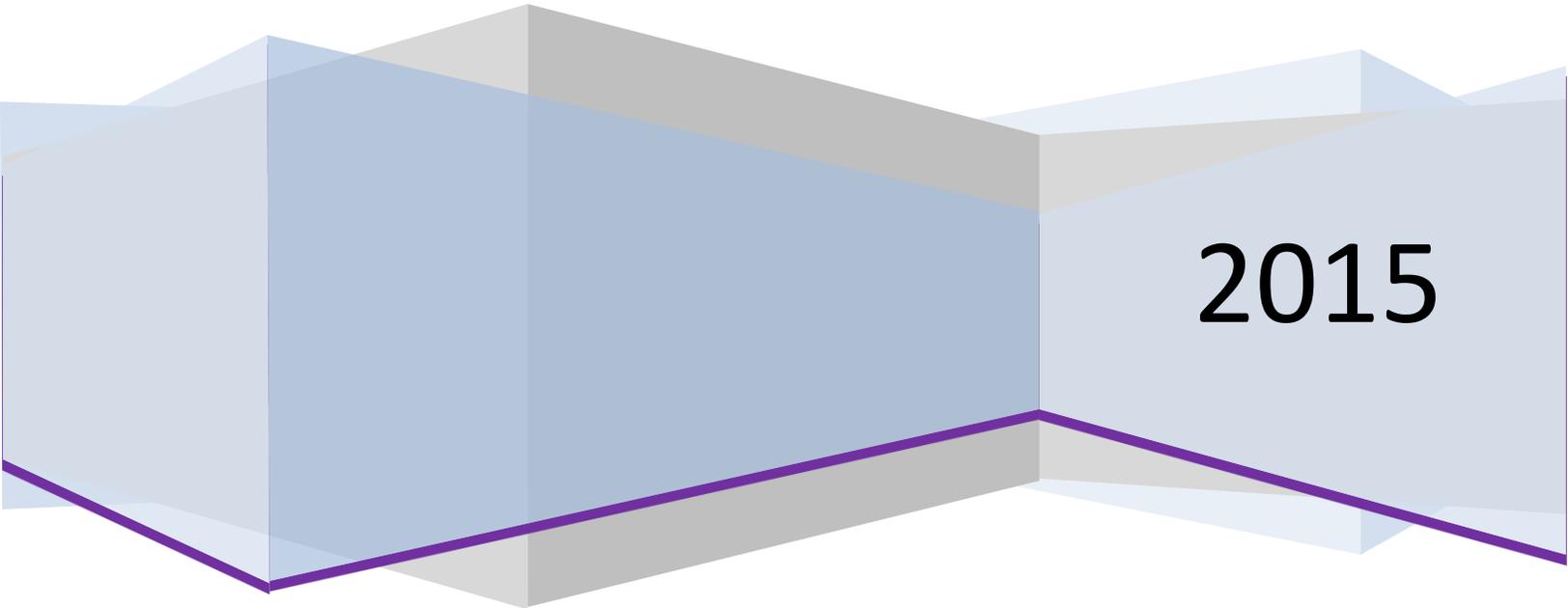


# State of Prematurity

Recommendations to reduce preterm birth rates and improve the care of infants born prematurely in Minnesota



## **A. FINAL 2015 EVIDENCE-BASED RECOMMENDATIONS TO REDUCE PRETERM BIRTH RATES AND IMPROVE THE CARE OF INFANTS BORN PREMATURELY IN MINNESOTA**

- i. Create a perinatal practice collaborative to make recommendations on perinatal health in Minnesota.
- ii. Encourage the development of public awareness campaigns and initiatives that increase knowledge surrounding prematurity issues.
- iii. Increase diversity in Minnesota's health care workforce to assure that all families have equitable access to culturally, ethnically and linguistically appropriate resources and staff.
- iv. Increase support to Minnesota's home visiting services which improve pregnancy outcomes and subsequent birth spacing, and support maternal mental health for the state's high risk families.
- v. Continue activities to promote the consistent use of the Discharge Planning Checklist for Late Premature Infants (34 0/7 – 36 6/7 weeks completed gestational age) (discharge planning checklist) [Attachment A].
  - i. Develop an electronic toolkit to serve as a companion to the discharge planning checklist, which will provide additional technical assistance and references to birthing hospitals regarding the unique needs of a late preterm infant.
  - ii. Incorporate the discharge planning checklist into the discharge process through the electronic medical record [Attachment A].

