

## Office of Health Transformation **Reduce Infant Mortality**

### **Background:**

Infant deaths – when a baby who is born alive dies within the first year of life – account for 63 percent of all childhood deaths in Ohio. The three leading causes of infant deaths account for 76 percent of all infant deaths: (1) preterm births (47 percent), (2) birth defect (14 percent), and (3) sleep related deaths (15 percent). Some risk factors, such as smoking, increase the risk of all three leading causes of infant death. An estimated 23-34 percent of Sudden Infant Death Syndrome and 5-7 percent of preterm-related deaths are attributable to prenatal smoking.

Ohio's infant mortality rate was 7.88 (infant deaths per 1,000 live births) in 2011 compared to the national rate of 6.07. Infant mortality impacts Ohio families differently depending on their race and location. In 2011, the black infant mortality rate was 15.45, more than twice the white rate of 6.39. Black babies are more likely to die within the first year of life even when social and economic factors are considered. Metropolitan and Appalachian counties have higher rates of infant mortality compared to the state as a whole. There are many non-medical contributors to the death of babies such as poverty, poor nutrition, and race.

In March 2011, Governor Kasich made reducing low birth weight babies a priority in his State of the State address, and reinforced that priority again in 2012. The Governor's Office of Health Transformation, working with Ohio Departments of Medicaid, Health, Mental Health and Addiction Services, and other human services agencies initiated several new programs to improve the systems supports for at-risk mothers and children to improve birth outcomes statewide. In combination, these initiatives:

- Improve overall health system performance,
- Focus resources where the need is greatest, and
- Prevent premature birth, birth defects, and sleep-related causes of death.

### **Improve Overall Health System Performance**

- ***Extend Medicaid coverage to more parents.*** Covering parents not only improves their own lives but also the lives of their children. The Institute of Medicine reports that the financial stability of a whole family can be put at risk if only one person is uninsured and needs treatment for unexpected health care costs. Children are three times more likely to be eligible for coverage but uninsured if their parents are uninsured. An estimated 176,000 uninsured parents will be covered under Ohio's Medicaid expansion. Covering these parents makes it more likely that their children will receive needed care.

- **Expand Medicaid presumptive eligibility for pregnant women.** Governor Kasich's first budget provided temporary Medicaid coverage so that a pregnant woman can receive medical care while their Medicaid application is officially processed. It also recognized new qualified entities that may establish Medicaid eligibility. By simplifying eligibility and enrollment, and including additional points of access for pregnant women, medical attention will be provided in the early stages of pregnancy when intervention is very important. Early entry into care is linked to better birth outcomes.
- **Support regional systems of perinatal care.** Perinatal regionalization is a system of designating where infants are born or are transferred based on the amount of care they need at birth. In regionalized systems, very ill or very small babies are born and cared for in hospitals that are able to provide the most appropriate care, with high level technology and specialized health providers. An ODH workgroup will monitor data of appropriate births in Level 3 hospitals since the inception of new maternity licensure laws in 2012. Additionally, Ohio Medicaid will build on the concept of regionalization and through its health plans ensure that very ill or very small babies are born and cared for in hospitals that are able to provide the most appropriate care.
- **Provide enhanced maternal care management for high risk pregnancies.** A majority of women on Medicaid are served through managed care plans, and Ohio Medicaid now requires those plans to provide enhanced maternal care and inter-conception care for women at highest risk for poor pregnancy outcomes. Enhanced services for women can improve the health status of women before they become pregnant and improve birth outcomes. Managed care plans now must identify women with high risk pregnancies, prior preterm births, poor birth outcomes, or high risk medical conditions, and implement evidence-based interventions (e.g., centering/group care, tobacco cessation programs, antenatal steroids, progesterone therapies). In addition, health plans must identify women of childbearing age who are at risk of a poor pregnancy or poor birth outcome and provide them with evidence-based inter-conception care.
- **Use vital statistics to identify at-risk women.** Ohio Medicaid partnered with ODH to use vital statistics data to augment the identification process of women at highest risk for poor pregnancy outcomes. Because one of the most reliable predictors that a woman will have a low birth weight baby is that she previously had a low birth weight baby, Ohio Medicaid relies on its health plans to maintain close contact with these at-risk mothers and prevent the likelihood of additional pregnancies being low birth weight.
- **Require better care management for long NICU stays.** Infants who are in neonatal intensive care units (NICUs) for seven days or longer within the first 28 days of life tend to have more emergency department visits and hospital readmissions compared to infants without shorter NICU stays. In an effort to better coordinate care for these infants, Medicaid health plans are contractually required to place infants who are in NICUs for seven or more days in high risk care management. This aligns with the NICU discharge planning collaborations.

