AMCHP

ASSOCIATION OF MATERNAL & CHILD HEALTH PROGRAMS

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COMPENDIUM

Forging a Comprehensive Initiative to Improve Birth Outcomes and Reduce Infant Mortality:

Policy and Program Options for State Planning

A Message from the AMCHP President

Since the inception of Title V of the *Social Security Act,* state and territorial programs have been working hard to address the causes of poor birth outcomes throughout the United States. Recently, national momentum has been growing to coordinate efforts addressing stagnating declines in infant mortality and persistent disparities among populations within the United States. With new initiatives and expanding evidence, state health departments and their partners have an opportunity to seize the moment, build on our past success and develop invigorated, strategic approaches to improving birth outcomes.

Currently, AMCHP is an active partner in several national initiatives such as the Health Resources and Services Administration Infant Mortality Collaborative, the Association of State and Territorial Health Official Healthy Babies Project and Presidential Challenge to Reduce Premature Births, and the March of Dimes Healthy Babies Are Worth the Wait. Other federal efforts, such as the US Department of Health and Human Services Secretary's Advisory Committee on Infant Mortality – which is preparing updated recommendations to guide national planning on infant mortality reduction – and the Centers for Medicare and Medicaid Services Strong Start Initiative, are identifying and promoting effective models to reduce infant mortality and improve birth outcomes. We are at a truly exciting and unprecedented time for maternal and child health, where we have the opportunity to accelerate our work, draw from each of these efforts, expand our partnerships and grow our evidence base so that we can realize our shared goal of healthy birth outcomes for all women and infants in the United States.

To help state-level stakeholders strengthen and accelerate comprehensive initiatives to prevent infant mortality and improve birth outcomes, AMCHP has developed *Forging a Comprehensive Initiative to Improve Birth Outcomes and Reduce Infant Mortality* to provide a synthesis of policy and program options for state planning. This resource is intended as a review, not a prescription, of strategies states can consider throughout their efforts. The recommendations provided in the compendium are extensive; not every strategy is appropriate for every state. We hope this compendium helps focus your efforts by providing specific, actionable ways to improve birth outcomes and facilitates learning about strategies and approaches from other states. Let's seize upon the national energy and build on the legacy of state maternal and child health programs to reduce infant mortality and improve the health of all of our nation's women and infants!

Sincerley,

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What is the AMCHP Compendium?

- **It is a menu of options.** The AMCHP compendium is a menu of program and policy options states can consider when planning to improve birth outcomes and reduce infant mortality.
- **It is a comprehensive source of recommendations and specific action steps.** AMCHP staff reviewed leading state and national reports on improving birth outcomes and synthesized the recommendations and action steps across all the reports into the AMCHP compendium.
- **It is a summary of the current efforts across the nation to improve birth outcomes.** The AMCHP compendium is a collection of what select state task forces, blue ribbon panels and other thought leaders are recommending states do to address infant mortality, supplemented by specific action steps, state examples and state case studies.

How to use the AMCHP Compendium:

- Assess the current initiatives of your state to improve birth outcomes. Determine the current gaps and identify recommendations to address those areas.
- Review the recommendations and action steps for ideas that align with your population needs, programs, staff and state leadership.
- Review the Health Impact Pyramid. Apply these concepts to your own assessment and planning of comprehensive initiatives to improve birth outcomes.
- Select multiple strategic policy and program options in order to build a comprehensive approach. You do not have to implement all the recommendations highlighted in this compendium in order to improve birth outcomes; some may not be feasible or relevant for your state. Select options that make the most sense. The recommendations and specific strategies suggested may not be the only actions state-level initiatives take to improve birth outcomes.
- Learn how to bring multiple approaches together in order to form a comprehensive plan from the case studies.

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Introduction

Infant mortality is an international measure of how well a society ensures the health of its people, particularly its women and youngest citizens. The World Health Organization defines infant mortality as the number of deaths occurring in the first year of life per 1,000 live births.

The United States currently ranks 30th in infant mortality rates among all industrialized nations.[i] Within the United States, disparities persist between populations. Infant mortality among African American babies is double, and in some places triple, the rate for whites.[ii] Despite decades of work to expand coverage and early access to prenatal care, the preterm birth rate in America remains high. Excess premature births and infant losses have enormous costs to our families, our health care system, our schools and our national prosperity.

Research shows that prenatal care may not be enough to improve the health of many mothers and babies.[iii] A comprehensive approach to improving birth outcomes and reducing infant mortality follows a life course approach, acknowledging and accounting for the interplay of biological, behavioral, psychological, social, economic and environmental influences on one's health across the course of their life. Before and between pregnancies, many women of childbearing age have untreated diabetes, continue to use tobacco, are obese and need better access to primary care and reproductive health services. The greatest impact of several risk behaviors occurs early in pregnancy. Thus, promoting the health of women before they become pregnant has great potential to improve the health of mothers and infants. Accordingly, many of the options included in this compendium focus on the health of women before, during and between pregnancies.

Providing quality, affordable health coverage for the four out of ten low-income women who are currently uninsured (unless they become pregnant or disabled) can go a long way in improving birth outcomes and reducing infant mortality. The *Patient Protection and Affordable Care Act* (ACA) expands health insurance coverage and provides states with tools and resources to improve access to quality care for women, infants and children. Under the ACA, several provisions have the potential to help improve birth outcomes. For example, the ACA expands coverage for uninsured adults through an expansion of Medicaid and the establishment of health insurance exchanges. . On Jan. 1, 2014, states have the option to expand eligibility to uninsured women with incomes up to 133 percent of the federal poverty level (FPL), potentially resulting in millions of uninsured women gaining coverage. Women who lack employer-sponsored health insurance and who earn incomes between 133 to 400 percent of the FPL – levels too high to qualify for Medicaid – will be eligible for coverage through new state health insurance exchanges beginning in 2014.

In spite of new opportunities under the ACA, national data show coverage for prenatal care and maternity care are necessary but not sufficient to achieve significant improvements in birth outcomes and reduce infant mortality. Beyond medical coverage, comprehensive public health and social equity interventions are needed to reduce prematurity and infant mortality in order to make a difference. Therefore, this compendium highlights recommendations and strategic actions that address public health, health care and social equity throughout communities and states.

This AMCHP compendium provides a synthesis of several leading state efforts and national reports. The AMCHP compendium is also a menu of state policy and programmatic options to begin or expand a comprehensive state approach to improving birth outcomes. These options are organized under the following seven broad recommendations:

1) Implement Health Promotion Efforts
2) Ensure Quality of Care for All Women and Infants
3) Improve Maternal Risk Screening for All Women of Reproductive Age
4) Enhance Service Integration for Women and Infants
5) Improve Access to Health Care for Women Before, During and After Pregnancy
6) Develop Data Systems to Understand and Inform Efforts
7) Promote Social Equity

Methodology

AMCHP identified reports from state infant mortality task forces, work groups, consortia and other panels that have studied infant mortality and made recommendations for action based on their findings. In a parallel effort, reports, position papers and documents indicating a plan or vision for improving birth outcomes (including reducing infant mortality) from national organizations and researchers were identified.

Appendix A includes a list of the source documents from state and national organizations and the number of recommendations from each source. A total of seven national reports, which included 60 separate recommendations, and eight state reports, which included 62 recommendations, were reviewed.

These source documents from state and national entities were examined for recommendations and strategic action steps. The recommendations were categorized by AMCHP staff to describe the suggested issue addressed by the recommendation or strategic action suggested. From this review, an overarching set of recommendation categories was proposed. These were as follows: address issues around access to care, address the social determinants of health, apply the life course theory, enhance education and training efforts, ensure quality, ensure sustainability and accountability, focus on vulnerable populations, implement targeted interventions, provide care and support to patient populations, use data to inform activities, use evidence-based practices and use a systems approach. From these categories, a set of seven broad recommendations were developed that form the basis of the compendium.

Program and policy examples are offered to highlight specific, actionable ways to address these recommendations. Examples were collected through multiple mechanisms, including best practices already included in the AMCHP Innovation Station; programs and policies highlighted at the AMCHP Annual Conference, through AMCHP webinars and other maternal and child health forums; and through communication and solicitation from Title V directors. Where possible, examples are grounded in evidence. Other examples, however, may not have been formally evaluated to date but show promising or emerging impact on improving birth outcomes. State examples and case studies were collected from October 2011 through April 2012. It is possible that over time some of the highlighted examples may lose funding or be eliminated for various reasons but should still be considered programs with promise.

Program and policy examples marked with the AMCHP Innovation Station icon ( ) are available in more detail in the AMCHP searchable database of emerging, promising and best practices in MCH, available at: amchp.org/programsandtopics/BestPractices/InnovationStation. Practices highlighted in the Innovation Station have been reviewed by an objective review panel of AMCHP members, partners and other experts in the public health field to determine if a practice meets the designated criteria (i.e. emerging, promising or best practice).

Conceptual Framework

The AMCHP compendium uses the Health Impact Pyramid as a framework to understand comprehensive approaches to improving birth outcomes and reducing infant mortality. In 2010, Dr. Thomas Frieden, Director of the Centers for Disease Control and Prevention (CDC), outlined a five-tiered pyramid to categorize the impacts of the different types of public health interventions.[iv] Frieden's Health Impact Pyramid is a conceptual model that organizes health interventions along dual continuums: population impact and increasing individual effort needed. At the top of the pyramid are interventions with the smallest population impact and the largest individual effort required. As you move down the pyramid, population impact increases and individual effort needed decreases. Comprehensive approaches to public health problems, including improving birth outcomes and reducing infant mortality, will include interventions that address all levels of the pyramid.

Tier 5: Counseling and Health Education

Summary: Tier 5 is the top of the pyramid and represents individual public health education. When applied consistently and repeatedly these interventions can have large impacts. These interventions require the highest amount of individual effort as they involve individual choices to change behavior. Furthermore, a population-level impact from counseling and health education may take longer to reach and be harder to measure. The impact of individualized messages and relationships on individual health choices, however, cannot be underestimated. (Examples: peer education about reducing HIV risk, personalized smoking cessation advice.)

Tier 4: Clinical Interventions

Summary: Tier 4 interventions are individual and require an ongoing clinical component (low population impact and high requirement of individual effort). There are many evidence-based clinical interventions that are proven to have a large health impact on the individual level, but non-adherence can be problematic so rigorous oversight and accountability are required to make sure interventions are implemented as intended. (Examples: medications for treating hypertension, hyperlipidemia and diabetes.)

Tier 3: Long-Lasting Protective Interventions

Summary: Tier 3 interventions have broad population impact, but require outreach to individuals. Interventions at this level are not clinical, they do not require ongoing relationships between an individual and the health care system, but they may involve a *singular* clinical intervention that makes a *permanent* change. (Examples: immunization, smoking cessation.)

Tier 2: Changing the Context to Make Individuals' Default Decisions Healthy

Summary: Tier 2 represents interventions that change the environmental context – so making the healthy choice becomes the easy choice. These interventions have high population impact and still require little individual effort. (Examples: clean environments (water, air, food), eliminating toxic exposures in building materials, improving public health infrastructure, developing the public health workforce.)

Tier 1: The Socioeconomic Factors

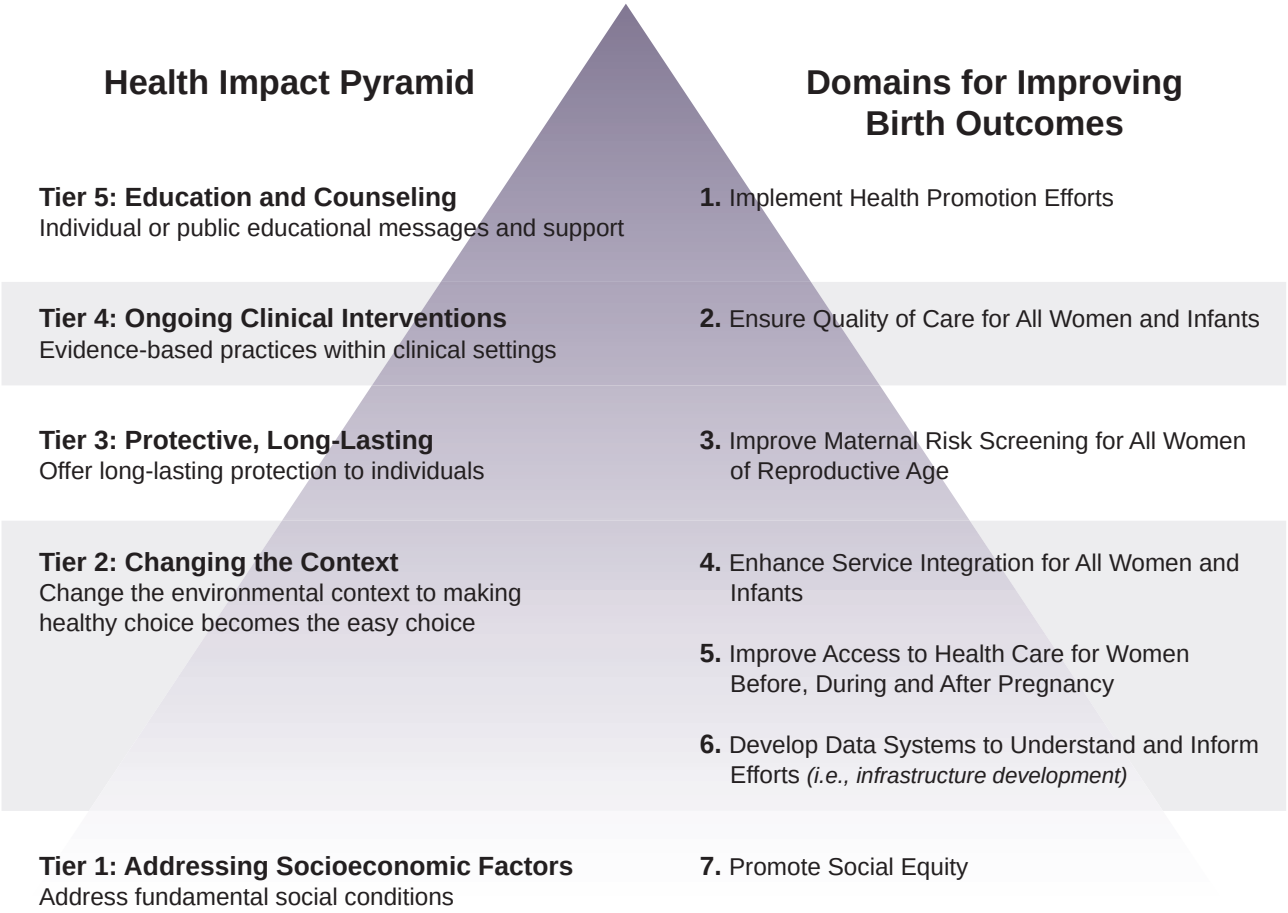
Summary: Tier 1 represents the bottom of the pyramid, which means interventions have the largest population impact and require the smallest individual effort. Health interventions at this level include fundamental social restructuring. (Examples: ending educational gaps, eliminating racism.)

Improving Birth Outcomes through Comprehensive Approaches: Using the Health Impact Pyramid

Poor birth outcomes are not caused by just one factor; therefore improving birth outcomes within states and communities will require comprehensive approaches. Using the Health Impact Pyramid to categorize interventions for improving birth outcomes helps clarify the type of impact a recommended action may have. Selecting strategic directions and interventions from multiple levels of the pyramid is central to building comprehensive approaches to improving birth outcomes. The seven recommendations to improve birth outcomes detailed throughout this document can be aligned to the Health Impact Pyramid to categorize the intended public health impact for each broad recommendation and the action steps within.

Building an effective response to infant mortality in states or territories will require assembling a strong Health Impact Pyramid. States can use the pyramid as a guiding framework to develop actions across multiple tiers of intervention to guarantee a comprehensive approach. Figure 1 offers a schematic that aligns the pyramid to the recommendations included in this compendium. Appendix A is a worksheet that states can use to map their own health pyramid for improving birth outcomes and reducing infant mortality.

FIGURE 1: The core recommendations for improving birth outcomes align with the Health Impact Pyramid.



The Role of the Title V Maternal and Child Health Services Block Grant

State Title V MCH programs have a 77-year history of building comprehensive, integrated systems to ensure the health and well-being of women, children, including children with special health care needs (CSHCN) and their families. All U.S. states and territories receive funds from the federal Title V Maternal and Child Health Services Block Grant program (Title V Block Grant). This federal program provides critical funds to states for programs, services, supports and leadership in areas that include improving infant and child health outcomes, reducing infant and maternal mortality rates, and providing prenatal care to low-income pregnant women.

Leveraging the Title V Block Grant can help advance state efforts to improve birth outcomes and reduce infant mortality. This statute authorizes funds for all states and territories to:

> " (A) provide and assure mothers and children (in particular those with low income or with limited availability of health services) access to quality maternal and child health services; and
>
> (B) reduce infant mortality and the incidence of preventable diseases and handicapping conditions among children..."

The federal Title V Block Grant also includes important requirements for coordination between state Title V and Medicaid programs. These requirements include:

- Assisting with coordination of Medicaid Early Periodic Screening, Diagnosis, and Treatment (EPSDT)
- Establishing coordination agreements with their State Medicaid programs
- Providing a toll-free number for families seeking Title V or Medicaid providers
- Providing outreach and facilitated enrollment of Medicaid eligible children and pregnant women
- Sharing data collection responsibilities[vi]

Initial Considerations

Striving for Collective Impact

Approaching a comprehensive initiative to improve birth outcomes and reduce infant mortality requires decisions and actions that develop strong partnerships and yield system-wide progress. Partnerships will be at the core of any comprehensive initiative. Yet partnerships for improving birth outcomes should go beyond traditional collaborations and public-private partnerships. In order to make further progress on improving birth outcomes, partnerships should embody a 'collective impact' approach to improving social outcomes. Collective impact is the commitment of a group of important actors from different sectors to a common agenda for solving a specific social problem.[vii] Social innovation researchers have found successful collective impact initiatives have five core characteristics:

- **Common Agenda** – a shared vision for change that includes a common understanding of the problem and a joint approach (i.e. agreed upon actions) to solving the problem. In order to reach a common agenda, disagreements and differences in the definition of 'the problem' or 'the goal' must be addressed.
- **Shared Measurement Systems** – agreed upon ways in which success will be measured and reported. Ensuring measures are aligned and all participating organizations can hold each other accountable and evaluate successes and failures along the way.
- **Mutually Reinforcing Activities** – the efforts of each stakeholder must fit into an overarching plan of action. Collective impact does not require all stakeholders to do the same thing, rather each stakeholder should undertake a specific set of activities in which they are apt to excel, which is coordinated with the actions of others.
- **Continuous Communication** – a shared vocabulary and, eventually, trust will develop through regular meetings. Stakeholders need to have constant contact with one another in order to recognize and appreciate common motivations, see their own interests will be treated fairly, and believe that collective decisions will be made based on the best possible solution to the problem.
- **Backbone Support Organizations** – collaboration requires a support infrastructure. The most effective examples of collective impact have staff dedicated to the planning, management and support of the initiative. Staffing requirements for large collective impact initiatives may be as simple as: project manager, data manager and meeting facilitator.

Enhancing Partnerships

Before developing and implementing a formal statewide initiative to improve birth outcomes, states should ensure work will be undertaken through a collection of statewide partnerships. Applying the principles and lessons of a collective impact approach will maximize the impact of collaborative efforts. Statewide partnerships may already be established. These stakeholder groups, however, may need to be re-energized or refocused.

States should consider the following agencies or organizations as potential partners in initiatives to improve birth outcomes:

- Medicaid agencies (including Children's Health Insurance Programs (CHIP) or Children's Medicaid) and other payers
- Offices/programs focused on CYSHCN, chronic disease, infectious disease, reproductive health, occupational health and environmental health
- Offices/programs focused on surveillance and assessment of community health and well-being, including Fetal and Infant Mortality Reviews and Child Death Review Committees
- Offices/programs implementing home visiting programs with families
- Women, Infants, and Children (WIC) supplemental nutrition programs
- State agencies focused on education, environment, housing, community development and health care delivery
- Parent education, advocacy and consumer groups
- Established coalitions focused on the health of women, children or families
- Established quality health care collaboratives
- Local or state chapters of the March of Dimes, Family Voices, and medical providers, such as the American Academy of Pediatrics (AAP) and American College of Obstetricians and Gynecologists (ACOG)
- Early childhood care providers
- Healthy Start Programs
- Women's health providers
- State/regional hospital systems
- Family planning clinics
- Community health centers
- Legislative staff and cabinet agencies
- Academia
- Emergency services (including fire and police departments)
- Civic organizations

Preliminary Actions

Building on broad partnerships, preliminary actions toward building a comprehensive initiative to improve birth outcomes include:

1. Conducting an environmental scan of current data, programs and resources at the national, state and local levels

Understanding the current programs and resources in your state, including the current health status and birth outcomes data, provides a critical first step in assessing needs and opportunities. Collecting and analyzing a wide range of data to understand reproductive and infant health, as well as contextual information about health care systems, neighborhoods, and the environment, will help to define the extent, causes, and contributors to infant mortality and poor birth outcomes.

Strategies states could use to conduct an environmental scan include:

- Reviewing the state Title V needs assessment and annual block grant application, as well as other MCH data sources, such as Title X, chronic disease, quality improvement and community assessments
- Compiling a synthesis of state and community-based programs
- Sharing and discussing the environmental scan with both state- and community-level stakeholders to help identify strengths and areas of need
- Creating mechanisms for ongoing monitoring

2. Establishing accountability for a continued focus on reducing infant mortality and improving birth outcomes

Accountability is a crucial factor to the success of any effort, especially those involving multiple interventions and strategies by many partners and organizations. Establishing clear roles and expectations, as well as feedback and quality improvement mechanisms, will help provide a clear direction and vision for the initiative and strengthen collaborations so that combined efforts effectively and efficiently address and improve the health of infants and families.

Strategies states could use to ensure accountability include:

- Establishing a committee/consortium/task force to implement and monitor recommendations
- Engaging a broad range of stakeholders, including state leadership, families and consumers
- Establishing committee workgroups, objectives, bylaws, members and other structures and functions necessary to carry out the work of the committee/consortium/task force
- Developing a strategic plan that details recommendations, strategies, action steps, and persons/agencies responsible for implementation, timelines and evaluation measures
- Disseminating regular reports to stakeholders on progress and ongoing needs
- Conducting ongoing needs assessment in infant mortality as part of or coordinated with the Title V Maternal and Child Health Services Block Grant activities

3. Maximizing and building on existing knowledge in designing programs and interventions

Use evidenced-based programs where possible to meet the needs of your state and community. There is a great need to maximize and build on existing knowledge in designing programs and interventions. Demonstrate to policymakers and the public that resources are being invested in programs that will work and that incorporate the best available evidence. It is important to be able to show evidence of impact to ensure continued investment of resources and that program resources are being used most effectively. Where research is still evolving, balance using evidence with innovation to grow the field.

Examples of ways states can ensure the use of evidence-based practices in their plans to improve birth outcomes include:

- Promoting effective models of public health interventions. Many information sources exist to help identify established evidence-based programs, the following is a short list of sources:
  - The U.S. Preventive Services Task Force: uspreventiveservicestaskforce.org/recommendations.htm
  - The Guide to Community Preventive Services: thecommunityguide.org
  - The U.S. Department of Health and Human Services Office of Women's Health Bright Futures for Women's Health and Wellness tools: mchb.hrsa.gov/womenshealth/resources.html#bright
  - AMCHP Innovation Station: amchp.org/programsandtopics/BestPractices/InnovationStation

- National Governor's Association (NGA) Center for Best Practices (Health Division): nga.org/cms/center/health
- Promising Practices Network: promisingpractices.net/search.asp#searchprograms

- Requiring evaluation of maternal and child health funded programs to capture the success of innovative models and contribute knowledge on emerging practice
- Establishing communication and reporting tools to ensure programmatic outcomes, successes and challenges are regularly shared with all stakeholders

4. Ensuring programs reach the persons most in need

Given limited resources, it may be easier to focus on interventions that may not be as costly or time intensive. Efforts that target the most at-risk, hardest to reach individuals, who have the most barriers to good outcomes can also lead to sustained reductions in infant mortality and improved birth outcomes. Programs and activities should consider a sufficient scope and reach (such as extended hours for services, accommodation of transportation barriers, wide geographic presence); be culturally responsive; and have adequate capacity to reach a meaningful proportion of the population at highest risk.

Recommendations

Analysis of state action plans and national reports on reducing infant mortality led to seven broad recommendations for building a comprehensive plan to improve birth outcomes. These recommendations outline core areas for focus and planning among states and partners. These recommendations are:

1) Implement Health Promotion Efforts
2) Ensure Quality of Care for All Women and Infants
3) Improve Maternal Risk Screening for All Women of Reproductive Age
4) Enhance Service Integration for Women and Infants
5) Improve Access to Health Care for Women Before, During and After Pregnancy
6) Develop Data Systems to Understand and Inform Efforts
7) Promote Social Equity

The following section explores each of these recommendations and provides specific action steps that state agencies and partners can take to improve birth outcomes. Each recommendation is supplemented with state-level programs or policies exemplifying aspects of the overall recommendations. Detailed case studies of seven state initiatives to improve birth outcomes are also featured (pages 54-72) as a way to illustrate how comprehensive approaches can vary across differing states and communities.

Recommendation 1: Implement Health Promotion Efforts

Health promotion is the art and science of helping individuals understand influences of health, become motivated to strive for optimal health and change their lifestyle to move toward a state of optimal health.[viii] Health promotion leads to individual level change through education, enhanced awareness and increased skills and self efficacy. Health promotion can also be achieved through establishing opportunities and environments that make positive health behaviors the easiest choice, thus creating individual health promotion at the population level.

Health promotion is an effective strategy to modify individual behaviors that directly impact health. Behavior change at the individual level can lead to better health outcomes for infants, women and families. Education about behaviors, their impact on health and how to change or reduce risk associated with behaviors is central to many health promotion activities. Health promotion and behavior change at the individual level is sustained as communities institutionalize health policy, systems and environmental changes that ensure healthy choices are the easiest choice (i.e., laws that require car seats, workplaces that support breastfeeding).

Health promotion activities can directly improve birth outcomes and influence the causes of infant morbidity and mortality by educating on health behaviors that prevent Sudden Infant Death Syndrome (SIDS) and Sudden Unexplained Infant Death (SUID). SIDS/SUID is the leading cause of death among infants aged one to 12 months, and the third leading cause overall of infant mortality.[ix] In the early 1990s, health education campaigns, such as Back to Sleep, promoted safe sleep positions and environments for infants in order to reduce the occurrence of SIDS. Since then, the overall rate of SIDS in the United States has declined by more than 50 percent.[x] Research has shown promoting health behaviors, such as breastfeeding, immunizations and reducing substance use, also lower the risk of SIDS.[xi]

Another direct cause of infant morbidity and mortality are neural tube defects (NTDs), or birth defects of the brain and spinal cord. Spina bifida and anencephaly are the most common NTDs in the United States. According to the CDC, each year 1,500 babies are born with spina bifida and nearly one in every 5,000 babies are born with anencephaly. Over the past few decades, reductions in birth defects have been achieved through use of promotion of healthy preconception and prenatal behaviors, as well as proper health care before and during pregnancy. For example, there has been a 27 percent decline in pregnancies affected by NTDs since the United States began fortifying enriched grains with folic acid.[xii] Folic acid intake and folic acid fortification can prevent 50 to 70 percent of neural tube defects.[xiii] In addition, controlling teraterogenic medications[xiv], obesity[xv] and diabetes[xvi, xvii], can help prevent NTDs.

The health of a mother *as a woman* should be a priority focus area in order to reduce the impact maternal health behaviors can have on infant morbidity and mortality. Not only is women's health promotion important for community health outcomes, general women's health promotion as a strategy can be used to target birth outcomes through the preconception period. A preconception health framework espouses that the maternal health status before pregnancy plays an important role in the health of women and infants during pregnancy. Preconception health behaviors that can impact pregnancy and infant related health include substance use and weight management. Smoking by pregnant women is associated with 30 percent of small-for-gestational-age infants, 10 percent of preterm infants and

5 percent of infant deaths.[xviii, xix] Although smoking rates among women have been decreasing, the CDC estimates that 22 percent of women of reproductive age continue to smoke.[xx] In addition, 4.9 percent report heavy drinking on a regular basis.[xxi] Many women also are generally not at a healthy weight before pregnancy, 24.7 percent of women of reproductive age are obese[xxii] and 23 percent have insufficient physical activity throughout their daily routines.[xxiii] Positive health behaviors, such as smoking cessation and maintaining a healthy weight, as well as establishing good oral health, reducing stress and choosing to breastfeed, are choices a woman can make in order to improve her health and the birth outcomes of her children.

Furthermore, a focus on individual parental behaviors should not be reserved for women alone. Fathers, partners, family members and other members of a women's support network should be included in health promotion activities when appropriate in order to establish a social support system that encourages healthy behaviors.

Finally, the broader communities and environments in which individuals live also play a role in birth outcomes. For example, even though infant safety seats reduce the risk of death in passenger cars by 71 percent for infants, motor vehicle crashes are a leading cause of injury deaths for children 14 and under.[xxiv] Population health promotion strategies such as child safety seat laws, safety seat distribution and education programs, community-wide education and enforcement campaigns and incentive-plus-education programs are effective in increasing child safety seat use.[xxv]

Comprehensive health promotion programs rely on communications. Health promotion programs and activities provide messages to families, providers and communities to ensure increased awareness and reinforcement of individual health behaviors and practices. New technologies and social media opportunities should be considered in broader health promotion programming. As messages are created and communicated, materials and campaigns should always be available in the languages of the target population.

Actions states and partners can consider taking to implement health promotion efforts to improve birth outcomes and reduce infant mortality include the following:

Develop messages about preconception and interconception health to promote women's health before and after pregnancy. Specific strategies include:

- Incorporating preconception and interconception health messages into social media campaigns that promote women's health and wellness.
- Developing and implementing comprehensive educational curricula to help adolescents and young adults understand reproductive health and the impact of choices/behaviors to their own health and to the health of future children.
- Developing and implementing social marketing strategies to help women and men of reproductive age understand the link between lifestyle choices and healthy pregnancies.
- Supporting reproductive life planning for all women of reproductive age, including adolescents.
- Establishing tools on the Web or via telephone so women and men are able to obtain general health coaching information and services.
- Supporting and promoting access to information about health services through 311-baby, 211 and other easy to use information sources.

Recommendation 1 *continued*

Incorporate messages on healthy pregnancies and healthy infant care into social marketing and education campaigns. Specific strategies include:

- Targeting messages to first-time mothers.
- Promoting text4baby (text4baby.org) to provide health and safety messages to pregnant women, families and parents of infants.
- Establishing social networking/educational tools on the Web or via telephone so women and men are able to obtain pregnancy health coaching information and services.
- As messages are created and communicated, materials and campaigns should be available in the languages of the target population.

Expand preconception and interconception health planning among women and providers. Specific strategies include:

- Working with health care providers to understand and implement preconception health care, including evidence-based practices on preconception health as defined in "The Clinical Content of Preconception Care."[xxvi, 1]
- Promoting comprehensive, culturally appropriate reproductive health life plans for all women, including adolescents. Promoting reproductive life plans in family planning clinics and other medical and public health settings where women discuss contraceptives with providers and school health classes for teens.
- Providing culturally appropriate fact sheets for providers and consumers about preconception care visits, folic acid and vitamins, smoking and alcohol cessation, healthy weight and the use of contraceptives or other methods to plan the timing of a pregnancy.
- Providing preconception health education and services to adolescents and young adults (including men) in school-based clinics, family planning programs and through university programs.