## **B. BACKGROUND**

Premature birth affects one in eight babies in the United States and one in ten babies in Minnesota. Babies born prematurely, before 39 weeks gestation, may suffer from increased risk of lifelong disabilities, including cognitive and learning problems, cerebral palsy, neurological problems, respiratory problems, and vision and hearing loss. These infants are also at an increased risk for conditions such as Attention Deficit-Hyperactivity Disorder (ADHD), Sudden Unexpected Infant Death (SUID), and recurrent hospitalizations. Prematurity is the leading cause of infant mortality and newborn death. The consequences of an infant born prematurely also have considerable emotional and financial impacts on families and communities.

## **C. PURPOSE OF REPORT**

The Minnesota Legislature established the Minnesota Task Force on Prematurity in 2011. Legislative language in 2011, First Special Session 9, Article 2 (27) directs the Commissioner of Health to convene a Task Force on Prematurity to evaluate and make recommendations on methods for reducing prematurity and improving premature infant health in the state. The Task Force submitted an initial report on November 30, 2011 that detailed the state of prematurity in Minnesota to the chairs of the legislative policy committees on health and human services. A second report was submitted by the Task Force on January 15, 2013. The 2013 report provided updated information and recommendations to the preceding 2011 report. In addition, in 2013 the Task Force was legislatively extended for two years and will expire on January 15, 2015. This 2015 report contains

the Task Force's final recommendations to the chairs of the legislative policy committees on health and human services as mandated in the 2013 legislation.

## **D. UPDATE OF NOVEMBER 2013 REPORT**

### **COSTS OF PREMATURITY**

In addition to prematurity being the leading cause of infant mortality and newborn death, the Institute of Medicine estimated that the annual societal economic burden associated with preterm birth in the United States was at least \$26.2 billion in 2005, or \$51,600 per infant born preterm.<sup>1</sup> Nearly two-thirds of these societal costs were a result of direct medical care services. In 2012, it was reported that 6,980 infants (10.2 percent) were born prematurely in Minnesota, which amounted to over \$371 million in cost of care, for just the first year of life.<sup>2</sup> While this indicates an annual cost of \$371 million, it is not inclusive of the indirect costs to parents and caregivers such as time away from work and the emotional stress of caring for an infant born prematurely.

1. Institute of Medicine. 2007. *Preterm Birth: Causes, Consequences, and Prevention*. National Academy Press, Washington, D.C.
2. The Centers for Disease Control and Prevention, National Vital Statistics Reports. *Births: Final Data for 2010*, Vol. 61 No. 01, August 2012. Available at: [http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61\\_01.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr61/nvsr61_01.pdf). Accessed 11/1/12.

### **STATISTICS**

On an annual basis, the March of Dimes gives each state a grade by comparing its rate of preterm birth to the March of Dimes 2020 goal of 9.6 percent. Minnesota earned a "B" on its 2013 Prematurity Report Card for its rate of 9.8 percent of all live births less than 37 completed weeks of gestation.<sup>1</sup> This marks a decrease for the state from its 10.2 percent rate in 2012. Minnesota has also decreased in the rate of late preterm infants born from 7.1 percent in 2012 to 6.9 percent in 2013. Minnesota pledged to adopt the Association of State and Territorial Health Officials goal of an 8 percent reduction in the preterm rate by 2014, however, it is unlikely that this percentage will be attained.

