

Several lessons from the changes brought about by the PPSPC process proved to be important in improving maternal child health outcomes. Front-loaded care, or a complete screening at a patient's first visit, is important in identifying the needs of the patient and to help develop an early individualized care plan. Prenatal sessions with social workers and family physicians are now clustered to improve efficiency; which also allows the social worker to be more available to the high-risk population. Also, diagnosing psychosocial stressors and depression are important in identifying the most common risk factors that are barriers to improved health. In terms of outreach, the collaboration among community clinics is essential to identifying those most at risk and efficiently delivering the care where needed.

The separate content areas of the perinatal collaborative are closely linked. For example, an important development resulting from the PPSPC has been the linkage between the hospital and clinic in caring for high-risk unattached patients by initiating screening and prenatal care at the acute visit (comprehensive care content area) that then led to the use of dedicated charts, "red folders," in an effort to connect patients with a medical home (communication content area). In addition, the associated improvements in outreach and tracking have been spread to other settings and have resulted in greater ability to outreach other high-risk patients.

The MCH model as described here was initiated in the mid 1990s in the Austin neighborhood of Chicago and has continued with steady expansion since. In 1999, according to birth statistics, the Austin neighborhood had an incidence of 140 of 1000 live births classified as low birth weight, and 39 of 1000 live births classified as very low birth weight. In 2004 these same measures showed modest improvement in that 101 of 1000 births were classified as low birth weight, and 9 of 1000 births were classified as very low birth weight. During this time period the clinical services and programs described here were the source of care for approximately half of all MCH patients in the Austin community.

With continued implementation of the family medicine MCH care model through the PPSCP pilot project there was a significant increase in the percentage of patients reached in terms of psychosocial assessments, depression screenings, and nutrition education. In addition, while the total number of patient deliveries at PCC increased, there was a decrease in the number of preterm deliveries from 2006 to 2007. These data are purely observational and are presented as reassurance rather than validation, in that it reveals generally favorable trends over time. Targeted and prospective research is needed to analyze the various models and components of care that are associated with improved outcomes.

By developing collaboration between community health clinics, hospitals, medical centers, and the resources of the local community, and by refining and expanding standardized perinatal health services, care can best be delivered to those most in need. Furthermore, the collaborative helped to improve the training of future physicians by having primary care residents and fellows work directly with underserved patients and collaborate with attendings, nurses, and social workers across the health system.

Despite the ongoing challenges, maternal child health can be vastly improved by recognizing the importance of delivering quality and patient-centered care throughout the perinatal period, implementation of collaboration among clinics, institutions, and communities, and the parallel enrollment and retention of skilled family physicians. With more effective and more efficient maternal child healthcare delivery, there is hope that disparities can be significantly reduced.

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