Promote daily folic acid for women of childbearing age. Specific strategies include:

- Working with partners, specifically state chapters of the March of Dimes, family planning clinics, WIC, community health centers and other women's health professionals, to deliver messages and vitamins containing the recommended amounts of folic acid to women of child bearing age.
- Including messages about folic acid in social marketing campaigns targeting women of reproductive age. Deliver messages through mass media, articles, community activities and promotion.

Reduce the use of and exposure to harmful substances among all women. Specific strategies focusing on pregnant and post-partum women include:

- Coordinating with existing smoking cessation efforts (e.g., tobacco control programs, providers, WIC, Medicaid, community health centers and local organizations) to target cessation programs for pregnant women.
- Promoting resources around smoking cessation and drug treatment programs for pregnant women (e.g., a quit line devoted specifically for pregnant women).
- Implementing reminders for providers (including dental providers) to identify and intervene with tobacco-using women.
- Providing awareness and training in tobacco cessation to obstetric and neonatal providers and other public health and social service providers who see pregnant women.
- Partnering with Medicaid to develop strategies for increasing reimbursement for cessation programs for pregnant and postpartum women.
- Partnering with Environmental Health and Healthy Homes programs to reduce women's exposure to secondhand smoke through prohibiting smoking in public places.
- Working with insurers to provide interventions to pregnant women addicted to drugs.
- Educating women on the dangers of using alcohol and other substances, including safe medication use during pregnancy to prevent birth defects or other possible problems.
- Educating pregnant women about a safe environment, including food safety messages in pregnancy, avoidance of harmful household substances such as insecticides, lead, mercury, strong chemicals and avoiding handling soiled cat litter, mice, rats, hamsters and guinea pigs.

Promote safe sleep campaigns. Specific strategies include:

- Distributing information and education about sleep related deaths.
- Supporting programs that provide cribs for low-income families.

[1]To access the supplement articles, visit beforeandbeyond.org/?page=key-articles-and-studies#AJOG

- Working with retailers, such as grocery and baby stores, to promote safe sleep messages in baby-product aisles.
- Working with hospitals to create standard safe sleep and SIDS risk reduction curricula for providers, including training on the American Academy of Pediatrics (AAP) safe sleep guidelines.
- Partnering with community service providers and other agencies to conduct trainings on infant safe sleep that target parents, child care providers, grandparents, home health care professionals and staff of obstetric and pediatric clinics.
- Creating safe sleep bassinet cards for nursery staff, child care providers and families.
- Also see strategies under tobacco cessation on page 12.

Promote healthy weight among women of childbearing age. Chronic disease and obesity prevention programs may be partners who are particularly engaged in healthy weight policy and program development. Specific strategies include:

- Developing a community-specific report identifying culturally appropriate strategies for promoting healthy weight.
- Promoting screening for chronic diseases, such as heart disease and diabetes, during preconception or pregnancy-related care.
- Including messages about healthy weight gain and loss during pregnancy in population-based obesity prevention and 'healthy weight' programs.
- Implementing 'healthy weight' programming for pregnant women; WIC and home visiting programs may be partners to engage in order to increase reach of programs.
- Partnering with youth organizations that reach girls and teens to teach key obesity prevention messages.

Increase awareness among pregnant women, families and providers on the importance of carrying an infant full term. Specific strategies include:

- Increasing education and use of progesterone for the prevention of preterm birth, utilizing either 17 alpha hydroxyprogesterone caproate (17P) or vaginal progesterone to reduce prematurity.
- Working with obstetric provider associations, state chapters of the March of Dimes, insurers and hospitals to educate providers about the use of 17P injections or vaginal progesterone starting at 16-18 weeks gestation in women with history of preterm delivery or vaginal progesterone for women with short cervix (See **Recommendation 5 – Improve Access to Health Care for Women Before, During and After Pregnancy** for additional access strategic actions).
- Providing educational materials to pregnant women, families and health care providers on the benefits of delivery after 39 weeks and on the risks of delivery to both pregnant women and their infants prior to 39 weeks.
- Using individual patient education, including messages in birthing classes, to create public awareness on the importance of carrying an infant full term.

Improve public and professional awareness of benefits and risks of newly developed and available contraceptive technologies – keeping in mind the wants and desires of the woman and her family/partner (including cultural considerations).

Educate communities and service providers on the issues and impact of infant mortality within the community in order to develop additional champions for improving birth outcomes. Specific strategies include:

- Promoting educational opportunities through continuing education courses and grand rounds at birthing hospitals and with health care provider associations on infant mortality reduction, including safe sleep, the optimum minimum pregnancy interval, birth defects prevention and abusive head trauma (shaken baby syndrome).
- Preparing "packaged" PowerPoint presentations relevant to the issues that drive infant mortality in the community that can be easily used by partners when educational opportunities arise.

Reduce unintentional injuries to women and infants in the home and child care settings. Injury prevention messages and services can be delivered through multiple programs and partners

Recommendation 1 *continued*

serving pregnant women and families. Emergency services (i.e. poison control centers, local fire and police departments) may be a particularly strong partner for dissemination of injury prevention messages. Specific strategies include:

- Distributing home safety checklists to pregnant women and families to assess the risk of injury in their homes through health care providers, child care centers and community partners.
- Increasing access to free or low-cost preventive measures through give away (low- or no-cost) programs for smoke alarms, carbon monoxide alarms and safety latches.
- Providing information about poison control centers to families and child care providers.
- Providing education on abusive head trauma (shaken baby syndrome) to parents and other family members through videos that can be viewed in the hospital before discharge, posted to YouTube and other websites, and through continuing education to providers on best practice for reviewing with parents and caregivers the dangers of shaking infants.
- Providing resources and information for domestic violence shelters and interventions.
- Encouraging treatment for depression and other mental disorders.
- Also see strategies under safe sleep on pages 12-13.

Reduce injuries and death related to motor vehicle crashes. State transportation and traffic safety agencies, public safety agencies, health and automobile insurance plans, Safe Kids coalitions, law enforcement agencies and civic organizations may be particularly strong partners for dissemination of motor vehicle safety messages. Specific strategies include:

- Providing free or low-cost child safety seats to families.
- Providing safety seat checkpoints for families, including education about the proper use and installation of child restraints in automobiles.
- Promoting laws or hospital policies that require a properly installed car seat prior to post-delivery discharge from a hospital or birthing center.

Promote oral health, particularly the prevention and treatment of periodontal disease, as a component of comprehensive perinatal health programs. Specific strategies include:

- Ensuring oral health education is integrated into outreach programs for perinatal care.
- Educating health care providers (i.e. primary care and maternity care doctors) on how to diagnose treat and refer pregnant women with severe periodontal disease.
- Disseminating resources on dental care for women of childbearing age to clinicians and health educators.
- Incorporating messages about the importance of visiting a dental provider to pregnant women.
- Ensuring access to dental care by providing lists of dentists who accept Medicaid.

Support breastfeeding promotion for all mothers. Local breastfeeding coalitions, WIC programs, birthing hospitals, health professionals who see pregnant and post-partum women, home visitors, and local employers (businesses) may be particularly strong partners in breastfeeding promotion initiatives. Specific strategies include:

- Implementing culturally sensitive breastfeeding education and promotion to families, health care and child care providers, and employers.
- Working with birthing hospitals, breastfeeding coalitions and communities to expand the number of Mother and Baby Friendly hospitals.
- Providing lactation consultation and peer-support resources in hospitals and communities, utilizing WIC programs and other resources.
- Ensuring availability of breast pumps for low-income women through WIC and other resources.
- Strengthening workplace programs to support breastfeeding, including paid maternity leave and implementing policies, such as provision of a designated place for pumping, to support lactation during the work day.
- Disseminating resources, such as The Business Case for Breastfeeding Toolkit,[2] to help businesses and employers promote breastfeeding in a supportive workplace.

[2] For more information, visit: womenshealth.gov/breastfeeding/government-in-action/business-case-for-breastfeeding/

Educate expectant parents about newborn screening as a life-saving intervention for infants. Specific strategies include:

- Providing information and resources to families such as Baby's First Test.[3]

Include male partners in services, education and programs to reduce infant mortality. Specific strategies include:

- Increasing and/or developing prenatal and parenting classes and information for fathers.
- Ensuring programs on parental development address the perspective and needs of fathers.
- Establishing programmatic focuses on improving the relationships between men and women, including marriage/relationship counseling, family therapy or skills training in communication and conflict resolution.
- Increasing the use of male trainers in parenting classes.
- Sharing information on infant mortality with local Fathers Networks or other fatherhood advocates.
- Partnering with educational programs, employment-related services, and legal and social services for males to promote healthy baby messages.
- Encouraging churches, universities and media to take leadership roles in the fatherhood movement.
- Championing public policy that supports the ability of families to stay together.

[3] For more information, visit: babysfirsttest.org

Examples

Adolescent Reproductive Health Plan (Delaware)

dhss.delaware.gov/dhss/dph/chca/dphahtpp01.html

Data on teen pregnancy from Delaware indicate that Delaware teens are more likely to have sex at an early age, have more frequent sexual activity, have more sexual partners and may be less likely to use protection than adolescents in other states. In order to address the issue of teen pregnancy prevention, the Teen Pregnancy Prevention Advisory Board drafted the Delaware Adolescent Sexual Health State Plan based on Healthy People 2020 goals for adolescent and reproductive health. The plan was released in August 2011 and includes two evidence-based health education programs targeting both the school-based and community-based adolescent populations in reducing teenage pregnancy statewide ("Making Proud Choices!" and "Be Proud! Be Responsible!"). Targeted sites include areas with high rates of social and economic risks, teen birth rates, and sexually-transmitted infection (STI) and HIV/AIDS infection rates. The plan emphasizes coordination and collaboration between Delaware state agencies and community organizations serving adolescents. These partners will influence the implementation strategies identified in the work plan by working with the education providers and providing feedback. The education providers are school teachers from all 19 school districts in the state who will participate in training provided by the Sexuality Training Institute.

Always on Saturdays – Hartford Action Plan on Infant Health, Inc. (Connecticut)

teenpregnancyhartford.org/aos.htm

teenpregnancyhartford.org/

Always on Saturdays (AOS) is a nationally recognized teen pregnancy prevention program operating in Hartford neighborhoods since 1986. AOS facilitates workshops and activities for its program participants every Saturday. The AOS program directly provides young men with health education and reproductive health services. AOS also works in collaboration with other agencies in Hartford to provide employment training, tutoring and recreational activities. Each male in the program participates in four types of services that will lead them through the "Passage to Success." These four service areas include health and education, employment, special skills, and education and tutoring. The program uses small group discussion sessions, field trips and adult mentoring to teach males about sexual responsibility and reproductive health. The male program participants are separated into two groups ages 9 to 13 and ages 14 to 18 in order to provide age-appropriate discussions of human development issues.

Recommendation 1 Examples *continued*

Baby Blossoms Collaborative Preconception Health Program – Now and Beyond (Nebraska)

babyblossomsomaha.org

A joint effort of eight local agencies, this collaborative aimed to improve the health of women and infants by eliminating disparities and reducing fetal infant mortality in Omaha, Nebraska. Title V funding was received for a preconception health program entitled Now and Beyond, which educated 80 women across seven sites about the importance of a healthy lifestyle and the value of planning a pregnancy. From 2005 to 2008, maternal health andprematurity was addressed through the Now and Beyond preconception health program. First, a train-the-trainers approach was used to train Baby Blossoms Collaborative partners on how to use components of the Now and Beyond toolkit to educate clients in a clinic setting. The training tools (flip books) emphasized planning for a healthy pregnancy before becoming pregnant and a healthy lifestyle throughout pregnancy. The tool contains 22 risk-reduction strategies for healthy birth outcomes. The collaborative developed a brief intervention message focused on the top three health issues determined by the participants.

Back to Sleep Public Education Campaign; Louisiana Floor Talker Program

nichd.nih.gov/sids; sidscenter.org

The 'Back to Sleep' campaign began in 1994 as a way to educate parents, caregivers and health care providers about ways to reduce the risk for Sudden Infant Death Syndrome (SIDS). The campaign was named for its recommendation to place babies on their backs to sleep. Since the campaign started, the percentage of infants placed on their backs to sleep has increased dramatically and the SIDS rates across the United States have declined by more than 50 percent. A database of promising practices submitted by local programs can be found at suid-im-projectimpact.org. One example from Louisiana describes a "Floor Talker" program. Local safe sleep advocates place decals with safe sleep messages on the floor aisles of grocery stores and baby supply stores used by their target audience. The goal of the "Floor Talker" program was to ensure that the target population has a clear understanding of the SIDS Risk Reduction and Safe Sleep tips and put them into practice.

California Breastfeeding Coalition

californiabreastfeeding.org

The California Breastfeeding Coalition (CBC), formed in May 2003, serves as an umbrella organization for the 43 regional breastfeeding coalitions located throughout California. The CBC aims, through collaborative efforts, to create a more healthful California through the promotion and support of breastfeeding. The CBC website serves as a clearinghouse for information on promoting breastfeeding and state laws impacting the rights of breastfeeding women. The CBS also promotes breastfeeding by helping hospitals obtain 'Baby Friendly' status and administering 'Mother-Baby Friendly' workplace awards. In addition, the CBC runs the Breastfeeding Ambassador Program, which coordinates volunteer breastfeeding ambassadors who communicate breastfeeding promotion messages and positions on legislative bills or regulations to members of Congress, Assembly and Senate; local government and/or their staffs at key times; hospital administrators; employers; and local media.

California Male Involvement Program

urban.org/publications/307327.html

The California Male Involvement Program (MIP) started as a demonstration project in 1995 for teen pregnancy prevention programming directed to adolescent and young adult males 12 to 24 years of age. In 2003, the California State Legislature began supporting MIP through general funds across the state in teen pregnancy 'hot spots.' Specific goals of MIP included promoting the roles of males in the prevention of teen and unintended pregnancies, increasing the number of fathers who support the economic, social, and emotional well-being of their children and supporting the development of self-assured, future oriented youth capable of navigating through adolescence to responsible adulthood and contributing positively to society. MIP used a wide variety of strategies appropriate for their community. Required strategies include comprehensive sexuality education and clinical linkage services. Other strategies included education and support for teen fathers, service-learning, peer-provided services (peer-educators), and mentoring. Overtime, MIP saw multiple accomplishments across the state. Program evaluations showed increases in knowledge of the risk pregnancy, where to obtain birth control and awareness of statutory rape laws among participants. In addition, activities were institutionalized over time as school districts began offering MIP classes for credit. State funding for MIPs was eliminated in 2008 with the California budget crisis, however, agencies continue to implement the intervention model. Information on the MIPs intervention model can be found in Brindis CD, et al. (2005) *Let's Hear It for the Guys: California's Male Involvement Program.* International Journal of Men's Health, 4(1), 29-53.

Connecticut Breastfeeding Coalition

breastfeedingct.org

In July 2001, the Connecticut Department of Public Health convened representatives from local health departments, WIC, American Academy of Pediatrics, hospitals, community

health centers, La Leche League of Connecticut, lactation consultants, nurses, nutritionists, parent educators, and consumers to form the Connecticut Breastfeeding Coalition (CBC), which promotes and supports breastfeeding as the norm for infant and child feeding in Connecticut. CBC distributes resources and education on their website, promotes 'Breastfeeding-Friendly' business and employer awards and administers a program to assist Connecticut hospitals obtain 'Baby-Friendly' recognition.

Healthy Women, Healthy Futures (Oklahoma)

nursing.ouhsc.edu/HWHF/healthy_women_healthy_futures.htm

Offered at early childhood education centers, Healthy Women, Healthy Futures (HWHF) aims to improve the physical, emotional, social, dental and vision health of at-risk women living in poverty before they become pregnant again, thereby minimizing their risk of future premature birth or infant death in Oklahoma. Led by the University of Oklahoma College of Nursing, HWHF attempts to reduce participant risk factors, which diminish health, and improve their protective factors by improving their equity to primary care and other health services through health education and care coordination. Participants attend weekly one-hour classes offered in Spanish and English on-site at early childhood education centers, and develop health and reproductive life plans while consulting with HWHF staff during home visitation. Evaluation data to this point have shown health improvements due to improved knowledge and resultant behavior change; lifestyle improvements, such as increased exercise and better nutrition; and healthy, full-term or late preterm pregnancies among participants. Additionally the program has an 85 percent retention rate in a population frequently characterized as non-compliant, apathetic, disinterested, mobile and difficult to retain in a program. Originally funded by the George Kaiser Family Foundation (GKFF), HWHF is currently funded by GKFF and Blue Cross Blue Shield of Oklahoma.

Honey Child Prenatal Education Program (Texas)

marchofdimes.com/texas/programs_honeychild.html

According to the March of Dimes Peristats, the rate of preterm births in the United States is highest among African-American infants at 17.8 percent (18.6 percent in Texas – the highest among any subgroup in the state). To address this disparity, the March of Dimes Texas Chapter launched the Honey Child Prenatal Education Program in 2006. The Honey Child Prenatal Education Program has been designed to provide African-American women with the culturally appropriate information and support needed to have the healthiest possible

Recommendation 1 Examples *continued*

pregnancy and birth outcome. The intervention targets African-American women of childbearing age with a specific focus on women ages 17 to 44. In 2008, the March of Dimes Texas Chapter piloted Honey Child in five Texas churches.

Honey Child has two core program components: 1) group prenatal education sessions: a cognitive component, designed to provide accurate and timely information in the area of prenatal care and pregnancy; and 2) mentoring: a social support component designed to empower and promote participants to make behavior changes in those areas that need improvement (e.g., seeking prenatal health care) – or to support existing behaviors that promote healthy pregnancies.

Honey Child uses a faith-based approach to promote prenatal health. The curriculum incorporates interactive group activities, such as prenatal yoga and exercise, as well as individual reflection and spiritual messaging, making it an appropriate prenatal health education program for the church setting. The Honey Child curriculum includes six sessions of two hours each. Topics include: nutrition, relaxation and exercise, prenatal care, self-esteem, preterm birth, and labor and delivery. Each group consists of 6-12 women who share similar due dates. The women participate in monthly group discussions led by a facilitator. The mentor provides weekly one-on-one social support in addition to reinforcing positive health behaviors discussed in the groupHost churches have embraced the Honey Child program and increased awareness of the prematurity problem in the community and with referral organizations. Churches have also expanded prematurity awareness by participating and hosting prematurity awareness month activities in their churches which included prematurity awareness summits, Honey Child baby showers and prematurity awareness sunday activities.

The program expanded to two new sites in 2010 for a total of six sites across the state (Arlington, Austin, Dallas, Fort Worth, Houston and San Antonio). The March of Dimes partnered with the Tarrant County Health Department to conduct a statewide evaluation. Results reported in 2011 cover the time period of November 2007 to March 2011. Evaluation has shown increases in knowledge on prenatal health topics, increases in social support, and decreases in maternal stress. In a pilot study, 89% of women had infants that were born full-term, and only 4% were born less than 32 weeks gestation.

Illinois Council on Responsible Fatherhood

responsiblefatherhood.com

The Illinois Council on Responsible Fatherhood is a state commission established by the Illinois State Legislature to promote the positive involvement of both parents in the lives of their children. The mission of the Illinois Council on Responsible Fatherhood is to significantly increase the number of children in Illinois that grow up with a responsible father in their lives. The council seeks to do this through raising public awareness of the impact of father absence on children; assisting state agencies and other service providers the resources they need to promote responsible fatherhood; reforming perceptions within state agencies and other service providers regarding the role of fathers as parents; and advocating for programs, policies and legislation that will encourage the positive involvement of fathers.

New York State Oral Health Care During Pregnancy and Early Childhood: Practice Guidelines

health.ny.gov/prevention/dental/oral_health_care_pregnancy_early_childhood.htm

Several national organizations, such as the American Dental Association, American Academy of Pediatric Dentistry and American Academy of Pediatrics, issued recommendations for improving the oral health of pregnant women and young children. To reinforce these recommendations and provide guidance, in 2006, the New York State Department of Health convened an expert panel of health care professionals who are involved in promoting the health of pregnant women and children. The panel reviewed literature; identified existing interventions; practices and guidelines; assessed issues of concern; and developed recommendations. The guidelines can be used by prenatal care providers to integrate oral health risk assessment and referral into routine prenatal care; by oral health professionals to provide appropriate treatment for pregnant women; by child health professionals to include oral health risk assessment as part of well-child care; and to provide referral. These guidelines will enable health care professionals to work together as a team to improve the care delivered to mothers and children. This improved integration of care is expected to have significant health benefits.

North Carolina Folic Acid Campaign

everywomannc.com

The North Carolina Folic Acid Campaign is a statewide, multi-component program. The overall goal is a reduction in the number of pregnancies affected by neural tube defects (NTDs) by promoting the benefits and consumption of folic acid. The program includes staff working statewide to implement community and provider education. The campaign has developed materials in English and Spanish, as well as implemented social media marketing. Evaluation of the campaign has shown a nearly 40 percent decline in NTD prevalence in North Carolina between 1995 and 1996 (9.5 per 10,000 live births) and 2004 and 2005 (6.05 per 10,000 live births). In 2010, the campaign became the North Carolina Preconception Health Campaign. The intent of this transformation was to expand the campaign mission beyond

folic acid education to include other preconception health messages, such as healthy weight and reproductive life planning. The campaign has had multiple funding sources – state appropriations, federal Medicaid administrative match, grants and contracts, and funds from a Vita Grant Settlement.

North Carolina 17P Initiative

mombaby.org (click on 17P)

In 2006, the North Carolina General Assembly appropriated funds to reduce preterm birth by improving access to and appropriate use of 17 alpha hydroxyprogesterone caproate (17P). The funds were used to expand education for physicians and consumers about 17P, as well as to increase access to the medication by making it available to low-income women free of charge. The 17P Project was born out of the concern of many about the increasing numbers of babies being born too soon. A key goal of this initiative is to ensure all women in North Carolina who meet the clinical criteria for 17P will have access to this intervention to reduce their risk of a recurring preterm birth. Proper use of 17P has shown a 33 percent reduction in the rate of preterm delivery prior to 35 weeks gestation and a 42 percent reduction prior to 32 weeks gestation. The 17P Project has recently partnered with the new Pregnancy Medical Home program and is featured as one of the four core quality improvement measures. This focus has provided important supports to this work, including case management to facilitate full compliance with the treatment. North Carolina continues to provide 17P free of charge to women who are uninsured. The initiative continues to ask for a small amount of funding again from the General Assembly (state funding) for this medication but has been able to sustain much of the work by fully integrating 17P into practice across the state.

Oklahoma Breastfeeding Hotline

1- 877-271-MILK

ok.gov/health/Child_and_Family_Health/Breastfeeding/Where_to_Call_for_Help/

The Oklahoma Breastfeeding Hotline (OBH) was launched in 2008 as a partnership between the Oklahoma State Department of Health (Maternal and Child Health Service), the University of Oklahoma Health Sciences Center Department of OB/GYN, and OU Medical Center. With funding from the Title V Maternal and Child Health Services Block Grant, as well as personnel and in-kind support from the OB/GYN department, the OBH is a 24/7 telephone hotline providing professional breastfeeding support to Oklahoma mothers, families and health care providers. All calls are handled by an International Board Certified Lactation Consultant (IBCLC). Urgent calls are returned within one hour while nonurgent calls are returned during business hours. Mothers, families and health care providers receive free, timely telephone access to IBCLCs who provide accurate breastfeeding information, address concerns and provide any needed referrals to community breastfeeding resources.

PASOs (South Carolina)

scpasos.org

PASOs (or “steps” in Spanish) aims to improve health of Latino families in South Carolina by educating Latino parents, caregivers, and parents-to-be on issues related to healthy pregnancies and prenatal care, as well as appropriate child development and resources for child health, and by advocating for better, more accessible services for Latinos. The PASOs program began in two counties in South Carolina in 2005 and now operates in 13 counties across the state. PASOs provides free, comprehensive prenatal classes (a 14-hour prenatal empowerment course), community health outreach and individual interventions to Latino families, as well as consultative services for maternal and child health providers and policymakers throughout the state. Evaluation results show significant increases in indicators such as what to do with preterm symptoms; level of satisfaction with communication with doctor; reasons for going to prenatal care; knowledge of preterm labor definition and signs of preterm labor; knowledge of types of cheese to avoid during pregnancy; knowledge of folic acid use, including when to begin taking folic acid and daily intake of multivitamins with folic acid; knowledge of iron-rich foods; knowledge of normal fetal movement; knowledge of right moment to go to the hospital for delivery; knowledge that it is normal to feel sad after delivery; and knowledge of the type of anesthesia to use during delivery.

Power Your Life Preconception Campaign (Utah)

poweryourlife.org

Power Your Life is a social marketing campaign to raise awareness of preconception health and increase consumption of folic acid. Developed for the Utah Department of Health, the campaign ran from June 2010 through January 2011. During that time, radio, television, print, and Web advertisements on Spanish/English media outlets were used to promote the Power Your Life website as a resource for health information. Women visiting the site had the opportunity to register for a 90-day supply of vitamins. Approximately 10,000 Power Bags with a 90-day supply of folic acid vitamins and other resources, such as a health magazine (derived from life course topics) and campaign bracelets were distributed through the campaign. Community outreach was conducted through health fairs, cultural celebrations and community partnerships. Additionally, a continuing medical education workshop was held for health care professionals to help them promote preconception health and consumption of folic acid in their daily practice. A statewide telephone survey found awareness of folic acid advertisements increased

Recommendation 1 Examples *continued*

after the campaign. Respondents aware of the campaign were three times more likely to consider taking folic acid important and seven times more likely to be taking a daily vitamin with folic acid than those who were not aware of the campaign. Findings also showed increases in daily vitamin intake for 18 to 25 year olds, non-white minority groups and pregnant women.

Project CHOICES

cdc.gov/ncbddd/fasd/research-preventing.html

CHOICES (Changing High-Risk AlcOhol Use and Increasing Contraception Effectiveness Study) is a brief intervention model aimed at preventing alcohol-exposed pregnancies (AEP) among nonpregnant women of childbearing age. Through a randomized control trial, CDC and researchers at three universities tested the efficacy of this brief motivational intervention by focusing on risky drinking and ineffective contraceptive use. The brief motivational intervention included an in-depth assessment of current alcohol and birth control use, counseling about the effects of alcohol use during pregnancy, brief advice and counseling to reduce alcohol use, and a birth control visit to discuss methods and provide birth control services. Results showed that women receiving the intervention were more than twice as likely to have reduced their risk for an AEP compared with women who did not receive the intervention. Implementation and evaluation of the CHOICES intervention is currently underway in sexually transmitted infection clinics, family planning clinics, community health centers and in American Indian communities. CDC also developed a CHOICES curriculum package designed for use by behavioral health professionals conducting the CHOICES program. These materials are available for download at cdc.gov/ncbddd/fasd/freematerials.html. CDC is currently developing strategies to disseminate CHOICES on a broader scale to systems of care serving women at risk for an AEP.

Women Together for Health (Arizona)

Women Together for Health (WTFH) was a free, community-based program that addresses modifiable lifestyle behaviors to improve the health of women and their families in Arizona, including healthy weight, physical activity, proper nutrition, stress management and tobacco use in women of childbearing age. WTFH was offered though a 10-hour (one day per week for eight to ten weeks) format available in English or Spanish, and was cofacilitated by a registered dietitian and a health educator. The curriculum focused on women learning skills to make sustainable lifestyle changes for health improvement by emphasizing physical activity and proper nutrition. All WTFH lessons were designed for low-income families. Of the women that completed the program in 2008, 65 percent reported increasing physical activity by 2,000 steps or more over the course of the program; 100 percent made at least one dietary improvement; more than 60 percent of women either maintained or decreased their body mass index over the course of the program; and 71 percent maintained regular physical activity, healthy eating habits and regularly used stress management techniques three months after the completion of the program. The 2008 percentages of change were consistent with other years.

You Quit Two Quit (North Carolina)

YouQuitTwoQuit.com

The You Quit Two Quit Project was launched in 2008 and is implemented by the University of North Carolina Center for Maternal and Infant Health (CMIH) in partnership with the Women and Tobacco Coalition for Health and the North Carolina Division of Public Health Tobacco Prevention and Control Branch. The goal of the project has been to ensure that there is a comprehensive system in place to screen and treat tobacco use in pregnant and postpartum mothers. The many project activities include operating quality improvement initiatives focused on tobacco cessation screening and counseling in partnership with four county health departments and distributing patient and provider education materials statewide, including outreach to neonatal intensive care units (NICUs) in hospitals and a special focus on billing and reimbursement. In 2011, the CMIH received funding from the federal Office of Women's Health for a project directed specifically at low-income women of childbearing age. The project focuses on implementing screening and treatment processes within the eight diverse practices in Community Care North Carolina Network. The project offers training to practices and chronic disease and pregnancy care managers within the network. The project is also working closely with the North Carolina Pregnancy Medical Home on training providers and care managers on this issue, as well as in developing care pathways. Funding has been provided from the Tobacco Settlement – state funds; also Title V Maternal and Child Health Services Block Grant funding has been utilized to print materials.

Recommendation 2: Ensure Quality of Health Care for All Women and Infants

Implementing measures to ensure high-quality and effective health care for all pregnant women and infants can have a positive impact on improving birth outcomes and lowering health care costs. In *Toward Improving the Outcome of Pregnancy: Enhancing Perinatal Health Through Quality, Safety and Performance Initiatives,* the March of Dimes states that improving the quality of perinatal care depends on applying evidence-based practice and clinical guidelines throughout the course of a woman's life.[4]

Leading perinatal health indicators show the need for improvement. Rates of labor induction have increased dramatically from 9 percent in 1989 to 21.2 percent in 2004,[xxvii] reflecting a particular increase in elective inductions. In 2008, late preterm births represented 8.8 percent of all live births, a nearly 9 percent increase since 1998.[xxviii] Increases in deliveries between 37 and 39 weeks have been associated with an increase in obstetrical interventions, such as induction of labor and cesarean sections.[xxix] Related to this rise, cesarean deliveries have also increased. According to the National Center for Health Statistics, the cesarean section rate has more than doubled since 1996, accounting for 32.3 percent of all births in 2009.[xxx] Research indicates elective deliveries at less than 39 weeks pose significant risk for the infant, including increased NICU admissions, increased respiratory distress syndrome (RDS), increased use of ventilator support and increased newborn feeding issues. Additionally, late preterm delivery may increase infants' risk of brain injury and long-term neurodevelopmental abnormalities.[xxxi]

Perinatal regionalization is a system of care linking each facility to a network of education and interhospital transport to provide risk-appropriate care across the continuum of perinatal care. Studies indicate very low birth weight (VLBW) and preterm infants born outside of a level III hospital are associated with an increased likelihood of neonatal or postdischarge mortality.[xxxii] A review of state models of perinatal regionalized systems revealed variability in the models themselves, as well as the various mechanisms for measuring and improving risk-appropriate care. Regulation of regionalization programs, data surveillance, review of adverse events and consideration of geography and demographics were identified as mechanisms facilitating better measurement of risk-appropriate care.