Of additional concern is the inequality in health and health care that contribute to higher rates of preterm birth among different racial and ethnic groups. During 2010-2012 the average preterm birth rates were highest for American Indian infants (15.8%), followed by African-Americans (13.0%), Asians (10.5%), Hispanics (10.3%), and Whites (9.6%).<sup>2</sup>

The Minnesota Department of Health submitted the *Advancing Health Equity in Minnesota: Report to the Legislature in January 2014 [Advancing Health Equity Report]*, which assesses the state's health disparities, inequities, and recommends best practices, policies, processes, data strategies, and other steps that will promote health equity for all Minnesotans. The report highlights data indicating that even though Minnesota ranks among one the healthiest states in the nation, the disparities in health outcomes are quite alarming for certain populations. For example, the number of mothers from populations of color and American Indians with adequate or better prenatal care, is 12 to 37 percentage points lower than for white mothers. American Indians mothers have having the lowest overall percentage at 46 percent. African-American and American Indian babies in Minnesota are twice as likely to die in their first year of life as compared to white babies. Even though infant mortality rates

have improved over the past twenty years, the disparity in the rates for African-American and American Indians have remained constant.<sup>2</sup> The Advancing Health Equity Report identifies seven recommendations that address the health disparities and inequities in Minnesota. These include implementation strategies that strengthen local relationships and partnerships with diverse communities and assures that “health” is integrated in all policy making across sectors, and at all levels, to improve the health of all communities and people.

1. March of Dimes Prematurity Report Card: [http://www.marchofdimes.com/mission/prematurity\\_reportcard.html](http://www.marchofdimes.com/mission/prematurity_reportcard.html)
2. Advancing Health Equity Report to the Legislature: <http://www.health.state.mn.us/divs/chs/healthequity>

### **UPDATE ON 39 WEEK POLICY**

Early elective inductions are deliveries scheduled before the beginning of spontaneous labor, prior to 39 weeks gestation, and lack medical indication. Compared to births occurring after 39 weeks, they are associated with significantly higher rates of serious neonatal complications and also with higher rates of cesarean section. The Minnesota Department of Human Services (DHS) sought to lower the occurrence of early elective inductions with an initiative called the Evidence-based Childbirth Program. The program, which commenced in January of 2012, specifies hospital policy and procedural criteria that are known to be effective in lowering rates of early elective inductions. Delivery hospitals serving Minnesota Health Care Programs (MHCP) members can apply to be reviewed for compliance with these criteria; if approved, the inductions performed at the hospital would be exempted from additional claims documentation strictures.

Minnesota’s birthing hospitals and lawmakers have been working diligently to end elective deliveries prior to 39 weeks gestation, unless medically necessary. The Minnesota Hospital Association [MHA] reports that, “Minnesota hospitals have placed a strong focus on eliminating early elective deliveries and from 2010 through third quarter 2013, hospitals have reduced the number of elective deliveries prior to 39 weeks gestation by 92 percent.”<sup>1</sup> MHA further noted that, “Nearly all Minnesota birthing hospitals have adopted a hard stop policy, as required by law, restricting inductions prior to 39 weeks unless medically necessary.”

1. Minnesota Hospital Association website: [http://www.mnhospitals.org/patient-safety/current-safety-quality-initiatives/obstetrics-newborn?utm\\_source=Newsline&utm\\_campaign=a8fd138c3a-Newsline\\_Jan.+6%2C+2014&utm\\_medium=email&utm\\_term=0\\_7f71debccf-a8fd138c3a-46284073#EED](http://www.mnhospitals.org/patient-safety/current-safety-quality-initiatives/obstetrics-newborn?utm_source=Newsline&utm_campaign=a8fd138c3a-Newsline_Jan.+6%2C+2014&utm_medium=email&utm_term=0_7f71debccf-a8fd138c3a-46284073#EED)

### **UPDATE ON IDENTIFIED DUTIES**

The Task Force must report the current state of prematurity in Minnesota and develop recommendations on strategies for reducing prematurity and improving premature infant health care in the state by considering the following:

