
# Priorities for Moving to a High Quality, High Value Maternity Care System from the Perspective of Hospitals, Health Systems, and Other Care Delivery Systems

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*Transforming Maternity Care* Hospitals, Health Systems and Other Care Delivery Systems Stakeholder Workgroup

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## Introduction

In this, the nascent 21st century, childbirth remains the leading reason for hospitalization in the United States and represents, by far, the greatest share of the hospital costs. For this reason, focusing on the delivery of maternity care within hospitals and other healthcare organizations represents an immense opportunity to optimize the quality of maternity care and to favorably influence the value of such a considerable expenditure. There are a variety of health care organizations and care delivery models that serve women in the childbearing cycle in the United States. These primarily include hospitals, but also integrated managed care delivery systems, community health networks, public health clinics, and free-standing birth centers. They offer differing treatment models, but share the common goal and responsibility of providing support for the structure, process and outcomes of maternity care in their delivery of safe, effective and obliging care during a critical time in the lives of affected woman, children and families. From within this stakeholder sector, a high value proposition for transforming maternity care would design and give priority to care processes that are highly evidence-based, safe, equitable, cost-effective, and customized for the best patient experience.

Highly reliable, ultra-safe facility-based care requires care processes that are "evidence-based" whenever possible, and collaborative and consensus-driven when clear evidence is lacking. Care that is highly standardized and simplified with built-in redundant processes is much less error-prone than that which primarily values practitioner independence and preference. Nonetheless, there is probably no clinical service line that is so autonomous and so thoroughly designed to be more provider-centered (rather than patient-centered) than the area of maternity practice. The traditional financial incentives and the recognized malpractice threat observed in the maternity arena have resulted in current clinical practice that is decidedly suboptimal in some very important respects. The downstream effect of these factors is a dually dysfunctional setting where there is both over-use (e.g., elective labor induction before fetal maturity, continuous electronic fetal monitoring, episiotomy, etc.) and under-use (e.g., lack of consideration of home birth, reluctance to embrace mid-level providers, avoidance of vaginal birth before c-section [VBAC]) of services at the same time because of life and/or practice style, financial and liability considerations.

The achievement of a high value proposition for maternity care in this sector must entail a proficiency and willingness to tackle the problem of gross disparities in care. The reluctance on the part of government and payors to proactively spend the relatively limited sums needed to assure healthy preventive care, while simultaneously committing vast resources to cover ultra-expensive NICU care, is not only financially unsound, but morally indefensible. The problem of lack of insurance for a large segment of the population prior to pregnancy and of underinsurance (Medicaid) during pregnancy perpetuates an ongoing national problem with low birth weight, preventable suboptimal clinical outcomes in pregnancy and childbirth, and neonatal mortality, largely correlated to race and socioeconomic class. Like other stakeholder groups, hospitals and healthcare systems have a clear vested interest in the wellness of mothers and their babies. However, they also exert significant influence due to their breadth and scale. As a result, hospitals and healthcare systems arguably represent the greatest hope for creating a coordinated effort to improve the quality of maternity care services for both women and babies, and exhorting government and commercial payors to support and demand care that is appropriate to the needs of both individuals and populations.

Another challenge at the facility level involves liability. There is probably no area of healthcare more fraught with liability concerns than maternity care; this hazard is most pronounced at the time of delivery. The threat (and to a large extent, the reality) of multi-million dollar claims has fostered a system characterized by risk aversion on the part of providers, insurers, and health care institutions alike. Obstetricians avoid practices that they perceive increase their liability exposure even when they are evidence-based, as exemplified by the reluctance to consider VBAC. The specialty physicians that support maternity practice, including obstetricians, anesthesiologists, and perinatologists sometimes refuse to support nationally certified midwives or family practitioners because they perceive a higher risk in so doing of being found liable for bad outcomes. Insurers with limited access to clinical data and concerns about being implicated in a hyper-expensive lawsuit sometimes pay little attention to "best practice" when defining what practices they will cover. Hospitals strapped with steadily rising costs that outpace reimbursement yield to bottom line concerns rather than to good practice or patient-centricity. As a result, these critical stakeholders sometimes eschew aligned interests and collaborate poorly to change the status quo.

Ideal maternity care from hospitals and other healthcare organizations entails leveraging the benefits of improved care design and performance measurement on behalf of all parties in the value chain. To achieve this, we need improved tracking and reporting systems. It is tantalizing to consider the potential benefits of an electronic medical record (EMR) that is comprehensive, portable, and accessible by all parties across the care continuum, unconstrained by geographic (or organizational) boundaries. A product rich in "forcing functions" that assures providers "do the right thing" on behalf of patients could generate enormous quality and patient safety gains. Mothers would value the benefits of being able to interact with a system that could provide on-demand information with a bidirectional communication link to providers. The digital world can foster interaction in a way that stresses patient-centeredness. Yet, ready adoption of an EMR is burdened by issues of cost, system variability and design, complexity of use and of perceived liability risk. These concerns (and others) will need to be overcome before the implementation of widespread implementation of 'high reliability' information technology in this area becomes a reality for 2020.

All of these concerns present a challenge to hospitals and healthcare organizations undertaking efforts to provide high-quality, high value maternity care. The solution requires a balance between respecting customer preference and assuring an unfailingly safe environment for childbirth. It requires valuing and ministering to under-served patient populations while advocating for more equitable reimbursement. It requires aggressively advocating for liability reform while still holding providers accountable for providing only high quality, evidence-based care, even when there are potentially negative ramifications on their quality of life or pocketbook. Hospitals and other care delivery systems must cooperatively engage with providers, insurers, the legal profession and empowered patients to embrace a new model that places patient safety and 'best practice' at the forefront of care.

## Performance Measurement and Leveraging of Results

### Current Problems:

Although the United States spends more than any other nation on health care, it lags behind other nations on key indicators of maternity care quality. One major factor prohibiting quality improvement in maternity care has been the lack of a nation-wide system for measuring and reporting performance.

The National Quality Forum (NQF) is the national organization that has emerged to fulfill this critical role. It currently carries out many key functions of a national performance measurement system specified by the Institute of Medicine (IOM) in its publication *Performance Measurement: Accelerating Improvement* (IOM, 2006). NQF calls for development of voluntary consensus measures necessary for evaluating the performance of providers and facilities, and monitoring progress, thus ensuring standardized definitions, and addressing the problem of duplication and inconsistencies among measures. The NQF endorses measures through a multi-stakeholder process aimed to ensure that adopted measures are relevant, feasible, usable, scientifically acceptable, and responsive to the needs of all stakeholders.

To identify a strategic plan and short- and long-term goals to address gaps in performance measurement NQF created the National Priorities Partnership (NPP), a broad-based group of 28 national organizations representing key stakeholders in healthcare. The NPP identifies national goals and priorities for improving the quality of health care by eliminating harm, waste, and disparities and works to achieve specific, measurable progress in areas such as payment, public reporting, quality improvement, and consumer engagement. Five of the six identified "National Priorities" are directly applicable to maternity care: patient and family engagement; population health and greater focus on wellness and prevention; safety; care coordination; and reducing overuse.

Recently, NQF called for measures of perinatal performance and endorsed 17 measures for care from the third trimester of pregnancy through postpartum discharge. This starter set represents great progress in maternity care performance measurement, however significant gaps remain in measures needed to evaluate maternity care overall. Measures of care during the prenatal, postpartum and interconception periods are needed, as are measures of patient experience and measures that address access and health care disparities. Furthermore, clinician-level measures, risk-adjusted for patient characteristics, are necessary to evaluate unwarranted variation in maternity care processes based on practice style or factors extrinsic to the health needs of women and their babies. Hospitals and health systems delivering maternity care are well-positioned to serve as laboratories for the development and testing of such needed maternity care measures.

Moreover, hospitals and health systems can directly influence the following problem areas (IOM, 2006):

- Proposed measures may reflect the interests of the developer's constituencies rather than the areas of greatest need.
- In a market where some developers of measures compete rather than collaborate, they may be unlikely to invest in creating transparent methodologies for use in the public domain.

- Much of the technology and data on performance measurement is currently held as proprietary.
- Still needed are uniform data collection standards to ensure feasibility and widespread implementation of data collection, validation, and aggregation processes.

## Recommendations

**1. Health systems should participate in the identification of priority gaps in maternity care measures, and should develop and field test measures and partner with NQF to act as measures sponsors and stewards. Health systems are well-positioned to provide national leadership in the identification of priority areas for maternity care measures based on their clinical experience, and to serve as a measures "pipeline", developing, field-testing and sponsoring measures for submission and endorsement by NQF, and dissemination by the National Committee for Quality Assurance (NCQA) and hospital accrediting and regulatory bodies such as the Joint Commission.**

a. Strategies:

- Hospitals, integrated care systems and other maternity care delivery systems should embrace the NPP priorities, and contribute their clinical expertise and experience to the process of overall maternity care measures goal development and identification of priorities to fill current gaps in needed measures.
- Hospitals and health systems should identify and develop measures of patient experience and wellness/normal birth that enable and prioritize assessment of maternity care system performance in promoting, protecting and supporting physiological birth.
- Hospitals and health systems should leverage their clinical experience to develop measures that accurately reflect the most salient problems with current maternity care processes and outcomes. For example, if decreasing maternal mortality is a national goal for improving health outcomes, then a performance measure could be developed to address processes for preventing and mitigating postpartum hemorrhage as it continues to be the number one cause of maternal death. Health systems have taken leadership in defining areas where measures are needed and should continue to exercise leadership in this area, using their clinical experience to consider factors such as appropriateness of care in high and low risk populations, for mothers or babies, during different phases of maternity care, and using different types of measures: examples, California Maternal Quality Care Collaborative (CMQCC) and reduction in NTSV cesarean section rates, Hospital Corporation of America (HCA) and safe oxytocin use, Ascension and decreased birth trauma, etc.

b. Lead Responsibilities:

- Hospitals and health systems, especially academic institutions, large integrated delivery systems, and community-based networks, including Title V MCH department sites, which have the volume, infrastructure and resources to develop and sponsor measures.

c. Challenges and Solutions:

- Competition between sites; lack of resources, infrastructure, and data collection systems; limited expertise in measure development and quality improvement program implementation

d. Mechanisms for Collaboration:

- All relevant maternity care provider professional organizations, and healthcare quality alliances such as the Institute for healthcare Improvement (IHI) should provide funding and support for health systems to develop and sponsor measures. Private health insurers and purchasers, and public payors including, the Centers for Medicare and Medicaid Services, and State Health Departments can provide leadership and support.

e. Timeline for Achievement:

- Health systems can uptake the NPP priorities and begin internal planning for measures development starting immediately.