The same review noted that antenatal or neonatal transfer arrangements, telemedicine networks, acquisition of funding, provision of financial incentives and patient education comprised state actions for improving risk-appropriate care.[xxxiii]

A critical aspect of improving quality is ensuring that all care is patient and/or family centered. According to the Institute for Patient and Family-Centered Care, patient and family-centered care is an approach to the planning, delivery and evaluation of health care grounded in mutually beneficial partnerships, that involve comprehensive assessments and shared decision making, among health care providers, consumers and families.[xxxiv] Thinking about a woman-centered approach, Childbirth Connections offers a woman-centered framework, defined as care that respects the values, culture, choices and preferences of the woman and her family, as relevant, within the context of promoting optimal health outcomes. It means all childbearing women are treated with kindness, respect, dignity and cultural sensitivity, throughout their maternity care experiences.[xxxv]

[4] For more information or to access the March of Dimes publication *Toward Improving the Outcome of Pregnancy: Enhancing Perinatal Health Through Quality, Safety and Performance Initiatives* (TIOP III) visit: marchofdimes.com/TIOPIII_FinalManuscript.pdf

Recommendation 2 *continued*

Performance measurement is another essential part of ensuring quality of care for childbearing women and newborns. Nationally, there are efforts to promote consistent measures for maternity and newborn care. Public reporting of such measures can promote accountability, transparency, informed decision making, value-based purchasing and improvement. The Joint Commission currently supports five measures in its perinatal care core measure set: the cesarean rate for low-risk first-birth women; elective delivery before 39 weeks gestation; use of antenatal steroids; health care associated bloodstream infections in newborns; and the extent of exclusive breastfeeding at hospital discharge. In April 2012, the National Quality Forum approved for endorsement 14 maternity care performance measures for assessing the quality of maternity care. These voluntary consensus standards for perinatal care can be used as benchmarks for improving care for childbearing women and newborns.[xxxvi]

Lastly, promoting innovative practices for providing maternity care and parenting support hold promise for improving birth outcomes and quality of care. CenteringPregnancy is a multifaceted model of group care that integrates health assessment, education and support into a unified prenatal care program within a group setting. Groups of women with similar gestational ages meet together, learn care skills, participate in a facilitated discussion and develop a support network with other group members throughout pregnancy and early postpartum. The practitioner, within the group space, completes standard physical health assessments with each participant. This is followed by a facilitated discussion in the group setting. Research on the positive impact of CenteringPregnancy and group prenatal care is still evolving. Evaluation data from one CenteringPregnancy program indicates higher knowledge about pregnancy among women who participated in group prenatal care versus traditional prenatal care, and higher perception of social support.[xxxvii] In one demonstration project of CenteringPregnancy for adolescents, adolescents who participated in group prenatal care showed higher compliance with health care, higher satisfaction with prenatal care, low rates of low birth weight babies and higher rates of breastfeeding at discharge.[xxxviii]

CenteringParenting is an emerging model of group care for new parents that integrates health assessment, education and support into a group setting. Through this program, mother/baby dyads come together in a group setting to learn care skills, participate in facilitated discussion and develop a support network through the infant's first year of life. Parenting support programs may also include or link to well-child visits.

Actions states and partners can consider taking to ensure quality of care for all women and infants include the following:

Create or partner with a statewide perinatal quality collaborative to study and address perinatal outcomes across the state. Key stakeholders include the state Title V program, state Medicaid and CHIP programs, birthing hospitals, state chapters of medical associations such as ACOG, AAP and the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN), the March of Dimes, Healthy Start, state health care authorities, health insurers, community health centers, other health improvement partners and consumers.

Understand and share perinatal health data. Specific strategies include:

- Collecting key perinatal data at state, perinatal region and hospital levels. Use the Joint Commission and the National Quality Forum endorsements to guide data collection. Measures may include elective inductions less than 39 weeks with no documented medical risk factors, elective caesarean sections less than 39 weeks with no documented medical risk factor or complication, NICU admissions and neonatal outcomes, rates of exclusive breastfeeding and neonatal bloodstream infections, in order to focus perinatal quality improvement efforts. (See **Recommendation 6: Develop Data Systems to Understand and Inform Efforts** for additional strategies on using data to reduce infant mortality.)
- Supporting efforts to ensure consistency and accuracy of birth certificate data by providing training to staff on recording and entering birth certificate data to increase consistency and accuracy of birth data.
- Ensuring all maternal, pregnancy-related and infant deaths are reviewed. (**See Recommendation 6: Develop Data Systems to Understand and Inform Efforts** for strategies on using data to reduce infant mortality.)

Ensure the best available evidence guides maternity care decisions and that the family partners with their health care providers to make decisions about their care. Specific strategies include:

- Increasing performance measurement of maternity and neonatal health care through Medicaid, accrediting bodies and other entities with purchasing power.
- Disseminating information on maternity and perinatal measures to stakeholders by creating consumer-friendly reports for women of childbearing age and communities that highlight hospital, clinic and provider performance

in maternity and newborn quality to promote informed decision making around maternity care and promote equal access to efficacious treatments.

- Promoting shared decision making between providers and patients to support health care decisions that conform to patient values and preferences where there is more than one clinically appropriate intervention or management strategy.

Implement policies to decrease rates of elective deliveries prior to 39 weeks in all birthing hospitals. Work with hospitals that represent the majority of the deliveries in the state. Specific strategies include:

- Supporting medical record reviews and peer reviews of all elective deliveries less than 39 weeks with no maternal risk factors and share results with providers.
- Working with hospitals to implement induction reservations and delivery scheduling forms that delineate standards and guidelines for inductions and cesarean sections, including providing checklists and flow sheets.
- Creating and implementing policies that use incentives, such as "hard stops" by denying Medicaid payment for any deliveries that are not medically indicated prior to 39 weeks.
- Ensuring leadership support policies that allow induction schedulers and other staff to enforce induction guidelines and include mechanisms for continuous quality improvement.

Create or strengthen a perinatal regionalized system of care to ensure ongoing review of the appropriateness of deliveries and level of care for newborns based on maternity licensure levels of care. Specific strategies include:

- Ensuring every newborn is transported to the facility where he or she can receive the highest level of care needed.
- Adopting perinatal guidelines/levels of care and promoting guidelines among hospitals and providers.
- Adopting state regulations requiring all obstetric hospitals to have affiliation with a regionalized perinatal center and an agreement that outlines the parameters for consult and transportation for high-risk mothers and neonates.

Ensuring access to appropriate consultation and referral for pregnant women to a higher level of care when indicated. Pursue telemedicine and other mechanisms to connect women with specialists as indicated for women in rural or underserved areas to increase access to risk-appropriate care.

Implement neonatal quality improvement initiatives to improve care for infants in the NICU and reduce variation in NICU outcomes. The National Initiative for Children's Healthcare Quality developed a resource Toolkit for the Follow-Up Care of the Premature Infant (found at preemietoolkit.com) that provides tools and references for providers and families the management of preterm infants. Specific strategies include:

- Focusing on reducing central line-associated bloodstream infections, increasing use of antenatal steroids for preterm fetal lung development; and implementing uniform discharge and follow up protocols to link NICU graduates with a medical home.
- Supporting families during NICU stays through support services, such as the March of Dimes NICU Family Support Programs.

Implement uniform postpartum discharge programs and ensure access to comprehensive postdelivery follow up care. Offer postdelivery services to all women, not just those with poor birth outcomes. Specific strategies include:

- Working with hospitals, providers, local health departments, home visitation programs and other community groups, such as Healthy Start, to ensure women and families receive timely and appropriate follow up for safe sleep instruction, breastfeeding support, prevention of abusive head trauma/shaken baby, mental health and substance abuse services, domestic violence support, smoking cessation services, family planning and other services.

Recommendation 2 *continued*

- Using the postpartum discharge process as an opportunity to ensure women are connected with family planning services and primary care to promote appropriate interpregnancy intervals, facilitate access to a medical home, including referral for specialty care as needed.
- Working with health care providers and partners to improve the uptake of the postpartum visit and to enhance the content of the postpartum visit, in particular for women who have had a previous poor pregnancy outcome.
- Working with partners and parent consultants and parent navigators to support families during the transition from the NICU to the home, including providing links to medical and social services, such as Early Intervention, home visiting and other follow up services (See **Recommendation 4: Enhance Service Integration for Women and Infants** for additional information).

Support expansion of Mother- and Baby-Friendly Hospital programs to promote immediate and sustained breastfeeding. Specific strategies include:

- Providing training materials on successful breastfeeding, including disseminating patient and staff education materials.
- Offering individual facility consultation toward obtaining the Baby-Friendly designation.
- Working with partners to provide incentives and offer financial support for Baby-Friendly USA maternity hospital fees.
- Providing lactation support for all mothers, including information about the benefits of breastfeeding, lactation consultation and breastfeeding support groups.

Implement electronic medical records for women and infants to allow easy access to reproductive health data for health care providers, which may increase the safety and quality of care for pregnant women and infants.

Study, disseminate and increase the adoption of innovative, evidence-informed prenatal-care models (e.g. home visiting, community health workers, group pregnancy care, use of doulas) in obstetric practices, including certified nurse midwifery settings and community health centers, that provide prenatal care in a group setting.

Implement group parenting classes to promote parenting skills, infant health and wellness, injury prevention and create a network for new parents.

Examples

Arkansas Telehealth

ruralhealth.uams.edu/?id=8078&sid=32

Arkansas uses telecommunication to improve patient access to risk-appropriate care. Arkansas has a well-established telemedicine program created for a rural and widely dispersed population. The majority of resources for high-risk pregnancies are concentrated in one urban center and not easily accessible to all citizens. However, perinatal specialists at the University of Arkansas for Medical Sciences host monthly teleconferences with practitioners from more than 25 rural communities. Three days a week, specialists conduct telenursery rounds with large nurseries in the state. This program builds rapport between physicians and promotes consultations. Subsequent transportation to appropriate facilities has increased. A study of the Arkansas system reveals presence of a telemedicine site increased the probability of antenatal transport to a level III facility.

California Perinatal Transport System

perinatal.org

California has created the California Perinatal Transport System for transports of critically ill infants and mothers with high-risk conditions to regional NICUs and Perinatal High Risk Units. The system also collects and analyzes the perinatal and neonatal transport data for regional planning, outreach program development, and outcome analysis. This information is reported back to the participating hospitals and the California Department of Health Division of Maternal and Child Health.

Connecticut Baby-Friendly Hospital Initiative

breastfeedingct.org/images/CBI_Project_Summary_Final.pdf

breastfeedingct.org/index.php/calendar-of-events/64

Globally, the Baby-Friendly Hospital Initiative (BFHI) encourages and recognizes hospitals and birthing centers that offer an optimal level of care for infant feeding. The BFHI assists hospitals in giving mothers information and skills needed to successful initiative and continue breastfeeding their babies or feeding formula safely, and gives special recognition to hospitals that have done so. In 2010, the Connecticut Department of Public Health and the Connecticut Breastfeeding Coalition formed a joint

collaboration to drive Baby-Friendly Hospital Designation throughout the state. The joint collaboration, named the Connecticut Breastfeeding Initiative, is funded through CDC Communities Putting Prevention to Work funding. The initiative assists 10 Connecticut maternity hospitals by delivering training on successful breastfeeding, offering individual facility consultation toward obtaining the Baby-Friendly designation, fostering collaboration and support between the 10 maternity hospitals, disseminating patient and staff education materials, and offering financial support for Baby-Friend USA maternity hospital fees.

Maryland Perinatal Standards

fha.dhmh.maryland.gov/mch/SitePages/perinatal_standards.aspx

The Maryland Department of Health and Mental Hygiene is building on existing quality improvement work, including the Maryland Perinatal Standards, to develop a standardized hospital postpartum discharge process. Partners include the Maryland Institute for Emergency Medical Services Systems, the Maryland Patient Safety Center and all birthing hospitals in the state. The intent of this effort is to ensure risk-appropriate follow up for women and infants, particularly those with poor pregnancy outcomes. This will include linkages to hospitals, local health departments, and community resources around safe sleep, breastfeeding, family planning and other prevention services.

New York State Perinatal Quality Collaborative

The New York State Department of Health (NYSDOH) launched the New York State Perinatal Quality Collaborative (NYSPQC) in 2010 in collaboration with the New York Regional Perinatal Centers (RPCs) and the National Initiative for Children's Healthcare Quality. The NYSPQC aims to improve maternal and newborn outcomes, and improve capacity within New York for ongoing quality improvement and transformation of health care by applying evidence-based health care system change interventions in RPC Obstetrical and Neonatal Intensive Care Units (NICUs). The NYSDOH initially focused on two interventions to reach the goals of the NYSPQC:

- The first intervention aimed to reduce the number of scheduled deliveries performed without appropriate indication in women of between 36 and less than 39 weeks gestation. Initial intervention activities included collecting and submitting data on scheduled inductions and caesarean deliveries without medical indication, revising admitting practices, employing processes to ensure that only elective deliveries with acceptable medical indicators were scheduled including 'hard stop,' and educating providers and patients.
- The second intervention aimed to reduce the statewide percentage of newborns less than 31 weeks gestational age that are discharged from the NICU below the tenth percentile for growth based on the Fenton scale. Initial intervention activities included optimizing early enteral nutrition in preterm babies in the NICU. Both arms of the collaborative utilized data collected by the department to analyze success in achieving collaborative objectives.

In October 2011, the NYSDOH was one of three national recipients of a three-year grant from CDC that is supporting expansion of the NYSPQC beyond the RPCs. To build upon its initial success, both the obstetrical and neonatal interventions are expanding to include RPC-affiliate birthing hospitals in New York. In addition to expanding the project reach to affiliate hospitals, the initiative will also expand its focus to include preventing central line-associated blood stream infections in NICU patients, and identifying opportunities for MCH prevention activities through maternal mortality review.

Ohio Perinatal Quality Collaborative

opqc.net

Using quality improvement methods, the Ohio Perinatal Quality Collaborative (OPQC) is reducing preterm births and improving outcomes of preterm newborns. Using the Institute for Healthcare Improvement Breakthrough Series, OPQC worked with 20 maternity hospitals (47 percent of all births in the state) through a collaborative focused on several obstetric improvement projects. Efforts included documenting method of pregnancy dating, documenting reasons for scheduled delivery prior to 39 weeks, as well as discussion with the patient the risks of delivery before 39 weeks, implementing a scheduled delivery form, establishing direct communication with pediatricians, promoting early ultrasound and conducting ongoing monitoring of clinical data using birth certificate data. OPQC reports more than 9,000 births have moved occurring prior to the due date to full term (39 to 41 weeks), and that approximately 250 NICU admissions have been avoided. OPQC estimates approximately $10 million in annual health care cost savings.

Perinatal Connect to Care (West Virginia)

wvperinatal.org/teleconsultation.htm

In early 2010, West Virginia formally launched the Connect to Care Project. The telecommunications project links rural health facilities with tertiary care centers housing perinatal specialists. Live telecommunications infrastructure allows pregnant women and their local health care providers to obtain medical advice from specialists without traveling. The

Recommendation 2 Examples *continued*

project also supports continuing education for rural medical practitioners and access to obstetrical referrals. Currently, Connect to Care is operating in 15 rural health care sites as a pilot program. The project is funded by a Rural Utilities Service Grant from the U.S. Department of Agriculture and matching funds from 18 partnering West Virginia hospitals and community health centers.

Texas Policy on Elective Inductions/C-Sections

As of Oct. 1, 2011, Texas Medicaid no longer reimburses hospitals for elective deliveries occurring before 39 weeks that are not medically necessary and properly documented as such. The Medicaid policy change is the result of recent state legislation (Texas House Bill 1983). The state legislature was compelled to act after research from a pilot program limiting elective c-sections demonstrated reductions in premature births and subsequent cost savings of approximately $4 million a year.

West Virginia Health Care Authority

www.hcawv.org/

The West Virginia Health Care Authority, in partnership with the West Virginia Health Improvement Institute, the West Virginia Perinatal Partnership and the West Virginia Chapter of the March of Dimes, developed and implemented a collaborative to study and address the issue of non-medically indicated elective deliveries prior to 39 weeks gestation. West Virginia used the Institute for Healthcare Improvement Breakthrough Series methodology to support hospital-based teams. Six months after the collaborative implementation, the rate of elective deliveries prior to 39 weeks without a medical indication decreased by more than 50 percent.

Washington Shared Decision Making Policy

Shared decision making is a process undertaken between providers and patients with a condition using more than one clinically appropriate management strategy. Decision aids are used to facilitate the shared decision-making process. Washington state has the broadest reaching legislation related to shared decision making. In 2007, a bill was enacted that mandated the Washington health care state agency to implement a shared decision-making demonstration project at one or more multispecialty practice sites, and recognized the state law on informed consent by establishing shared decision making. The bill provides more legal protection for physicians who engage in shared decision making. In addition, a 2011 bill called for the governor to appoint a collaborative to improve health care quality, cost effectiveness and outcomes called for shared decision making to be a strategy for the collaborative to promote. In early 2012, legislation was proposed to establish a certification process for decision aids. If successful, this legislation would establish a certification process by ensuring decision aids meet the International Patient Decision Aid Standards. A resource on current advancements in shared-decision-making policy, the National Academy for State Health Policy report *Shared Decision Making: Advancing Patient-Centered Care through State and Federal Implementation,* is available online at: nashp.org/sites/default/files/shared.decision.making.report.pdf.

View a full copy of the legislation pertaining to shared decision making, E2S Senate Bill 5930 at apps.leg.wa.gov/documents/billdocs/2007-08/Pdf/Bills/Session%20Law%202007/5930-S2.SL.pdf. Pages 3 to 5 pertain specifically to shared decision making. In addition, access two Revised Codes of Washington (RCWs) that pertain to the shared decision-making legislation by visiting:

- RCW 41.05.033: Shared decision-making demonstration project | Preference-sensitive care. apps.leg.wa.gov/rcw/default.aspx?cite=41.05.033
- RCW 7.70.060: Shared decision making | Patient decision aid | Failure to use. apps.leg.wa.gov/RCW/default.aspx?cite=7.70.060

Recommendation 3: Improve Maternal Risk Screening for All Women of Reproductive Age

Several modifiable risk factors and chronic conditions can cause significant disease and death during pregnancy and lead to the development of lifelong chronic disease. According to the CDC Recommendations to Improve Preconception Health and Health Care,[xxxix] women of childbearing age suffer from various chronic conditions and are exposed to or consume substances that can have an adverse effect on pregnancy outcomes leading to pregnancy loss, infant death, birth defects or other complications for mothers or infants.[xl] Preventing and managing these risk factors, such as tobacco and substance use, maternal depression, physical inactivity and poor nutrition, can prevent poor birth outcomes and reduce rates of chronic disease in women overall. These factors can best be addressed prior to pregnancy, or between pregnancies, rather than waiting until the pregnancy to intervene.

Since approximately 50 percent of all pregnancies in the United States are unintended, screening all women of reproductive age for chronic conditions and other psychosocial risk factors for poor birth outcomes can have a positive effect on improving women's health and birth outcomes. Comprehensive risk assessment and screening for all women can identify risk factors for poor birth outcomes and allow for recognition and intervention prior to pregnancy.

Although prenatal pregnancy tobacco use rates have declined over recent years, more than 10 percent of women continue to use tobacco while pregnant, with higher prevalence rates of tobacco use among younger women.[xli] Tobacco use increases the risk of pregnancy complications, preterm birth and low birth weight. Tobacco use is associated with 30 percent of small-for-gestational-age infants, 10 percent of preterm infants and 5 percent of infant deaths. From 2006 t0 2008, nearly one in five recent mothers in a 29-state area reported binge drinking (consumed five or more drinks in a sitting) at least once within the three months prior to pregnancy (18.8 percent) and 22.3 percent reported smoking.[xlii] The U.S. Preventive Services Task Force has evaluated the effectiveness of interventions in primary care settings related to smoking, alcohol misuse and obesity, "that were not complicated by the additional delivery of multiple components of preconception care."[xliii] Effective methods include 5As (ask, assess, advise, assist, arrange) for smoking cessation[xliv] and brief interventions to reduce alcohol misuse.

Diabetes and hypertension are the most commonly reported health conditions among pregnant women.[xlv] Diabetes,

both chronic and gestational (developing only during pregnancy), may pose health risks to a woman and her baby. Women with gestational diabetes are at increased risk for developing diabetes later in life.[xlvi] In addition, only about half of new mothers (51.1 percent) reported a healthy or normal prepregnancy weight for their height.[xlvii]

A woman experiencing psychosocial stress during pregnancy may be more susceptible to a number of pregnancy complications, including preterm birth. Depression during pregnancy, especially if untreated, carries risks of poor prenatal care, preeclampsia, poor weight gain, unhealthy eating habits, use of drugs or alcohol to self-medicate or suicide.[xlviii, xlix] In addition, roughly one out of every eight new mothers may experience major or minor depression in the first few months after birth.[l] Among other factors, postpartum depression may make a woman less likely to breastfeed or bond with her baby. Finally, postpartum depression is consistently associated with intimate partner violence.[li] The Community Guide for Preventive Services recommends evidence-based guidelines for treatment of depression, including collaborative care for the management

Recommendation 3 *continued*

of depressive disorders using case managers to link primary care providers, consumers and mental health specialists.

Beginning on or after Aug. 1, 2012, new health insurance plans will be required to cover eight preventive health services without charging a copayment, coinsurance or a deductible identified by the Institute of Medicine (IOM), which include certain maternal screens and opportunities for screening, such as a well-woman visit, screening for gestational diabetes, human papillomavirus (HPV) DNA testing for women 30 years and older, STI counseling, HIV screening and counseling and domestic violence screening and counseling (See **Recommendation 5: Improve Access to Health Care for Women Before, During and After Pregnancy** for additional information).

Actions states can consider taking to improve maternal risk screening for all pregnant and postpartum women to improve women's health and birth outcomes include the following:

Increase the number of women who are screened and monitored for chronic disease, infections and other high-risk conditions that may impact pregnancy or birth outcomes, including hypertension, obesity, gestational diabetes, HIV, STIs, previous poor birth outcomes or preterm birth, unsafe medication use during pregnancy, violence and depression. Specific strategies include:

- Expanding the number of providers who emphasize preconception care, conduct medical and psychosocial risk assessment at the initial prenatal visit and throughout pregnancy; who provide counseling about preterm birth prevention, drug, alcohol and tobacco cessation, healthy weight/obesity, domestic violence, mental health, STIs and birth spacing.
- Increasing the capacity of providers and other health professionals who are able and willing to provide brief motivational interviewing to reduce alcohol use and other substance use during pregnancy.
- Providing awareness and training in evidence-based models of tobacco cessation counseling to obstetric and neonatal providers and other public health and social service providers who see pregnant and postpartum women.
- Expanding screening for intimate partner violence and violence prevention screening in all settings where women access care, including family planning clinics, primary care and OB/GYN visits.
- Implementing uniform screening tools that can be used with women before and during pregnancy in obstetric or preconception health visits.
- Screening all pregnant and postpartum women for depression as part of prenatal and postpartum care. Women should be screened using reliable, valid and culturally responsive instruments in multiple settings, such as well-child visits.

Ensure that women who are at-risk or screen positive are linked to programs and services. Specific strategies include:

- Supporting collaborative care for the management of depressive disorders using case managers to link primary care providers, consumers and mental health specialists. (See **Recommendation 4: Enhance Service Integration for Women and Infants**, for more information.)

Examples

Adverse Childhood Experiences Screening Tool (Washington)

The Adverse Childhood Experiences (ACE) screening tool helps identify persistent, complex trauma. In Jefferson County, Washington, public health nurses have incorporated ACE screening questions into the comprehensive risk screening offered to all clients – mothers, fathers and caregivers – across several public health programs, including WIC, family planning, First Steps, Maternity Case Management and Nurse-Family Partnership. The ACE screening outcomes are used to discuss life course impacts of adverse childhood experiences with parents and make appropriate referrals to mental health and social services. In addition, conversations with parents help link their adverse experiences with protecting their children from having similar ACE scores. Information about the Jefferson County experience, including full version of their comprehensive screening tool, can be found at: nwcphp.org/training/courses/maternal-child-health-mch-training-for-professionals. (Session 6: Adverse Childhood Experiences and Public Health Practice).

Alaska Family Violence Prevention Project

hss.state.ak.us/dph/chronic/AKFVPP/

The Alaska Family Violence Prevention Project (AFVPP), within the Alaska Department of Health and Human Services Division of Chronic Disease Prevention and Health Promotion, provides ongoing training and support to health care providers on the use of intimate partner violence screening tools and intervention strategies. The AFVPP provides free access to resources online through the AFVPP Clearinghouse.

Georgia HIV Pregnancy Screening Act of 2007

legis.ga.gov/legis/2007_08/pdf/hb429.pdf

In 2007, the Georgia State Legislature passed the Georgia HIV Pregnancy Screening Act. The law requires physicians to test pregnant women for HIV. Prior to 2007, women in Georgia had to give their consent for HIV testing, known as an 'opt-in' policy. The Georgia HIV Pregnancy Screening Act of 2007 changed the system to an 'opt-out' policy; now women must be tested unless they refuse. 'Opt-out' testing eliminates requirements for pretest counseling, informed consent and post-test counseling. Furthermore, CDC believes 'opt-out' testing helps more people know their HIV status, helps those infected with HIV find out their status earlier, further reduces the stigma associated with HIV testing, and enables those who are infected to take steps to protect their babies and partners.

Louisiana Health Assessment Referral and Treatment (LaHART)

The Louisiana Health Assessment Referral and Treatment (LaHART) tool is a Web-based prenatal behavioral health screen created by the Department of Health and Hospitals (DHH) Birth Outcomes Initiative. LaHART was created to streamline the screening and referral process for pregnant Medicaid eligible women in need of treatment for substance use during pregnancy. The Birth Outcomes Initiative partnered with the Office of Behavioral Health to leverage funding to activate Medicaid billing codes. Louisiana providers are now paid $50 for conducting prenatal behavioral health screening and brief behavioral intervention.

The tool screens for prenatal alcohol, drug and tobacco use, as well as domestic violence. Through the Louisiana Behavioral Health Partnership, DHH has created the infrastructure that the state can use to build a network of providers who will be able to treat women screened and referred through the LaHART tool. In addition, Text4Baby enrollment, automated referral to the state's tobacco quitline and the domestic violence hotline number have been built into the site. The tool has been successfully piloted in New Orleans. The Birth Outcomes Initiative and Office of Public Health are conducting the first phase of LaHART outreach and orientation through June 2012.

The Clinic and Community Connections Project (Minnesota)

co.hennepin.mn.us/portal/site/HennepinUS/menuitem.b1ab75471750e40fa01dfb47ccf06498/?vgnextoid=c23684e035f23210VgnVCM10000049114689RCRD

This project is designed to bring health care providers into fetal alcohol spectrum disorder (FASD) prevention by assisting and training clinical staff to incorporate comprehensive maternal alcohol screening, counseling, support and referrals. The project was developed by Hennepin County (Minnesota) with the Native American Community Clinic. The program identifies health care providers within clinics who are interested in enhancing the alcohol screening practices and provides FASD training for the health care providers. This includes introducing the Maternal Alcohol Screening Tool, assisting clinics in implementing the new screening protocol, providing selected FASD patient teaching materials and assisting clinics in developing a follow-up protocol for children exposed to prenatal alcohol. Additionally, a connections workgroup made up of regional partners was formed to assess the gap in community treatment services for pregnant women who need help to stop drinking alcohol. Results have shown a marked increase in the rates of maternal alcohol screening and advisement at initial and subsequent prenatal visits in the participating clinics. Eight community clinics and seven WIC clinics have successfully implemented maternal alcohol screening protocols.

Uniform Maternal Risk Screening in West Virginia

wvperinatal.org/risk.htm

In 2009, the West Virginia Legislature passed comprehensive maternal-risk screening (Senate Bill 307: "Uniform Maternal Screening Act"). The bill required the West Virginia Department of Health and Human Resources, Office of Maternal, Child and Family Health (the State Title V agency) to convene an advisory council to develop a uniform maternal-risk screening tool to help identify pregnant women with potential at-risk pregnancies. The advisory council is also legislated to meet annually to revise the tool as needed. Throughout 2010, the advisory committee worked to modify the West Virginia Prenatal Risk Screening Instrument (PRSI), the risk screening tool developed by the Right From the Start Program, the state perinatal home visiting initiative. The expanded PRSI contains the 4Ps, an opt-in/opt-out for client referral services, and an alert to the prenatal provider that the client may need referral for a maternal fetal medicine consultation. The committee also developed a statewide data collection process to measure the incidents of high-risk pregnancies. The modified PRSI was implemented statewide with all West Virginia maternity service providers on Jan. 1, 2011. The advisory committee continues to meet as necessary to monitor the utilization of the tool and the incidence of high-risk pregnancies. Maternity service providers can access the tool free of charge, online at: wvdhhr.org/mcfh/WV_PrentalRiskScreeningInstrument2010.pdf.

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Recommendation 4: Enhance Service Integration for Women and Infants

Integrated service delivery is an approach to meet the health and well-being needs of women, children and families by providing access to a quality, comprehensive and coordinated community-based system of services. For women of reproductive age, this may mean providing and coordinating maternity, reproductive health, primary care and child health services. Service integration is guided by a life course approach to health and well-being, which recognizes the interplay of risk and protective factors, such as socioeconomic status, toxic environmental exposures, health behaviors, stress and nutrition, as well as their influence on the health of an individual over the course of their life. In addition, advancing the concept of a medical home, or health home, for all women and children is a key feature of service integration.

As defined by the American Academy of Pediatrics, the medical home for children is a model of delivering primary care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate and culturally effective to every child and adolescent. Further, a family-centered medical home is a trusting partnership between a child, their family and the pediatric primary care team that oversees the health and well-being of the child within a community-based system that provides uninterrupted care with appropriate payments to support and sustain optimal health outcomes. The concept of a patient-centered medical home that provides comprehensive, coordinated, culturally sensitive care is also being applied to pregnancy medical homes. These medical homes embrace the team concept of comprehensive care for pregnant women and can extend to interconception care.

Beyond the medical home, specific models that promote service integration and target healthy birth outcomes and infant mortality reduction include colocation of reproductive and other health care services, federal Healthy Start, home visiting and parenting programs.

Pursuing strategies that use a “no wrong door” approach to provide women with comprehensive health services and/or to link women to appropriate health and social services have been shown to improve women’s health and birth outcomes. Models that integrate women’s preventive health services into family planning settings also have shown effectiveness. Given that 50 percent of pregnancies in the United States are unintended,[liii] integrating primary care, preconception health and reproductive health services at any visit for a young adult or woman of reproductive age is logical, can minimize barriers to accessing care from multiple settings and can maximize health care resources.

The federal Healthy Start program, administered by the Health Resources and Services Administration (HRSA) Maternal and Child Health Bureau (MCHB), is an initiative mandated to reduce the rate of infant mortality and improve perinatal outcomes through grants to areas with high annual rates of infant mortality. Healthy Start projects address the disparities in the health of mothers and babies due in part to inadequate access to care through direct outreach and client recruitment, health education, case management, depression screening and referral and interconception care services.[liii] Healthy Start Projects also use community and peer outreach, provide medical care and help women and their families meet basic human needs, such as food and housing. Compared to the overall national infant mortality rate of 6.7/1000 live births in 2006, the infant mortality rate for Healthy Start program participants was 5.7/1000.[liv]

Authorized by the Affordable Care Act, the Maternal, Infant, and Early Childhood Home Visiting (MIECHV) Program is providing funding to all 50 states, the District of Columbia and six jurisdictions to support evidence-based home visiting programs to improve the well-being of families with young children. Through MIECHV, states can respond to the diverse needs of children and families in communities at risk and provides an unprecedented opportunity for collaboration and partnership at the federal, state, and community levels to improve health and development outcomes for at-risk children through evidence-based home visiting programs. Many states also are implementing home visiting programs supported through other mechanisms.