- (1) *Standards of care for premature infants born less than 37 weeks gestational age, including recommendations to improve hospital discharge and follow-up care procedures.*

In September 2013, the task force distributed the MN Discharge Planning Checklist for Late Premature Infants (34 0/7 – 36 6/7 weeks completed gestational age) with an accompanying letter of support from the MN Commissioner of Health Ed Ehlinger to all Neonatal Intensive Care

Units, Directors of Nursing in Critical Access Hospitals, and hospitals working with the perinatal safety initiative and the Hospital Engagement Network through the Minnesota Hospital Association. The checklist was also shared statewide through the MN Office of Rural Health and Primary Care electronic newsletter and at the MN Perinatal Organization and Association of Women's Health, Obstetric and Neonatal Nurses annual conferences. Minnesota task force members were asked to participate in an Illinois Prematurity Task Force meeting via conference call to describe the development and dissemination of the checklist and future evaluation methods. The checklist has also been requested by numerous stakeholders for potential inclusion into local hospital practice and was on exhibit at the 2013 MN Perinatal Conference.

The task force is currently developing evaluation questions to be included in an electronic survey for all who originally received the checklist to complete. Evaluation questions will focus on the extent of use over the past year and any suggested revisions or additions needed in order to promote the checklist's usefulness to birthing hospitals and providers in the future.

*(2) Coordination of information among appropriate professional and advocacy organizations on measures to improve health care for infants born prematurely.*

The Task Force recommended in 2013 increased coordination of information among appropriate professional and advocacy organizations on measures to improve health care for infants born prematurely. The suggested approach was for the Task Force to act as the hub for groups such as the Minnesota Hospital Association's Perinatal Advisory Group and the Minnesota Perinatal Quality Collaborative to report quarterly on activities to ensure coordination. Members from each of these collaboratives have been invited to join the Task Force and give presentations regarding their work.

Additionally, the MN Prematurity Task Force helped coordinate a webinar on October 24<sup>th</sup>, 2014 "The Opioid Explosion in Minnesota: How Opioid Abuse During Pregnancy and Neonatal Abstinence Syndrome Impact Your Work". Over seven hundred individuals from Minnesota, Iowa, North Dakota and South Dakota participated in this multidisciplinary webinar. The complete webinar can be viewed at: [mnprematuritycoalition.org/professional\\_resources](http://mnprematuritycoalition.org/professional_resources).

Plans are also underway for a coordinated webinar addressing the potential impact of 17-P on preventing premature birth.

*(3) Identification and centralization of available resources to improve access and awareness for caregivers of premature infants.*

The Task Force continues to disseminate the brochure: *Premature Babies: An Early Beginning*, [Attachment C] which outlines resources available to families in Minnesota who have had a premature baby. Through the work of local Interagency Early Intervention Committees (IEICs), the brochure has been updated to assure consistent information is available regarding the state's early intervention system – Help Me Grow. Several of the regional IEICs have developed Help Me Grow outreach packets that include this brochure, as well as a variety of information about early childhood development and access to early intervention services. The packets are delivered annually to all regional early childhood providers, including birthing hospitals and clinics. Early childhood providers in the Twin Cities metro area are currently able to order the brochures free of charge through their regional IEIC.

The Task Force updates web-based resources for parents and providers in a centralized location [http://mnprematuritycoalition.org/related\\_links](http://mnprematuritycoalition.org/related_links). A new MN Help Me Grow website has been developed ([www.helpmegrowmn.org](http://www.helpmegrowmn.org)) and is currently being reviewed to include or provide access to prematurity resources, including three video: *Preemies and Parenting Issues*, *Preemies and Their Health*, *Preemies and Their Development*.