**2. Encourage the development of state or regional quality collaboratives that include hospitals, providers, health plans, measurement and quality research experts, and consumer representatives, to share ideas, pilot projects and develop and carry out shared performance measurement and quality improvement initiatives.**

a. Strategies:

- Hold regional meetings starting with hospital systems, large payors and provider groups to propose pilot projects to develop measures in areas of need identified by the NPP.
- Hospitals with QI projects already under way in high priority care areas can propose measures for wider testing within the regional collaboratives.
- Feed back results from local and regional quality collaboratives to national quality and performance entities and professional leadership organizations to drive system wide improvement.

b. Lead responsibilities:

- Hospital systems, health plans, providers, state and local health departments, and consumer representatives.

c. Challenges and solutions:

- Because there is little collaboration, health plans, hospitals and providers do not share aligned goals.
- Information systems to track and monitor projects and outcomes do not currently exist or are not integrated. However, small specific targeted goals could be developed around problems such as post partum hemorrhage prevention and management where there is little controversy as to the utility of such a venture.
- Resources are needed, and states, for example, would benefit from some programs such as more appropriate use of cesarean section, and reduction in avoidable NICU admissions among Medicaid beneficiaries.
- Health systems should also consider the potential reduction of liability costs as a return on investment for quality improvement activities, as reported recently by HCA.
- Most clinical leaders have not had the opportunity to develop capacity to lead quality improvements, and a mentoring or training program might enhance collaborative work.

d. Mechanisms for collaboration:

- Health plans and state and local health departments can sponsor demonstration projects to help test the impact of test performance measures on pay for performance, quality improvement, public reporting, and other policy levers.
- Existing quality collaboratives can provide consultation and guidance to start-up groups, and can pool their outcomes data to evaluate the effectiveness of their programs toward meeting process, structure, and outcome goals.

e. Timeline for achievement:

- Regional health systems and supportive stakeholders can schedule planning meetings to explore creation of regional quality collaboratives and agenda priorities for the groups, starting immediately.

**3. Develop agreed upon data standards and a uniform data set to be used for data collection and data transfer for maternity care. This would allow the use of routinely collected data available in an electronic format to be collected, analyzed, and reported for performance measurement in areas of interest, particularly areas where data are currently unavailable, such as measures that capture effective support for physiologic childbirth, and measures addressing effectiveness of prenatal, postpartum and interconception care practices.**

a. Strategies:

- A multi-stakeholder coalition must be convened to come to consensus on data standards and variables for inclusion in a uniform data set. This coalition should include representatives from all maternity care provider types and all settings where

maternity care is provided, as well as consumer groups and payors, to ensure that the data elements included in the uniform set reflect the priority areas for performance measurement across the continuum of maternity care and comprise measures of preventive and wellness-oriented care.
- Clinicians should work with HIT experts to ensure that the data collection system and uniform set does not impose an undue burden for collection, will be feasible and user-friendly to ensure maximal utilization, and addresses the informational needs of each of the collaborating groups.

b. Lead responsibilities:

- An independent body should convene the multi-stakeholder group to develop the elements of a uniform data collection set, to ensure that the process is transparent and responsive to all relevant stakeholders. Key stakeholders include provider organizations, facility representative organizations such as AHA and AABC, private and public payors, state health departments.
- HIT expertise and representation to ensure inclusion and harmonization with federal mandates regarding development of electronic health records and interoperable HIT systems, e.g., HL-7, LOINC, electronic information technology companies, Integrating the Healthcare Enterprise, the American Health Information community.

c. Challenges and solutions:

- Data standards have not been fully developed, nor is there a system of sharing data in a uniform and standardized process. However, there are government- and industry-sponsored groups which are currently working on such standards. Specific existing coding schemes and frameworks utilizing administrative data such as that accessed by the state, local and national health organizations should be considered for incorporation. The federal government under the Department of Health and Human Services is taking the lead on developing data standards.
- Elements that track care outside the hospital, including outcomes of prenatal, postpartum and interconception care, and intrapartum care provided in out-of-hospital settings are currently not included in data sets measuring maternity care performance. These critical elements of overall maternity care effectiveness must be included in a uniform data set. The American Association of Birth Centers (AABC) has developed a Uniform Data Set for “normal birth” that can serve as the basis for consensus development around standard data elements to capture care practices that support physiologic childbirth.

d. Mechanisms for collaboration:

- The Department of Health and Human Services awarded contracts to nine health information exchanges to begin trial implementation of a Nationwide Health Information Network (NHIN). This collective, including providers and several federal agencies, is working together as the NHIN Cooperative to securely exchange data including summary records for providers and patients. The NHIN trial implementation leverages the ongoing work throughout HHS and its contractors and partners, including: the Healthcare Information Technology Standards Panel (HITSP), the Certification Commission for Healthcare Information Technology (CCHIT), the Health Information Security and Privacy Collaboration (HISPC) and the National Committee on Vital and Health Statistics (NCVHS). These network participants include single hospitals, hospital systems and as well as state health information networks.

e. Timeline for achievement:

- Consensus development on elements for uniform data set should begin immediately, as HIT development efforts are already underway.

## Payment Reform to Align Incentives with Quality

### Current Problem:

The current system of medical reimbursement is volume-driven and thus results in increased cost for procedures and other items that are presently reimbursed without necessarily improving health outcomes. Moreover, providers and facilities are financially penalized for providing some types of services that can result in improved health outcomes. The 2008 Network for Regional Healthcare Improvement Healthcare Payment Reform Summit and a report by the Healthcare Financial Management Association recognized that the current healthcare payment system is an impediment to the nation's health goals.

Care during pregnancy is also hampered by current medical reimbursement problems. The current payment system is "one size fits all" with global reimbursement for prenatal and/or delivery and postpartum care. The current system does not encourage patient education, preventive measures such as vaccination, depression and domestic violence screening, screening for obstetrical complications such as preterm labor, preeclampsia, maternal group B streptococcal carriage or gestational diabetes. To move toward a more preventive and less procedure- or encounter-based system of care, the health care system will need to reimburse clinicians and health care facilities for currently non-reimbursable services, such as case managers, tracking software and electronic medical records systems.

The current payment system rewards overuse of technologies such as ultrasound or other antenatal testing regardless of indications. Also it does not encourage practices that may decrease harm and downstream costs, such as restricting elective delivery of patients before 39 weeks' gestation or delivering patients with fetuses with congenital malformations at a tertiary perinatal center instead of having to transport the neonate to the tertiary center after delivery. In addition, there currently is no alignment between caregivers and institutions to financially cost-share for intended outcomes. In fact there are legislative hurdles that prevent cost-sharing between facilities and providers. Finally, not all pregnant women have insurance coverage. Until all women have insurance coverage, those who are uninsured will not benefit from a payment reform initiative. Therefore, this section assumes that all pregnant women will have access to health insurance coverage.

## Recommendations

**1. Move towards an episode-specific capitation system. Obstetrical providers currently receive a bundled payment for the entire pregnancy and birth care. But, an episode-specific capitation system would make a single bundled payment that includes payment not only for physicians and midwives, but also covers the cost of hospitalization of the woman and her newborn, and other services such as home health care, consultation with home nutritionists, lactation consultants, etc. The amount of reimbursement would vary based upon the patient's specific diagnosis and patient-related factors. The cost of care would be estimated regionally by a Regional Collaborative Organization.**

a. Strategies:

- Design and implement pilot demonstration projects to test an alternative payment system for maternity care.
- Establish specific codes to appropriately categorize patients into risk categories and set global baseline payment rates by risk categories with payment adjustment for outlier cases requiring higher levels of service.
- Include in the reimbursement model, the cost for case management, preventive services and other quality and performance measures which are currently not reimbursed.
- Align payment with outcomes. Facilities and providers with better outcomes will be paid at a higher rate compared to those with poorer outcomes, i.e., rewarding providers for keeping patients healthy.
- Foster formation of collaborative provider groups that are capable of managing patients efficiently using evidenced-based guidelines across a continuum of services and care. This will require integrated services with health care facilities and a close collaborative arrangement with payers.
- Involve the Centers for Medicare and Medicaid Services (CMS) as a major stakeholder. Medicare currently reimburses hospitalizations under a capitated system. Most insurers and Medicaid adopt reimbursement changes by Medicare.

b. Lead responsibilities:

- CMS, professional organizations such as ACOG, AWHON, AAP, ACNM, AAFP, AHA, physicians, health plans and health economists.

c. Challenges and solutions:

- The current system of outpatient reimbursement primarily relies on a fee for service model and providers may find it difficult to move to a capitated system. There is currently no mechanism to cost- or revenue-share between hospitals and various providers of care.
- There may be a temptation to provide lower services or interventions in order to lower costs and improve revenue.