Through comprehensive home visiting programs, nurses, social workers or other professionals and paraprofessionals meet with at-risk families in their homes, typically beginning in pregnancy and assess the strengths and challenges of the family. Home visiting programs work with families to provide education and links to services that can make a real difference in a child’s health, development and ability to learn, such as health care, developmental services for children, early education, parenting skills, child abuse prevention and nutrition education or assistance. Home visiting programs typically deliver services and supports in the home, where knowledge about the daily life of a family can ensure appropriate and needed services are being provided and promote a supportive one-to-one contact and relationship between provider and family.[lv] Home visiting programs can help prevent more long-term costs and promote healthy social and emotional development in later years.

Other federal initiatives, such as the Early Childhood Comprehensive Systems (ECCS) program and Project

LAUNCH have also led to improved early childhood systems. Since 2003, MCHB supported 49 states, the District of Columbia, Guam, the Republic of Palau and the commonwealths of Puerto Rico and the Mariana Islands through the ECCS program to build and integrate early childhood service systems that better meet the needs of children and families. ECCS focuses on five key components – access to care and medical homes; social-emotional development and mental health; early care and education; parenting education; and family support. Each state ECCS program developed a state plan to incorporate all early childhood systems building and can be an important asset in state efforts to improve birth outcomes and reduce infant mortality.

Project LAUNCH is a grant program of the federal Substance Abuse and Mental Health Services Administration (SAMHSA) which seeks to promote the wellness of young children from birth to age eight. Project LAUNCH focuses on improving the systems that serve young children and address their physical, emotional, social, cognitive and behavioral growth. Project LAUNCH aims to have all young children reach their developmental potential, enter school ready to learn and experience success in the early grades. SAMHSA currently funds 16 states, one tribe, the District of Columbia and six other local communities through Project LAUNCH to work in a designated community over five years, testing evidence-based practices, improving collaboration among child-serving organizations and integrating physical and mental health and substance abuse prevention strategies for children and their families.

Actions that states can consider to integrate care for women and infants include the following:

Ensure access to a medical home for all women and infants that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate and culturally effective (See *Recommendation 5: Improve Access to Health Care for Women Before, During and After Pregnancy* for additional information).

Create health services that provide comprehensive care, connecting medical and social services with the goal of improving perinatal outcomes. Specific strategies include:

- Expanding family planning clinics to provide or link to comprehensive preventive health care for women.
- Providing multi-faceted care coordination that includes health and parenting education.

Implement innovative models for comprehensive, coordinated prenatal and interconception care. Specific strategies include:

- Exploring the feasibility of creating a pregnancy (maternity) medical home model.
- Linking high-risk women (including women who had a poor birth outcome) to medical, social and other services following pregnancy to promote health in the interconception period.

Recommendation 4 *continued*

Supporting a continuum of early childhood services to address family needs. Specific strategies include:

- Supporting comprehensive home visiting programs for all families at risk for poor birth outcomes that address the family health, social and emotional needs. The programs can support interagency and cross-program coordination to promote entry early in the pregnancy and ensure that families the best benefits for their needs, including a central point of intake.
- Integrating home visiting with other programs and supports, such as with other child and family services, particularly those focused on the well-being and healthy development of the child.

Examples

Central Hillsborough Healthy Start Project (Florida)

reachupincorporated.org/chhs.php

Central Hillsborough Healthy Start (CHHS) Project serves 500 moms and 350 babies per year with intensive case management services. CHHS offers a unique delivery system of health and social services to pregnant and parenting (interconception) women while simultaneously providing home visiting promising practices that implement standardized core services developed by MCHB. The CHHS program reduced low birth weight and preterm delivery by roughly 30 percent among service recipients as compared to nonrecipients.[lvi] Additionally, CHHS has worked with other community organizations to focus on East Tampa social capital and assets, particularly on building community capacity in grassroots community organizations and creating avenues for gainful and creative employment. Since inception, CHHS has hired and trained more than 50 indigenous nurses, doulas, outreach workers and clerical staff.

DC Developing Families Center

developingfamilies.org

The DC Develop Families Center is a collaboration of three non-profit service providers in District of Columbia. The Center model recognizes the complex and interconnected factors that contribute to families' health and well-being through offering health care (prenatal and birth care, immunizations, childbirth education, optional out-of-hospital birth setting, Medicaid enrollment services for pregnant women, postpartum care, breastfeeding education, family planning, STI screening), family support (case management and nurse home visits, teen parenting empowerment program, effective Black Parenting programs, fatherhood programs, social service assistance) and early childhood development (age-appropriate education) services in a wrap-around model. These services are offered under one roof, encouraging families to build strong relationships with their providers and opening up opportunities for comprehensive care. Central to the model is the empowerment of women and families with the tools and resources they need to be active in their own health care and raise healthy children. In addition, the model incorporates community members in planning and implementation through a Community Advisory Board that meets monthly to recommend changes and inform new policies.

Denver Interconception Health Promotion Initiative (Colorado)

coloradotrust.org/attachments/0000/3168/IHPIFinalReport04.pdf

The Interconception Health Promotion Initiative was a demonstration project funded by The Colorado Trust and developed at Denver Health from 1995 to 2001. The purpose was to develop a home-based case management program for women who previously had a low birth weight baby, a fetal demise or a baby with congenital anomalies, and who planned on having more children. The goal was to improve future pregnancy outcomes. Patients were recruited at the time of the delivery of a qualifying infant and received a comprehensive evaluation, followed by intensive, relationship-based home visitation services. Home visitation focused on a variety of domains, including maternal role, follow-up of medical and reproductive health issues, contraception, and life course. Compared to qualified women who declined the program, women who participated were more likely to follow through on their postpartum care and birth control use. In addition, they had

a longer interconception period than women who declined to participate and their subsequent babies were heavier, less likely to be low birth weight and less likely to require a stay in the NICU.

Every Child Succeeds (Ohio)

everychildsucceeds.org

Every Child Succeeds (ECS) is a collaborative program that provides home visits focused on proper child development for first-time, at-risk mothers, their babies and families on a regular basis from the time of pregnancy until the child turns three. Founded in 1999, ECS uses two national models of home visiting (Healthy Families America and Nurse-Family Partnership) that are augmented by organizational enhancements, including continuous quality improvement, a strong public-private partnership, community collaboration and integrated supplemental interventions (e.g., Maternal Depression Treatment Program). An especially telling measure of ECS effectiveness is the demonstrated reduction in infant mortality for ECS children. In a 2007 study, authors reported a 60 percent reduction in the infant mortality rate for ECS participants, compared to matched controls. Unlike in the general population, there are no differences in infant mortality between African-American and Caucasian children participating in Every Child Succeeds. Other studies have found improvements in developmental and language delays, reductions in the number of parents with high-risk parenting attitudes and beliefs, and increases in safe-home environments.

Kentucky HANDS

chfs.ky.gov/dph/mch/ecd/hands.htm

The Health Access Nurturing Development Services (HANDS) program is a statewide home visitation program in Kentucky that provides services to first-time parents who are at risk or overburdened. Established in 1998 to address high rates of child abuse, the program goals are to increase positive pregnancy and child health outcomes, optimize child growth and development, reduce child maltreatment, and improve family functioning. Previous evaluation studies have shown lower rates of preterm birth, child abuse/neglect and infant mortality among participants. In fiscal year 2011, HANDS served 10,614 families in Kentucky.

Magnolia Project (Florida)

nefhealthystart.org/for-women/magnolia-project

The Magnolia Project is a federally-funded Healthy Start initiative to improve the health and well-being of women during their childbearing years (15 to 44 years old) and reduce infant mortality rates in Jacksonville, Florida. The project offers health education, outreach, well-woman and prenatal care, case management, and related services to more than 700 women annually who are at risk of a poor birth outcome when they become pregnant. Risk factors addressed by the project include infections, short birth intervals, alcohol and drug abuse, poor nutrition, and previous pregnancy loss. Beyond individual services, the Magnolia Project focuses attention on improving the health of the entire community through education, outreach and neighborhood engagement activities. A longitudinal evaluation found clients who received preconception and interconception case management showed improved birth outcomes following case management, including decreases in low birth weight and infant death and a decrease in failed interconception periods. Magnolia case management clients were also more likely to have a decrease in low birth weight, infant mortality and STIs.

Northern Manhattan Perinatal Partnership (New York)

sisterlink.com

The Northern Manhattan Perinatal Partnership (NMPP) and its Central Harlem Healthy Start program consists of clinical and group education interventions, as well as initiatives to address structural reforms in the built environment in order to reduce infant mortality. Through NMPP, more than 9,500 women and their children have been linked and maintained in care. The program addresses sustained economic and physical well-being through a job readiness program that has placed more than 890 women in full- and part-time employment. At the policy level, NMPP supports the empowerment-zone legislation, which infused Harlem with up to $300 million in block grants for community revitalization and job-creation projects and actively advocated for reforms in urban services, such as reducing the number of bus depots to improve air quality and supporting the building of supermarkets that provide healthier food. Since the program inception in 1990, when the infant mortality rate was 27.7 infant deaths per 1,000 live births, the infant mortality rate in Central Harlem has plummeted to 5.2 in 2004.

Parent Child Assistance Program (Washington)

depts.washington.edu/pcapuw/

The Parent-Child Assistance Program (PCAP) is an evidence-based home visitation case-management model for mothers who abuse alcohol or drugs during pregnancy. Its goals are to help mothers build healthy families and prevent future births of children exposed prenatally to alcohol and drugs. PCAP began in 1991 at the University of Washington as a federally funded research demonstration

Recommendation 4 Examples *continued*

designed to test the efficacy of an intensive, three-year advocacy/case management model with high-risk mothers and their children. Research findings demonstrated the efficacy of the model, and the Washington state legislature subsequently funded PCAP to develop sites throughout the state. Since 1991, PCAP has served more than 2,000 families in Washington state and has been replicated in other locations across the United States. The PCAP approach is two-pronged: paraprofessional case managers provide extensive role modeling and practical assistance directly in the home with the client, and they connect clients to a comprehensive variety of services in the community, ensuring that clients actually receive the services they need. PCAP case managers work with a caseload of 15 to 16 families each, for a three-year period beginning during pregnancy or within six months after the birth of an index child. A complete implementation toolkit, including a program operations manual and the PCAP evidence base, is available online.

Partners in Pregnancy (Virginia)

members.optimahealth.com/health-and-wellness/mlmp-partners-pregancy/Pages/default.aspx

Partners in Pregnancy aims to improve adverse pregnancy outcomes by decreasing NICU days and dollars. The program involves home visits and case management for high-risk pregnant women and their infants in eastern Virginia by CHIP nurses and outreach workers, in combination with a medical home and regular nurse consultations. CHIP nurses were trained according to the March of Dimes recommendations for the care of high-risk pregnant women; Great Beginnings Start Before Birth prenatal training also was offered to all outreach workers. Bright Futures Guidelines were used by all CHIP nurses and outreach workers as a basis for health supervision activities conducted in the family home after the child is born. The intervention infants spent less time in the hospital. Healthy behaviors among mothers were also impacted by participation in the program, with a 55 percent decrease in maternal smoking, a 100 percent decrease in maternal alcohol use and a 70 percent decrease in stress levels for those who reported high stress levels when they entered into the program. Program evaluation also showed a net savings of $2,287 per pregnancy and an overall return on investment of 1.26. CHIP babies spent 44 percent fewer days in the hospital than the control babies, as well as fewer days in the NICU.

Prenatal Plus Program (Colorado)

colorado.gov/cs/Satellite/HCPF/HCPF/1251594936298

Prenatal Plus is a Medicaid-funded program that provides care coordination, nutrition and mental health counseling to Medicaid-eligible pregnant women in Colorado who are at a high risk for delivering low birth weight infants. The program uses the client-centered counseling approach with all participants to address a variety of issues that have been shown to have a negative impact on birth outcomes. The key health areas targeted by this program are healthy weight, smoking cessation and depression. In order to encourage providers to offer model care for all women in the program, the Medicaid reimbursement structure has been adapted to offer a greater monetary incentive for completing the required number of visits (10) for model care. In 2010, the low-birth-weight rate for infants born to Prenatal Plus participants who remained in the program through delivery was 10.6 percent. Reductions in the low-birth-weight rate are directly related to the decreases in risk achieved by the women enrolled in Prenatal Plus. Six out of 10 (63 percent) Prenatal Plus Program participants were able to resolve all of their risks, and the resulting low-birth-weight rate for their infants was 8.2 percent. In 2010, this reduction in the low-birth-weight rate saved Medicaid an estimated $3.3 million in health care costs for the 2,089 women who received Prenatal Plus services and their infants through their first year of life. The program also has shown success in reducing smoking rates, substance use, and in maintaining healthy weight among participants.

Women Enjoying Life Longer Project (Maryland)

fha.dhmh.maryland.gov/mch/SitePages/women.aspx

The Women Enjoying Life Longer (WELL) Project was piloted by the Maryland Department of Health and Mental Hygiene (DHMH) as a women's health integration project at the Title X family planning clinics in Baltimore County. The primary objective was to improve the general health of young women and, if they later became pregnant, to help them enter pregnancy in a healthier state. WELL provides a model for the integration of health services, such as smoking cessation, weight management, domestic violence counseling, depression screening, medical screening, immunizations, to promote wellness among Maryland women. WELL Project participants live at or below the federal poverty level and are uninsured. Patient volume at WELL clinics has increased dramatically during the project period. Evaluation has documented WELL Project participants have positively responded to services offered and have identified many of the services as ones they would not have received if they were not in the program. The Center for Maternal and Child Health, DHMH, was awarded funding for this project by the MCHB.

Recommendation 5: Improve Access to Health Care for Women Before, During and After Pregnancy

Access to health care coverage is a crucial component of ensuring healthy birth outcomes for women and infants. More than one in five reproductive-age women are uninsured. In 2010, the 13 million women of reproductive age (15 to 44 years) without health insurance accounted for more than one quarter of the 50 million U.S. residents who were uninsured.[lvii] Lack of health care often means late or no entry into prenatal care for women, which can result in pregnancy complications and delayed diagnosis of treatable conditions. Furthermore, science indicates that prenatal care may be too late to intervene to fully assure the health of mothers and babies.[lviii] Comprehensive medical services for women before, during and between pregnancies are a proven intervention for improving birth outcomes.[lix]

The Patient Protection and Affordable Care Act (ACA) expands health insurance coverage and provides states with tools and resources to improve access to quality care for women. Coupled together these reforms can ultimately help improve birth outcomes. Under the ACA, several provisions have the potential to significantly enhance preconception health.

First, the ACA expands coverage for uninsured adults through an expansion of Medicaid and the establishment of health insurance exchanges. Currently, under Medicaid law, as of 2012, women must meet both categorical and income criteria to qualify for Medicaid. States must cover pregnant women with incomes up to 133 percent of the FPL for up to 60 days postpartum and can extend coverage up to 185 percent of FPL and beyond. Medicaid eligibility levels for pregnant women range from 133 percent of FPL in nine states to 300 percent FPL in three states; all other states fall somewhere in between these thresholds.[lx] Those barriers to Medicaid coverage for very low-income women will potentially change with Medicaid expansion in 2014 when some women under 133 percent of the FPL will qualify for Medicaid.[5] It is estimated that as many as 10 million currently uninsured women could qualify for Medicaid by 2014.

Women who lack employer-sponsored health insurance and who earn incomes between 133 to 400 percent of the FPL – levels too high to qualify for Medicaid – will be eligible for coverage through new state health insurance exchanges beginning in 2014.

Another important provision is the extension of coverage for young adults on the plans of their parents. Any group health plan or plan in the individual market that provides dependent coverage for children is required to make that coverage available for young adults up to age 26 even if the young adult no longer lives with his or her parents, is not a dependent on a parental tax return or is no longer a student. More than one quarter (29 percent) of women between the ages of 19 and 25 are uninsured and could potentially benefit from this expansion.[lxii]

In addition to these coverage expansions, the ACA also included several insurance market reforms, including a ban on pre-existing condition exclusions (e.g. pregnancy), no lifetime or unreasonable annual limits, prohibits discriminatory premium rates and provision for guaranteed availability of coverage.

The ACA also makes important strides toward improving the benefits that a woman receives. The law requires a core set of 10 essential health benefits, including but not limited to preventive services, maternity and newborn care, to be part of the comprehensive benefits package for those qualified health plans sold in the exchange and for Medicaid benchmark plans. Moreover, this provision of the law eliminated co-pays for services recommended by the U.S. Preventive Services Task Force (USPSTF) and immunizations recommended by the CDC.

[5]On July 5, 2012 the US Supreme Court upheld the Affordable Care Act as constitutional, but ruled that states couldn't be coerced into agreeing to the Medicaid expansion. Instead, states may decide not to participate in the expansion, which is 100% financed with federal funds for the first three years and then 90% covered for the next seven. As of the date of this publication it is unclear how this ruling will impact expansion of Medicaid.

Recommendation 5 *continued*

On Dec. 16, 2011. the U.S. Department of Health and Human Services (HHS) issued a bulletin providing guidance to the states on their approach to essential health benefits. Essentially, this bulletin proposed that states utilize a benchmark approach to define the essential health benefits.[lxiii] If a state selects a benchmark plan that does not cover all 10 categories of care, the state will have the option to examine other insurance plans, including the Federal Employee Health Benefits Plan, to determine the type of benefits that must be included in the essential health benefits package.[lxiv] This is the benchmark that states will likely be held to in terms of implementation of Essential Health Benefits for State Insurance Exchanges and newly insured adults under Medicaid.

While many women today lack access to health care services, there are also many gaps in services for women who do have basic health care. Women may receive appropriate care during a pregnancy but lack access to comprehensive services before and after. Among women who have unintended pregnancies, more than half or 53 percent report no use of family planning methods prior to conception.[lxv] Lack of contraceptive use may be a result of individual behaviors and/or a lack of education and access to contraceptive services, particularly for women living in rural or other underserved areas. Currently, only 85 percent of U.S. counties have at least one publically funded family planning clinic.[lxvi]

One of the most notable accomplishments of the ACA relative to improving women's health occurred on Aug. 1, 2011, when HRSA issued guidelines to ensure that women have coverage for eight preventive health services identified by the Institute of Medicine (IOM) as critical gaps, as well as measures to further ensure women's health and well-being. The guidelines require new health insurance plans beginning on or after Aug. 1, 2012, to cover these services without charging a copayment, coinsurance or a deductible. These services are:

- Well-woman visit (preventive visit)
- Screening for gestational diabetes
- Human papillomavirus (HPV) DNA testing for women ages 30 years and older
- Sexually-transmitted infection counseling
- Food and Drug Administration approved contraception methods and contraceptive counseling
- Breastfeeding support, supplies and counseling
- Human Immunodeficiency Virus (HIV) screening and counseling
- Domestic violence screening and counseling

Specifically, the IOM recommended coverage for at least one well-woman preventive care visit annually for adult women to obtain the recommended preventive services, including preconception and prenatal care. The committee

also recognized that several visits may be needed to obtain all necessary recommended preventive services, depending on health status, health needs and other risk factors. As part of the list of preventive services to be obtained during well-woman preventive visits, the IOM recommended that the preconception component of the visit include an opportunity for the health care provider to conduct, "evidence-based tests, procedures, and screening for nonpregnant women to optimize reproductive outcomes and prevent or optimize treatment for chronic conditions, as well as topics for counseling and guidance for preconception health."

Medicaid already requires that states cover family planning services without cost sharing. States that decide to offer newly eligible Medicaid enrollees a benchmark benefit plan must include coverage of family planning services to all qualifying individuals. The ACA also allows states to extend eligibility for family planning services to women with incomes below 185 percent of poverty without going through a federal waiver process. States can accomplish this by changing their Medicaid rules through a state plan amendment.

Access to comprehensive health care should also include access to oral health care. Good oral health enhances an the ability of an individual to speak, smile, smell, taste, touch, chew, swallow, and convey feelings and emotions through facial expressions.[lxvii] Preventable oral diseases, from oral cavities to oral cancer, are common in the United States. The CDC estimates tooth decay affects more than one-fourth of U.S. children ages 2-5 years and half of those ages 12-15 years, and advanced gum disease affects 4 percent to 12 percent of U.S. adults. Among women, diet and hormonal changes that occur during pregnancy may increase their risk for tooth decay and gum disease. Furthermore, surveillance suggests oral bacteria and poor oral health play a causal role in adverse pregnancy outcomes.[lxviii] Finally, pregnancy-related health care may be an opportune time to address oral health needs for women who may not otherwise be routinely accessing health care. It is important to note that the ACA establishes a minimum set of required benefits that includes pediatric dental coverage for the health insurance exchanges but not adult dental coverage.

Investments in prevention including the Prevention and Public Health Fund and programs such as the Maternal, Infant, and Early Childhood Home Visiting Program, which provides resources to states for home visiting programs, offer additional important resources to strengthen supports and services to women, infants and children.

Health systems reform – whether through implementation of the ACA or other means – provides an important opportunity to states and communities for ensuring that preconception health is a central part of these system transformations.

In coordination with new opportunities provided by the ACA, states can consider taking the following actions to improve access to health care for women before, during and after pregnancy:

Navigate the opportunities of the ACA which includes the expansion of coverage of comprehensive reproductive health services, including family planning for the uninsured and underinsured populations. Specific strategies include:

- Engaging with health insurance exchange boards to provide guidance in the development and strengthening of outreach and enrollment processes to ensure that the unique needs of maternal and child health populations are considered in the development of a single streamlined and coordinated eligibility and enrollment process, and that where relevant, eligibility for other public health programs (e.g., Children with Special Health Care Needs programs, high risk prenatal care coordination, Early Intervention (Part C of IDEA), WIC child nutrition programs, Family Planning, etc) is considered and integrated into these systems.
- Partnering with the state Medicaid agency to develop and obtain a family planning state plan amendment to expand coverage for family planning services to all uninsured persons, whether or not they have ever participated in the Medicaid program.
- Encouraging partners to provide free or low-cost family planning services for uninsured and underinsured populations.

Ensure prenatal, family planning and other health services are accessible to all women, particularly women living in underserved areas. Strategies include the following:

- Providing incentives to providers, such as enhanced reimbursement, health information technology benefits and pay-for-performance, to increase availability of providers who accept Medicaid and provide family planning services and care for high-risk pregnancies.
- Providing family planning, prenatal, well-woman, adolescent-health and well-child services that are accessible to the target population (e.g. location such as on bus routes and walking distance for metro or bus stops, flexible hours of operation, walk-in hours, and teen centers or teen-centered hours) and provide services in a culturally appropriate manner, including translation services.
- Assessing the availability of family planning and prenatal care needs and service sites to ensure statewide access especially in targeted high-risk areas.

Recommendation 5 *continued*

- Working with Federally Qualified Health Centers, state Offices of Primary Care, state Primary Care Associations and local health plans to maximize resources to provide primary care for uninsured women.
- Ensuring all Medicaid-eligible pregnant women have access to comprehensive holistic Family Practice Team Model care.[6]
- Promote social media efforts that to help inform women, children and families about enrollment in Medicaid, CHIP or the health insurance exchanges..

Support mechanisms to facilitate easy enrollment into Medicaid so providers can directly enroll eligible clients, based on declaration of income and family size. Strategies include:

- Ensuring that the organizations and agencies that serve low-income women are trained and able to help facilitate enrollment into Medicaid.
- Expediting Medicaid application processes by placing Medicaid eligibility workers in local health clinics, local health department, local social service department locations, and all other points of service to facilitate health coverage and earlier entry into prenatal care.
- Implementing and supporting several, simultaneous strategies of outreach and enrollment.[7]

Strengthen the workforce to ensure access to providers for all women of reproductive age. Specific strategies include:

- Building partnerships with academic centers, community hospitals, local health departments, Federally Qualified Health Centers and other community health centers, professional organizations, and other community-based organizations in order to help ensure and improve access to obstetrical providers.
- Developing telemedicine systems so women in rural, underserved areas can access medical specialists (See **Recommendation 2: Ensure Quality of Care for All Women and Infants** for more information and specific examples).
- Encouraging the adequate reimbursement of providers for reproductive health services.
- Evaluating the potential for third-party reimbursement for doula and community health worker services and health navigators.

Promote comprehensive oral health care, particularly the prevention and treatment of periodontal disease, as a component of perinatal health programs. Specific strategies include:

- Ensuring oral health education is integrated into outreach programs for perinatal care.
- Educating providers on how to screen and refer women for comprehensive oral health care, including periodontal disease.
- Disseminating resources on the importance of dental care for women of childbearing age to clinicians and health educators.
- Educating pregnant women about the importance of visiting a dental provider.
- Exploring ways to establish a dental home for women to ensure that they have access to dental care during and after pregnancy. One model would be to partner with dental managaed care programs.
- Increasing payment options for gap-filling dental services.

Increase access to interconception care for women with prior adverse pregnancy outcomes. Core services include family planning, screening for maternal depression and intimate partner violence, assessing social support for the pregnant woman, smoking cessation and substance treatment programs, physical activity and nutritional education and intervention, management of chronic diseases, and education on back-to-sleep and parenting skills.

Examples

California Family Planning Waiver: Family PACT Program

familypact.org

Family PACT (Planning, Access, Care, Treatment) is a program that provides no-cost family planning services to

[6] For more information on Family Practice Team Model care, visit the American Academy of Family Physicians resource article on team-based, proactive care at aafp.org/fpm/2005/0500/p59.html.

[7] More information and ideas for additional strategies are presented in State of Art of Medicaid Outreach and Enrollment (2009), available at urban.org/UploadedPDF/411898_pregnant_women.pdf

low-income men and women, including teens. Family PACT was established by the California legislature in 1996 and implementation began in January 1997. The program objectives are to reduce the rate of unintended pregnancies, increase access to publicly funded family planning services for low-income Californians, increase the use of effective contraceptive methods by clients, promote improved reproductive health, and reduce the overall number and cost of unintended pregnancies. Initially funded only by the state, California received a Centers for Medicare and Medicaid Services (CMS) federal Medicaid Section 1115 Waiver in 1999, enabling the program to receive federal matching funds. Special features of the program, such as broad client eligibility criteria, on-site enrollment, and inclusion of private providers and pharmacies, have improved access to and quality of services. As a result, Family PACT has achieved a reduction in unintended pregnancy and saved millions of dollars in public expenses.

Maryland Medicaid Accelerated Certification of Eligibility/Quickstart Prenatal Care Visit

fha.dhmh.maryland.gov/mch/SitePages/postpartum-referral.aspx

Through close partnership with Medicaid, a new Accelerated Certification of Eligibility (ACE) process assures Medicaid-eligible women that they will have access to prenatal care as early as possible and a quickstart prenatal care visit is offered at health departments in target jurisdictions. To ensure that high-risk babies and mothers receive postpartum follow up, a statewide standardized postpartum discharge referral process is being developed and a postpartum Infant and Maternal Referral Form was implemented statewide.

Mississippi Interpregnancy Care Project

Modeling the program implemented in Georgia (Grady Memorial Hospital), the Mississippi State Department of Health (MSDH) implemented pilot programs in two communities among women who delivered a very-low-birth-weight infant. The pilot communities are predominantly African American with high rates of poverty, low-birth-weight (LBW) deliveries, infant mortality and morbidity, and low rates of health insurance coverage and restricted access to primary care services. The Metropolitan Infant Mortality Elimination (MIME) and Delta Infant Mortality Elimination (DIME) programs give varying perspectives – urban and rural – of implementing interpregnancy care in Mississippi. Early data suggest improved outcomes and achievement of adequate child spacing.

Perinatal Connect to Care (West Virginia)

wvperinatal.org/teleconsultation.htm

In early 2010, West Virginia formally launched the Connect to Care Project. The project is a telecommunications project linking rural health facilities with tertiary care centers housing perinatal specialists. Live telecommunications infrastructure allows pregnant women and their local health care providers to obtain medical advice from specialists without traveling. The project also supports continuing education for rural medical practitioners and access to obstetrical referrals. Currently, Connect to Care is operating in 15 rural health care sites as a pilot program. The project is funded by a Rural Utilities Service Grant from the U.S. Department of Agriculture and matching funds from 18 partnering West Virginia hospitals and community health centers.

Plan First: Michigan Family Planning Waiver

michigan.gov/mdch/0,1607,7-132--146295--,00.html

On Mar. 1, 2006, CMS approved the Michigan submission of a Section 1115 demonstration waiver to provide family planning services to Michigan citizens meeting certain

Recommendation 5 Examples *continued*

eligibility requirements. This program enables the Michigan Department of Community Health (MDCH) to provide family planning services to women who otherwise would not have medical coverage for these services. Through this waiver, MDCH offers family planning services to women ages 19 to 44, who are not currently Medicaid eligible, who have family income at or below 185 percent of the FPL. It is estimated at least 200,000 women meet this criteria.

Planning for Healthy Babies, Georgia Family Planning Waiver

p4hb.org

In 2010, the Georgia Department of Community Health (DCH) received approval for an 1115 Family Planning demonstration waiver to implement the Planning for Healthy Babies (P4HB) program. The P4HB program offers family planning services to women who previously did not qualify for Medicaid benefits. The P4HB program aims to improve very-low-birth rate (VLBW) and low-birth-weight (LBW) rates in Georgia by providing family planning services to women, increasing child spacing intervals through effective contraceptive use, increasing prenatal planning and vitamin intake among women, and providing interpregnancy care services to women with a previous VLBW infant. The program was implemented in January 2011. Evaluation of the program was contracted to Emory University. Overall, the P4HB program plans to evaluate based on reductions in pregnancy rates, improved birth outcomes, member and provider satisfaction, and overall cost savings. Federal Medicaid provides 90 percent of the cost and state funds are appropriated to DCH for the remaining 10 percent.

Take Charge, Louisiana Family Planning Waiver

new.dhh.louisiana.gov/index.cfm/page/232

Since October 2006, Louisiana Medicaid has offered family planning services to women, ages 19 to 44 who do not have health insurance that covers family services and who are not eligible for any other Medicaid program with the exception of the Greater New Orleans Community Health Connection (GNOCHC). All must meet income requirements that are at or below 200% of the federal poverty level. The goal of the program is to reduce unintended pregnancies by providing access to family planning services. The Take Charge program includes the following services: up to four (4) physical examinations or necessary re-visits for the purpose of family planning per calendar year, laboratory tests for the purpose of family planning, Pap Smear Screening for the purpose of family planning, Sterilizations, and certain approved family planning medications and supplies (i.e. contraceptives). The program is a Family Planning Research and Demonstration Project under the authority of Section 1115 Demonstration Waiver.