- **Improve NICU discharge planning.** Medicaid managed care plans and NICUs have completed regional plans that identify potential barriers to care as infants transition from NICUs to the home setting, as well as opportunities for managed care plans to bridge gaps in care during these transitions. Currently, the NICUs and health plans are working together to operationalize solutions to these barriers. The collaborations focus on streamlining discharge and care management processes, sharing information, improving coordination between in- and outpatient services to ensure alignment of appropriate clinical providers and services post-discharge, and providing creative avenues for parental education and involvement in their infant's care.
- **Financially reward health plans that improve infant health outcomes.** Ohio Medicaid recently improved its quality measurement accountability framework for Medicaid managed care plans by moving to audited national Healthcare Effectiveness Data and Information Set (HEDIS) standards. Ohio Medicaid uses the HEDIS standards as the basis for a pay-for-performance incentive system to drive better birth outcomes and encourage appropriate postpartum visits and family planning. Each health plan is held accountable for its performance on the HEDIS Adolescent Well Child Measure Postpartum Measure, as well as the CHIPRA Low Birth Weight Measure. Medicaid is working with ODH, the Office of Minority Affairs, and several national organizations to test more meaningful measures. Ohio Medicaid also is building the capacity to collect and use information related to race, ethnicity and language as part of the overall strategy to identify those at highest risk for poor birth outcomes. Work is underway through Ohio's BEACON initiative (Best Evidence for Advancing Child Health in Ohio Now) to improve the quality of data collected by hospitals and reported to the state.
- **Expand access to Medicaid family planning benefits (\$13 million).** About half of all pregnancies in Ohio are unintended. These rates are higher among those at risk of having a poor birth outcome, such as poor women, women who are black, and/or teens. In an attempt to decrease unintended pregnancies and prolong inter-pregnancy intervals, Ohio enacted a Medicaid Family Planning State Plan Amendment in January, 2012. The amendment expanded eligibility for family planning services up to 200 percent of the federal poverty level.

### Focus Resources Where the Need Is Greatest

- **Support community-specific efforts to reduce infant mortality (\$1.1 million).** ODH and CityMatCH are partnering with nine Ohio communities to improve overall birth outcomes and reduce the racial and ethnic disparities in infant mortality. CityMatCH is a national membership organization that supports urban maternal and child health efforts at the local level "to strengthen public health leaders and organizations to promote equity and improve the health of urban women, families and communities." The Ohio Equity Institute (OEI), launched in July 2013, is an initiative designed by CityMatCH to

strengthen the scientific focus and evidence base for realizing equity in birth outcomes. During a three-year span, these communities will participate and receive training to support them as they select, implement, and evaluate equity-focused projects.