- Measures of quality may not exist to align the payment system with quality and reward performance. As the largest healthcare payer, the leadership of CMS is crucial in leading the way to payment reform.

d. Mechanisms for collaboration:

- Professional medical organizations, providers, hospitals, health insurers, State Health Department, Centers for Medicare and Medicaid Services, maternity care consumers and advocates.

e. Timeline for achievement:

- Timeline may be influenced by federal health care reform efforts: 3-5 years.

**2. Incentivize optimal outcomes and evidenced-based process measures, and de-incentivize poor practices.**

a. Strategies:

- Hospitals and health systems should develop QI initiatives and implement policies that set targets on key indicators and come up with appropriate incentives and/or disincentives to help providers meet them. For example, providers who perform elective deliveries before 39 weeks gestation or elective induction of nulliparous patients with an unfavorable Bishop's score would be penalized through reporting of provider benchmarking data. Conversely, hospitals could save money if cesarean section deliveries, infection rates, and NICU admissions decline through implementation of effective QI initiatives. Health systems and payors should partner to share these upside cost savings with care providers and facilities.
- Hospitals and health systems can approach local payors and propose pilot projects for QI initiatives which can be implemented quickly and can enhance both safety and quality and decrease waste and promote cost containment. Example, an academic hospital system that initiates a pilot project with its local Medicaid HMO provider to develop guidelines for AP prenatal testing by risk category that when adopted decrease unnecessary testing during pregnancy and costs to the payor.
- Hospitals and hospital systems can help reduce incentives for overuse of unnecessary interventions and procedure-based care that incentivizes productivity over appropriate care practices by hiring salaried maternity care providers.

b. Lead responsibilities:

- Hospitals and health systems, quality organizations and payers.

c. Challenges and solutions:

- Data systems or strategies to collect and analyze the data do not necessarily exist to capture these best practice targets and would have to be developed.
- There is currently no mechanism to cost- or revenue-share between hospitals and various providers of care.
- Providers may be resistant to changing their practice.
- In other countries, a single payer model with salaried providers has successfully decreased cost while increasing quality.

d. Mechanisms for collaboration:

- Professional medical organizations, providers, hospitals, health insurers, Centers for Medicare and Medicaid Services, State Health Department.

e. Timeline for achievement:

- Can begin immediately.

**3. Utilize payment mechanisms to improve evidenced-based maternity care and reimburse teaching institutions. Training institutions incur a higher overhead in providing care due to their mission of providing education to students of various disciplines. The distribution of Medicaid Graduate Medical Education (GME) funds should be used as an incentive for professional education programs to develop and utilize curricula for evidence-based maternity care with a wellness and prevention orientation, and expanded to include all types of maternity care providers based on national goals for workforce development.**

a. Strategies:

- Health systems should introduce legislation proposing criteria to adjust distribution of GME funds to reward particular characteristics in training programs, and to support education and training for all cadres of qualified maternity care providers.
- Health systems should pursue grant opportunities for demonstration projects to improve maternity care teaching and reimbursement of training programs.
- Health systems should introduce legislation to include CNMs among providers who can bill for supervision of medical residents in obstetrics, as providers with a proven track record at achieving excellent outcomes with appropriate utilization of resources within a wellness and prevention model of care for low-risk women and newborns.

b. Lead responsibilities:

- The Centers for Medicare and Medicaid Services should work with medical institutions receiving GME funds to develop plan. The federal government should create grant opportunities for State Medicaid agencies.

c. Challenges and solutions:

- Setting criteria on which to adjust GME fund distribution may be challenging, and training institutions may object.

d. Mechanisms for collaboration:

- Engage the American Board of Obstetricians and Gynecologists (ABOG), Council on Resident Education in Obstetrics and Gynecology (CREOG) and other parallel organizations that have oversight of maternity care education to develop criteria for evidence-based maternity care curricula.

e. Timeline for achievement:

- 2010 to introduce legislation and develop grant proposals

## Improved Functioning of the Liability System

### Current Problems:

- Lack of solid data on adverse events (definitions, frequency, severity) to serve as the basis for actuarial analysis of perinatal risk leads to policy limits and coverage that does not adequately or accurately cover actual risks. Uniform industry-wide reporting systems are needed for insurers to translate incidents into adequate premiums.
- The insurance industry is poorly informed of the safety and effectiveness of alternatives to hospital-based maternity care provided by obstetrician-gynecologists and need data to support coverage of birth centers, community-based maternity care, and care provided by midwives.
- Due to the catastrophic economic impact of adverse birth-related incidences, liability insurance carriers have withdrawn or made insurance cost-prohibitive for hospital OB units, birth centers, midwives and physicians. Furthermore, due to the catastrophic claim payments for birth-related incidents, reinsurers have further reduced their support and capacity to allow insurance companies to insure these risks. As a result, many maternity providers are going "bare" or "uninsured" or discontinue providing maternity/birth services. However, controversy exists about the extent to which the pressure of liability has led providers to discontinue practice. Liability may be particularly salient but is one of many factors influencing why providers are discontinuing provisions of maternity/birth services.
- The legal standard in health care is not based on evidence; the liability system continues to uphold current standards of care and use of professional experts without regard to lessons from the best scientific research (Massie 2004; Peters 2000). Legal advice on claims has not been supported by high quality evidence; old claims data in insurance company records will make it difficult for objectivity and rethinking these adverse events.
- Issues of negligence are combined with the needs to address economic impact of injury going forward. The public perception is that hospitals and providers represent "deep pockets" for lawsuits.

### Recommendations

**1. Create a uniform database of maternity care outcomes and adverse events, risk-adjusted and stratified by facility and provider type, to provide valid, transparent data that the insurance market can use to set adequate premiums for maternity care coverage at different system levels, and to inform facility-based risk reduction and risk management programs. We recommend that this strategy be framed within interoperable HIT to foster eventual collection, reporting, analysis, feedback, and to provide denominators to measure incidence.**

a. Strategies:

- The Patient Safety Act resulted in the creation of Patient Safety Organizations (PSOs), which released their final regulations in November, 2008. These regulations include a newly developed uniform Perinatal Safety Event Reporting Form (PSERF), to be administered by the Agency for

Healthcare Research and Quality (AHRQ). Updated common format reporting tools are expected in 2009 as the tools are pilot-tested. These tools should be widely adopted by maternity care facilities, as uniformity of data reporting by hospitals and health systems would allow actuarial analysis to achieve rate adequacy. Maternity care facilities should routinely collect and report uniform data on outcomes of maternity care, particularly rates of adverse events.

- The AHRQ common format PSERF should stratify data on adverse outcomes by setting for maternity care, including out-of hospital settings, and by all types of qualified maternity care providers. Comparative safety and effectiveness data by care setting and provider type is needed for actuarial analysis and to encourage expanded coverage of services. Representatives of relevant organizations should work with developers of the PSERF to ensure detailed collection and reporting of statistics by type of practitioner/facility to validate outcomes of these services (e.g. licensed certified professional midwives, certified nurse midwives, doulas/birth attendants, birth centers--freestanding, hospital based, physician operated, etc.), with attention to burden of collection.
- The AHRQ common format PSERF should be modified specifically to allow data analysis on outcomes of high risk procedures such as VBAC, operative vaginal delivery, vaginal breech and twin deliveries to enable evaluation of the outcomes of these practices for actuarial analysis and to encourage expanded coverage of these services.
- Maternity care facilities should consider implementation of a toll-free "hot line" number to their insurance company/risk management department/legal department for quick reporting of incidents to the uniform database and to gain valuable advice on handling difficult situations, as time from incident to report is critical.

b. <u>Lead responsibilities:</u>

- PSOs in concert with leadership of maternity care facilities, systems and quality collaboratives, and representatives of relevant professional organizations including ACOG, AAFP, ACNM, AWHONN, AABC, MANA

c. <u>Challenges and solutions:</u>

- Until uniform definitions and reporting mechanisms are in place, it will be very difficult to convince insurance companies to consider insuring birth-related risks. Until healthcare facilities/providers take charge of collecting, analyzing and reporting their maternity care statistics, risk transfer (insurance) solutions will be in short supply. Evidence based projects specific to this specialty are invaluable, to provide documentation to share with policy makers, regulators and insurance industry executives.

- In some regions and settings, there is widespread stigma associated with out-of-hospital birth and provision of care by some categories of midwives with nationally recognized credentials. Once credible third-party supporting organizations understand the evidence-base for the safety and effectiveness of such maternity care practices and providers, the insurance community will feel more comfortable assuming these risks and find ways to make this coverage more affordable. Licensing of certified professional midwives and birth centers, along with verifiable claims frequency and severity, will expand opportunities for credentialing and reimbursement.
- As the volume of high risk procedures such as VBAC, vaginal breech and twin deliveries is low due to lack of access in facilities and loss of skills by providers, attaining sufficient data may be challenging. Maternity care quality collaboratives can provide data in greater volumes on such practices and disseminate outcomes to carriers and underwriters. Insurance Services Office (ISO) can be recruited to disseminate outcomes data to carriers and underwriters

d. Mechanisms for collaboration:

- Insurance Services Office (ISO), a third-party service organization supported by the insurance industry, publishes industry wide forms, and disseminates data to the insurance community; representatives should be engaged to support adoption of the PSERF and analysis of data emanating from its use in maternity care facilities.
- The National Practitioner Data Bank (NPDB), the only central repository of information concerning malpractice, and The Healthcare Integrity and Protection Data Bank (HIPDB), a national collection program, should be engaged to support adoption of the Patient Safety Act Perinatal Reporting Form.
- Joint underwriting carriers can fund and develop specialized, meaningful risk management programs based on aggregated uniform outcomes data and provide them to facilities and staff providers

e. Timeline for achievement:

- Representative organizations to contact PSOs and develop measures for inclusion in uniform PSERF in 2009. Maternity care facilities begin collecting data using uniform perinatal report form by 2010.