Tampa Bay Doula Program (Florida)

achievetampabay.org/ProgramServices/doulaservices.aspx

The Tampa Bay Doula Program provides free perinatal services to low-income pregnant women at risk for poor birth outcomes. Program services include community-based childbirth education classes, labor and delivery support, postpartum mom/baby care and instruction focusing on mom/baby attachment, extension of breastfeeding duration, and interconception care. A pregnant client can sign up for doula services at any time prior to delivery, however, the average young woman begins attending classes in her first trimester and stays with the program through three to six months postpartum. Clients are able to participate and receive doula services if they are low income and socially/medically at risk. In comparison to the Hillsborough County average of 12.4 black infant deaths per 1,000 births from 2005 to 2007, black participants in the Doula Program experienced a lower infant mortality rate (1 per 1,000 black infant deaths reported). The program Client Satisfaction Survey found that: 99 percent of doula clients receiving postpartum support report and demonstrate positive transition relating to mother and infant bonding; 98 percent of clients receiving clinic-based doula instructions demonstrate competence of pregnancy related topics; and 97 percent of delivering mothers that were provided supportive labor/delivery services report positive birth experiences.

Recommendation 6: Develop Data Systems to Understand and Inform Efforts

Understanding and using data transcends all of the recommendations, strategies and examples presented throughout the AMCHP compendium. Developing and using *data systems*, however, is a specific recommendation because building data infrastructure is foundational to understanding a problem, implementing interventions and evaluating comprehensive efforts.

Collecting and analyzing a wide range of data to understand reproductive and infant health, as well as contextual information about health care systems, neighborhoods and the environment will help to define the extent, causes and contributors to infant mortality and poor birth outcomes. Creating a comprehensive picture of infant mortality requires working with a range of agencies and partners to share data across systems and programs, and create data linkages where possible. Key partners in developing data systems may include Medicaid and other health insurers, vital statistics, chronic disease programs, Fetal and Infant Mortality Review (FIMR) programs, birth defects registries, and hospitals. Enhancing and supporting ongoing data collection and monitoring systems through linkage of birth certificates with infant death certificates, newborn screening (blood spot and hearing), immunization registries and maternal and infant hospitalizations, Medicaid claims, and WIC program data are crucial next steps to developing a comprehensive picture of infant mortality and strategies to improve birth outcomes.

Critical components of a comprehensive data system to improve birth outcomes and reduce infant mortality include the Title V MCH Services Block Grant performance measures, the Pregnancy Risk Assessment Monitoring System (PRAMS), FIMR, and/or child fatality reviews, maternal mortality reviews and birth defects registries. In addition, there are several effective approaches that state and local health agencies have used to identify the drivers of poor birth outcomes and share information across stakeholders, including examination of causes of death, Perinatal Periods of Risk (PPOR)[lxix, lxx, lxxi] and Kitagawa analyses.[lxxii]

As a comprehensive, linked data system is established, translating data into information for action to facilitate the design of targeted interventions and gauge the impact of these interventions is a crucial next step. Assessing and sharing data related to infant mortality and birth outcomes with key stakeholders, including families, can help to build consensus about the strategies to pursue to improve birth outcomes and monitor progress.

Actions states can consider taking to develop data systems to understand and inform efforts include the following:

Conduct a thorough assessment of existing data systems to determine what currently exists and what data systems may need to be developed. Specific strategies include:

- Identifying what programs already exist and what data is collected. In order to have a comprehensive picture of all efforts to reduce infant mortality and improve birth outcomes, create a mechanism to document and share data from new and established programs that address infant mortality within the state. While vital statistics data often lag by a year or two, program data can capture more current trends for specific populations served.
- Evaluating existing surveillance systems. In order to rely on surveillance systems for information about infant mortality, evaluate existing sources of data for factors such as data quality, representativeness and timeliness.[8]

[8] For more information and the updated CDC guidelines for evaluating surveillance systems, visit cdc.gov/mmwr/preview/mmwrhtml/rr5013a1.htm

Recommendation 6 *continued*

Strengthen epidemiology capacity focused specifically on maternal and child health. Specific strategies include:

- Supporting MCH epidemiologist positions at the state health department.
- Enhancing current MCH epidemiology skills and workforce capacity.
- Pursuing opportunities such as Council of State and Territorial Epidemiologists (CSTE)[9] Applied Epidemiology Fellows, Public Health Prevention Service (PHPS)[10] fellows, Graduate Student Intern Program placements (GSIP)[11] and CDC MCH Epidemiology Field Assignees[12] to increase capacity for MCH epidemiology and surveillance.
- Partnering with local or regional academic public health programs to increase MCH epidemiology research and surveillance.

Create formal data-sharing partnerships to facilitate timely and ongoing data sharing. Specific strategies include:

- Creating formal documents such as a memorandum of agreement or a memorandum of understanding between agencies to facilitate timely and ongoing data sharing and gain access to needed data.
- Ensuring contracts with Medicaid Managed Care Organizations provide timely data for all pregnancy outcomes in the Medicaid program.

Create a linked database system or conduct strategic data linkages to enhance birth and death certificate information and facilitate identification of additional risk and protective factors for infant mortality and other poor birth outcomes. Key datasets include vital records, hospital discharges, newborn screening (blood spot and hearing), the immunization registry and the birth defects registry. In addition, Medicaid and other insurer data, program data and surveys, such as PRAMS, can provide a wealth of information on the health of women and infants.

Use effective methods to understand infant mortality in your state and communities. Using analytic methods will assist in identifying root causes of poor birth outcomes and infant mortality and clarify underlying issues in geographic areas of high infant mortality to help in targeting interventions and setting a baseline for improvement. Specific strategies include:

- Utilizing PPOR methods to focus strategies and resources to address trends and disparities in fetal and infant mortality.[13]
- Utilizing mapping tools and techniques, including Geographic Information Systems (GIS), to conduct an in-depth assessment of geographic areas with high infant mortality. Use data to identify communities and neighborhoods at highest risk of poor outcomes. Create maps that help stakeholders visualize poor birth outcomes.
- Using available census and other community-level data on risk factors for poor birth outcomes to identify and monitor progress over time in reducing infant mortality in communities and special population groups, such as migrant workers and immigrant populations.

Examine environmental influences on birth outcomes and infant mortality. Specific strategies include:

- Partnering with environmental tracking programs that have begun incorporating reproductive and birth outcomes into their data portals to look at the impact of environmental exposures and stressors on birth outcomes.[14]

Conduct a comprehensive review of all fetal, infant and child deaths. Specific strategies include:

- Educating hospitals and health care providers on public health surveillance legislation and the authority of public health agencies to access health information as necessary to conduct death reviews.
- Implementing or enhancing a FIMR program. Key elements for a successful FIMR program include a case review team; access to sources of, data including a family/maternal interview and hospital records; a population/community focus; feedback mechanisms; multidisciplinary involvement; a community action team; continuous quality improvement; and a regular mechanism to share recommendations with key stakeholders.[lxxiii] FIMR programs should include investigation of all stillbirths occurring after 20 weeks' gestation.[15]

[9] For more information about the opportunity to host a CSTE fellow, visit: cste.org/dnn/ProgramsandActivities/FellowshipPrograms/tabid/259/Default.aspx
[10] For more information about the opportunity to host a PHPS fellow, visit: cdc.gov/PHPS
[11] For more information about the opportunity to be a GSIP placement, visit: mchb.hrsa.gov/researchdata/mchirc/gsip/index.html
[12] For more information about the opportunity to host a CDC MCH Epidemiology field assignee, visit: cdc.gov/reproductivehealth/mchepi/index.htm
[13] To access material on PPOR, visit: cdc.gov/reproductivehealth/mchepi/index.htm
[14] For more information about the CDC Environmental Tracking Network, visit: ephtracking.cdc.gov/showHome.action
[15] For more information on establishing NFIMR programs, visit: nfimr.org

- Establishing a SIDS/SUIDS case registry. Key elements for a successful SIDS/SUIDS case registry include a standardized diagnosis of sudden unexpected infant deaths and examination of the dynamics between declines in deaths attributed to SIDS and increases in SUID.[16]

- Implementing or enhancing comprehensive child fatality reviews.[17] Key elements for a successful child fatality review program include multidisciplinary participation from the community and a review of comprehensive information in order to understand risks of child death and establish effective recommendations to prevent further child death.

Expand information collected through birth and fetal death certificates. Specific strategies include:

- Adopting the revised (2003) birth certificate to collect enhanced information on topics such as assisted reproductive technologies, body mass index (BMI) before pregnancy and at delivery, more detailed smoking data, gestational diabetes, and breastfeeding at hospital discharge following labor and delivery. More information on the revised certificates is available at cdc.gov/nchs/nvss/vital_certificate_revisions.htm.

- Partnering with Vital Statistics departments to devise and implement strategies to improve data quality from birth and death certificates.

- Adopting the 2003 National Center for Health Statistics Fetal Death Certificate and computerize state fetal death records to allow analysis of causes of fetal death. In combination with data on births and neonatal deaths, fetal death data provide a more complete picture of pregnancy outcomes and their risks. Surveillance of all perinatal deaths can help elucidate causes of death common to fetal and neonatal deaths.[lxxiv]

Conduct a comprehensive review of all maternal and pregnancy-related deaths. Although states may pursue different structures, each pregnancy-related mortality surveillance should include identification of pregnancy-related deaths, review of the medical and non-medical causes of death, analysis and interpretation of the findings, and action on the findings.[lxxv] This comprehensive review should include de-identified case summaries for each maternal or suspected pregnancy-related death, a case review team that makes a determination for each death regarding relationship to pregnancy and identification of opportunities for reducing maternal mortality. In order to successfully conduct reviews, state partners may need to educate hospitals and health care providers on public health surveillance legislation and the authority of public health agencies to access health information as necessary to conduct death reviews.

Establish a PRAMS survey. PRAMS is a surveillance project conducted in partnership with states by the CDC. PRAMS collects state-specific, population-based data on maternal attitudes, experiences, and behaviors before, during and shortly after pregnancy. PRAMS provides data that are not available from any other data source, including topics such as unintended pregnancy, post-discharge breastfeeding practices, services received during prenatal care and substance use. PRAMS data enhances information from the birth certificate and should be used to monitor changes in maternal and child health indicators, make comparisons across states and identify women and infants at higher risk for health problems. Additional information is available at cdc.gov/PRAMS/.

Establish or expand birth defect registry surveillance. Specific strategies include:

- Implementing active or enhanced case finding to supplement existing passive reporting such as birth and death certificates and hospital discharge data.[18]

- Increasing provider, partner and family education about reporting requirements and benefits of the registry.

Establish or expand collection of qualitative data to help enhance surveillance data with information on the lived experience of women and communities. Specific strategies include:

- Partnering with specialists in qualitative data collection and analysis to enhance collection and use of qualitative data.

- Conducting focus groups to collect information from women and families on health behaviors, possible communication messages or intervention strategies. Focus groups can also be a venue for sharing information with community members and testing core messages on current data for the lay public.

- Using qualitative research methods to better understand barriers to care for families and communities.

- Utilizing PRAMS comments, when available, to further explain quantitative data collected through surveillance.

- Highlighting programmatic case studies, as appropriate, throughout data dissemination materials.

[16] For more information on establishing SIDS/SUIDS case registries, visit: cdc.gov/sids/CaseRegistry.htm
[17] For more information on establishing Child Death Review, visit: childdeathreview.org
[18] For NBDPN birth defects surveillance guidelines, visit: nbdpn.org

Recommendation 6 *continued*

Measure women's reproductive health status. Specific strategies include:

- Implementing and use the Core Preconception Health Indicators.[19, lxxvi]
- Developing State Title V performance measures on preconception health measurement and tracking.
- Including preconception metrics in the reporting requirement structure of new statewide managed care networks.

Evaluate all programs aimed at reducing infant mortality. If feasible, conduct meta-evaluations to summarize the collective impact of programs and identify areas for improvement. Evaluations should identify and assist in eliminating/filling gaps in services and areas of disparity to improve care and outcomes.[20]

Publish birth outcomes data annually to stakeholders, including through accessible reports for consumers. Specific strategies include:

- Obtaining provisional data to facilitate early assessment of trends and to improve follow-up for screening, tracking and mortality review programs.
- Making data publicly available through an online, user-friendly Web page.
- Publishing periodic data briefs for stakeholders, including consumers.

Examples

Alaska MCH Data Books

epi.alaska.gov/mchepi/mchdatabook/default.htm

MCH Data Books provide Alaskan health care providers, public health program managers and policymakers with detailed information on important maternal and child health status indicators. Alaska MCH Data Books are published by the MCH Epidemiology Unit. Beginning in 2003 and published about every other year, the data book features a comprehensive look at maternal and child health indicators for Alaska. In alternate years, data books focus on specific MCH topics, presenting the findings of public health surveillance programs operated by the MCH Epidemiology Unit, including PRAMS and the Alaska Birth Defects Registry.

Attitudes and Practices Focus Group Research (North Carolina)

Using qualitative research methods, the North Carolina Infant Mortality Collaborative conducted focus groups in 2005 to help inform maternal and child health programming. The explicit goal of the qualitative research was to help understand the link between women's health, self-care and infant mortality. Two overarching questions guided the research: (1) why do women adopt (or not adopt) preventative health behaviors? And (2) why do women use (or not use) preventative health services? The research elucidated key conclusions, including a primary theme that awareness was not enough to change behaviors in the state (i.e. women were aware of many of the public health messages that were being communicated, but the messages alone were not enough to change people's behaviors). Another theme of the research findings was empowerment. A key factor that emerged over all the focus groups was the ways that structural violence, including poverty, lack of education, racism and sexism, impacts people's access to health care in general, and preventative health care in particular. Insights were shared across the state with MCH partners and used to inform continued public health efforts.

Full report, including survey questions and interview guides, available at: nchealthystart.org/downloads2/SIMS%20Final%20Report%20web.pdf.

California Pregnancy-Associated Mortality Review (CA-PAMR)

cdph.ca.gov/data/statistics/Pages/CaliforniaPregnancy-AssociatedMortalityReview.aspx

The California Pregnancy-Associated Mortality Review (CA-PAMR) began in 2004 by the California Department of Public Health to investigate the rise in maternal deaths and the widening racial and ethnic disparity in maternal morbidity and mortality. CA-PAMR identifies maternal deaths using enhanced surveillance methodology and conducts an in-depth review of medical records by an expert panel of maternity care and public health professionals. CA-PAMR seeks to identify pregnancy-related deaths, causation and associated risks, and issues recommendations to improve the quality of maternity care. The California Department of Public Health collaborates with the California Maternal Quality Care Collaborative at Stanford University and the Public Health Institute.

[19] To access a full list of the Core State Preconception Health Indicators, visit: cste.org/dnn/ProgramsandActivities/ChronicDiseaseMCHandOralHealth/MCHIndicators/tabid/337/Default.aspx

[20] For information on the CDC evaluation framework, visit: cdc.gov/eval/framework/index.htm

Florida CHARTS

floridacharts.com

The Florida Community Health Assessment Resource Tool Set (CHARTS) is publicly available data that can be used to find Florida health statistics in order to identify health problems in the community. The goal of Florida CHARTS is to provide communities with data and products that assist them with community health assessment. CHARTS includes such health statistics as births, deaths, disease morbidity, population and behavioral risk factors. Data for selected health indicators is provided through maps, profile reports, data queries and other products.

Florida PAMR

doh.state.fl.us/Family/mch/pamr/pamr_info.html

In 1996, the Florida Department of Health initiated the Pregnancy-Associated Mortality Review (PAMR) to improve surveillance and analysis of pregnancy-related deaths in Florida. Once the pregnancy-associated deaths are identified, they are sorted by a physician/nurse subcommittee and initially deemed pregnancy-related, possibly pregnancy-related or not pregnancy-related. The focus of PAMR is to ensure that all deaths identified as pregnancy-related deaths are reviewed. This case review program seeks to reveal gaps in care, identify systemic service delivery issues and make recommendations to facilitate improvements in the overall systems of care. The Florida PAMR project is funded by the Title V MCH Services Block Grant.

Integrating Preconception Health Indicators into Title V Monitoring and Evaluation (Ohio)

Ohio has used the Core Preconception Health Indicators[lxxvii] to develop an Ohio Preconception Care Databook. The resource is intended to provide information about maternal and child health in Ohio and guide policy and decision making with the goal of improving health outcomes for women of reproductive age and their children. In addition, one Ohio state Title V performance measures calls for the development and implementation of a core set of preconception health indicators to monitor the health of reproductive women and evaluate preconception health effects.

LA Moms and Babies Study (California)

publichealth.lacounty.gov/mch/lamb/LAMB.html

The Los Angeles Mommy and Baby (LAMB) Project is sponsored by the Los Angeles County Department of Public Health. It is both a population-based surveillance tool and a community outreach project. The LAMB survey asks mothers who recently delivered a baby about events that happened before, during, and after their pregnancy. The LAMB Project provided and will continue to provide detailed information and high quality data to assist policymakers, community stakeholders and other essential strategic partners to: monitor the health status of thousands of mothers and their newly delivered babies; identify strategies to address perinatal issues faced by our communities; evaluate perinatal services in order to maximize the health and quality of health and human services for mothers, infants and their families; and assess the environments in which families live and thrive.

Recommendation 6 Examples *continued*

Massachusetts PELL Data System

sph.bu.edu/menu-id-452.html#overviewpercent20ofpercent20pell

The Pregnancy to Early Life Longitudinal (PELL) Data System represents a public-private partnership between the Boston University School of Public Health (BUSPH), the Massachusetts Department of Public Health (MDPH) and CDC. PELL is a unique, innovative, population-based, longitudinal reproductive data system, with multiple linked data sets that can be used for cross-sectional and longitudinal analyses. PELL data is well suited for the study of morbidity and mortality among children, mothers and families; hospital and program utilization and associated costs; evaluation of state MCH programs (e.g., Early Intervention); and enhancement of statewide surveillance systems (e.g., pregnancy-associated mortality, MA Birth Defects Monitoring Program). PELL is a relational data system composed of individual data sets that are linked together by randomly generated unique IDs for mother and infant. These unique IDs enable the creation of de-identified analytic files.

Metropolitan Atlanta Congenital Defects Program (Georgia)

cdc.gov/ncbddd/birthdefects/MACDP.html

The Metropolitan Atlanta Congenital Defects Program (MACDP) is a population-based tracking system for birth defects. MACDP was established in 1967 by the CDC, Emory University and the Georgia Mental Health Institute. It was the nation's first population-based system for active collection of information about birth defects. Population-based means researchers look at all babies with birth defects that live in the study region to get a complete picture of what is happening within the population. Since that time, the program tracked birth defects among infants and children born to mothers living in metropolitan Atlanta using active case-finding methods and multiple sources of information. The purpose of MACDP is to track the occurrence of birth defects; maintain data for use in epidemiologic studies (studies that look at health effects within the population); understand other health outcomes, such as mortality or death rates, associated with birth defects; provide data for education and health policy decisions leading to prevention of birth defects; serve as a model for help other programs develop and implement new tracking methods; collaborate with state and international birth defects programs in tracking prevention efforts; provide a training ground for public health scientists in tracking and epidemiologic methods.

New York State Maternal Mortality Review Initiative

In 2010, the New York State Department of Health implemented a Maternal Mortality Review (MMR) Initiative. All maternal deaths across the state will have a record review conducted by the quality improvement organization, IPRO. Maternal death cases are identified through the New York Patient Occurrence and Tracking System (NYPORTS); maternal death certificates; and, the Statewide Planning and Research Cooperative System (SPARCS), which provides information on discharges from hospitals, linked to birth and death records. During the first meeting of the MMR committee in 2010, preliminary data was presented based on an initial review of 70 maternal deaths obtained from NYPORTS from 2006 to 2008. This review showed the leading causes of death to be: hypertension (20 percent), hemorrhage (19 percent) and embolism (17 percent). A history of chronic illness and prenatal risk factors was frequently found in the mothers. In 59 percent of the cases, the mother was obese.

The MMR committee recommended that guidance regarding hypertension in pregnancy should be developed. A subcommittee is currently working on a guidance document on hypertensive disorders in pregnancy. The document will summarize existing guidelines for the diagnosis, evaluation and management of hypertensive disorders in pregnancy. The guidance document is intended for health care providers who care for pregnant women in a variety of clinical settings.

Oklahoma PRAMS Data Briefs

ok.gov/health/Child_and_Family_Health/Maternal_and_Child_Health_Service/Data_and_Evaluation/Pregnancy_Risk_Assessment_Monitoring_System_(PRAMS)/

On a monthly basis, Oklahoma PRAMS randomly samples between 200 and 250 new mothers using Oklahoma birth certificates. Oklahoma currently collects PRAMS data on the following topics: health insurance, prenatal care, breastfeeding, maternal smoking and secondhand smoke exposure, alcohol use, social support and family planning. Oklahoma PRAMS publishes information briefs to help disseminate data on pregnancy related health.

The Oklahoma Toddler Survey (TOTS)

ok.gov/health/Child_and_Family_Health/Maternal_and_Child_Health_Service/Data_and_Evaluation/The_Oklahoma_Toddler_Survey_(TOTS)/index.html

Oklahoma developed a follow-back survey to PRAMS called The Oklahoma Toddler Survey (TOTS). This model has been replicated by at least four additional states since its inception in 1994. Oklahoma sends surveys to PRAMS respondents the month the child turns two years old. TOTS is a dual mode survey, meaning participants have the opportunity to participate by either mail or phone. The current TOTS survey measures several agency and Title V MCH Services Block Grant priorities relating to infant mortality reduction, including maternal depression and breastfeeding during the child's first year of life.

Recommendation 7: Promote Social Equity

Different populations across the United States experience different burdens of infant mortality and poor birth outcomes. Disparate burden is typically manifested as differences in sociodemographic risk factors, such as race or ethnic group, income level and educational attainment. Furthermore, many of the gaps in birth outcomes between racial, ethnic and socioeconomic groups have not substantially changed in over half a century.[lxxviii, lxxix]

Race and ethnicity is a central factor in risks for poor birth outcomes. As previously noted, there are major disparities in infant mortality rates between racial or ethnic populations.[lxxx] In addition, disparities are also complex within racial or ethnic groups. For example, while the overall infant mortality rate for infants born to Hispanic mothers (5.3) is lower than the overall rate in the United States, the infant mortality rate for infants born to mothers of Mexican (5.1) and Central or South American descent (3.3) are considerably lower than the rate of death for infants born to Hispanics that are not classified, 'other or unknown Hispanic' (13.5).[lxxxi]

Poverty and education are also important factors associated with poor birth outcomes. In general, people with higher incomes are in better health.[lxxxii] This inverse relationship between income and health means women with lower incomes are more likely to have an infant die than women with high incomes. Poverty often correlates with educational attainment. The U.S. Census data documents people with lower income levels often have less education attainment. Educational attainment has also been analyzed in relation to infant mortality and shows a similarly inverse pattern of decreasing infant mortality rates as education level increases. In the United States, the infant mortality rate among populations of mothers who complete less than a high school diploma is more than two times higher than among mothers who have at least a bachelor's degree.[lxxxiii]

While health differences can be delineated across racial, ethnic or socioeconomic populations, the mechanisms responsible for these associations have yet to be fully explored by public health research. Research has shown, however, that historical segregation[lxxxiv], social bias (i.e. racism, classism, sexism, nativism),[lxxxv] stress[lxxxvi] and discrimination[lxxxvii] contribute to the disparate burden experienced by some populations. A life course approach is helpful for understanding the causal pathways of these factors. Over the life span of an individual, race, ethnicity, poverty and education intersect with health factors and social influences to produce cumulative impacts on health.[lxxxviii, lxxxix] The association between stress and poor health outcomes is particularly hard to quantify and can be equally hard to explain. Stress, however, can impact individual health both directly and indirectly through its effect on health behavior. While everyone experiences stress, populations that already experience social bias, discrimination, lower educational attainment and poverty may experience greater stress. Research has identified factors, such as economic strain, insecure employment, low control at work, social isolation and stressful life events, that contribute to greater stress experienced by populations of lower socioeconomic status.[xc, xci]

Addressing the causes of health disparities will take complex, multicomponent approaches. In addition, eradicating health disparities will require a commitment to social equity and a recognition that the contexts in which we live our lives are shaped by historical injustices and contemporary structures that perpetuate historical injustices.[xcii] Health disparities can

Recommendation 7 *continued*

only be addressed with strategies related to both health and social programs and interventions that work more broadly and support equitable access to health care services and economic, educational and housing opportunities.

In addition, social equity requires honoring and respecting the dignity and culture of all people involved and ultimately empowering communities. States and partners may have to make systemic changes in order to include families and communities as equal partners in health interventions from start to finish. These defining characteristics and values should be included in all policy, program, service and research work related to eliminating health disparities.

States can consider the following the options to promote social equity to reduce infant mortality and improve birth outcomes:

Support working mothers and families. Specific strategies include:

- Providing child-care vouchers with a reimbursement rate that increases with the developmental quality of child care purchased.
- Supporting parental leave coverage, extending the duration of leave allowed or providing more opportunities for parents of young children to return to work part time, and make provisions for income replacement during leave. Public financing can come from unemployment insurance, temporary disability insurance programs, new social insurance programs and new cash benefit programs.

Raise awareness on the effects of racism. Racism is multidimensional: intrapersonal, interpersonal and institutional. The public health community must raise awareness of and actively address racism in all its forms. Specific strategies include:

- Promoting cultural pride by participating in cultural and community celebrations.
- Implementing statewide diversity training programs for health and social service providers that include the potential effects of racism on health care and infant mortality.
- Developing public service announcements that address the effects of racism in general and the impact of racism on infant mortality.
- Making addressing racism a leading public health issue among public health departments, divisions and staff. Including collecting data on racism in population and community health assessments, ensuring equal access to quality health care, monitoring for discriminatory practices and making policies to ensure equal access to goods, services and opportunities vital to maternal and child health.
- Identifying other state health program strategies to improve minority health and elimination of health disparities, collaborate and build on combined efforts across the state.
- Actively confronting institutionalized racism within public health agency/agencies by conducting self-assessments within each division or branch; compiling instructional materials based on successful models such as the AMCHP/CityMatCH/National Healthy Start Partnership to Eliminate Disparities in Infant Mortality;[21] requiring public health partners to begin dialogue for reducing institutional racism and incorporating ongoing cultural competence training within their facilities; reviewing training and curriculum on addressing institutionalized racism; and conducting Undoing Racism/Health Disparities/Health Equity trainings with staff and partners at public health agencies.
- Monitoring for discriminatory practices and promoting racial equity in all state policies.
- Developing an agenda for reducing racial disparities.

Invest in community rebuilding and urban renewal. Specific strategies include:

- Building community networks and mobilizing civic participation.
- Promoting the establishment or development of neighborhood associations.
- Supporting implementation of anti-poverty initiatives, such as providing job-skills training (including training in social entrepreneurship), establishing community gardens and urban farms, restricting 'payday loan' establishments and promoting financial literacy, and developing healthy housing options.

Ensure health care services are provided in a manner compatible with the cultural beliefs, practices and preferred language of the consumer. Specific strategies include:

- Implementing Federal Standards for Culturally and Linguistically Appropriate Services (CLAS).[22]

[21] For more information (tools and reports) from the Partnership to Eliminate Disparities in Infant Mortality, visit amchp.org/programsandtopics/womens-health/infant-mortality/Pages/default.aspx

[22] For more information: minorityhealth.hhs.gov/templates/browse.aspx?lvl=2&lvlID=15

- Conducting organizational assessments of CLAS activities and integrating cultural and linguistic competence-related measures into internal audits, performance improvement programs and patient satisfaction assessments.
- Training health care and social service providers in culturally and linguistically appropriate service delivery.
- Maintaining a current demographic, cultural and epidemiologic profile of the community, as well as a needs assessment to accurately plan and implement services that respond to the cultural and linguistic characteristics of the service areas.
- Offering technical assistance and training to providers to improve the quality of care to high-risk pregnant women and the level of cultural competence in health care delivery.

Create reproductive social capital actively supporting and celebrating pregnant women and promoting reproductive health within a community. Specific strategies include:

- Disseminating information through creative marketing materials on intentional acts of kindness toward pregnant women and new mothers to engage families, friends and communities in fostering healthier pregnancies. Acts of kindness should highlight ways to offer emotional and instrumental support, and promote acts of respect and common courtesy to reduce social stress experienced by pregnant women.

Develop, recruit and train a diverse network of culturally competent health professionals statewide. Specific strategies include:

- Developing a statewide program to encourage high school and college students, especially minority populations, to explore the variety of career opportunities in health care and public health.
- Establishing appropriate financial support and incentive programs to increase the number of minority health professionals, including recruitment and training participants from the community being served, for example former Healthy Start participants.
- Considering increasing funding for minority/underserved areas (e.g., Appalachia) loan repayment initiatives and other programs encouraging racial or ethnic minority health professionals to continue serving predominately racial or ethnic minority patient populations.
- Identifying and enhancing appropriate incentives to attract providers of all backgrounds in areas of need.

Examples

100 Intentional Act of Kindness Toward a Pregnant Woman

haafii.org/100_Acts_of_Kindness.html

One Hundred Intentional Acts of Kindness toward a Pregnant Woman was conceived by Healthy African-American Families II (HAAF II) as a media campaign to create reproductive social capital for pregnant women. Pregnant women were asked to identify through focus groups actions that families, friends and even strangers could do to make their pregnancies better.

Birthing Project USA

birthingprojectusa.org

Birthing Project USA is the only national African-American maternal and child health program in the United States, and is a volunteer effort to encourage better birth outcomes by providing practical support to women during pregnancy and for one year after the birth of their children. The mission is to assist local communities in improving their health status by addressing the systemic causes of their lack of well-being. The systemic causes usually include, lack of education, lack of social justice and economic disparities compounded by institutional political and personal barriers. Birthing Projects actively engage community residents in identifying their needs; planning, implementing and evaluating services; and working collaboratively with other agencies, organizations and individuals. The innovative programs used by the model allows projects to identify potential clients before the baby is born, keep a watchful eye on the infant during their childhood, invite children to participate with their mothers in risk-reduction programs when they are in sixth and seventh grades and participate in the Academy of Dreams during their high school years. The projects also provide guidance and support to their fathers. The first Birthing Project began

Recommendation 7 Examples *continued*

in Sacramento, CA in 1988 as a community service project comprised of volunteer sister friends who provided one-on-one support to pregnant teens and women to lower infant mortality. Since then, the Birthing Project concept has grown into a nationally recognized model which has been replicated in more than 90 communities in the United States, Canada and Honduras.

Black Health Coalition of Wisconsin

bhcw.org

Incorporated in 1988, the Black Health Coalition of Wisconsin (BHCW) is comprised of organizations committed to forming a black health alliance for a change. The BHCW includes 26 organizations and 19 individual members, and includes health care professionals, social service agencies, professional organizations and grassroots organizations. BHCW has provided many services to the African-American community including research on the health status in areas such as infant mortality, family resiliency and cultural competency. BHCW provides assistance to agencies in developing, implementing and evaluating their service-delivery system, and provides individualized, on-site, community health training to health and human services workers. Specific tools were developed to provide institutional assessments measuring cultural competency among facilities providing services to people of color. Additionally, BHCW develop policies and programs to inform African Americans about the importance of the special health problems they confront and what measures can be taken to improve health. BHCW intercedes when necessary, to help them access the health care services needed. The BHCW houses the federal Healthy Start program, Milwaukee Healthy Beginnings Project (MHBP). MHBP strives to give a child a healthy start by helping women and their families access services in the community, with early entry into prenatal care, receive culturally sensitive and family centered care, by increasing community awareness of infant mortality, and making the populations an integral part of the decision making process. BHCW resides in one of the highest risk areas of the City of Milwaukee.