(7) *A review of the potential improvements in health status related to the use of health care homes to provide and coordinate pregnancy-related services.*

Policies relating to use of health care homes and coordination of care specifically for premature infants or prenatal care have not been identified. However, broader legislation has passed that could improve care for these groups or could be used as potential models of improved care in the future. These include:

- Pregnant and Nursing Mothers- HF2546/SF2050 passed in the 2014 session which contains a provision that requires employers to make reasonable accommodations for pregnant employees and employees who express breast milk during unpaid breaks and increases required unpaid leave allowance for pregnancy, birth or adoption from six to 12 weeks.
- Health Care Homes Advisory Committee- The 2014 legislature created a single Health Care Homes Advisory Committee to formally advise the Minnesota Department of Health (MDH) and the Minnesota Department of Human Services (MDHS) on development of Health Care Homes in Minnesota. This will help the agencies to support the delivery of quality patient care, engage consumers and patients of primary care services, and meet the needs of communities.
- All Payer Claims Database Modification (HF2656/SF2106)- In 2014 the legislature modified the allowable uses of the All Payer Claims Database for the Minnesota Department of Health to evaluating the Health Care Home Program and the MDH/DHS State Innovation Model grant, studying readmission trends, and analyzing variations in cost, quality, utilization and illness burden by geography or population. This information has the ability to inform and improve care for premature infants. The MN American Academy of Pediatrics [MNAAP] helped pioneer the concept of Health Care Homes. This began in 2003 through a series of learning collaboratives to define essential qualities of a health care home, which include increased access, increased communication, improved patient registry, improved care coordination and improved performance reporting. Since then, MNAAP has helped more than 250 pediatricians become certified as health care home providers in Minnesota. It has also provided training and technical assistance to more than 1,300 physicians and clinic staff in Minnesota. MNAAP's Health Care Home Work Group, co-chaired Amy Burt, MD, and Marilyn Peitso, MD, meets on a regular basis to provide pediatric clinics with health care home leadership. The group is currently working with the MDH and MDHS to refine the payment methodology tool used to determine health care home payments to pediatric clinics. The group is also working with Minnesota Community Measures to identify quality improvement measures for health care homes.

## E. SUGGESTED SUPPORTIVE SERVICES

### *Access to home visiting services*

Home visiting services provided to at-risk families has shown to be an effective service strategy for very young children and their families, improving outcomes in lifelong health and well-being, school readiness, and economic self-sufficiency. Current research in early brain development indicates that experiences in the first few years of a child's life are the most critical. Family home visiting that is grounded in empirically-based research and targeted to those most at risk has been shown to be cost-effective in mitigating a host of poor child outcomes which can change the child and families' development trajectory.

These voluntary, home-based services, ideally delivered prenatally through the early years, connect parents with trained professionals who provide health and caregiving information and support. Targeted investments in home visiting address early adversities and promote healthy birth outcomes, maternal mental health and safe environments for young children. The goals of these services include improving pregnancy outcomes including decreasing prematurity, promoting school readiness and promoting family health.

Home visiting is family focused and strengths-based. Effective programs respond to the unique needs of each individual family, build on family strengths and work to empower parents. Services are often coordinated and delivered in partnership with multidisciplinary teams of public health nursing, social work and early childhood education professionals. Programs collaborate and coordinate with other community services to ensure that families are receiving all the services they need.

Services begin as early as possible, optimally prenatally. Home visiting programs support and encourage families to utilize preventive health care and connect with a primary health care provider. For all of these reasons, home visiting is a resource that supports the health of women during pregnancy, reducing the risk for premature birth and supporting families with children who have been born prematurely.

The 2014 Minnesota legislature also established that a home visiting program must incorporate evidence-informed parenting education practices designed to support the healthy growth and development of children and provide information about and assist in making arrangements for an early childhood health and developmental screening. This could potentially improve follow-up care for premature infants as they grow as they have a higher need for such services.

Lastly, some children may benefit from or require a medically-based home visit. Visits may be provided by a home health agency, hospital or clinic to support children with special health care needs. These services may be provided as follow-up to an acute illness or a chronic health condition. The visits may be intermittent or regular and may be provided by a variety of health care professionals. Health care insurance or waived services may cover the costs related to medically necessary home visits.