**2. Insurance carriers should collaborate to conduct a comprehensive analysis of their pooled existing claims data for maternity care and contribute the results to a publicly available national dataset, stratified by facility and provider type.**

a. Strategies:

- Maternity care facilities collecting data on maternity care outcomes should call for collaboration from insurance carriers

who possess claims data regarding maternity care and birth outcomes (whether or not they still offer this coverage). Detailed analysis of these data would be invaluable to all parties.
- National Practitioner Data Base (NPDB) and Physicians Insurance Association of America (PIAA) should collaborate to harmonize their data with this effort and the AHRQ PSO PSERF project, ensuring that relevant clinical data are included with data on volume, type and award amount for perinatal claims, and making data available free of charge for the purposes of quality assurance by facilities and actuarial analysis by insurers.

b. Lead responsibilities:

- Insurance Service Office (ISO), American Society of Healthcare Risk Management (ASHRM), and American Health Lawyers Association (AHLA), in collaboration with facility-based risk management departments and measurement experts

c. Challenges and solutions:

- Insurance carriers may be unwilling to participate and collaborate. Overcoming this challenge may be possible with the incentive of being nationally recognized as an innovator and leader of change in the field of obstetrical risk management.
- Proprietary issues could be dealt with if there was a true desire to collaborate for a common cause. As participative stakeholders, analysis of past occurrences can lead to positive changes that ultimately attain financial and social advantages. This type of interaction would be a breakthrough and we should continue to pursue this worthwhile endeavor.

d. Mechanisms for collaboration:

- Insurance industry leaders and representatives should collaborate with facility-based risk management departments to reduce concern that closed claims analysis might be used by the insurance industry to restrict coverage.
- Collaboration with PSOs to add data from this endeavor to those collected using new uniform PSERF to the extent possible

e. Timeline for achievement:

- Convene planning meeting of insurance representatives with ISO in 2009.

**3. Maternity care facilities and delivery systems should work together with insurance leaders and third party payers to develop clinical risk management programs that can identify, prevent and mitigate adverse events in maternity care**

**and train front-line leaders in quality improvement to champion them, incorporating the principles of reliability science at the health facility level.**

a. Strategies:

- Large integrated self-insured maternity care delivery systems conducting such programs should share their processes and results to serve as models for smaller systems and community-based facilities.

a) Example: at the PLUS meeting, MedStar health system in Maryland presented their self-insured OB program and steps they have taken to save millions in insurance claims. At the annual AHLA and ASHRM conferences members have presented projects completed at their hospitals; however unfortunately these findings are not often published.

- Insurance leaders and risk management experts should partner with maternity care facilities to develop, implement and share results of risk retention programs.
- Insurance leaders and third party payors should support and encourage development of premium reduction incentive programs in exchange for completion of meaningful perinatal safety and quality improvement education activities.

b. Lead responsibilities:

- Maternity care facilities and delivery systems in partnership with insurance leaders and risk management experts, ASHRM, AHLA and the Institute for Healthcare Improvement (IHI)

c. Challenges and solutions: Several examples of successful efforts exist:

- Example: The Seton Family of Hospitals interdisciplinary effort to reduce birth trauma
- Example: Institute for Healthcare Improvement (IHI) partnership with Premier, Inc and member maternity care delivery systems such as Ascension Health and Intermountain Healthcare to reduce rates of labor induction
- Hospital Corporation of America (HCA) programs for patient safety in maternity care
- Harvard Risk Management Foundation Team Performance Plus program in interdisciplinary team training to reduce the occurrence of preventable errors and minimize litigation exposure

d. Mechanisms for collaboration:

- Partnerships and collaborative efforts such as those above should be expanded and widely adopted by maternity care facilities. Insurers can offer incentives and support for participation by their policy holders. For larger healthcare systems that are self-insured or other hospitals that are members of a risk retention program (sharing the risk among hospitals), funding for the collaborative effort can come from the risk retention program's surplus funds which potentially

would be returned to the program over time in the form of fewer medical malpractice claims and payments. The reduction in claims has been documented by HCA and Ascension Health as a result of the collaborative work conducted with their member hospitals.

e. Timeline for achievement:

- Can be instituted immediately

## Disparities in Access and Outcomes of Maternity Care

### Current Problems:

- Today the maternity care system in the United States is fragmented and disparate in terms of access to and the quality of services along with the financing of those services. Access to high-quality maternity care for America's women, their infants and families is impacted by insurance transitions in pregnancy, racial and geographic disparities and reimbursement systems that serve as financial disincentives for providers to take on patients from vulnerable populations and uninsured and provide comprehensive services that will positively affect birth outcomes.
- When comparing women with private or public payment sources and across major race/ethnicity groupings and socioeconomic classes, all segments of the population experience problems with access to quality care. Further disparities occur when women live in geographically isolated rural areas especially for women needing referral to specialty services, and for immigrants and refugees. Moreover, the midcourse Healthy People 2010 review found that disparities for black non-Hispanic women were increasing for numerous indicators, including neonatal deaths, very low birthweight infants, mental retardation, and cerebral palsy (U.S. Department of Health and Human Services 2006). Non-Hispanic black, Hispanic, and American Indian-Alaskan Natives were more than twice as likely as non-Hispanic white women to receive late (care beginning in the third trimester of pregnancy) or no care (NVSS, 2007).
- Some primary providers, systems and plans as well as tertiary care systems and specialty care settings have opted out of serving vulnerable populations and are structured to attract healthier patients and exclude women at risk for complications, forcing safety net providers to take on the financial and resource intensive costs of serving more vulnerable women. Moreover, with state budget crises, payments by states to providers, facilities and system are delayed and payment rates, while traditionally lower, may actually be lowered further. This limits the capability of providers and organizations serving vulnerable populations to provide care for the number of low-income patients that need it.
- To address these disparities, we propose an overhaul of the system for maternity care, its measures of quality and financing, to reflect a focus on the woman and her family across the reproductive lifespan and collaborative systems among primary, secondary and tertiary care providers.

## Recommendations

**1. Maternity care system stakeholders should promote and collaborate with state and national efforts to ensure that comprehensive, high-quality care is accessible to all women across their reproductive lifespan. This includes providing adequate funding to safety-net providers and institutions to support the critical services they provide to low income, minority and geographically underserved rural communities. Adequate funding is also needed to improve the health infrastructure serving populations experiencing disparities.**

a. Strategies:

- Develop a standard comprehensive program for maternity care to focus on primary and secondary prevention of complications and address the entire spectrum of pregnancy, including pre-pregnancy (preconception), prenatal care, management of pregnancy- related conditions, and labor and delivery, as well as concerns of mothers and children in the postnatal and interpartal or interconception period (between deliveries).[1,2]
- Increase access for communities experiencing disparities by increasing the number of minority providers and improving the cultural competence of all members of the health system.

b. Lead responsibilities:

- Leadership at high volume maternity care facilities, maternity care professional organizations and state Medicaid offices and state/academic) MCH departments

c. Challenges and solutions:

- Agreement among provider and facility representatives on the content of a standard, evidence-based, comprehensive care package for enhanced maternity care, and evidence-based benchmarks for the optimal provider panel to serve the needs of each community

d. Mechanisms for collaboration:

- Creation in neighborhoods and communities of a work group representing key stakeholders who will utilize quality improvement processes to develop and implement a comprehensive program for their community

e. Timeline for achievement:

- Over the next twelve months

[1] Chatterjee S, Kotelchuck M, Sambamoorthi U. Prevalence of chronic illness in pregnancy, access to care, and health care costs: implications for interconception care. Women's Health Issues. 2008 Nov-Dec;18(6 Suppl):S107-16. Epub 2008 Oct 25.
[2] Wise PH. Transforming preconceptional, prenatal, and interconceptional care into a comprehensive commitment to women's health. Women's Health Issues. 2008 Nov-Dec;18(6 Suppl):S13-8. Epub 2008 Oct 25.