Boston Disparities Project (Massachusetts)

bphc.org/ches

In 2003, Boston Mayor Thomas Menino unveiled a plan to establish a working blue print to address racial and ethnic disparities in health. Coordinated by the mayor and the Boston Public Health Commission (BPHC), community residents and other key stakeholders were convened from across multiple sectors to develop strategies to close the gap between white residents and residents of color. Strategies were documented in public reports with specific short and intermediate action steps. Pilot money was given to hospitals and community agencies to move strategies from paper to action. With support from local academic institutions, community interventions were evaluated to identify impacts and potential replicability. In addition, the BPHC has linked the elimination of health disparities to its core and ongoing public health functions. Currently, the Boston Disparities Project has folded into the work of the BPHC Center for Health Equity and Social Justice. The center expanded efforts to reduce racial and ethnic health disparities by coordinating a Health Equity Training Center that provides education, training and technical assistance; developing training curricula and materials to educate community health workers, health care providers, and public health professionals about the social determinants of health and racial and ethnic disparities; establishing a learning collaborative among New England communities engaged in health equity work; and advocating to eliminate racial and ethnic health disparities through data collection, policy, and strategy development at the local, state and federal level.

California Black Infant Health Program

cdph.ca.gov/programs/bih/Pages/default.aspx

The Black Infant Health (BIH) program serves pregnant and parenting African-American women through a group intervention, as well as complementary case management in order to improve the health and social conditions for African-American women and their families. The BIH group intervention is a 20-session intervention – 10 sessions prenatally and 10 postpartum. The sessions offer engaging activities from a women's health perspective that will explore pregnancy-related and newborn-parent-related topics, as well as personal empowerment skills. By participating in the group process, this helps mothers create a life plan for the future, which will ultimately improve the health of women across the life course. The BIH program is located in 15 Local Health Jurisdictions where more than 75 percent of California African-American live births occur.

Coming of the Blessing© (Alaska)

comingoftheblessing.com

This initiative addresses the high rate of infant deaths and premature births among American Indians and Alaska Native babies. It came about as a partnership between the March of Dimes and the American Indian/Alaska Native Women's Committee. This group of women, representing 10 different tribes, developed health education resources that embrace the cultural and spiritual beliefs related to pregnancy and childbirth shared by many native people. Mothers from this population have the highest rate (23.8 percent) of inadequate prenatal care of all racial ethnic groups. However, 88 percent of the moms who received prenatal education through

this program attended all their prenatal appointments. The preterm birth rate of more than 14 percent dropped to 7 percent among women who participated in the "The Coming of the Blessing" and gained a "promising practice" seal from the Indian Health Services.

Community Health Worker Program (New York)

health.ny.gov/community/pregnancy/health_care/prenatal/community_health_worker

The New York Department of Health Community Health Worker Program provides one-on-one outreach, education and home-visiting services to pregnant and parenting women and families at highest risk for poor birth outcomes. The program is targeted to specific communities with high rates of low-birth-weight births, infant mortality, out-of-wedlock births, late or no prenatal care, teen pregnancies and births, and births to low-income women. The program focuses on getting pregnant women into early and consistent prenatal care and ensuring their families receive primary and preventive health care services. Home-visiting and care-coordination services are provided by paraprofessionals who live in the area they serve and are trained to provide referrals for a wide range of services, and to provide support and assistance for families trying to obtain needed services, including advocacy and accompaniment to scheduled visits when needed. There are currently 23 Community Health Worker Programs throughout the state.

Empowering Families of Milwaukee

city.milwaukee.gov/Empowering-Families-of-Milwaukee.htm

Empowering Families of Milwaukee (EFM) uses evidence-based models and partners with the community to provide frequent and long-term home visits to the most vulnerable families in Milwaukee. The project goals are to improve birth outcomes, enhance family functioning, support child health, safety and development and to prevent child abuse and neglect. Using an evidence-based curriculum and model, home visiting staff consisting of public health nurses, social workers and community health workers, provide frequent and long-term home visits to the most vulnerable and at risk families in Milwaukee from the prenatal period up to the child's third birthday. EFM home visitors partner with families to provide: health assessments and information; goal setting and care planning; developmental screenings, information, and activities; home safety assessments; referrals to community resources and invitations to community events.

Fatherhood Initiative (Connecticut)

ct.gov/fatherhood/site/default.asp

The John S. Martinez Fatherhood Initiative of Connecticut is a broad-based, multi-agency, statewide program led by the Department of Social Services that is focused on changing the systems that can improve the ability of fathers to be fully and positively involved in the lives of their children. The objectives of the initiative are to provide dads with the skills and supports they need to get involved in the lives of their children and stay connected by promoting public education concerning the financial and emotional responsibilities of fatherhood; assisting men in preparation for the legal, financial and emotional responsibilities of fatherhood; promoting the establishment of paternity at childbirth; encouraging fathers, regardless of marital status, to foster their emotional connection to and financial support of their children; establishing support mechanisms for fathers in their relationship with their children, regardless of their marital and financial status; and integrating state and local services available for families.

Genessee County REACH 2010 (Michigan)

gchd.us/Services/PersonalHealth/REACH/about.asp

The Genesee County (Michigan) REACH US Coalition is building on a successful foundation of REACH 2010 work to reduce African American health disparity in infant mortality through its designation as a Center of Excellence in the Elimination of Health Disparities (CEED). REACH US is a national program of the CDC in an effort to eliminate racial and ethnic health disparities in the United States. The Genesee County REACH 2010 Team implemented a Community Action Plan (CAP) based on a socioecological model of health designed to: foster community mobilization; enhance the "babycare" system; and reduce racism. During the REACH 2010 initiative, the African American infant mortality rate in Genesee County dropped from a high of 23.5 deaths per 1,000 live births to an all time low of 15.2. The white rate dropped from a high of 13.1 to 8.9, with the over-all Genesee County rate dropping from 13.1 to 8.9. The disparity

Recommendation 7 Examples *continued*

ratio dropped from a high of 3.6 African American infant deaths for every white infant death to 2.4. As a CEED, the Genesee County REACH US project will be actively engaged in training, translation and dissemination of CAP activities to other communities in Michigan and across the United States.

Harlem Children's Zone (New York)

hcz.org

The Harlem Children's Zone is a nonprofit organization working to end the cycles of generational poverty in Harlem, New York. The organization works through a coordinated effort to address the needs of an entire community. Beginning in the early 1990s as a pilot project, the Zone implemented comprehensive support services to a one-block area. The idea was to address all the problems that poor families were facing, from crumbling apartments to failing school, violent crime and chronic health problems. By 2007, the organization had expanded to serve almost 100 blocks. Currently, the organization offers programming in the form of parenting workshops, early childhood development programs, public charter schools, afterschool programs, college success programs and community health programs.

Healthy African American Families (California)

haafii.org

Healthy African American Families (HAAF) began in October 1992 in order to gather information and ideas about the social, cultural, health and political currently is a nonprofit, community serving agency with a goal of improving the health outcomes of the African American, Latino and Korean communities in Los Angeles County by enhancing factors that affect pregnancy outcomes for African American women in Los Angeles. HAAF the quality of care and advancing social progress through education, training, and collaborative partnering with community, academia, researchers and government. Areas of focus include prevention of preterm delivery; addressing health disparities in asthma, diabetes and kidney disease; dissemination of the 100 Intentional Acts of Kindness Toward a Pregnant Woman (more information below); and male involvement.

Healthy Births Learning Collaborative – LA Best Babies Network (California)

labestbabies.org/healthy-births-collaboratives

The Healthy Births Collaborative consist of agencies, organizations and associations that implement the Healthy Births Initiative Core Approaches to improve birth and pregnancy outcomes, strengthen community support for pregnant women and families, and increase their ability to care for newborns. Core Approaches include policy and advocacy, community building, health education and messaging, social support, prenatal care and quality improvement, interconception care, outreach, and case management. Agencies involved in the Healthy Birth Collaborative work together with others, understanding that no one agency, organization or individual can single handedly undertake the comprehensive, integrated, multi-level approach required to improve pregnancy and birth outcomes in a community.

Honoring Our Children with a Healthy Start (Wisconsin)

glitc.org/web-content/HOC/index.html

The Honoring Our Children Project is a partnership of eight tribes in Wisconsin through the Great Lakes Inter-Tribal Council. The goal of this Healthy Start initiative is to reduce American Indian infant morbidity and mortality and to improve the health and well-being of Native American children, families, and communities. The project promotes the health of infants, women, and families through outreach, education, care coordination, depressions screening and referral, interconception care and consortia building. The project activities teach families about health and safety and help them have healthier pregnancies. Project staff offer support for healthy living by encouraging families to become smoke-

free households, to breastfeed, to get their children vaccinated and to follow-up with a physician's care. The Honoring Our Children Project receives Title V MCH Block Grant funds from the Wisconsin Division of Public Health to enhance the activities funded by the federal Healthy Start Program. In 2012, MCH funded activities include an assessment and plan to support a system of care for developmental screening of infants and children up to 24 months of age at 10 tribal sites.

Illinois Council on Responsible Fatherhood

responsiblefatherhood.com

The Illinois Council on Responsible Fatherhood is a state commission established by the Illinois State Legislature to promote the positive involvement of both parents in the lives of their children. The mission of the Illinois Council on Responsible Fatherhood is to significantly increase the number of children in Illinois that grow up with a responsible father in their lives. The council seeks to do this through raising public awareness of the impact of father absence on children; assisting state agencies and other service providers with the resources they need to promote responsible fatherhood; reforming perceptions within state agencies and other service providers regarding the role of fathers as parents; and advocating for programs, policies and legislation that will encourage the positive involvement of fathers.

Northern Manhattan Perinatal Partnership

sisterlink.com

The Northern Manhattan Perinatal Partnership (NMPP) and its Central Harlem Healthy Start Program consists of clinical and group education interventions, as well as initiatives to address structural reforms in the built environment in order to reduce infant mortality. Through NMPP more than 9,500 women and their children have been linked and maintained in care. The program addresses sustained economic and physical well-being through a job readiness program that has placed more than 890 women in full- and part-time employment. At the policy level, NMPP supports the empowerment-zone legislation, which infused Harlem with up to $300 million in block grants for community revitalization and job-creation projects and actively advocated for reforms in urban services, such as reducing the number of bus depots to improve air quality and supporting the building of supermarkets that provide healthier food. Since the inception of the program in 1990 when the infant mortality rate was 27.7 infant deaths per 1,000 live births, the infant mortality rate in Central Harlem has plummeted to 5.2 in 2004.

Seven Principles Project (California)

cdc.gov/nccdphp/dach/chhep/pdf/voices_101007.pdf

Coordinated by the San Francisco Department of Public Health, the Seven Principles Project implemented three interventions that show promise in reducing disparities and improving infant survival rates among African Americans in San Francisco. The first intervention is community awareness campaigns that address the lack of knowledge among African Americans about their community health and the disparities in infant death rates. The second is activities designed to improve community health by addressing social factors that have been linked to high infant death rates. These include violence, substance abuse, crime, poor nutrition, food insecurity, and lack of community unity and leadership. The third is skills training and workshops for health care providers to improve patient-provider interactions, promote mutual respect, and examine the impact of race and racism on health disparities and health outcomes. The project has shown increases in knowledge and awareness of the racial disparity in infant death rates in their community, as well as correct sleep positions for infants, which help reduce deaths. The project also developed a cultural competency training class for health care providers and organized community-action teams to implement actions to address social factors in their neighborhoods.

Toolkit for Health and Resilience in Vulnerable Environments

thrive.preventioninstitute.org/thrive.html

The Toolkit for Health & Resilience In Vulnerable Environments (THRIVE) is a community resilience assessment toolkit, developed by the Prevention Institute. The goal of this project was to develop a tool to assess community-level resilience factors that serve as benchmarks for the *Leading Health Indicators of Healthy People 2010*. The tool, which is informed by research, included an environmental scan and piloting in Del Paso Heights, California; Hidalgo County, New Mexico; and East Harlem, Central Brooklyn and the South Bronx in New York, New York. A diverse, national expert panel provided guidance throughout the process. THRIVE helps communities bolster factors that will improve health outcomes and reduce disparities experienced by racial and ethnic minorities. It provides a framework for community members, coalitions, public health practitioners and local decision-makers to identify factors associated with poor health outcomes in communities of color, engage relevant stakeholders and take action to remedy the disparities. The pilot process confirmed the tools utility in rural and urban settings and for community members, as well as practitioners and local policymakers. It includes collateral materials, such as training materials and preliminary guidelines to translate the THRIVE results into concrete changes in local policies, programs and priorities.

Case Studies

The following set of case studies is provided to highlight seven states that are making progress in improving birth outcomes and reducing infant mortality by implementing a comprehensive approach.

California

Recently, the California Department of Public Health (CDPH) reported that the California infant mortality rate (IMR) has reached a record low. In 2009, the most recent year data are available, the rate was 4.9 infant deaths per 1,000 live births. The IMR has fluctuated over the past 20 years, from a high of 7.5 per 1,000 in 1991, to the previous low of 5.0 infant deaths per 1,000 live births in 2006. In 2007, California had the lowest IMR among the 10 states with the highest number of births. African Americans in California experienced the largest decline in infant mortality, from 12.1 infant deaths per 1,000 live births in 2008 to 10.6 in 2009. However, racial/ethnic disparities in infant mortality persist. Because rates may fluctuate from year to year, future data will be needed to assess whether the recent decrease in the California IMR is part of a long-term trend.

The reduction in infant mortality is attributed to many ongoing programs and initiatives in CDPH at the state and local level. Working in partnership with various stakeholders including the March of Dimes and the University of California, the Maternal, Child and Adolescent Health (MCAH) Division works to reduce the IMR through:

- Direct services for at-risk populations (Black Infant Health Program, Adolescent Family Life Program, California Diabetes and Pregnancy Program, Comprehensive Perinatal Services Program)
- Public health approaches to support improvements in nutrition, physical activity, breastfeeding and preconception health status
- Quality improvement strategies for neonatal and maternity care practices (Regional Perinatal Programs of California, California Perinatal Quality Care Collaborative, California Maternal Quality Care Collaborative)
- Mortality reviews (Fetal Infant Mortality Review, Sudden Infant Death Syndrome reviews, Pregnancy-Associated Mortality Review) and birth defects surveillance (California Birth Defects Monitoring Program)
- Provision of funding and technical assistance to local health jurisdictions (LHJs) to support the work of improving the health of mothers and infants in their communities

Targeting At-Risk Populations

Several MCAH programs target specific populations at risk for adverse pregnancy outcomes. An example is the Black Infant Health (BIH) Program, which serves pregnant and parenting African-American women through a group intervention, as well as complementary case management to improve the health and social conditions for these women and their families. The BIH group intervention is a 20-session intervention (10 sessions prenatally and 10 postpartum) designed to empower and support African-American women by providing information and skills in a culturally relevant and affirming manner, and ultimately improve women's health across the lifecourse. Research has shown that promoting capacity for social support influences birth outcomes by buffering the adverse effects of chronic stress. The BIH program is located in 15 LHJs where more than 75 percent of California African-American live births occur. Direct services for at-risk populations are also provided through programs that promote not only perinatal health but also women's health, thus influencing the infant outcomes of subsequent births.

Funding information for California initiatives to improve birth outcomes:

- The majority of MCAH efforts addressing infant mortality are funded through the Title V MCH Services Block Grant
- Certain initiatives are supported with grants in partnership with academia, community organizations, such as the March of Dimes and local county funding sources

Promoting Health through Public Health Strategies

Healthy eating, physical activity and breastfeeding promotion are integrated and coordinated within MCAH and its LHJs to promote healthy lifestyles and improve birth outcomes. The MCAH Preconception Health and Health Care Initiative promotes preconception health messages to women of reproductive age, integrates preconception care into public health practice, monitors preconception health indicators, and evaluates preconception health programs and interventions to guide policy strategies. LHJs conduct educational programs on preconception health for women of reproductive age and providers, addressing health behaviors and conditions that cause poor pregnancy outcomes. Resources, tools and best practices for professionals, as well as information and preconception health factsheets for the general public are available through the initiative website. With funding from the Health Resources and Services Administration, three social media campaigns were developed to target African American women, Latina women and youth of color with culturally appropriate and tailored preconception health messages.

Supporting Improvement in the Quality of Care for Mothers and Children

MCAH implemented quality improvement (QI) strategies to ensure a high level of care, particularly for neonatal and maternity care practices through the California Perinatal Quality Care Collaborative and California Maternal Quality Care Collaborative. QI toolkits covering a variety of clinical topics available on the websites for these collaboratives have been used by institutions across the state and the nation. The Regional Perinatal Programs of California promote access to risk-appropriate perinatal care for pregnant women and their infants through regional QI activities, including assisting hospitals with data-collection protocols; developing quality assurance policies and procedures; and providing resource directories, referral services, hospital linkages and ongoing technical assistance. The Birth and Beyond California Project utilizes QI methods and training to implement evidence-based policies and practices that support breastfeeding within the maternity care setting.

Using Data to Drive Interventions

Examining data from mortality case reviews and birth defects surveillance guides MCAH in program planning and priority goal setting. MCAH administers the Maternal Infant Health Assessment, an annual survey of California women who recently gave birth to a live infant. This survey, which is modeled after the CDC Pregnancy Risk Assessment Monitoring System survey, collects population-based information about maternal health status, health behavior, knowledge, and experiences before, during and shortly after pregnancy. These data are used to identify groups of women and infants at high risk for health problems, monitor changes in health status, and measure progress toward the goal of improving the health of mothers and infants. MCAH also uses data sources such as the California Women's Health Survey to examine the evidence for public health practice.

Partnering with other Programs in CDPH

- WIC provides nutrition education and support for mothers, infants, and children (under five years of age) and integrated preconception health into the WIC setting to address the prevention of poor birth outcomes. In partnership with the March of Dimes, WIC Offers Wellness project helps high-risk mothers maximize their chances for healthy, full-term pregnancies by providing health assessments, referrals to family planning, psychosocial intervention services and overall care coordination.
- The Genetic Disease Screening Program screens newborns and pregnant women for genetic and congenital disorders. More than 99 percent of newborn babies are screened in California. By providing testing, follow-up and early diagnosis of these disorders, clinical effects are minimized and adverse outcomes are prevented. In August 2010, screening for Severe Combined Immunodeficiency (SCID) began as part of a

pilot program. During the first year of the pilot, 17 cases of SCID, SCID variant and other t-cell immune deficiencies were detected and referred to specialists for treatment. Seven bone marrow transplants have been performed to date and the earliest of this group is already cured and off all medication.

- Nearly half of pregnancies in California are unplanned, with women frequently conceiving in less than optimal health or while engaging in behaviors that can harm a pregnancy and lead to adverse outcomes. The Office of Family Planning (OFP) works on the reduction of unintended pregnancy through the Family Planning, Access, Care and Treatment (Family PACT) Program, which provides comprehensive family planning services to eligible low income men and women, including teens. Children of teen mothers are more likely to be born prematurely and at low birth weight, raising the probability of infant death and disability. The Teen Pregnancy Prevention Program utilizes a variety of approaches and strategies to reduce teenage pregnancy and absentee fatherhood, promote responsible parenting, and assist adolescents in accessing clinical services.
- The Immunization Branch implements the Vaccines for Children (VFC) Program, which provides vaccines at no cost for eligible children through VFC-enrolled doctors, thus helping to improve the overall immunization rate of children in the last 15 years. The Immunization Branch and local health departments promote immunizations, which protect infants against potentially deadly vaccine-preventable diseases, such as invasive pneumococcal disease, pertussis (whooping cough) and *Haemophilus influenzae,* type b (Hib).
- In addition, advances in the provision of neonatal intensive care have contributed to the reduction of infant mortality over the past 20 years. Since the 1970s, the California Children's Services Program (the California Title V Children with Special Health Care Needs program) has developed and applied standards of care for services provided in California neonatal intensive care units that serve 90 percent of the most vulnerable infants.

Legislative actions that may have contributed to the reduction in infant mortality include:

- **Safely Surrendered Baby Law (SB 1368, Chapter 824, 2000)** – Voluntary surrender of an infant 72 hours old or younger to an employee on duty at a public or private hospital emergency room, designated fire station, or any safe surrender site designated by the local board of supervisors is legal and anonymous.
- **Infant Crib Safety Act (AB 3760, Chapter 1176, 1994)** – Commercial users are prohibited from remanufacturing, selling, leasing or placing in the stream of commerce, a full-size or non-full-size crib, as defined, that is unsafe for any infant using the crib. Informational materials regarding crib safety should be made available to consumers through the Department of Consumer Affairs.
- **Shaken Baby Syndrome Act (AB 3760, Chapter 1176, 1994)** – Health facilities and midwives are required to provide information and instructional materials relating to shaken baby syndrome, if available, free of charge to parents or guardians of newborns. The State Department of Social Services is required to provide information and instructional materials, if available, free of charge to child care providers upon licensure and at the time of a site visit.
- **Swimming Pool Safety Act (AB 3305, Chapter 925, 1996)** – Certain safety standards are required for swimming pools, including pool enclosures, safety pool covers, or exit alarms, as defined, or certain other means of protection, beginning on or after Jan. 1, 1998.
- **Child Passenger Restraint Requirements (AB 1697, Chapter 524, 2003)** – Certain infant and child passenger restraint standards are required, depending on the age and weight of the child.
- **Sudden Infant Death Syndrome (SIDS) Bills** – In 1990, four bills were passed to address the need for public awareness and to provide services to parents who lost infants to SIDS. The laws require the following: mandated training for police, firefighters and paramedics on the dynamics of SIDS deaths; requirements for local county coroners to use a standardized autopsy and death scene protocol to determine diagnosis of sudden unexplained infant deaths; and establishment of the SIDS Advisory Council to provide guidance to CDPH on meeting the needs of the SIDS community.
- **Educational and Child Care Facility Immunization Requirements (California Health and Safety Code Sections 120325-120380)** – Specified immunizations are required prior to admission to schools and child care facilities.
- **Newborn Screening (California Health and Safety Code Section 124975)** – State regulations specify reporting requirements for both licensed perinatal health facilities and county registrars to ensure testing. All newborns must be tested; the only legal ground for refusal is a conflict with beliefs and practices.

More information is available on the CDPH Maternal, Child and Adolescent Health Program website: cdph.ca.gov/programs/MCAH/Pages/default.aspx.

Delaware

Delaware experienced steadily increasing rates of infant mortality from the mid-1990s through 2005, with a peak rate of 9.3 deaths for every 1,000 live births in the 2000-2004 reporting period. This rate gave Delaware the sixth worst infant mortality rate in the nation and was the worst rate among the contiguous states in the northeastern region. In response, Delaware implemented an infant mortality initiative in 2004 to understand the drivers of infant mortality and develop initiatives to address factors that contribute to the high rates. Recent data from the Delaware Division of Public Health show that state initiatives are proving successful. The state infant mortality rate decreased for the fourth consecutive reporting period, dropping by 10 percent to 8.3 deaths for every 1,000 live births in 2005-2009.

Infant Mortality Task Force

In 2004, the governor appointed an Infant Mortality Task Force (IMTF) to investigate the reasons that Delaware had a high infant mortality rate. In 2005, the IMTF delivered a full report, including recommendations outlining a course of action to reduce the high infant mortality rate. Among these recommendations was the establishment of the Delaware Healthy Mother and Infant Consortium (DHMIC) to oversee implementation of the recommendations of the IMTF. The DHMIC is established in Delaware Code. The membership is jointly appointed by the governor and the legislature and reports to the governor. Annual reports document the progress of the consortium. The overall target of the consortium is 4.5 deaths per 1,000 births and elimination of the racial disparity in birth outcomes.

Translating Research to Practice

The Delaware Division of Public Health (DPH) staff used vital statistics data to produce a statewide research agenda that included reviewing vital record reporting procedures, highlighting infant mortality disparities by birth weight and race, studying the effect of demographic factors on infant deaths and using data to inform proposed projects.

In 2004, Delaware joined a multistate, State Infant Mortality Collaborative (SIMC), led by CDC, AMCHP and the March of Dimes, to better understand the risks and causes of infant mortality in their state. Analyses completed during and as a result of the SIMC helped DPH staff better understand the infant mortality problem in Delaware. Findings provided the basis for more in-depth study of specific subgroups of women and infants, and were used to establish new surveillance systems and modify existing MCH programs. For example, Delaware was able to highlight a need for specific data collection and surveillance, and successfully piloted PRAMS and FIMR programs, both of which are now currently implemented in the state.

Funding information for Delaware initiatives to improve birth outcomes:

- The Healthy Women Healthy Babies program is funded directly from the state budget
- The program is complemented by services provided through grants, such the Title V MCH Services Block Grant and Title X

Additionally, the value of the initial analyses in 2005 led DPH to establish a research center with the goal of providing state surveillance data to programs for use as the foundation in decision making and modifying services. The Center for Family Health Research and Epidemiology (CFHRE) was established in 2006 so data findings could

be better translated to other public health program staff, and center staff could better communicate the importance of evidence-based science. The CFHRE also collaborated with local hospitals and universities to increase the number of interagency projects and provide training to public health professionals. The joint data and analysis efforts led to new interventions in preconception, prenatal, and postpartum health and health care; statewide education campaigns; and revision of some state standards.

Expanding Preconception and Interconception Care: Healthy Women, Healthy Babies

The Delaware Healthy Mother and Infant Consortium supports many key programs across the state. For example, in 2009, at the direction of the DHMIC, DPH staff developed and introduced a preconception/interconception-focused program: Healthy Women, Healthy Babies (HWHB). The HWHB program is a systematic initiative that targets high-risk women by expanding health care services to include a focus on preconception/interconception health. A key goal of HWHB is to help women reach optimal health prior to pregnancy so they have a higher likelihood of delivering a healthy baby.

Through community partnership with seven health care organizations and private practitioners, HWHB widens the scope of health care services offered to women before or during pregnancy to include a broad set of American College of Obstetricians and Gynecologists, CDC, U.S. Preventative Services Task Force-recommended preconception health services at participating clinic sites located throughout the state of Delaware. The Delaware DPH reimburses the sites based on four bundles of services available to women in the program. The program specifically targets African-American women, as well as women whose most recent pregnancy resulted in a poor birth outcome. In March 2010, the DHMIC reported the HWHB program served 9,118 women. Of the 2,264 women who took part in the prenatal aspects of the program, 94 percent did not experience pregnancy complications.

One of the noteworthy features of the design of the HWHB program is its alignment with the life course approach, a model that conceptualizes birth outcomes as the end product of the entire life course of the mother leading up to the pregnancy and not only the nine months of pregnancy. The preconception program gives enrolled women the tools to maintain a healthy weight, eat a nutritious diet, include adequate amounts of folic acid daily, manage chronic disease, understand and mitigate environmental risk factors around them, and work toward achieving or maintaining a tobacco- and substance-free lifestyle. Through these highly vetted and comprehensive efforts, the HWHB program helps enrolled women meet both the objectives of their respective reproductive plans and personal health goals.

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- Infant Mortality Task Force full report: dhss.delaware.gov/dph/files/infantmortalityreport.pdf
- Delaware Healthy Mother and Infant Consortium: dhmic.healthywomende.com/

Kentucky

In Kentucky, the percent of preterm live births consistently increased from 11.3 percent in 1993 to 15.2 percent in 2007. Similarly, the percent of low birth weight live births increased from 7.1 percent in 1993 to 9 percent in 2007. Kentucky identified that late preterm infants comprised 72 percent of all premature births in Kentucky and were driving the increase in the rates of prematurity. This was consistent with the national data. These infants who are just a few weeks early (34 thru 36 weeks gestation), are three times more likely to die in the first year of life than full-term infants and six times more likely to die in the first week of life. Because of the rapid rise in preterm births and high prevalence of modifiable risk factors, Kentucky was selected by Johnson&Johnson Pediatric Institute and the March of Dimes to partner on developing an initiative to prevent "preventable" preterm births, called Healthy Babies are Worth the Wait (HBWW). During the project period, the initiative intervention sites showed a reduction in preterm births while the comparison sites showed increases in their rates. Kentucky overall saw a drop in preterm singleton births of 9.4 percent and a drop in late preterm singleton births of 10.1 percent during the initiative.

Implementing Multifaceted, Multilevel Interventions

HBWW takes a multidimensional, community-based approach to reducing the known risk factors for preterm birth during prenatal care and between pregnancies. Within the program, multiple interventions are deployed to promote systemic, synergistic change. Intervention groups include providers, patients and the wider public. There are five core components of the HBWW model, known as the "5 Ps": partnerships and collaboration, provider initiatives, patient support, public (community engagement), and progress measurement.

The objectives for each intervention group were unique, but all combined for a comprehensive approach:

- **Patient Objectives:** Improve access to clinical and support services. Create positive changes in knowledge, attitudes and behavior regarding preterm birth circumstances and modifiable risk factors, with a focus on late preterm birth.
- **Provider Objectives:** Bring the latest research to everyday practice, particularly regarding late preterm infants; create positive changes in knowledge, attitudes and behaviors regarding adherence to professional guidelines on preterm birth prevention (especially late preterm birth) and elective inductions and cesareans.
- **Public (Community) Objectives:** Increase awareness of the importance of preventing preterm birth to the community and the risks associated with late preterm birth.

Funding information for Kentucky initiatives to improve birth outcomes:

- The Healthy Babies are Worth the Wait initiative was funded by Johnson&Johnson Pediatric Institute and March of Dimes
- Community agencies provided in-kind support by building activities into ongoing operations

During the three-year pilot program, HBWW Kentucky was implemented in three communities with an overall goal of a 15 percent reduction of preterm birth in the aggregated intervention sites. Each 'community' consisted of a hospital and a local health department. The executive leadership team included national partners, state health department staff and the March of Dimes Kentucky Chapter. The executive leadership team worked with the staff of the pilot communities on multiple, bundled interventions. Each set of interventions was carefully selected to address the most significant issues of each community and based on the likelihood of success within the three-year time frame. The initiative was funded by Johnson&Johnson Pediatric Institute and March of Dimes. Community agencies built these activities into ongoing operations, thus providing in-kind support.

Examples of clinical interventions include:

- Preconception and interconception care
- Folic acid consumption
- Improve access to prenatal care
- Psychosocial screening and referral
- Infection diagnosis and treatment
- Periodontal disease treatment
- Progesterone for prevention of preterm birth

These teams worked together on local systems of care to provide consistent messaging and increase referrals to support programs, such as smoking cessation, home visiting, group prenatal care (CenteringPregnancy), substance abuse, domestic violence, stress management, nutrition and healthy weight, and other services. They also brought the most recent research on prematurity prevention to providers, which included the increased risks of late preterm infants. The late preterm brain development became a primary message for providers, patients and the public. This informed reducing elective deliveries less than 39 weeks, and the public engagement was important in reducing the pressure on obstetricians to schedule early elective deliveries.

Over the pilot program period, these three sites were compared to similar communities in Kentucky that did not receive the intervention. A year after the HBWW implementation, Kentucky had the largest drop in preterm birth rates of any of its contiguous states. In the HBWW intervention sites, the rate of preterm births was reduced by 15.6 percent. In addition, HBWW built successful relationships and partnerships that resulted in enhancement of services and patient care.

In 2010, the program sustained HBWW activities in the three intervention sites and expanded programmatic activities at four additional sites. In 2011, HBWW was launched at one more site in Kentucky. Due to the success of the model in Kentucky, March of Dimes is adapting and piloting it in New Jersey and Texas and is planning to disseminate HBWW in additional locations.