### *Collaborative Improvement & Innovation Network (CoIIN) to Reduce Infant Mortality*

Minnesota is currently participating in the national Infant Mortality Collaborative Improvement & Innovation Network (CoIIN) to reduce infant mortality and improve birth outcomes. These efforts build off work begun in Regions IV and VI, then extended to Region V which includes Minnesota.

A Region V Infant Mortality Summit that was held in March 2013 where common priority strategies emerged, as well as the desire to share best practices and lessons learned around this topic. Several federal agencies and partners are working with the Maternal Child Health Bureau to support networks around the country by facilitating collaborative learning and adoption of proven quality improvement principles and practices. The 6 national priority strategies are: 1. Social determinants of health; 2. Prevent SIDS/SUID/Safe Sleep; 3. Preconception/interconception health; 4. Smoking Cessation; 5. Prevention of preterm and early term births; and 6. Risk appropriate perinatal care (perinatal regionalization).

## **F. CONCLUSION**

Prematurity is a complex and costly issue whose full set of causes is still unknown. We do know that biological, environmental, social and health care system level factors all play a key role in birth outcomes. Through continued strategic and thoughtful efforts, over time prematurity rates can and should significantly reduce if seen as a healthcare priority. If prioritized, Minnesota is poised to become a leader in improving birth outcomes and providing care for families who are impacted by prematurity.

## ATTACHMENT A

### Discharge Planning Checklist for Late Premature Infants (34 0/7 – 36 6/7 weeks completed gestational age)

#### Feeding & Nutrition

- The infant should be feeding 8-12 times per day.
- The infant has established a successful feeding regimen (breast or bottle) as demonstrated by 6-8 wet diapers/day, established stooling pattern and the absence of cardiorespiratory compromise during the feeding experience.
- Twenty-four hours of successful feeding; ability to coordinate sucking, swallowing and breathing while feeding.
- If weight loss greater than 7% in 48 hours, consider further assessment before discharge.
- Passage of one stool spontaneously. Adequate urine output, recommended should equal 6-8 wet diapers/day.

#### Jaundice

- Pre-discharge bilirubin measurement with use of a percentile based nomogram to predict the risk of hyperbilirubinemia in newborns and to guide follow-up. <http://www.bilitool.org>
- Procedures for follow-up of all newborns within 24 to 48 hours by a physician or pediatric nurse. If this cannot be achieved, decisions regarding timing of discharge or other follow-up must be based on risk assessment.
- Provide adequate equipment, such as bilirubin lights and blankets, and non-invasive TcB measurement device or lab services for timely TSB test.
- \* If infant is discharged < 72 hours of age, s/he should be examined within 2-3 days of discharge. Pre-term infants' bilirubin levels will peak later than full-term infants.**

#### Thermoregulation

- The infant is physiologically stable; Axillary temperature: 36.5-37.4°C (97.7-99.3°F)
- The infant has demonstrated adequate maintenance of normal body temperature fully clothed in an open bed with normal ambient temperature (20-25°C).

#### Respiratory

- The infant maintains oxygen saturation on room air. Free of respiratory distress – RR <60 no grunting, flaring or retractions or cyanosis.

#### Vital Signs

- Vital signs should be within normal range for 12 hours preceding discharge.
- Heart Rate 100-160 beats per minute.
- Free of episodes of apnea and/or bradycardia (either not on medication, or, if to be discharged on medication, free of events on prescribed treatment)