**2. Promote and foster community partnerships to improve maternity care and address social determinants of health. To support this comprehensive approach, health care organizations should facilitate partnerships among providers of woman- and family-centered care**

a. Strategies:

- Seek funding from foundations, at local, state, regional and national levels, to support these community-based partnerships.
- Collaborate with the Commonwealth Fund, Robert Wood Johnson, CityMatCH, National Healthy Start Association, and National Perinatal Association over the next 3-5 years to create quality improvement collaboratives.
- Consider initiatives that target health literacy and social and environmental determinants of maternal health in addition to the provision of direct clinical services.
- Increase use of community health workers, peer outreach, and patient navigators to bridge between communities and health care facilities.

b. Lead responsibilities:

- Public and private maternity care delivery systems, including community health centers as provided for in the federal stimulus package for health care.

c. Challenges and solutions:

- Several existing programs could serve as models.

a) Example: The Healthy African American Families (HAAF) project in Los Angeles, CA has been working for sixteen years to reduce the incidence of preterm birth by improving maternal health during pregnancy via diverse community partnerships. A multilevel strategy involving messages to pregnant women, provider education and resources for the public such as the 100 Acts of Kindness for Pregnant Women and New Mothers have emerged from this partnership of providers, health care and social service organizations, local hospitals and tertiary perinatal centers.[3]

b) Example: The Indian Health Service recently initiated a similar partnership to improve the quality of care. They have found that their reach can be extended through partnerships with tribal programs and community resources, beyond the reach of individual patient visits. Cherokee Nation health facilities, for example, were able to drive a policy change that led to the removal of soda and candy machines from schools, broadening discussions about nutrition to all families in the area with school-age children.[4]

[3] Williamson DM, Abe K, Bean C, Ferré C, Henderson Z, Lackritz E. Current research in preterm birth. J Women's Health. 2008 Dec;17(10):1545-9.
[4] Foubister V. In focus: promoting quality throughout Indian Country. Quality Matters 2008; Commonwealth Fund.

d. Mechanisms for collaboration:

- IHS, USPHS, state and local MCH departments as well as the Network for Regional Healthcare Improvement and other state or national groups. NRHI was founded in 2004 by the Institute for Clinical Systems Improvement, Massachusetts Health Quality Partners, Minnesota Community Measurement, and the Pacific Business Group on Health, the Pittsburgh Regional Health Initiative, and the Wisconsin Collaborative for Healthcare Quality. In addition to the founders, current members include the California Cooperative Healthcare Reporting Initiative, the California Quality Collaborative, the Greater Detroit Area Health Council, the Iowa Healthcare Collaborative, the Louisiana Health Care Quality Forum, the Puget Sound Health Alliance, and the Utah Partnership for Value-Driven Health Care. The Robert Wood Johnson Foundation, the Jewish Healthcare Foundation, and the California

e. Timeline for achievement:

- Over the next 18-24 months

**3. Health care organizations should work with women and providers to design systems that are woman- and family-centered and have been shown to be effective in reducing adverse outcomes in vulnerable populations. A new Cochrane review just concluded that all women should be offered midwife-led models of care and women should be encouraged to ask for this option.[5] Similar evidence-based reviews also support the use of doulas.[6] A multi-site randomized trial found that group prenatal care resulted in a significant reduction in preterm birth with perinatal outcomes in other areas that were equal or improved at no added cost.[7]**

a. Strategies:

- Maternity care delivery systems should implement culturally appropriate programs to provide women in the childbearing cycle with high-quality information and shared decision-making.
- Maternity care delivery systems should implement effective care practices, such as CenteringPregnancy, midwifery care, doula services, and prenatal education for partner support.
- Maternity care delivery systems should replicate such models in settings for preconception/interconception and throughout the life cycle.

[5] Hatem M, Sandall J, Devane D, Soltani H, Gates S. Midwife-led versus other models of care for childbearing women. Cochrane Database Syst Rev. 2008 Oct 8;(4):CD004667.
[6] Hodnett ED, Gates S, Hofmeyr GJ, Sakala C. Continuous support for women during childbirth. Cochrane Database Syst Rev. 2007 Jul 18;(3):CD003766.
[7] Ickovics JR, Kershaw TS, Westdahl C, Magriples U, Massey Z, Reynolds H, Rising SS. Group prenatal care and perinatal outcomes: a randomized controlled trial. Obstet Gynecol. 2007 Aug;110(2 Pt 1):330-9.

- Maternity care delivery systems should remove current administrative barriers to credentialing and/or hiring midwives and doulas in some health systems.
- Women's primary care and maternity care providers, whether ambulatory or specialty, should make addressing risk status and chronic illness for women of reproductive age in the preconception, prenatal and interconception periods a primary focus of their care.[1,2]

b. Lead responsibilities:

- Maternity care facilities and delivery systems in particular, the leadership of their safety and quality improvement components

c. Challenges and solutions:

- Inherent is trust between a women and her provider. A significant barrier to this is cultural difference. Non-judgmental cultural competency training for health care professionals and other staff can increase awareness of unconscious biases and cultural beliefs as can feedback through client satisfaction surveys and report cards which include information on race/ethnicity and language.[8] Other barriers to communication can be addressed by culturally and linguistically competent interpreters and patient navigators.
- Other challenges include: acceptance of midwifery-led model of care by physician groups, liability insurance costs; cost of implementation of new programs, facilities that are not designed for uses other than traditional care. While implementation and start-up is costly, these new programs can be expected to shave money over time or become cost neutral.

d. Mechanisms for collaboration:

- Committees on disparities from all of the relevant maternity care professional organizations, Centering Healthcare Institute (CHI), Doulas of North America (DONA), HealthConnect One, Lamaze, International Childbirth Education Association (ICEA), Commonwealth Fund, Robert Wood Johnson, CityMatCH, National Perinatal Association etc.

e. Timeline for achievement:

- Over the next 12-24 months. This timeline is supported by bills currently in the Senate.

[8] Betancourt JR, Green AR, King RR, Tan-McGrory A, Cervantes M and Renfrew M. Improving quality and achieving equity: a guide for hospital leaders. The Disparities Solutions Center, Massachusetts General Hospital, RWJF 2009.

## Clinical Controversies

### Current Problems:

There is lack of consensus and wide variability in the management of women presenting with controversial clinical scenarios among maternity care delivery systems and facilities. Maternity care patients with controversial clinical presentations (including elective induction of labor, VBAC, home birth, vaginal breech and twin birth, and maternal demand cesarean) who access health systems are confronted with mixed messages and professional disagreement about the management of their care. Widespread "under-use of beneficial practices, overuse of harmful or ineffective practices and uncertainty about effects of inadequately assessed practices" pit the patient and her preferences against the "community standard of care" of the system she accesses. This conflict is magnified during health care system hand-offs, when patients may be managed differently, often with inadequate coordination of care, by their ambulatory care providers, facility-based nursing staff, inpatient primary maternity care provider and back-up obstetrician, neonatologist and anesthesiologist.

Concerns regarding liability drive clinical practice in the care of women with complicated clinical presentations. This political and medico-legal perspective persists from the board room through the CEO and legal counsel to the bedside and pushes excellent clinicians and systems of care to manage the patient with the primary aim of avoiding liability rather than supporting a healthy physiologic childbirth. For example, there is decreasing use of trial of labor for women with previous cesarean delivery. Labor induction has become accepted practice, despite the risks associated with it and has dramatically increased 135% from 1990 to 2005. Rates of elective induction range across providers from 12% to 55% and appear to be unrelated to the needs of the mother or baby. Challenged by reduced staffing levels, some obstetrical nursing teams depend on epidural anesthesia for laboring patients, and have lost the bedside skills to support patients through the physiologic labor process.

Care is poorly coordinated if patients need to move between low-risk to high-risk levels of care (e.g. from out-of-hospital or community settings to tertiary care settings, or from midwifery or family practice providers to specialty providers) to ensure appropriate level of care according to an individual patient's health status and clinical circumstances. Maximizing safety, efficiency and patient-centeredness is even more critical for women presenting with clinical controversies than those with low-risk pregnancies because their circumstances often require more collaborative management, more care transitions and more agility in maintaining the appropriate level of care. Careful planning, coordination and collaboration during hand offs across the health care system could ensure that women with increased risks and needs are still managed in a seamless and efficient manner that remains woman-centered.

## Recommendations

**1. Health care delivery systems should develop shared goals, clinical practice standards, and policies that favor the goal of promoting, protecting and supporting safe physiologic childbirth rather than avoidance of liability. To resolve the current conflict it is essential that hospital systems work with patients and providers throughout the maternity care continuum to develop shared goals and expectations. Care delivery systems should collaborate with payment systems to fairly reimburse for care provided during physiologic childbirth.**

a. Strategies:

- Promote "watchful waiting" for spontaneous labor and induced labor only for medical indications by developing quality initiatives to test and then define best practices and desired outcomes.
- Reexamine evidence and define goals for pregnancy outcomes around vaginal delivery in the setting of previous cesarean, twins, breech, inductions and elective primary cesarean.
- Establish shared patient and health care system education goals. Develop clinical decision support tools for professionals and parallel decision aids for consumers.
- Track complications of epidural anesthesia and provide training opportunities for nursing departments and primary childbirth care providers to learn the skills of promoting pain control with non-pharmacologic interventions such as hot tubs and heat and cold packs to achieve optimum vaginal delivery rates. CPT codes need to be developed to allow billing for these interventions as adequate compensation will work to remove financial incentives for pharmacologic intervention in physiologic childbirth.

b. Specific Strategies:

- VBAC

a) Institute policies that promote rather than just permit trial of labor (TOL) for patients with prior cesarean delivery, and encourage vaginal delivery of low-risk twin and breech gestations (e.g., see VBAC Guidelines from the Northern New England Perinatal Quality Improvement Network [NNEPQIN]).

b) Health care delivery systems increase access to VBAC by communicating with malpractice carriers, legal counsel and executive leadership through a coordinated educational outreach effort. Promote a TOL at every hospital large enough to have cesarean capabilities for appropriate patients. Communities must work to ensure that women have access to TOL.

c) Set system-wide target goal for successful VBAC, and peer review for 100% of elective inductions (see Induction of Labour Clinical Guideline July 2008, National Collaborating Centre for Woman and Children's Health [NICE]).

d) Initiate research to compare uterine rupture rates of current uterine closure techniques with rates in prior 3-layer closure techniques and restudy the requirement that anesthesia be present on site during entire labor.