- **Increase local capacity to conduct fetal infant mortality reviews (\$165,000).** As part of the Ohio Equity Institute, nine urban counties were trained in Fetal and Infant Mortality Review (FIMR), a community process to assess, monitor, and improve service systems and community resources for women, infants, and families. Research shows FIMR is an effective perinatal systems intervention. The nine counties will receive additional training to assist them in establishing FIMR case review teams, including a system for conducting maternal interviews, and community action teams. These FIMR teams will coordinate with local existing Child Fatality Review Boards to help communities better understand why children die and design community-specific interventions.
- **Refine the Pathways Community HUB Model (\$1 million).** Sometimes housing, transportation, access to care and other social factors are more of a determinant of the outcome of a pregnancy than medical factors. Ohio has four non-profit, community-based “HUBs” that use certified community health workers to identify women at-risk and connect them to health care and other social services using a prescribed “pregnancy pathways.” Richland County achieved a 30-percent reduction in low-weight births in targeted populations by the Pathways model to improve care coordination for women in difficult-to-serve areas. This project seeks to improve the model by implementing, testing, and evaluating the use of mobile technology for care coordination. This two-year project in Lucas County will target approximately 600 women at risk for poor birth outcomes. A central database and reporting system will be implemented harnessing the technology of mobile devices to better track participants who have completed pathways and their health outcomes.
- **Provide Maternal Opiate Medical Support (\$3.5 million).** Ohio is experiencing an epidemic of prescription and other addictive drug utilization, even during pregnancy. Medication assisted treatment has been associated with improved neurocognitive outcomes in infants of opiate addicted mothers and reduces relapse rates. Comprehensive and integrated services, whether on site or through tight linkages to other community-based agencies, encourage patients to enter and continue effective treatment programs that last 12-18 months. Through the Maternal Opiate Medical Support (MOMS) Project, women will be linked to the Ohio Department of Mental Health and Addiction Services funded programs (residential and/or outpatient) that are linked to a licensed provider of medication assisted treatment to develop, standardize and test promising best practice in this emerging field.
- **Improve treatment options for Neonatal Narcotic Abstinence Syndrome.** An epidemic of narcotic use among adults has led to an epidemic of narcotic addicted infants termed Neonatal Narcotic Abstinence Syndromes (NAS). NAS produces jitteriness, fever, diarrhea, poor feeding, and if not treated may lead to seizures and death. Treatment

strategies in NAS are largely unstudied, and lead to wide variations in practice, lengths of stay, and cost. The six Ohio Children's Hospitals joined together with the support of a MedTapp Innovation Grant to study NAS. A group of 500 full term newborns were identified with NAS. The infants who needed treatment stayed in hospital an average of 23 days. The six children's hospitals have identified treatments that may produce better outcomes and reduced lengths of stay and are testing them now. Future projects will disseminate improved protocols across all Ohio maternity and newborn units.

## Prevent Premature Birth

An infant is considered preterm if born to a mother who has been pregnant less than 37 weeks. Only about two percent of Ohio births are before 32 weeks, but account for 55 percent of infant deaths. Low birth weight births are those weighing less than 2,500 grams (5 pounds 8 ounces). Underweight babies are at greater risk for developmental delay and may endure lifelong consequences of premature birth such as blindness, cerebral palsy, autism and vision or hearing impairments. The average medical care expenditures for premature, low birth weight infants are more than ten times higher than for babies born at full-term and average birth weight. Both preterm birth and low birth weight increase the risk of infant mortality.

- **Encourage Progesterone for at-risk mothers (\$5 million).** Providing Progesterone to women at risk is an effective way to prevent preterm birth. Progesterone treatment has the potential to reduce the incidence of preterm birth by as much as 15 to 20 percent, and specifically to reduce the number of infants born before 32 weeks, when rates of infant mortality are highest. Ohio Medicaid and ODH launched a Medicaid Progesterone Quality Improvement project to increase the number of ultrasound technicians trained to do standardized cervical ultrasounds, one of the screening tools to identify women at risk, and refer at-risk women for Progesterone treatment. Within Medicaid, managed care plans are facilitating the acquisition of Progesterone and providing home visits to deliver progesterone treatments for high risk mothers.
- **Reduce scheduled deliveries prior to 39 weeks (\$900,000).** In 2007, ODH and Ohio Medicaid created the Ohio Perinatal Quality Collaborative (OPQC). This group is committed to reducing preterm births and improving outcomes of preterm newborns through evidence-based practices and data-driven strategies. From 2008-2010, OPQC worked with 20 Ohio maternity hospitals to prevent unnecessary scheduled early deliveries between 36 and 39 weeks and, based on the success of that early work, and is expanded to all maternity hospitals. These efforts coincided with a substantial decrease in early scheduled deliveries, moving 31,600 births from 36-38 weeks to 39 weeks or more between 2008 and 2013. Based on recent Ohio experience and data, this decrease in near term births likely prevented as many as 950 Neonatal Intensive Care Unit (NICU) admissions, with an estimated cost savings of \$19 million.