Contact Information:

hbww@marchofdimes.com

Resources, including a detailed toolkit on specific implementation steps for the HBWW model are available on the March of Dimes website: marchofdimes.com/professionals/medicalresources_hbww.html

Kentucky Department of Public Health:

chfs.ky.gov/dph/

Maryland

To address stalled progress and the racial and ethnic disparities in infant mortality in Maryland, Governor O'Malley made reducing infant mortality, and the racial disparity in infant mortality, one of the 15 strategic goals tracked by the Governor's Delivery Unit. The Governor's goal was to reduce the infant mortality rate by 10 percent by 2012. This goal was met in 2009, and in 2010 the infant mortality rate for African Americans decreased for the first time since 2008. This success is due in part to efforts spearheaded by the Maryland Department of Health and Mental Hygiene's Center for Maternal and Child Health (CMCH) with many public and private sector partners at the state and local level.

Focusing on Geographic Areas of Need and Systems Improvements

Maryland efforts to reduce infant mortality, under its Babies Born Healthy (BBH) initiative, are outlined in the Plan for Reducing Infant Mortality in Maryland and are coordinated with the State Health Improvement Process. BBH is a collaborative, interagency program that focuses proven interventions at different points across the life span – before pregnancy to ensure healthier women at the time of conception; during pregnancy to ensure early entry into prenatal care; and after delivery, to ensure comprehensive, high quality follow-up care. Key partners have been the DHMH Office of Minority Health and Health Disparities, the Governor's Office for Children, the Maryland Department of Human Resources, the Community Health Resources Commission, the Maryland Patient Safety Center and Carefirst. Efforts are targeted to jurisdictions where infant mortality and racial disparities in pregnancy outcomes are highest.

DHMH also partners with local jurisdictions and academic medical centers to implement systems changes to enhance access to health services for women, improve the quality of care and disseminate health promotion messages throughout the community. Examples include:

- Establishing a Perinatal Collaborative with the Maryland Patient Safety Center, which brings Maryland birthing hospitals together to share best practices and quality improvement strategies. (For example, an effort to reduce early elective deliveries achieved a dramatic decrease between 2009 and 2011 among participating Maryland birthing hospitals.)
- Providing high-risk pregnancy consultation, made available to local OB providers around the state under a partnership between the University of Maryland and Johns Hopkins University Schools of Medicine
- Updating the voluntary standards for perinatal care in Maryland hospitals in collaboration with the Maryland Institute for Emergency Medical Services Systems (MIEMSS)
- Implementing a new state-of-the-art, Web-based electronic birth certificate developed by Vital Statistics, to improve the quality and timeliness of data reporting
- Launching new programs to organize community coalitions and deploy perinatal navigators to assist pregnant women, from the Office for Minority Health and Health Disparities
- Providing hospital-specific very low birth weight outcomes to hospitals annually
- Developing a hospital breastfeeding policy for Maryland hospitals to use as a model
- Soliciting public comment and convening advisory committee to review data on benefits and risks of crib bumpers; proposed ban on sale of traditional crib bumpers starting in 2013

Funding information for Maryland initiatives to improve birth outcomes:

- The majority of state initiatives described in this case study were funded by State General Funds, with significant support through the Title V MCH Services Block Grant.

The Maryland Community Health Resources Commission (CHRC) joined as a partner, setting aside a portion of commission funding for projects to improve access to prenatal care in medically underserved areas. The innovative Tapestry Project in Prince George's County is one example of the projects supported by the CHRC. The Tapestry Project enrolls high-risk pregnant women into early prenatal care at the Prince George's health department and utilizes "high-touch" services provided by nurse-midwives through the Prince George's Hospital Center and the University of Maryland, and "high-tech" consultation from the University of Maryland School of Medicine when needed. Pregnant women also receive further support from Perinatal Navigators.

Under the Affordable Care Act, DHMH is also working with the Governor's Office for Children and several other agencies and partner organizations to expand and implement evidence-based home visiting programs in at-risk communities across Maryland. These programs serve expectant parents, young children, and their families and caregivers to strengthen attachment, enhance parenting, provide optimal development, promote safety and health, and reduce the potential for child maltreatment.

Before Pregnancy – Expand Access to Comprehensive Women's Health Services

A new, evidence-based Comprehensive Women's Health model expanded family planning services to include risk assessment, screening and referral for chronic diseases, substance abuse, mental health, domestic violence, smoking cessation, and Medicaid and WIC eligibility. Further, Maryland has expanded Medicaid Family Planning benefits to women ages 51 and younger with incomes at or below 200 percent of the federal poverty level, and no longer limits these benefits to postpartum women (representing an estimated 31,191 newly eligible women). Maryland has also required admission within one business day of the request for all pregnant women that present themselves to a behavioral health or disabilities program.

During Pregnancy – Earlier Entry into Prenatal Care

Through close partnership with Medicaid, a new Accelerated Certification of Eligibility (ACE) process ensures that Medicaid-eligible women access prenatal care as early as possible. A Quickstart prenatal care visit, which includes initial screening, counseling, and referral services and assistance in accessing ongoing prenatal care, is offered at health departments in the target jurisdictions. A letter was sent to all prenatal providers encouraging uninsured pregnant women to apply for Medicaid. Additionally, Perinatal Navigators assist at-risk women in navigating through the prenatal and perinatal care systems to ensure infant and maternal health.

After Pregnancy – More Comprehensive Follow-Up Care

DHMH is also working with the Maryland Patient Safety Center, birthing hospitals and local health departments to ensure that high-risk babies and mothers receive postpartum follow-up through development of a statewide standardized postpartum discharge referral process. A postpartum Infant and Maternal Referral Form has already been implemented statewide.

Messaging for Healthy Babies

Promoting messages on healthy pregnancy and "Safe Sleep" has also been an integral component of the program. Maryland has been active in the text4baby campaign, using text message technology to send mothers and couples accurate, text-length health information and resources. In addition, safe sleep has been identified as a priority area for education. Unsafe sleep and Sudden Infant Death Syndrome (SIDS) is among the top risk factors for infant death in Maryland. A safe sleep video developed by the B'More for Healthy Babies program in Baltimore City has been distributed widely around the state. Maryland also promotes and supports tobacco cessation through its Maryland Quitline (1-800-QUIT NOW) for consumers, and MDQuit.org for providers.

Contact Information

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Maryland's Plan for Reducing Infant Mortality:
dhmh.maryland.gov/babiesbornhealthy

North Carolina

In 1988, North Carolina had the second highest infant mortality rate in the country with 12.5 deaths per 1,000 live births. Over the last 24 years, there has been a steady downward trend. In 2010 the infant mortality rate was seven per 1,000 live births, a 44 percent reduction since 1988. The past success and continued efforts on improving birth outcomes in North Carolina are driven by partnerships across multiple sectors. Through a collaborative method, North Carolina developed a multidimensional approach to improving birth outcomes that addresses the broad areas of clinical quality improvement, community-based programs, public awareness campaigns and policy change. Specific examples are highlighted below.

Funding information for the North Carolina initiatives to improve birth outcomes:

- As noted in the text, funding for the variety of initiatives and programs comes from North Carolina General Assembly (state funds), federal funding (including MCHB) and limited other sources
- The Folic Acid Campaign also received an infusion of funds from the Vitagrant Settlement

Changing the Clinical Context

One of the overarching strategies in North Carolina is to implement clinical improvements to reduce infant mortality. Areas of focus include the use of 17P, enhancing smoking cessation counseling and education, building partnerships through the Perinatal Quality Collaborative of North Carolina, and promoting the pregnancy medical home.

Since 2006, a statewide initiative strove to increase the appropriate use of 17P and ensure that all women in North Carolina who meet the clinical criteria for 17P have access to the intervention to reduce their risk of a recurring preterm birth. The campaign provided education to public health leaders, clinicians and women about the intervention, as well as addressed systems and access barriers. The North Carolina General Assembly provided funding to the campaign and health care systems and providers within the state partnered with the department throughout implementation. The North Carolina Division of Medical Assistance or Medicaid reimbursed providers for 17P since 2007. Educational materials, tools for incorporating 17P into practice and other resources about reducing the risk of recurring preterm birth with 17P are online.

North Carolina focused on tobacco cessation for many years and is currently reducing smoking among pregnant women through multiple avenues. Since 2008, the state partnered with the former Health & Wellness Trust Fund (Master Settlement Fund) on the 'You Quit Two Quit' campaign to reduce smoking among women of reproductive age. The goal of this project is to ensure that there is a comprehensive system in place to screen and treat tobacco use in women, including pregnant and postpartum mothers. The many activities of the project include operating quality improvement initiatives focused on tobacco cessation screening and counseling and distributing patient education materials statewide. In 2011, smoking cessation efforts received funding from the federal Office of Women's Health for a project directed specifically at women of childbearing age who have low incomes. The project focuses on provider screening practices within the Community Care North Carolina Network and offers training to all practices and chronic disease and pregnancy care managers within the network. The North Carolina work is done in partnership with the Women and Tobacco Coalition for Health (WATCH) and the Tobacco Prevention and Control Branch.

The Perinatal Quality Collaborative of North Carolina (PQCNC) is a group of hospitals, community organizations and individuals committed to making North Carolina the 'best place to be born.' The overall goal is to promote high value perinatal care through spreading evidenced practice and reducing the variation among practice of perinatal care, partnering with families and patients and optimizing resources across the state. The PQCNC initiatives throughout North Carolina encourage hospitals to eliminate elective deliveries before 39 weeks, reduce catheter associated blood stream infections by 75 percent in participating centers, increase exclusive human milk in both mother-baby settings and the neonatal intensive care unit, and support intended vaginal birth.

Promoting a pregnancy medical home is another avenue that is being used to improve birth outcomes specifically within the North Carolina Medicaid population. The pregnancy medical home provides evidence-based, high-quality maternity care to Medicaid patients and focuses care management resources on those women at the highest risk. In the medical home model, quality improvement goals are aligned with cost savings goals, keeping more babies out of the neonatal intensive care unit and avoiding associated expenses. Pregnancy care management is the key intervention of the medical home model. Pregnancy care managers, trained social workers and nurses, provide care management services for pregnant and postpartum women with specific risk criteria. The services are provided based on need and risk stratification. The pregnancy medical home incentives to include increased rate of reimbursement for the global fee for vaginal deliveries to equal that of a c-section

global fee, incentive payment for risk screening, incentive payment for a postpartum visit, and no prior authorization required for OB ultrasounds.This new model is based on the Community Care of North Carolina system of regional networks of providers, clinics and partners across the state.

Working with Families in Community-Based Programs

In order to explicitly address health disparities, North Carolina has multiple community-based initiatives designed to reach families of color. The Healthy Beginnings program operates out of the North Carolina Division of Public Health. Healthy Beginnings serves 12 communities across the state with paraprofessionals providing outreach, care coordination and education to families. The program served 900 women in 2010; program participants experienced no infant deaths. Healthy Beginnings focuses on breastfeeding promotion, folic acid, safe sleep, environmental tobacco reduction/ elimination, healthy weight and reproductive life planning.

In addition, North Carolina has four federally funded Healthy Start Programs that operate in 15 communities across North Carolina. Healthy Start focuses services primarily on the African-American and American-Indian populations, including health education, case management, depression screening, interconception care and community engagement. Each healthy start site (Healthy Start Corps, Eastern Baby Love Plus, Northeastern Baby Love Plus and Triad Baby Love Plus) also are lead by a regional consortia inclusive of consumers, community leaders and providers.

The ACA also enhanced home visiting in North Carolina. The state receives $3.2 million annually to support evidence-based home visiting programs. Program models include the Nurse-Family Partnership, Healthy Families America, Parents as Teachers and the Early Head Start/Home Based Option. Implementation of these home visiting programs began in December 2011 at seven sites.

Raising Public and Provider Awareness

The North Carolina Preconception Health Campaign grew out of a focused campaign on folic acid. The current campaign is run by the March of Dimes local chapter with funding from state and federal contracts. The overall campaign focuses on educating the public and health care providers about the importance of being healthy prior to pregnancy. Current campaign topics include folic acid, reproductive life planning, healthy weight and tobacco cessation. The North Carolina Preconception Health Coalition is coordinated by

the Division of Public Health Title V Program and partners closely with the campaign. North Carolina developed a five-year preconception health strategic plan in 2009 that has been used by coalition members and partners across the state. The state has been fortunate to secure First Time Motherhood New Parent and Pregnancy Assistance federal funds to support preconception social marketing, outreach and education in various communities across the state.

North Carolina is also part of the National Preconception Peer Educators Program. This program focuses on reaching college-age populations with targeted health messages that emphasize preconception health and health care. Eleven universities across the state participate in the peer educator program.

North Carolina also has a comprehensive shaken baby prevention program, the Period of PURPLE Crying, that focuses on hospital education of parents of newborns, community reinforcements through prenatal visits and well-child visits at primary care provider offices and a mass media campaign including radio/TV, print and social media.

Changing Policy to Support Infant Health

North Carolina has also seen policy change that supports healthy infants. This is particularly evident is in the area of breastfeeding promotion. In addition to the ACA efforts to promote breastfeeding among hourly workers, the North Carolina Office of State Personnel adopted a lactation policy covering all state employees with paid break time and space. State regulation for child care centers also requires onsite spaces for mothers to pump or feed their children. In addition to these policies, breastfeeding is being promoted across the state through a Breastfeeding Peer Counselor Program covering 86 counties. The North Carolina Breastfeeding Coalition has a strategic plan that includes a number of future policy goals, including Medicaid reimbursement for lactation specialists and break time and space for salaried employees.

Policy change has also led to progress in safe sleep. In 1994, North Carolina started the 'Back to Sleep' campaign, now called the NC Infant Safe Sleep Campaign. In 2003, the North Carolina legislature passed the NC Prevents SIDS Law (GS 110-91-15). The law requires child-care providers to put babies on their back when placing them to sleep in child-care settings.

Federal policy opportunities have also streamlined ability to provide family planning waivers through a Medicaid State Plan. Based on federal health care reform legislation, states now have the option to provide family planning services through a Medicaid State Plan amendment without the formal process of routinely needing to seek federal approval for a waiver. The North Carolina Division of Medical Assistance has submitted a state plan amendment (SPA) to the Centers for Medicare and Medicaid services seeking to provide family planning services to persons at or below 185 percent of the federal poverty level. In addition to providing services currently covered under the waiver, the state is proposing screening and treatment for STIs, which will be covered for any or all of the six periodic visits allowed under the new SPA program. In addition, under the SPA, there will no longer be restrictions for eligibility based age to receive family planning services.

Finally, for more than two decades the North Carolina Child Fatality Task Force studied issues related to child deaths and worked with partners to improve outcomes through a variety of mechanisms, including policy changes. Members of the Task Force are appointed and include legislators and other key leaders. The task force also receives recommendations from the local child fatality prevention teams that are located in each county and review local deaths. To ensure a sustained focus on healthy birth outcomes, the task force created a Perinatal Health Committee.

Additional Information and Resources:

ncpublichealth.com

everywomannc.com

nchealthystart.org/backtosleep/index.htm

mombaby.org (click on 17P or health equity)

PURPLEcryingnc.info

YouQuitTwoQuit.com

Contact Information:

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Ohio

The Ohio infant mortality rate has not substantially changed in more than a decade. Furthermore, in Ohio African-American infants die at more than twice the rate of white infants. In 2009, the infant mortality rate for white Ohioans was 6.4 deaths per 1,000 live births, while it was 14.2 deaths per 1,000 live births among African Americans in the state. The lack of sustained progress in reducing infant death and the marked differences in birth outcomes when comparing different racial, ethnic and geographic subpopulations throughout led to the establishment of an Infant Mortality Task Force in 2009 at the request of then Governor Strickland. Additionally, concurrent efforts in the state have led to quality improvement in perinatal care and better birth outcomes.

Building a Collaborative Effort to End Infant Mortality

The Infant Mortality Task Force was charged with making short- and long-term recommendations to address the overall infant mortality rate and increasing disparities among different populations in Ohio. The task force was made up of more than 70 individuals, cochaired by the Ohio Department of Health (ODH) director and the CEO of a regional health care system. Membership on the task force included public and private health care providers, businesses, government agencies, associations, faith-based organizations, advocacy groups and consumers from across the state.

In late 2009, the task force completed its recommendations for preventing infant mortality, including rationale and strategies for implementing each recommendation. In 2010, the Ohio Collaborative to Prevent Infant Mortality was formed as a successor to the task force to continue its work and ensure oversight and accountability for the implementation of the recommendations. The collaborative currently has five workgroups addressing the following areas: coordinated health care, disparities and racism, data/metrics/quality improvement, education/outreach, and public policy.

Expanding Access to Care

The collaborative was successful in pushing forward recommendations related to expanded access to care. In September 2010, the collaborative urged rapid implementation of an amendment to the Ohio Medicaid State Plan to provide family planning services for persons otherwise not eligible for Medicaid. The approved amendment allows men and women with incomes up to 200 percent of the federal poverty level to become eligible for family planning services, effective Jan. 1, 2012. In addition, the collaborative issued an opinion on the availability of 17P urging all physicians in Ohio to obtain the compounded version of 17P and all payers to continue to cover the compound to help reduce the risk of preterm birth in high-risk women.

Funding information for Ohio initiatives to improve birth outcomes:

- The majority of state initiatives described in this case study were funded through the Title V MCH Services Block Grant

Targeting Racial Disparities

In addition to working with partners to collaboratively address infant mortality, the ODH Child and Family Health Services program is administering the Ohio Infant Mortality Reduction Initiative (OIMRI) in 14 counties with high infant mortality. OIMRI is funded through the Title V MCH Services Block Grant and addresses the financial, geographic, cultural, and structural barriers that African American women and children experience and improves their access to and utilization of health care. The OIMRI programs provide community-based outreach and care coordination, employing individuals from the community as trained advocates who empower pregnant women to access resources. These advocates, professional community health workers, provide a cultural link to the community and to community resources. The work of the advocates includes:

- Case finding
- Home visits on a regular basis during pregnancy and through the baby's second year of life
- Identifying and reinforcing risk-reduction behaviors
- Appropriate education and support for behavior change
- Working with the strengths of the client
- Appropriate referrals to ensure positive birth outcomes

Using Quality Improvement for Better Birth Outcomes

Ohio engaged in initiatives to improve birth outcomes overall, with a particular focus on prematurity. Since 2007, the Ohio Perinatal Quality Collaborative (OPQC) used quality improvement methods to reduce preterm births and improve outcomes of preterm newborns as quickly as possible. Using the Institute for Healthcare Improvement Breakthrough Series, OPQC worked with 20 maternity hospitals, which represents 47 percent of all births in the state, through a collaborative focused on several obstetric improvement projects. Efforts included documenting the method of pregnancy dating, documenting reasons for scheduled delivery before 39 weeks, educating patients about risks of delivery before

39 weeks, implementing a scheduled delivery form, establishing direct communication with pediatricians, promoting early ultrasound and conducting ongoing monitoring of clinical data using the Ohio birth certificate. Since initiating this project, more than 18,000 births have moved from occurring prior to the due date to full term (39 to 41 weeks). Approximately 500 NICU admissions and some infant deaths have been avoided. OPQC estimates saving approximately $11 million annually in Ohio health care costs.

The CDC State-Based Perinatal Quality Collaboratives grant program provided funding to Ohio, California and New York for the purpose of enhancing existing state-based quality improvement collaboratives by collecting accurate and timely data and that providing feedback to help improve perinatal care.This funding will expand current projects to include a broader range of neonatal and maternal health issues.

Contact Information:

Ohio Collaborative to Prevent Infant Mortality:
odh.ohio.gov/odhPrograms/cfhs/OCTPIM/infantmortality.aspx

Ohio Infant Mortality Task Force full report:
odh.ohio.gov/~/media/ODH/ASSETS/Files/cfhs/infant%20mortality%20task%20force/imtfreport2009-rev12-02final.ashx

Ohio Perinatal Quality Collaborative:
opqc.net

Ohio Infant Mortality Reduction Initiative: odh.ohio.gov/
odhprograms/cfhs/comcar/precare1.aspx

Texas

Preterm birth is a major cause of infant mortality in Texas, as well as the United States. The percent of infants born preterm in Texas increased from 12.6 percent in 2000 to 13.0 percent in 2009, with an increase in late preterm births from 8.9 percent in 2000 to 9.4 percent in 2009. Induction rates increased by 39 percent in Texas from 2000 to 2009, compared to a national increase of only 15 percent. In 2009, 25.6 percent of deliveries were induced in Texas. In 2007, approximately 70 percent of Medicaid costs for hospitalized newborns in Texas can be attributed to the billing codes for prematurity and extreme immaturity. To address these concerns, Texas developed a statewide initiative to decrease preterm births by 8 percent over two years. The initiative is expected to save the state approximately $7.2 million in state and federal Medicaid costs, improve birth outcomes and save lives.

Funding information for Texas initiatives to improve birth outcomes:

- The Healthy Texas Babies initiative was funded by a $4.1 million dollar investment, over two years, by the Texas Legislature
- Efforts were complimented by collaborations with key partners to maximize impact across the state

Healthy Texas Babies Initiative

The Texas Legislature invested $4.1 million dollars over two years to fund the Healthy Texas Babies initiative. More than half of the funding has been distributed to 10 local coalitions to implement evidence-based interventions in their communities. The 10 coalitions were selected based on their response to a competitive opportunity for funding. Twenty-three counties in the state with the highest number of Medicaid births, large African American population, highest rates of prematurity and more than 1000 deliveries per year were eligible for funding. Each was provided with a county PPOR analysis of their leading causes of infant mortality, as well as a list of PPOR-appropriate and evidence-based interventions. Each coalition received $200,000 for a 21-month funding period and technical assistance from the Texas Department of State Health Services (DSHS).

The remainder of the legislative funds will be used to support coordinated statewide educational efforts for providers and a public education campaign to convey key messages to patients, providers and the public. The Healthy Texas Babies initiative is a comprehensive approach characterized by evidence-based action at both the state and community levels. Collaborations with key partners maximize the impact of the initiative across the state.

Using Evidence to Guide Action

In January 2011, DSHS, the Texas Health and Human Services Commission (HHSC) and the March of Dimes convened a Healthy Texas Babies Expert Panel of approximately 45 stakeholders in maternal and infant health to provide input on a plan to implement the initiative. During the Spring of 2011, three subgroups of providers, payers and community members worked to develop deliverables, which each included a literature review, a measurable, evidence-based intervention, and a plan for scalability and sustainability. Each workgroup presented the deliverables to the entire expert panel in July 2011 and the proposed deliverables were approved. The expert panel continues to meet every six months and is available for consultation to the state health commissioner on issues pertaining to perinatal outcomes. The expert panel has recently been expanded to include members of the faith community, academic community, and others who work with diverse racial and ethnic populations in the state.

Activities are coordinated by the lead partners of the initiative, DSHS, HHSC and March of Dimes. For example, a Neonatal Intensive Care Unit and Obstetrical Services (NICU/OB) survey to determine the locations of NICUs and their levels of care was disseminated to hospitals that deliver babies across the state. DSHS and HHSC collaborated develop and analyze the results of this survey so it can inform a legislatively-mandated NICU council coordinated by HHSC. This council is charged to develop standards of care and a plan for improved service delivery to high-risk mothers and babies.

Using Legislative and Policy Actions to Promote Healthy Births

During the most recent state legislative session, HHSC was directed to develop quality initiatives and implement cost-cutting measures designed to reduce the number of nonmedically indicated deliveries. House Bill 1983, 82nd Regular Session, supports a reduction in elective deliveries by induction or c-section through provider education and training. In response to the legislation, beginning Oct. 1, 2011, providers billing Medicaid for labor and delivery were required to include a modifier on claims to indicate whether deliveries were nonmedically indicated and less than 39 weeks, medically indicated and less than 39 weeks, or greater than 39 weeks.

Those without a modifier and those indicating they are not medically indicated will be denied payment. Those indicating medically indicated and less than 39 weeks will be subject to audit by the Texas Office of the Inspector General. In addition, HB 2636 creates a council to study NICUs to develop standards and recommendations for Medicaid reimbursement. Through HB 824, the Office of the Attorney General and the WIC program are directed to share responsibility for an outreach campaign to promote the involvement of fathers with their children before birth.

Educating the Public and Providers

To improve public understanding of the importance of a full-term delivery, the March of Dimes donated 2,000 English and Spanish posters to local WIC clinics across the state and provided training for local WIC staff on use of the materials. Additionally, DSHS distributed 250,000 English and Spanish brochures on "Why the Last Weeks of Pregnancy Count." A Web-based well-woman curriculum for WIC participants is also being developed with input from the March of Dimes.

Efforts to increase public awareness of and education about the issue are currently being delivered through the DSHS Healthy Texas Babies website and through promotion of theText4baby program. Provider education has been delivered through community health worker/ *promotora* trainings and an ongoing series of DSHS Grand Rounds continuing education webcasts. To provide online continuing education to Medicaid doctors, nurses and other professionals, a Texas Health Steps online provider education module is being developed. In addition, an in-person learning series for social worker, nurses, hospital administrators and clinicians also is in development, focusing on the importance of a full pregnancy and involvement of a woman's partner in her preconception, prenatal and intrapartum care.

Working with Partners to Maximize Impact

Healthy Texas Babies is implemented in strong partnership with the March of Dimes. Learning from the success of the Kentucky *Healthy Babies are Worth the Wait* (HBWW) initiative, March of Dimes has implemented HBWW at three sites in urban centers of Houston. Each site includes a hospital and a clinic that collaborate on initiatives to promote early entry into prenatal care, provider education to improve birth outcomes and reduce elective cesarean sections. In addition, through the Healthy Texas Babies Local Coalition funding opportunity, Waco-McLennan County will implement HBWW at two sites in a more rural area of the state. Thus, by the end of 2012, Texas will have five HBWW sites in operation, contributing to the evidence of the efficacy of this model in different settings.

The Texas chapter of the March of Dimes also implements quality improvement initiatives across the state. These initiatives include the "Think 39" campaign aimed at provider education on the benefits of eliminating elective deliveries before 39 weeks' gestation. Texas also participates in the national March of Dimes Big 5 Prematurity Collaborative to improve adoption of data systems to track changes in specific perinatal issues and indicators.

The Texas chapter of the March of Dimes is working directly with communities to promote supportive environments for healthy pregnancies. March of Dimes implements programs such as Honey Child, *Comenzando bien* and Centering Pregnancy. Honey Child delivers prenatal support to African-American families in a faith-based setting. *Comenzando bien* is a bilingual prenatal education program that is culturally and linguistically appropriate for Hispanic women and is designed for implementation in a variety of settings, including work sites, houses of worship, health departments, Hispanic community-based organizations and neighborhood centers. Centering Pregnancy offers prenatal care in a group setting at sites across Texas, including city/county health clinics, military bases, hospitals and academic institutions. A new Centering Pregnancy site is being introduced in Longview, Texas through the Healthy Texas Babies Local Coalitions funding opportunity.

Centralizing Communications on the Healthy Texas Babies Website

Communication is core to the Healthy Texas Babies Initiative. The Healthy Texas Babies website (healthytexasbabies.org) provides a communications portal to share information on the initiative and receive feedback. The website offers specific information for parents, the public and providers. The site also offers resources for the expert panel and community coalitions. In addition, healthytexasbabies.org provides a platform to share up-to-date statewide data on infant and maternal health.

A statewide public education and communications campaign will be developed based on formative research presently being conducted on appropriate media with which to target at-risk populations in Texas. The campaign will use multiple media to reach target populations with key messages in a delivery model that is most effective and long lasting. The goal of the campaign is to deliver clear messages that are evidence-based, memorable, and easily reinforced by providers, friends, and family of men and women in their childbearing years.

Next Steps

In the coming year, Healthy Texas Babies will continue to focus on reduction of preventable infant morbidity and mortality. The initiative will develop and offer continuing education for providers at all levels. DSHS will continue to support the activities of the 10 local coalitions across the state. DSHS and HHSC will work together to develop of programming based on the NICU/OB Survey results and recommendations by the NICU council. DSHS will work with partners to develop additional programming related to fatherhood and will conduct a preconception peer educator training in coordination with the National Office of Minority Health and Historically Black Colleges and Universities in the state. Healthy Texas Babies will work with the expert panel to plan for the future of the initiative and ensure its sustainability.

For more information:

Visit the Healthy Texas Babies website **healthytexasbabies.org**. For questions, please contact the Texas Office of Title V and Family Health at TitleV@dshs.state.tx.us.

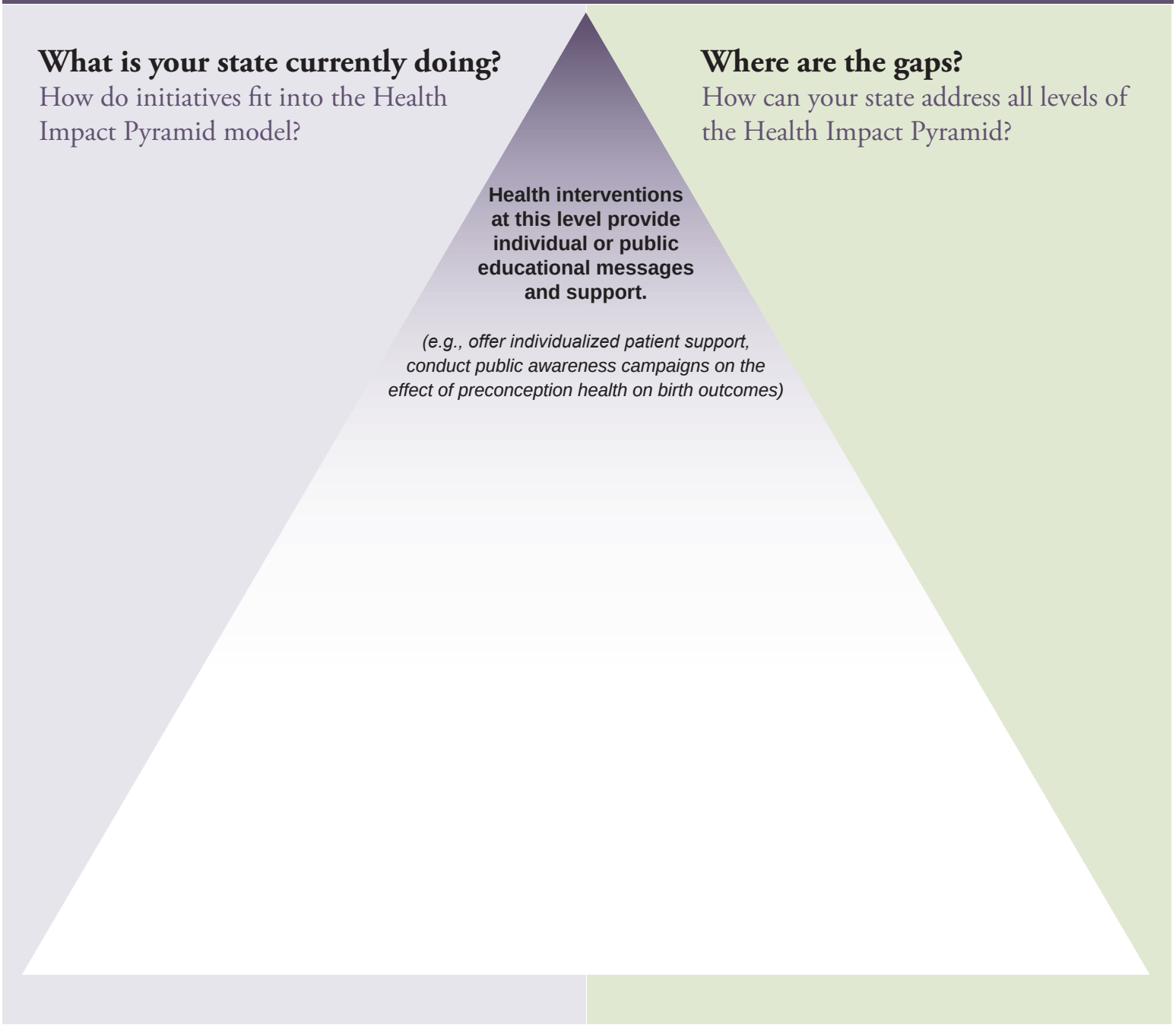
Appendices

APPENDIX A –
Build Your Own Health Impact Pyramid Worksheet

TIER 5: EDUCATION AND COUNSELING

What is your state currently doing?
How do initiatives fit into the Health Impact Pyramid model?