- Home birth.

e) There is increasing polarization between home birth providers and the hospital care systems in their regions. Trends suggest that patients may be increasingly opting for home birth because these providers are able to offer substantial patient control. There are lessons to be learned about the importance of shared decision making from both mothers who have had home births and the providers that attend them at delivery.

f) Decrease polarization and increase cooperation between hospital care systems and the home birth providers by creating regional community-based focus groups to discuss ways to improve safe coordination in the management of home births. Include patients, their families, and the care providers in these discussions. Consider options for closer collaboration with home birth providers and potential back up facilities. Facilitate bi-directional learning opportunities between in-hospital delivery staff and home birth providers.

g) Healthcare systems reduce barriers to midwifery practice through collaboration and privileging.

h) Innovative academic medical centers partner with home birth providers to support collaborative research to effect in-depth evaluation of home births and outcomes, including patient satisfaction and perceived self-efficacy as compared to a hospital control group.

i) Careful evaluation to understand the patient perspective on traditional ambulatory care and hospital delivery and the reasons for choosing home delivery.

j) Remove the stigma of “home birthing” and eliminate labeling of the need for transfer to the hospital as an assumption of failure. This is a critical example of the importance of care coordination across system transitions. Treat these women and their families with respect and caring as we should for all women who enter the hospital for maternity care.

k) Include Emergency Transport providers in the planning process to facilitate handoffs and assure patient information transfer and support.

- Cesarean delivery on maternal request

l) In the absence of evidence supporting this intervention, and with extensive evidence of harms to both women and babies associated with cesarean, health care delivery systems should discourage rather than promote non-medical primary cesarean delivery among their provider staff.

m) Reexamine or collect data on the actual prevalence of maternal demand cesarean, recognizing difficulties with accurate classification, as these data are conflicting. The national Listening to Mothers survey results showed an extremely low prevalence of

maternal demand cesarean and far more cases in which women reported feeling pressure to have an unwanted cesarean delivery.
n) Health systems chair focus groups with policy makers, hospitals and payors to develop policies proscribing elective primary cesarean delivery. This is now a Joint Commission perinatal measure and all cases should be peer reviewed.
o) Distribute patient education materials containing clear information about the risks and benefits of elective primary cesarean.

c. Lead responsibilities:

- Hospital systems exercising leadership in patient-centered care initiate focus groups to discuss and agree on goals for outcomes for women who present with controversial clinical presentations.

d. Challenges and solutions:

- Current cesarean rates in this country are unacceptable. Liability avoidance and hospital profit incentives currently adversely drive clinical decision making and it will be important to find organizations that can tackle risk reduction with improved clinical outcomes for women during the cycle of childbearing. This will require health care systems willing to work with payors to remove adverse financial incentives.

e. Mechanisms for collaboration:

- Cross-functional interdisciplinary teams including providers, payors and system administrators discussing the goals and the risks should start the conversation around these clinical controversies.

f. Timeline for achievement:

- Definition of goals for outcomes will take the longest time and will need 6 months to draft and share. Educational information that explains the goals should be finished by 6/2010.

**2. Health care delivery systems work to decrease conflict between patients and the health care system through improved communication and shared decision making around controversial clinical scenarios. Develop shared goals for promoting, protecting and supporting safe physiologic childbirth whenever possible, and implement education campaigns to successfully decrease conflict and align collaboration with the patient and the health care system.**

a. Strategies:

- Develop educational and shared decision making tools to increase patient understanding informed by best evidence of risks and advantages of interventions in specific clinical settings. Provide information and tools to assure that the patient accurately understands the risks of any planned intervention vs. alternatives including non-intervention for each

clinical management option. These tools must integrate parallel education and decision support resources for both patients and health professionals.
- Design clinical interfaces which promote and support clear patient participation at each system handoff across the continuum of care. These might include items such a "Shared Care Plan," community based medical records, and central data repositories for easy access to critical patient information and self-management goals.
- Pilot these innovations at the local and regional level and align incentives to participate. Benchmark successful strategies for spread to other areas. Encourage innovations which institutionalize patient-centered care as a system property. Benchmarks effective system handoff strategies. Create spaces in electronic medical records (EMRs) for recording and sharing key patient centered information.
- Delineate patient preferences through a standardized process and assure that patient preferences are unfailingly and seamlessly passed along at all system handoffs.

b. Lead responsibilities:

- Hospital system chief nursing officers, ethicists and information technology specialists could organize and collaborate with representatives who deliver the care (nurses, midwives, physicians) and patient representatives to develop a shared language and education for patients and providers, clinical interfaces and process to improve communication and system handoffs across the patient care continuum.

c. Challenges and solutions:

- This cross-functional team will need to listen carefully to each other to understand and resolve the adversarial starting point for this strategy. Including communication specialists such as hospital ombudsman, community representatives, and clergy might facilitate the collaboration to ensure that the patient voice is heard in discussions to reduce the conflict in these highly charged scenarios.

d. Mechanisms for collaboration:

- Begin with regional cross-functional teams acknowledging the problem and then working on strategies for resolution.

e. Timeline for achievement:

- Patient education goals should be completed by 12/2010.

**3. Health care delivery systems will continuously refine care standards for emerging areas of clinical controversy by sponsoring widespread benchmarking of best practices and ongoing evidence-based research. Analysis for disparities and patient self-efficacy and satisfaction must be included in the design of all**

**research projects. Lessons learned from addressing current controversies should be applied to new controversies as they develop.**

a. Strategies:

- Health care delivery systems create a data registry to research and carefully follow outcomes of care following any clinical controversy, such as uterine rupture during TOL, to help understand potential predisposing factors such as the type of uterine closure.
- Time frame for follow-up research is sufficient to quantify the short term and long term outcomes of interventions such as TOL versus repeat cesareans. Evaluation should address the appropriateness of primary elective cesarean delivery from the perspective of both short term and long term cost-effectiveness.
- Create five cross-functional task forces to evaluate ongoing evidence for VBAC, twin and breech deliveries, induction of labor and elective primary cesarean. The prime charter is the review of outcomes and goals specific to these controversies. All decisions must be evidence based rather than based on expert opinion.
- Health care delivery systems should institute a benchmarking program to compare successful VBAC rates, highest vaginal delivery for low-risk twins and breech presentation, the lowest labor induction rates, lowest epidural rates and the lowest elective primary cesarean rates.
- Facilitate spread of successful innovations by "sharing senselessly and stealing shamelessly."
- Develop a web-based resource for maximizing shared data and process by working with the Institute for Healthcare Improvement (IHI) or the National Committee for Quality Assurance (NCQA) to post these discoveries.
- Collect and report clinical controversy outcomes by provider and hospital along with balancing measures of maternal and neonatal morbidity and mortality as well as patient-centered measures regarding patient self-efficacy and experience of care.
- Continue to improve this process as new controversies arise.

b. Lead responsibilities:

- Facilitated by teaching hospitals, this group should include key stakeholders such as providers and payors to assure that there is alignment between goals, practice and reimbursement. National quality organizations such as IHI and NCQA could participate in the design and disseminations of critical quality innovations.

c. Challenges and solutions:

- This level of transparency is not a core trait of existing health care systems. This will require significant culture change.

- Transparency is improving with the focus of institutions like IHI and the Institute for Clinical Systems Improvement (ICSI).

d. Mechanisms for collaboration:

- This multi-stakeholder task force should include professional liability insurance companies, payors including the representatives from CMS, hospital executives, legal counsel, obstetricians, family practitioners, anesthesiologists, midwives with nationally recognized credentials (i.e., CNM, CM, CPM), nurses and patients.

e. Timeframe for achievement:

- These five task forces should begin meeting in 10/2009.

## Development and Use of Health Information Technology

Hospitals and health care organizations have the unique capability, both from a resource perspective and from economies of scale, to be the leaders in patient centered maternity medical information technology. Additionally, since health care organizations "touch" all stakeholders (including women patients, providers, insurance, the federal government and regulators) it makes sense for them to serve as the organizing "hub" for advancing these capabilities.

Maternity health information technology can involve computers, phones, television, and advanced equipment (fetal heart rate monitors; simulation devices). These vehicles can aid in the delivery of care, contribute information to an electronic medical record (EMR) and large de-identified data pools for segmental population analysis. Health information technology (HIT) can be broadly defined as "comprehensive management of medical information and its secure exchange between health care consumers and providers" (Health and Human Services definition). For individuals, providers, and health systems HIT has the potential to: improve health care quality; prevent medical errors; reduce health care costs; increase efficiencies administratively and clinically; expand access to affordable care; increase patient understanding of condition and improve patient participation in care decision choices and care self-management.

### Current Problems:

For ALL of the following initiatives in the development and dissemination of HIT, care delivery systems may encounter the following challenges in the context of maternity care:

- Non-aligned financial incentives between stakeholders: In the existing maternity care system, what is good for the mother and baby may not be good for the care system or provider. Reimbursement systems have not be developed or resourced based on common agreed upon goals.
- Disparate, fragmented, and antiquated existing information systems: Care delivery systems have developed, resourced and expanded information systems based on proprietary and local needs, not necessarily the larger values or goals of patient-centered maternity care
- Lack of compelling data to energize action: Maternity care has lacked the medical outcome and financial outcome data to jumpstart leadership to invest in information systems that unveil existing problems and provide data that, with analysis, could improve care. From a medical standpoint maternity care lacks the financial, medical, (and now regulatory) imperatives of pressure ulcer care, end of life resource decisions, and in-hospital mortality data.
- Short term business imperatives that derail a multiyear project: Health care systems need to make year to year financial decisions in an environment of wide budgetary fluctuations that mirrors the local and national economy. This makes it difficult to incrementally develop a sophisticated, large, and interconnected information technology system.
- Non-health system national economic constraints: In light of the present recession and economy, new, expanded, and/or startup investments will be constrained unless this technology brings tangible economic efficiencies.