#### Immunizations, RSV & Screenings

- Critical congenital heart disease screening (CCHD); Oxygen saturation should be obtained in the right hand and one foot. Screening that has a pulse oximetry reading of  $\geq 95\%$  in either extremity with a  $\leq 3\%$  absolute difference between the upper and lower extremity would be considered a pass. (Pediatrics 2012;129;190)
- Appropriate immunizations, RSV prophylaxis if indicated, and state metabolic screening tests are completed.
- Risk Assessment for Severe RSV Disease: High Risk for Severe RSV Disease:  Yes  No
- RSV Qualification:  Prematurity  CLD  CHD  Other Screening:  Yes  No Date: \_\_\_\_\_
- Hearing screening completed; appropriate pass/fail follow-up report completed.
- Conduct an observation period in a car safety seat, preferably their own, before hospital discharge. This should be performed with the infant carefully positioned for optimal restraint and the car safety seat placed at an angle that is approved for use in the vehicle. It should last a minimum of 90 to 120 minutes or the duration of travel, whichever is longer. (PEDIATRICS 2009;123;5,6,11,26)
- If the infant fails the car seat evaluation, follow appropriate pass/fail recommendations.  
<http://preemies.about.com/od/takingyourpremiehome/f/CarSeatTest.htm>

### Potential Referrals and Appointments Needed Before Discharge

- Primary health care follow up appointment within 2-3 days of discharge, or 5-7 days if seen by PHN within 2-3 days after discharge.** Encourage health care providers to provide an opportunity for caregivers to stop in and weigh their infant on the clinic scale on their way home after being discharged.
- Lactation Specialist
- Family Home Visiting Nurse
- PHN Referral
- WIC. Assure the caregiver receives prescription for special formula if necessary.  
<http://www.health.state.mn.us/divs/fh/wic/adirectory.html>
- Early Intervention Services, Part C (Help Me Grow) MN's Infant and Toddler Intervention System, 866-693-GROW  
<http://www.health.state.mn.us/divs/fh/mcshn/ecip.htm>
- Family Voices of MN Parent to Parent Network, 866-334-8444  
<http://www.familyvoicesofminnesota.org/parent-to-parent/>

### Caregiver Education

The infant's caregivers have received information, training, or have demonstrated competency in the following areas:

- Feeding is the first priority
- Expected pattern of urine and stool frequency for the breastfeeding or formula-fed neonate (verbal and written instruction is recommended). Assure a voiding chart is provided for parents to track frequency.
- Assessment for jaundice/jaundice symptoms [http://www.marchofdimes.com/baby/sickbabycare\\_jaundice.html](http://www.marchofdimes.com/baby/sickbabycare_jaundice.html)
- Meticulous and frequent hand washing and minimize exposure to crowded places.
- Identification of common signs and symptoms of illness, such as hyperbilirubinemia, sepsis and dehydration  
<http://www.preemievoices.com/pdfs/9018%205%20Reasons%20Handout%20MECH.pdf>
- Special Needs of a Late Preterm Baby [http://www.preemievoices.com/pdfs/11110\\_Late\\_Preterm\\_Baby.pdf](http://www.preemievoices.com/pdfs/11110_Late_Preterm_Baby.pdf)
- Infant's hospital course and current condition
- Medication administration
- Appropriate responses and contact information for complications or an emergency
- RSV prophylaxis and immunizations [http://www.preemievoices.com/pdfs/11110\\_RSV\\_MECH.pdf](http://www.preemievoices.com/pdfs/11110_RSV_MECH.pdf)
- Car seat safety (other newborn safety issues include the need for smoke/fire alarms, and hazards of secondhand tobacco smoke and environmental pollutants) <http://www-odi.nhtsa.dot.gov/recalls/childseat.cfm>
- Provision of a safe sleep environment, including Back to Sleep information.  
<http://www.healthychildcare.org/PDF/SIDSparentsafesleep.pdf>
- Use of a thermometer to assess an infant's axillary temperature
- Assessment and provision of appropriate layers of clothing
- Umbilical cord, skin and newborn genital care
- Shaken baby <http://www.health.state.mn.us/divs/fh/mch/fhv/strategies/sbs/edprotocolbirth.html>
- CPR <http://depts.washington.edu/learncpr/infantcpr.html>
- Postpartum Depression Assessment and Education
- Newborn/infant developmental milestones and what to do if there are concerns <http://parentsknow.state.mn.us/>
- Tummy Time <http://www.healthychildcare.org/pdf/SIDStummytime.pdf>
- Cues, stress, states (including home environment sensitivity to lights and sounds)

Comments/Issues

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