- **Provide Antenatal Corticosteroids.** As part of the 39-week project, OPQC is taking steps to ensure that all pregnant women at risk of delivering a baby between 24 and 34 weeks receive Antenatal Corticosteroids (ANCS), an evidence-based therapy shown to reduce mortality and morbidity among preterm infants. This therapy promotes lung development in newborn infants and reduces the incidence of respiratory distress, a common reason for infant stays in neonatal intensive care. To date, participating hospitals have consistently met the goal of eligible women receiving at least one dose of ANCS prior to delivery at least 90 percent of the time. OPQC is developing an ANCS toolkit for preterm birth to help disseminate the ANCS project to all Ohio maternity hospitals. The Ohio Medicaid budget includes funding for ANCS therapy.
- **Promote human milk.** As part of the 39-week project, OPQC neonatal teams are increasing the use of human milk to reduce infections in premature infants. Human milk contains antibodies that help to fight germs, but neonatologists have traditionally been cautious about beginning feedings for fragile infants in the first days of life when their respiratory illness is most severe for fear of precipitating a catastrophic illness called necrotizing enterocolitis. However, evidence indicates that early introduction of mother's milk is protective and that a specific amount is needed to fully ensure protection. The OPQC goal is to begin human milk feedings in 80 percent of 22-29 week gestational age infants within 72 hours of life. Participating NICUs have shown that teams consistently provide early feedings of human milk within the first 72 hours to approximately 90 percent of premature infants.
- **Encourage breastfeeding.** ODH developed an infant feeding policy to establish consistent messaging across all maternal and child health programs. Breastfeeding benefits include improved developmental outcomes and bonding and reduced environmental waste, health care costs, and infant mortality. Breastfeeding also is linked to decreased risk of Sudden Infant Death Syndrome (60 percent lower) and necrotizing enterocolitis (58 percent lower) as well as some infections, chronic diseases and types of cancer. Children who were breastfed had 20 percent lower risk of dying between 28 days and one year. The ODH initiative includes professional breastfeeding education, public awareness efforts, strengthening breastfeeding support in health care systems, developing broad range of community support services, and breastfeeding promotion and support directed to women who work and child care facilities.
- **Prevent maternal smoking (\$2 million).** Smoking during pregnancy remains one of the most common preventable risk factors for infant mortality. Smoking during pregnancy increases the risk of miscarriage, low birth weight, stillbirth, premature birth, and infant mortality. Women who quit before or during pregnancy can reduce or eliminate these risks. Among women giving birth in Ohio, 17 percent smoke while pregnant, double the national rate. Ohio Medicaid has expanded coverage for tobacco cessation services, including pharmacotherapy and counseling. This project specifically connects women of reproductive age, including pregnant women, to an evidence-based 5A smoking

cessation program (Ask, Advice, Assess, Assist and Arrange). Other activities include quit line protocols for perinatal women and families with young children.

## Prevent Birth Defects

Nearly 20 percent of all infant deaths in Ohio are due to birth defects. Birth defects, or congenital anomalies, are abnormal anatomic or physiologic conditions that happen before birth. Many birth defects are caused early in pregnancy. While some birth defects are mild, some are very serious such as heart defects or spina bifida. Some, like Down Syndrome are caused by genetic factors. Others are caused by certain drugs, medicines, or by other influences such as nutrition and domestic violence. Not all birth defects can be prevented, but there are behaviors women of childbearing age can do to increase their chances of having a healthy baby, such as maintaining a healthy weight, taking a multivitamin with folic acid daily, and not using alcohol, tobacco or illicit drugs during pregnancy.