## Recommendations

**1. Ensure computer access and use for patient-centered information, education, and communication, for a healthy maternity experience throughout the continuum of care. Characteristics: interactive, informative, supportive, vehicle for partnership with health care entities, patient-tested, Spans Inpatient (IP) and Outpatient (OP), personalized, and customized, current, portable, comprehensive, consumer and provider friendly.**

a. Strategies:

- Develop, offer and promote--with content help from clinicians and/or lead maternity peer organizations --internet maternity information subscriptions, for antenatal, intrapartum, and postpartum information to educate, improve health, manage disease, set appropriate expectations.
- Gather health information into a central site (e.g. "mypregnancy") that can be portable, transferable, and/or transmissible to health care entities that need the information for care decisions based on complete information to improve communication and partnership in health care decisions and improve health care outcomes through comprehensive information and review.
- Support government subsidies to ensure equitable access for small community hospitals, rural hospitals, birthing centers, and other maternity care delivery systems with fewer resources to implement costly health IT systems.

b. Lead responsibilities:

- Patient internet subscriptions: Hospitals and health care systems with content help from clinicians and/or lead maternity peer organizations
- Central maternity care site: Health care insurers and hospitals will develop and offer this service. A national organization (e.g. American College of Obstetricians & Gynecologists [ACOG], Childbirth Connection) will develop the template and specifications for "mypregnancy" which would then be locally downloaded/offered to providers and patients. Appropriate health information privacy protections will need to be incorporated into this development.

c. Challenges and solutions:

- Need for multidisciplinary stakeholder participation, including consumers, in development, testing, implementation
- Need to work with HIT professionals and/or software vendors to ensure interoperability with pre-existing systems.

d. Mechanisms for collaboration:

- Care delivery system (health plans, hospital systems) or national peer organization entities could establish stakeholder work groups, including consumers, for organizing and

"repurposing" existing medical material to be delivered in a manner conducive to adult learning using computer/cell phone technology
- National peer organization entities (e.g. maternity care provider organizations, Childbirth Connection) could contribute medical information and expertise as well as, in the case of Childbirth Connection, information on patient experience of care

e. Timeline for achievement:

- Proposal for funding by 2010.

**2. Implement simulation and computer-based training for high risk maternity events (e.g. crash cesarean section, shoulder dystocia, hemorrhage) to hardwire team behavior for emergent events; practice high stakes skills which threaten poor outcome, refresh procedure and knowledge for rare events. Characteristics: Team-based, standardized, periodic, resourced, linked to hospital privileges and specialty certification and recertification.**

a. Strategies:

- Review the existing research to understand where there is evidence to support certain types of training to decrease harm.
- Where research exists, training program curricula need to be developed, standardized, and implemented in the hospital and birth center settings.
- If research does not exist, there needs to be a national request for research proposals in this area for well designed studies.
- Professional and regulatory bodies should then require this training as done in other "high stakes" industries such as the airline industry

b. Lead responsibility:

- Liability carriers, all relevant maternity care provider professional and educational development organizations, hospital regulatory bodies, e.g. The Joint Commission, in the above order
- Maternal and child health researchers and/or health care organizations

c. Challenges and solutions:

- Costly time investment for providers and hospitals/birth centers
- Lack of compelling data to energize action- This training needs to demonstrate better maternal and infant outcome with decreased liability cost.

d. Mechanisms for collaboration:

- Quality research experts and curriculum developers should be engaged to review and expand the evidence-base for effective

training methods and to translate into effective programs for learners at the primary and continuing education levels
- The ALSO (Advanced Life Support Obstetrics) course from the AAFP is a widespread team training simulation program that represents an existing resource and opportunity for collaboration.

e. Timeline for achievement:

- Systematic review: by 2010
- RFP for further research: by 2010
- Curriculum development: 3 years

**3. Create maternity data mart with standardized elements for internal hospital or hospital system use to aid in maternity analysis/ internal quality improvement/research; and a geographic data mart for segmental (e.g. hospital, geographic, demographic) specific reporting/benchmarking/resourcing. These data sources would be used to: describe care, evaluate care, improve care in areas of patient satisfaction, quality, safety, as well as to narrow variations in performance, identify high risk opportunities for improvement, provide information for present and future research. Such a resource would also enable public reporting of a portion of this data that is accessible to consumers and user-friendly, so consumers can compare hospitals and care delivery systems. Characteristics: Local self assessment, frontline functionality, operationally and clinically meaningful, standardized info data elements, designated maternity quality data set.**

a. Strategies:

- Develop and adopt agreed upon descriptive, process, and outcome metrics with attention and focus on needed maternity care measures.
- Call for a legislated and/or regulatory mandate for maternity-specific process and outcome reporting and accountability in government dispersal of funds for expansion and interoperability of HIT..

b. Lead responsibilities:

- National quality improvement entities (e.g. NCQA, NQF) and state or regional entities (e.g. CMQCC), with input from IT professional groups to take into account technology capabilities and interoperability solutions currently deployed in other industries and government

c. Challenges and solutions:

- Costly investment with high startup costs-IT and training
- Historic under-emphasis and under-resourcing of robust analytic performance improvement
- Lack of compelling data to energize action- With the exception of a national and state-specific rising maternal mortality and rising preterm birth rate, there is little existing regional or hospital specific information to justify funding such an entity

d. Mechanisms for collaboration:

- Coalition to seek legislative or regulatory standards for reporting

e. Timeline for achievement:

- 3-5 years

**4. Create regional information system/hub to assess level of risk and triage to the best place for delivery, considering geography, payor, and health status, to ensure "right care" in the "right place" for predetermined high risk deliveries and thus minimize morbidity/mortality. Characteristics: linked with current EMS system, assess occupancy/bed availability, defined algorithm for clinically determining needed level of care, hospital designations for level of maternity care.**

a. Strategies:

- Develop standardized risk definitions and criteria
- Attention, focus, and research on maternity outcome related to hospital level of care services
- Standardize nomenclature for NICU levels and utilize the system to rapidly identify where NICU space is available
- Establish "level of care" maternity designations for hospitals

a) Implementation of transfer agreements between Hospital/birth centers and emergency medical services

b) Mandate from payors like the state and federal government. (system which mimic the neonatal nursery levels and transfer definitions/protocol)

b. Lead responsibility:

- National quality improvement entities and researchers, with input from IT professional groups to take into account technology capabilities and interoperability solutions currently deployed in other industries and government

c. Challenges and solutions:

- Lack of clear clinical definition of prenatal obstetrical clinical risk level, which has improved outcome in a "higher level" maternity health care delivery site

d. Mechanisms for collaboration:

- Health care systems can support demonstration projects.

e. Timeline for achievement:

## The Vision though Story

Mary, young, healthy, first baby discovers she is pregnant. She wants to start "taking care of herself" and develop good habits for her pregnancy and for her family. She lives in an urban setting that has several choices for care. She investigates some of the care options for her prenatal care through a comprehensive maternity care provider site. She also investigates her options for delivery. While both birth centers and hospitals are listed, she decided that she wants a hospital birth for this first child. She decides that she may want to see a midwife for some of her care. She also wants to experience support from women who are also pregnant. She investigates and decides that her health coverage gives her the option of 4 different care settings. She chooses one close to her house and makes an appointment on line. After making her appointment, she gets a prompt response automatically welcoming her to this practice and signing her up for a pregnancy "e-newsletter" which she will receive weekly. Through the welcome, she knows exactly when her visits will be scheduled (the intervals) and what information will be covered at each visit. She is able to make a list of questions before each visit and start an "e-baby book". Her visits are sometimes 1:1 alternating between a CNM and an MD; and sometimes with a small group of other women also in the same trimester of pg. She joins a pregnancy chat group to see what other women think. Once she was able to save a phone call by emailing her provider with a short question and she received an answer the same day. Labs and PN vitamins are ordered online and she can see the results the next day. One of her visits (18 week) was online. At every visit her EMR is updated and loaded onto a "thumb drive" for "mypregnancy" which she carries on her keychain.

Unfortunately, her 19 week sonogram shows a partial placenta previa. She is able to understand the birth implications for this by watching an online teaching video on this condition. She discusses with her provider where she will deliver, given this new development. She also discusses a birth plan and files this electronically. At 32 weeks, she has a moderate bleed from the placenta and is immediately taken to the nearest hospital. Fortunately, because of the identification of her "high risk" status and the "low risk designation" of the hospital, she is safely transferred to a larger hospital which has 24h anesthesia and transfusion capability. A further assessment of her placenta reveals that she does not have a placenta previa. Her bleeding stops and she is discharged. In anticipation of a normal term delivery, she chooses a hospital based on her chat room's recommendation, convenience, level of care, and the publicly reported outcomes.

When she goes into labor her EMR is already at the hospital and the OP information is transferred into her IP record. Her "mypregnancy" on her thumb-drive is not needed. Her birth plan is reviewed and her providers use a standardized electronic admit order set, allowing customization according to her birth plan. All labs and medications are ordered through the computerized system. Her labor progresses normally and she has a short second stage with delivery of a healthy baby girl. During delivery there is a mild shoulder dystocia which was easily managed by her provider. After the delivery her provider tells her that she and all the MDs and CNMs go through yearly simulation training for high risk maternity situations like shoulder dystocia. Because of the training the local hospital birth injury rate from this situation has dropped by 75% in the last two years.