Where are the gaps?
How can your state address all levels of the Health Impact Pyramid?

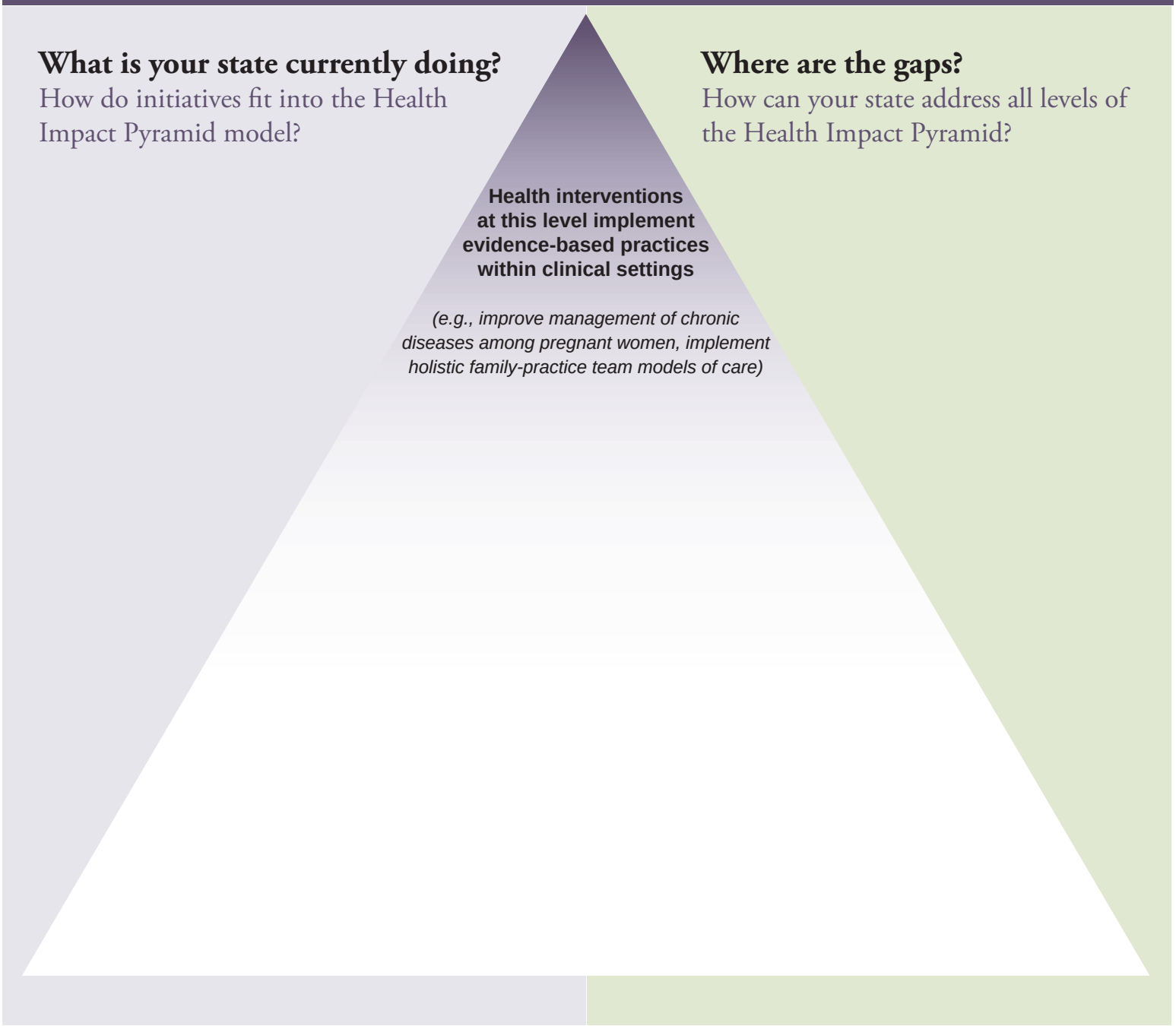


APPENDIX A –
Build Your Own Health Impact Pyramid Worksheet *continued*

TIER 4: ONGOING CLINICAL INTERVENTIONS

What is your state currently doing?
How do initiatives fit into the Health Impact Pyramid model?

Where are the gaps?
How can your state address all levels of the Health Impact Pyramid?

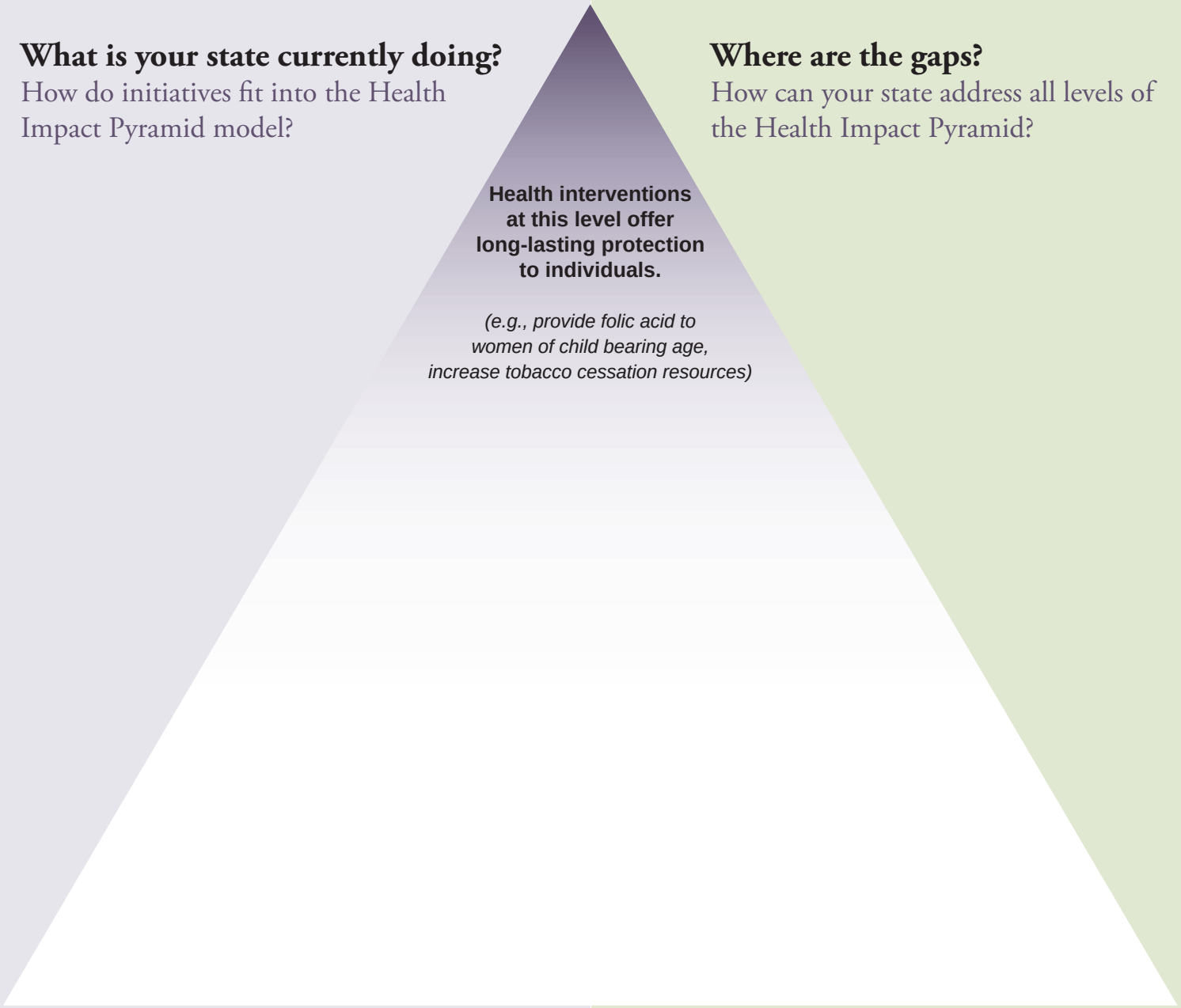


APPENDIX A –
Build Your Own Health Impact Pyramid Worksheet *continued*

TIER 3: PROTECTIVE, LONG-LASTING

What is your state currently doing?
How do initiatives fit into the Health Impact Pyramid model?

Where are the gaps?
How can your state address all levels of the Health Impact Pyramid?

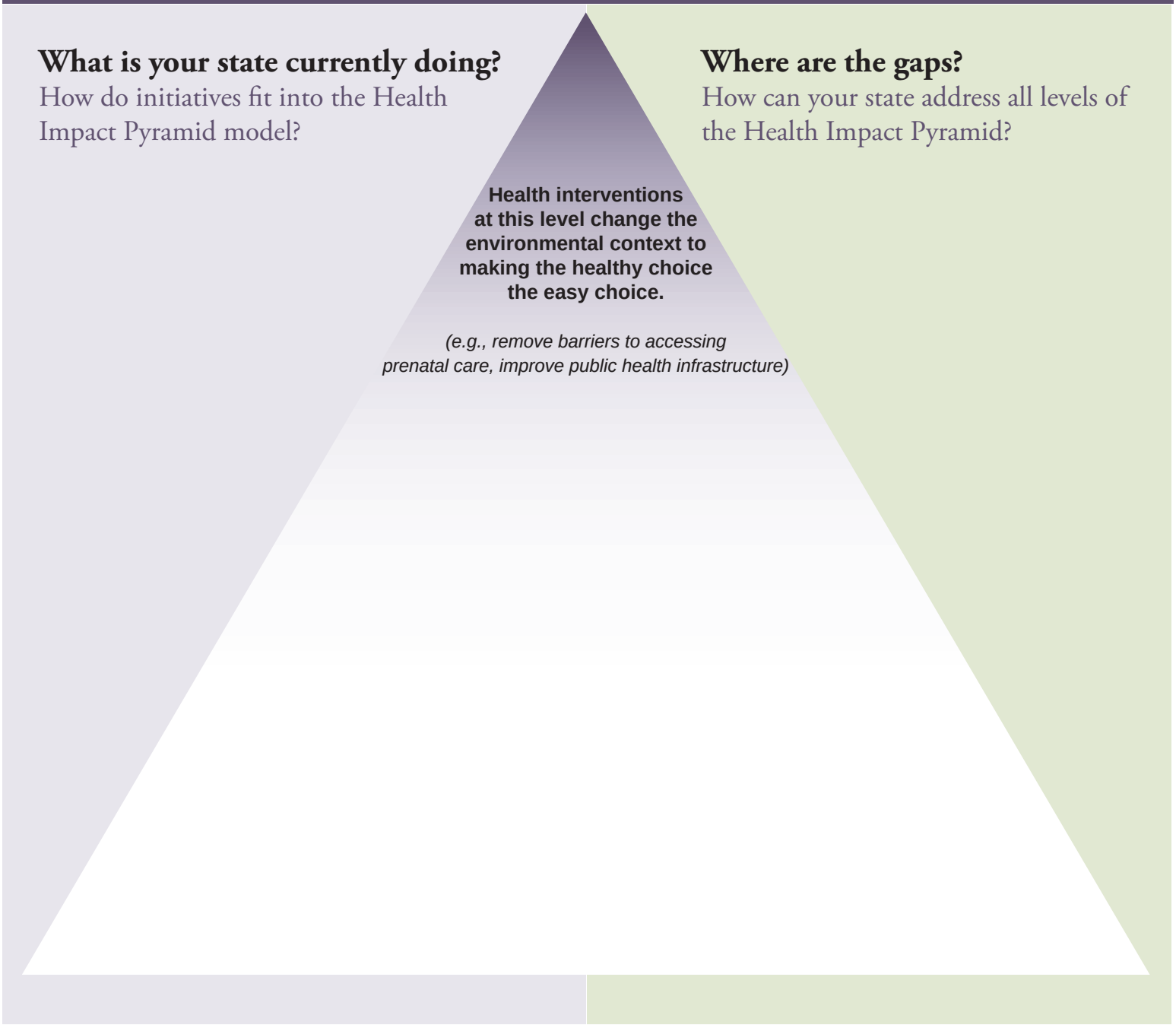


APPENDIX A –
Build Your Own Health Impact Pyramid Worksheet *continued*

TIER 2: CHANGING THE CONTEXT

What is your state currently doing?
How do initiatives fit into the Health Impact Pyramid model?

Where are the gaps?
How can your state address all levels of the Health Impact Pyramid?

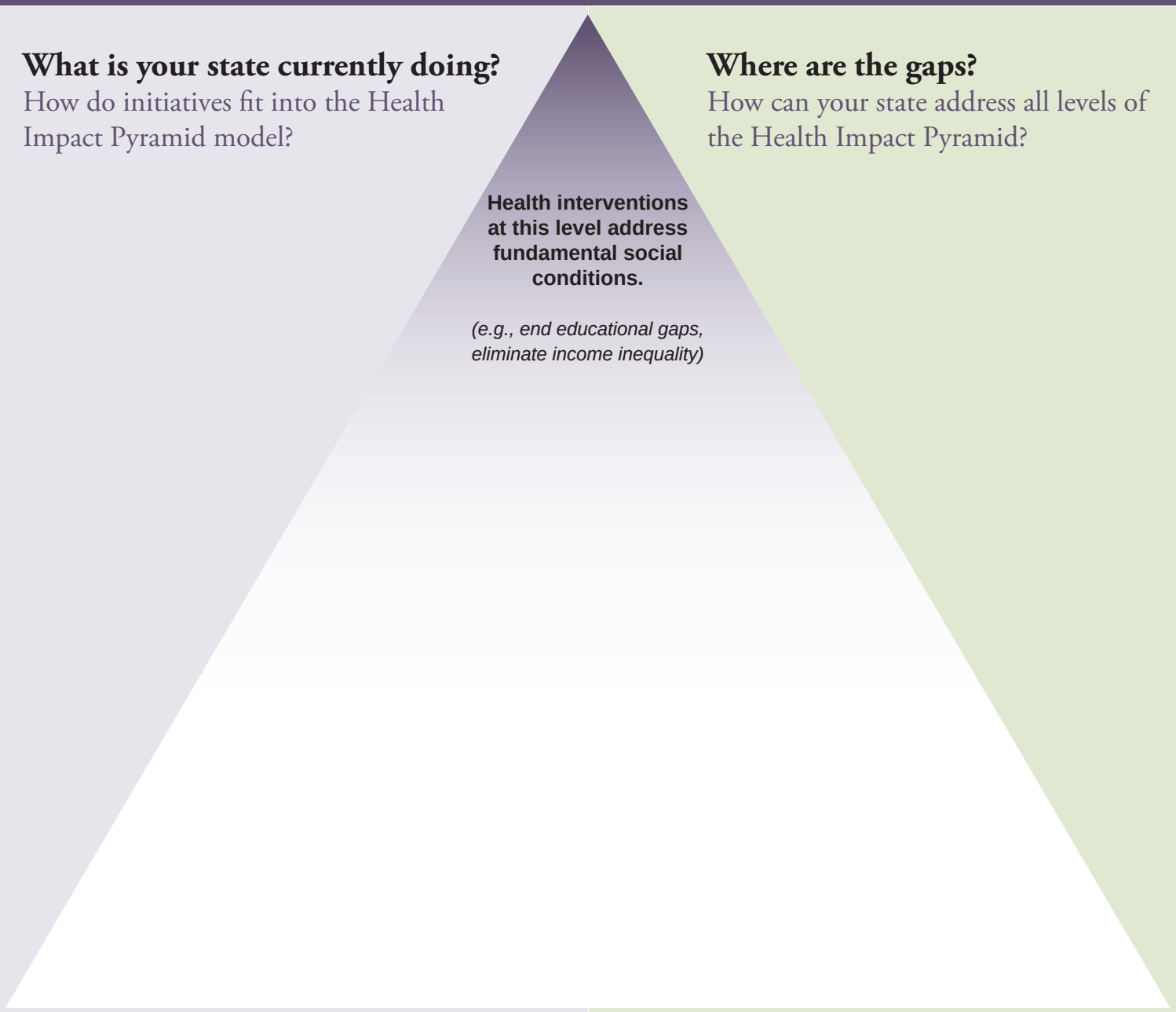


APPENDIX A –
Build Your Own Health Impact Pyramid Worksheet *continued*

TIER 1: ADDRESSING SOCIOECONOMIC FACTORS

What is your state currently doing?
How do initiatives fit into the Health Impact Pyramid model?

Where are the gaps?
How can your state address all levels of the Health Impact Pyramid?



APPENDIX B – Source Documents

A total of seven national reports, which included 60 separate recommendations, and eight state reports, which included 62 recommendations were reviewed.

National Sources (60 recommendations)

- AMCHP (4): *Creating a National Initiative to Reduce Premature Births, Infant Mortality and Related Disparities*
- ASTHO (7): *State Policy Options to Improve Birth Outcomes*
- Childbirth Connection, The Reforming States Group, Milbank Memorial Fund (4): *Evidence-Based Maternity Care: What it is and What it can achieve*
- Healthy People 2020 (24): Healthy People 2020 evidence-based recommendations related to maternal, infant, and child health
- March of Dimes (5): *Healthy Babies are Worth the Wait*
- Michael Lu, Neal Halfon, et al (12): *Closing the Black-White Gap in Birth Outcomes: A Life Course Approach*
- National Prevention Council (4): *The National Prevention Strategy, Section on Reproductive and Sexual Health*

States (62 recommendations)

- Delaware (20): *Reducing Infant Mortality in Delaware: Task Force Report*
- Louisiana (4): Louisiana Birth Outcomes Initiative-June 2011 PCH Summit Presentation
- Maryland (5): *Plan for Reducing Infant Mortality in Maryland*
- Michigan Infant Mortality Task Force Report
- Minnesota (4): Maternal and Child Health Advisory Task Force Infant Mortality Work Group
- Mississippi (5): *2007 Mississippi Infant Mortality Report*
- Ohio (10): *Ohio Infant Mortality Task Force Report*
- Texas (6): *Healthy Babies are Worth the Wait* Purpose-to-Interventions Schema
- Wisconsin (8): *Elimination of Racial and Ethnic Disparities in Birth Outcomes in Wisconsin*

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APPENDIX C – Matrix Mapping of Strategies to the Health Impact Pyramid

Health Impact Tier & Description	Broad Recommendation	Sub-Recommendation *(see full compendium for specific actions for each sub-recommendation)*
Tier 5: Counseling and Health Education Summary: Tier 5 is the top of the pyramid and represents individual public health education. When applied consistently and repeatedly these interventions can have large impacts. These interventions require the highest amount of individual effort as they involve individual choices to change behavior. Furthermore, a population-level impact from counseling and health education may take longer to reach and be harder to measure. The impact of individualized messages and relationships on individual health choices, however, cannot be underestimated. (Examples: peer education about reducing HIV risk, personalized smoking cessation advice.)	**Implement Health Promotion Efforts**	Develop messages about preconception and interconception health to promote women's health before and after pregnancy. Incorporate messages on healthy pregnancies and healthy infant care into social marketing and education campaigns. Expand preconception and interconception health planning among women and providers. Promote daily folic acid for women of childbearing age. Reduce the use of and exposure to harmful substances among all women. Promote safe sleep campaigns. Promote healthy weight among women of childbearing age. Chronic disease and obesity prevention programs may be partners who are particularly engaged in healthy weight policy and program development. Increase awareness among pregnant women, families and providers on the importance of carrying an infant full term. Improve public and professional awareness of benefits and risks of newly developed and available contraceptive technologies – keeping in mind the wants and desires of the woman and her family/partner (including cultural considerations). Educate communities and service providers on the issues and impact of infant mortality within your community in order to develop additional champions for improving birth outcomes. Reduce unintentional injuries to women and infants in the home and child care settings. Injury prevention messages and services can be delivered through multiple programs and partners serving pregnant women and families. Reduce injuries and death related to motor vehicle crashes. Promote oral health, particularly the prevention and treatment of periodontal disease, as a component of comprehensive perinatal health programs. Support breastfeeding promotion for all mothers. Educate expectant parents about newborn screening as a life-saving intervention for infants.

APPENDIX C – Matrix Mapping of Strategies to the Health Impact Pyramid *continued*

Health Impact Tier & Description	Broad Recommendation	Sub-Recommendation *(see full compendium for specific actions for each sub-recommendation)*
Tier 4: Clinical Interventions Summary: Tier 4 interventions are individual and require an ongoing clinical component (low population impact and high requirement of individual effort). There are many evidence-based clinical interventions that are proven to have a large health impact on the individual level, but non-adherence can be problematic so rigorous oversight and accountability are required to make sure interventions are implemented as intended. (Examples: medications for treating hypertension, hyperlipidemia and diabetes.)	**Ensure Quality of Health Care for All Women and Infants**	Create or partner with a statewide perinatal quality collaborative to study and address perinatal outcomes across the state. Understand and share perinatal health data. Ensure the best available evidence guides maternity care decisions and that the family partners with their health care providers to make decisions about their care. Implement policies to decrease rates of elective deliveries prior to 39 weeks in all birthing hospitals. Create or strengthen a perinatal regionalized system of care to ensure ongoing review of the appropriateness of deliveries and level of care for newborns based on maternity licensure levels of care. Ensure access to appropriate consultation and referral for pregnant women to a higher level of care when indicated. Pursue telemedicine and other mechanisms to connect women with specialists as indicated for women in rural or underserved areas to increase access to risk-appropriate care. Implement neonatal quality improvement initiatives to improve care for infants in the NICU and reduce variation in NICU outcomes. Implement uniform postpartum discharge programs and ensure access to comprehensive postdelivery follow up care. Offer postdelivery services to all women, not just those with poor birth outcomes. Support expansion of Mother and Baby Friendly Hospital programs to promote immediate and sustained breastfeeding. Implement electronic medical records for women and infants to allow easily access to reproductive health data for health care providers, which may increase the safety and quality of care for pregnant women and infants. Study, disseminate and increase the adoption of innovative, evidence-informed prenatal-care models (e.g. home visiting, community health workers, group pregnancy care, use of doulas) in obstetric practices, including certified nurse midwifery settings and community health centers, that provide prenatal care in a group setting. Implement group parenting classes to promote parenting skills, infant health and wellness, injury prevention, and create a network for new parents.

APPENDIX C – Matrix Mapping of Strategies to the Health Impact Pyramid *continued*

Health Impact Tier & Description	Broad Recommendation	Sub-Recommendation *(see full compendium for specific actions for each sub-recommendation)*
Tier 3: Long-Lasting Protective Interventions Summary: Tier 3 interventions have broad population impact, but require outreach to individuals. Interventions at this level are not clinical, they do not require ongoing relationships between an individual and the health care system, but they may involve a singular clinical intervention that makes a permanent change. (Examples: immunization, smoking cessation.)	**Improve Maternal Risk Screening for All Women of Reproductive Age**	Increase the number of women who are screened and monitored for chronic disease, infections and other high-risk conditions that may impact pregnancy or birth outcomes, including hypertension, obesity, gestational diabetes, HIV, STIs, previous poor birth outcomes or preterm birth, unsafe medication use during pregnancy, violence and depression. Ensure that women who are at-risk or screen positive are linked to programs and services.
Tier 2: Changing the Context to Make Individuals' Default Decisions Healthy Summary: Tier 2 represents interventions that change the environmental context – so making the healthy choice becomes the easy choice. These interventions have high population impact and still require little individual effort. (Examples: clean environments (water, air, food), eliminating toxic exposures in building materials, improving public health infrastructure, developing the public health workforce.)	**Enhance Service Integration for Women and Infants**	Ensure access to a medical home for all women and infants that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate and culturally effective. Create health services that provide comprehensive care, connecting medical and social services with the goal of improving perinatal outcomes. Implement innovative models for comprehensive, coordinated prenatal and interconception care. Supporting a continuum of early childhood services to address family needs.
	Improve Access to Health Care for Women Before, During and After Pregnancy	Expand coverage of comprehensive reproductive health services, including family planning and other health services, for all uninsured and underinsured populations. Ensure prenatal, family planning and other health services are accessible to all women, particularly women living in underserved areas. Support mechanisms to facilitate easy enrollment into Medicaid so providers can directly enroll eligible clients, based on declaration of income and family size. Strengthen the workforce to ensure access to providers for all women of reproductive age. Promote comprehensive oral health care, particularly the prevention and treatment of periodontal disease, as a component of perinatal health programs. Increase access to interconception care for women with prior adverse pregnancy outcomes. Core services include family planning, screening for maternal depression and intimate partner violence, assessing social support for the pregnant woman, smoking cessation and substance treatment programs, physical activity and nutritional education and intervention, management of chronic diseases, and education on back-to-sleep and parenting skills.

APPENDIX C – Matrix Mapping of Strategies to the Health Impact Pyramid *continued*

Health Impact Tier & Description	Broad Recommendation	Sub-Recommendation *(see full compendium for specific actions for each sub-recommendation)*
Tier 2: Changing the Context to Make Individuals' Default Decisions Healthy *continued*	Develop Data Systems to Understand and Inform Efforts	Conduct a thorough assessment of existing data systems to determine what currently exists and what data systems may need to be developed. Strengthen epidemiology capacity focused specifically on maternal and child health. Create formal data-sharing partnerships to facilitate timely and ongoing data sharing. Create a linked database system or conduct strategic data linkages to enhance birth and death certificate information and facilitate identification of additional risk and protective factors for infant mortality and other poor birth outcomes. Key datasets include vital records, hospital discharges, newborn screening (blood spot and hearing), the immunization registry and the birth defects registry. In addition, Medicaid and other insurer data, program data and surveys, such as PRAMS, can provide a wealth of information on the health of women and infants. Use effective methods to understand infant mortality in your state and communities. Using analytic methods will assist in identifying root causes of poor birth outcomes and infant mortality and clarify underlying issues in geographic areas of high infant mortality to help in targeting interventions and setting a baseline for improvement. Examine environmental influences on birth outcomes and infant mortality. Conduct a comprehensive review of all fetal, infant and child deaths. Expand information collected through birth and fetal death certificates. Conduct a comprehensive review of all maternal and pregnancy-related deaths. Establish a PRAMS survey. Establish or expand birth defect registry surveillance. Establish or expand collection of qualitative data to help enhance surveillance data with information on the lived experience of women and communities. Measure women's reproductive health status. Evaluate all programs aimed at reducing infant mortality. Publish birth outcomes data annually to stakeholders, including through accessible reports for consumers.

APPENDIX C –
Matrix Mapping of Strategies to the Health Impact Pyramid *continued*

Health Impact Tier & Description	Broad Recommendation	Sub-Recommendation *(see full compendium for specific actions for each sub-recommendation)*
Tier 1: The Socioeconomic Factors Summary: Tier 1 represents the bottom of the pyramid, which means interventions have the largest population impact and require the smallest individual effort. Health interventions at this level include fundamental social restructuring. (Examples: ending educational gaps, eliminating racism.)	**Promote Social Equity**	Support working mothers and families. Raise awareness on the effects of racism. Racism is multidimensional: intrapersonal, interpersonal and institutional. The public health community must raise awareness of and actively address racism in all its forms. Invest in community rebuilding and urban renewal. Ensure health care services are provided in a manner compatible with the cultural beliefs, practices and preferred language of the consumer. Create reproductive social capital actively supporting and celebrating pregnant women and promoting reproductive health within a community as a whole. Develop, recruit and train a diverse network of culturally competent health professionals statewide.

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Notes

ABOUT AMCHP

The Association of Maternal & Child Health Programs is a national resource, partner and advocate for state public health leaders and others working to improve the health of women, children, youth and families, including those with special health care needs.

AMCHP supports state maternal and child health (MCH) programs and provides national leadership on issues affecting women and children. We work with partners at the national, state and local levels to expand medical homes, provide and promote family-centered, community-based, coordinated care for children with special health care needs and facilitate the development of community-based systems of services for children and their families.

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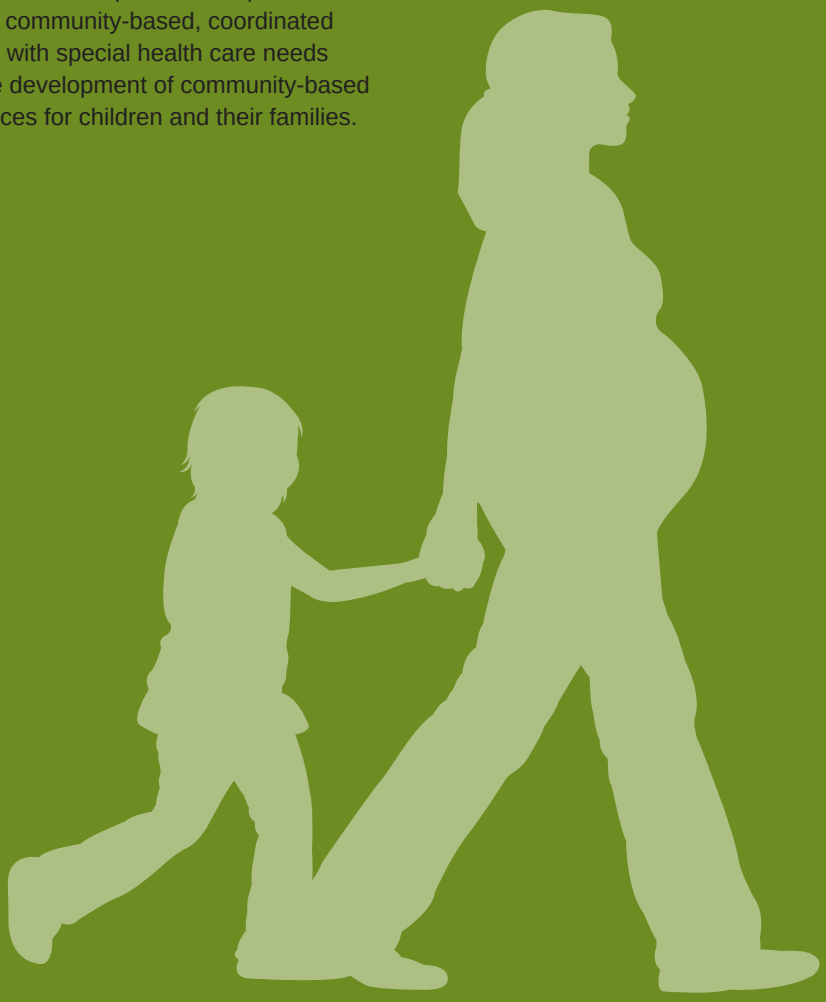

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