- ***Train nurses to encourage women to take folic acid supplements (\$700,000).*** Folic acid is crucial to prevent neural tube defects (NTDs), which occur in 1 per 1,000 pregnancies. All women of reproductive age are encouraged to take a daily multivitamin or folic acid supplement, but only 32 percent of Ohio mothers took a multivitamin every day before becoming pregnant. This indicates the importance of education about folic acid by health care providers. In order to increase knowledge about folic acid, ODH developed an online self-study course for nurses, “Folic Acid in the Prevention of NTDs.” Course content includes information about common risk factors for NTDs and populations at risk. Nurses who complete the course can receive continuing education credit.
- ***Require newborn screening for Critical Congenital Heart Disease (\$600,000).*** Critical Congenital Heart Disease (CCHD) is a group of heart defects that cause severe and life-threatening symptoms, require surgery or catheter-based intervention early in life and may lead to lifelong disability. Heart defects account for 5 percent of all infant deaths in Ohio and 25 percent of infant deaths due to congenital malformations. Some babies born with a heart defect appear healthy at first and may be sent home from the hospital before their heart defect is detected. Pulse oximetry has been determined to be an efficient and effective newborn screening tool for CCHDs. It is provided at the point of care and results can be communicated to parents and physicians immediately. Newborns with a positive screen are referred to a specialist before discharge, allowing families to plan treatment for their babies while the newborn is still well. ODH is working with stakeholder groups to develop administrative rules that will specify the screening and reporting protocol for CCHD.
- ***Require newborn screening for Severe Combined Immunodeficiency (\$1.2 million).*** ODH began newborn screening for SCID in 2013. SCID, also known as “bubble boy disease,” is a group of rare but serious immune disorders. Untreated infants develop

life-threatening infections due to bacteria, viruses and fungi. Identification through newborn screening enables early treatment to reduce the threat of infections.

- **Pilot an obesity control program in the highest-risk counties (\$225,000).** Obese women are at higher risk for having babies born with serious birth defects such as neural tube defects (spina bifida) and heart problems. In Ohio, 24 percent of women of childbearing age are obese. Obesity is a major risk factor for diabetes as well, and women with undiagnosed or uncontrolled diabetes at conception are at increased risk of delivering a baby with birth defects. In 2012, ODH launched an obesity control pilot project for non-pregnant women of childbearing age in two Ohio counties (Lawrence and Belmont) with higher rates of female obesity than the state rate. Preliminary results show small improvements in behavior change and some changes in weight loss. The program is being evaluated for possible replication in other counties.

## Prevent Sleep Related Deaths

In Ohio, 42 percent of all infant deaths after the first month of life were sleep-related. Every week three Ohio infants die from a sleep-related cause. Only six percent of the deceased infants had been placed to sleep alone on their backs in a crib in a smoke free-environment, as recommended by the American Academy of Pediatrics.

- **Launch a “Safe Sleep” Campaign (\$1 million).** ODH implemented a targeted campaign to educate parents and caregivers with a uniform message regarding safe sleep practices based on the American Academy of Pediatrics’ recommendations. Materials, slogans and branding were developed and provided through a partnership with Ohio’s hospitals, the Ohio Chapter of the American Academy of Pediatrics, and the Ohio Children’s Trust Fund and Nationwide Children’s Hospital.
- **Implement a Sudden Unexpected Infant Death training protocol (\$50,000).** In cases of sudden, unexpected infant deaths, accurate determination of the cause of death requires a review of the child’s health history, a complete autopsy, and a thorough scene investigation. To improve consistent scene investigations throughout Ohio, ODH is providing regional trainings for all coroners, medical examiners and law enforcement jurisdictions to expand the implementation of CDC’s Sudden Unexpected Infant Death (SUID) investigation protocol statewide.