After taking a nap, Mary finds information about her newborn, breastfeeding, and the hospital through the television programming. She tunes into several of the programs. One program helps her with breastfeeding successfully while going back to work. She is able to select topics of interest from the menu to create her own postpartum virtual

"handbook" but decides against doing this since her pregnancy e-newsletter will continue when she goes home, to include her and her baby in the first year of life. She returns home tired but happy with her newborn baby. She knows that all the "aftercare" information is available when she is more awake or the baby is sleeping.

A few days after delivery, she suddenly develops urgency, frequency, and pain with urination. She emails her provider with these symptoms. She gets a prompt reply that these symptoms probably indicate a urinary tract infection and that she can pick up and start taking some antibiotics. She was glad that she didn't need to get her colicky baby packed up to come into the office for this simple treatment. Several weeks later she receives in the mail a hospital evaluation form asking her to rate her care. She remembers that in the beginning of her pregnancy her choice of hospital was based on evaluations from women themselves. Mary completes the questionnaire and sends it in. She wants others to know how great her experience was.

## Coordination of Maternity Care across Time, Settings and Disciplines

### Current Problems:

Coordination of care involves the process of continuous screening of maternity clients, then managing their care and consulting, collaborating, or referring throughout the maternity cycle according to risk level. Conditions of pregnancy can necessitate transfer or referral from community hospital or birth center to tertiary center, and back to the community site. Care coordination can occur during prenatal, labor and birth, or during postpartum periods, between maternity caregiver and specialists, lab, ER, and between levels of facilities. Depending on risk factors, women may require primary, secondary or tertiary maternity care during pregnancy, or a combination of levels of care. Maximizing communication and cooperation across settings could potentially improve both outcomes and client experience.

The addition of a primary maternity care coordinator using the model of the *medical/ healthcare home* (Commonwealth Fund, 2007) has the potential to reduce disparities while improving care coordination[9]. The medical/healthcare home concept could be expanded to include the maternity cycle with primary patient-centered care from preconceptual care through pregnancy, postpartum and breastfeeding support to reduce disparities and improve quality of care.

To reach the goal of improving maternity care across time and among various settings and disciplines, communication and trust must first be developed among various levels of providers and facilities within the maternity care delivery system. In general, competition for maternity clients abounds and may be a key barrier to inter-facility communication and care coordination. One area where lack of effective coordination of maternity care presents a particular problem is during intrapartum care transfers from out-of-hospital to hospital settings; this problem negatively impacts safety and continuity of care, and mechanisms for improvement are needed.

Increased community education about the basis for choosing and determining the highest quality yet most appropriate level of maternity care is required. In order for more low-risk women to choose maternity care with lower levels of intervention as their best option for safe physiologic birth, this education needs to be prevalent across all settings and disciplines. Recent developments in health information technology also have the potential to improve patient-centered care and care coordination. Because some health delivery systems have developed successful programs of care coordination that include standards and practice guidelines, efforts must be made to seek out and publish exemplary systems.

[9] A. C. Beal, M. M. Doty, S. E. Hernandez, K. K. Shea, and K. Davis, Closing the Divide: How Medical Homes Promote Equity in Health Care: Results From The Commonwealth Fund 2006 Health Care Quality Survey, The Commonwealth Fund, June, 2007.

**1. Health care delivery systems should develop collaborative quality assurance and improvement programs that include mechanisms to improve clinical coordination for seamless continuity of care and provide for safe appropriate handoffs in both directions.**

a. Strategies:

- Quality assurance and improvement program initiatives should be enacted for periodic review of all transfers and complications from community facilities to higher levels of care so that members from all levels of the care spectrum can discuss means of jointly improving quality of care in an environment of mutual respect and collegial practice.
- Health care delivery systems should improve access to specialty consults with maternal-fetal medicine specialists (MFM) for staff and community maternity care providers. Health care delivery systems establish and maintain mechanisms for open and accessible consultation for primary maternity providers including midwives, family physicians, and obstetricians with MFM on a twenty-four hour basis. This consultation will include mechanisms for consultation, co-management or referral of clients when the situation warrants
- The Medical/Health Care Home model should be developed for maternity care so that a primary maternity care coordinator can effectively facilitate care across time, settings and disciplines for each woman and her newborn. An organization such as NCQA could develop standards for eligibility for role of maternity care coordinator/medical/healthcare home[10].
- Health systems and community providers should work together to develop consensus standards for appropriate care level and risk criteria for each setting and provider type that can be shared and reviewed periodically. Such standards should include a mechanism for exceptions and approval of clients who fall outside specific risk criteria for each setting, if agreed upon by consulting Maternal Fetal Medicine specialists (MFM).

b. Lead responsibilities:

- Health systems sponsor and provide funding to develop a model of effective community coordination of maternity care with the goal of providing seamless care at the appropriate level to all pregnant women.
- Demonstration sites or model health care systems that currently provide the primary maternity care model within a system of consultation and referral. Example: Intermountain Health Systems (Utah) and Association of Accredited Birth Centers (AABC).

c. Challenges and solutions:

- A major challenge is establishing agreed upon standards for risk criteria among various levels of care. A model for replication is

[10] Miller HD. From volume to value: Transforming health care delivery systems to improve quality and reduce costs. Network for Regional Healthcare Improvement, 2008.

that used by Intermountain Health, which convened an interdisciplinary development team (comprised of family practice, midwifery, obstetrical and MFM providers) and used system patient safety data on near misses and reportable adverse events to develop criteria appropriate to each level of care (including appropriate providers and settings); their criteria are reviewed and modified regularly based on data review by the interdisciplinary team.
- Removing the barrier of competition among primary maternity care providers for low risk clients may be an additional barrier to improving coordination of care across settings.

d. Mechanisms for collaboration:

- Health systems sponsor meetings of regional stakeholders to design educational and collaboration systems. Collaboration will include sharing of resources such as practice guidelines.

e. Timeline for achievement:

- 12-24 months.

**2. Increase options for low-risk women to receive care in settings and with a practice style that promotes, protects and supports physiologic childbirth. In order for childbearing women to have access to the variety of health care options which have demonstrated quality outcomes, primary maternity care settings should include community level hospital and out-of-hospital settings offering supportive care and management by primary maternity care providers such as midwives with nationally recognized credentials, family practice physicians and generalist obstetricians. Tertiary care should be available for higher level complications or risk factors, however, all women should be educated and encouraged to seek the level of care appropriate for their individual health needs and risk status.**

a. Strategies:

- Health care delivery systems should support legislation to include freestanding birth centers as an essential covered service under Medicaid. Removing the barrier of lack of mandated coverage by Medicaid for birth centers would increase access to a proven model that is set up to operate within an established system of care coordination. The birth center model of care coordination can serve as one model of successful primary maternity care with a network of consultation and referral options.
- Health systems should reduce barriers to and promote credentialing of midwives in all health system facilities as care providers for low risk women.
- Health systems should hold regional public meetings to discuss maternity care options available in that region to understand local consumer demand for services. All facility and provider stakeholders should be invited to attend.
- Conduct community-based education campaigns to educate the public about risk factors in pregnancy, including criteria for “high risk” and “low risk”. Maternity care facilities and delivery systems

can coordinate to conduct campaigns in their communities based on a common message developed by consumer education groups. Campaigns should include information about the risks and indications for interventions such as elective induction of labor and cesarean delivery, interventions and procedures not necessary in normal pregnancy and birth, and those procedures more likely to lead to complications.

b. Lead responsibilities.

- Health systems, pregnancy advocacy and education groups, AABC, National Perinatal Association.

c. Challenges and solutions:

- Passage of federal legislation can be difficult, and with limited resources it can be nearly impossible to add a covered service to Medicaid. There is a precedent of many years of Medicaid reimbursement of birth center services, which provide remarkably good value (high quality, conservative use of resources), however cost-effectiveness analysis of the birth center model for low risk women would be beneficial.
- Engaging patients as primary stakeholders in their care will require a process of education and may be challenging. Established patient advocacy and educational groups working in this field must continue this effort.

d. Mechanisms for collaboration:

- AABC will continue to lead and coordinate the effort to pass legislation. Promotion by national professional and facility organizations. Educational campaigns supported by pregnancy and childbirth education organizations, such as the International Childbirth Education Association (ICEA) and Lamaze International, Childbirth Connection, lay media, and others.

e. Timeline for achievement:

- 12-36 months

**3. Seek exemplary national models of successful maternity care coordination for other institutions to emulate.**

a. Strategies:

- Identify model systems such as birth centers with tertiary care consultation and referral sites, community hospitals with midwifery model of care and referral, and home birth services with open consultation and referral to medical care.
- Seek nominations for exemplary model systems where maternity care coordination has been established and has demonstrated success.
- Call for a white paper to analyze components of successful care coordination across time, settings and disciplines. Outline and

describe components of successful care coordination in these model systems and publish for wide dissemination.

b. Lead responsibilities:

- Educational and professional groups promoting innovation and improvement of maternity and healthcare outcomes, i.e. Institute for Health Care Improvement (IHI) "Triple Aim" initiative.

c. Challenges and solutions:

- Finding health care systems and other sponsors to support or bring this to fruition. A foundation or federal grant funded program could be developed where existing collaborations could apply for funding for status as models of excellence to write up promote replication of programs.

d. Mechanisms for collaboration:

- Health systems and stakeholders collaborate to promote and develop new exemplary models.

e. Timeline for achievement:

- 18-24 months.