

August 13, 2012

The Honorable Glen Casada
Chairman, House Health and Human Resources Committee
301 6th Avenue North
Suite 25 Legislative Plaza
Nashville, TN 37243

Dear Chairman Casada:

As required by Public Chapter 331, the findings of the Department of Health's Perinatal Advisory Committee regarding issues related to premature infants are hereby submitted.

The Committee was directed by Public Chapter 331 to "study issues and policy options relating to hospital discharge and follow-up care procedures for premature infants born less than thirty-seven (37) weeks gestational age to ensure standardized and coordinated processes are followed as premature infants leave the hospital from either a Level 1 (well baby nursery), Level 2 (step down or transitional nursery), or Level 3 (neonatal intensive care unit) and transition to follow-up care by a healthcare provider in the community."

Sincerely,

John J. Dreyzehner, MD, MPH FACOEM
Commissioner

August 13, 2012

The Honorable Rusty Crowe
Chairman, Senate Health and Welfare
301 6th Avenue North
Suite 8 Legislative Plaza
Nashville, TN 37243

Dear Chairman Crowe:

As required by Public Chapter 331, the findings of the Department of Health's Perinatal Advisory Committee regarding issues related to premature infants are hereby submitted.

The Committee was directed by Public Chapter 331 to "study issues and policy options relating to hospital discharge and follow-up care procedures for premature infants born less than thirty-seven (37) weeks gestational age to ensure standardized and coordinated processes are followed as premature infants leave the hospital from either a Level 1 (well baby nursery), Level 2 (step down or transitional nursery), or Level 3 (neonatal intensive care unit) and transition to follow-up care by a healthcare provider in the community."

Sincerely,

John J. Dreyzehner, MD, MPH FACOEM
Commissioner

EXECUTIVE SUMMARY MEMO

TO: John J. Dreyzehner, MD, MPH, FACOEM

FROM: Michael D. Warren, MD, MPH, FAAP
Director, Division of Family Health & Wellness

DATE: August 13, 2012

RE: Perinatal Advisory Committee Legislative Report

1. Explanation of report

This report fulfills the Perinatal Advisory Committee's obligation to report to the legislature on issues and policy options related to the discharge of premature infants, as outlined in Public Chapter 331. A workgroup from the Perinatal Advisory Committee was convened and through a series of meetings in Fall 2011 outlined the relevant policy-related issues.

2. List all pertinent issues concerning the report.

This report completes the Department's requirements as related to Public Chapter 331. The report does not contain any controversial recommendations. The workgroup's recommendation to fully fund the regional perinatal centers with recurring funding is consistent with the budget released by the Governor.

3. List the pros and cons of submitting this report.

Pros: Submission of this report satisfies the charge to the Perinatal Advisory Committee as outlined in Public Chapter 331. This report outlines important issues related to the hospital discharge and subsequent care of premature infants and will raise awareness about this topic.

Cons: Failure to submit the report will mean that the Perinatal Advisory Committee will not be in compliance with legislative instruction.

4. Identify all stakeholders pertinent to the report and any issues that they may have.

Stakeholders include: Perinatal Advisory Committee (one of the Department's legislatively-mandated committees), members of the General Assembly. No known issues.

5. Make a recommendation.

I recommend transmittal of this report to the appropriate legislative committees.

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Perinatal Advisory Committee
Report to House Health and Human Resources Committee and
Senate General Welfare, Health and Human Resources Committee

Background

Legislative Origin of This Report

Per SB616 (PC331), the Perinatal Advisory Committee within the Department of Health was directed to “study issues and policy options relating to hospital discharge and follow-up care procedures for premature infants born less than thirty-seven (37) weeks gestational age to ensure standardized and coordinated processes are followed as premature infants leave the hospital from either a Level 1 (well baby nursery), Level 2 (step down or transitional nursery), or Level 3 (neonatal intensive care unit) and transition to follow-up care by a healthcare provider in the community.”

Process for Creating Report

At its meeting on June 29, 2011, the Perinatal Advisory Committee recommended that a workgroup review the pertinent issues, discuss recommendations, and present a draft report back to the full committee at the January, 2012 meeting for review. The workgroup met three times by conference call (September-November 2011). A list of workgroup participants is included as Appendix A.

Workgroup members discussed current practices and issues related to care of late preterm infants and identified relevant background information, key findings from the peer-reviewed literature, state and national data, relevant best practices or evidence-informed practices, and recommendations for policy or legislation. The group chose to focus on the late preterm population initially, and will plan to continue discussions regarding the broader population of premature infants. The group’s work was summarized and presented to the full Perinatal Advisory Committee (PAC) for review at their regular meeting on January 5, 2012. The PAC voted to approve the report in this format for transmission to the Legislature.

Epidemiology and Consequences of Late Preterm Births

A “term” gestation means that a baby is born on or after 37 weeks of completed gestation. Babies born before this time are considered premature, or preterm. Among preterm infants, those born between 34-36 weeks are known as “late preterm.”¹

In Tennessee, 9,217 infants (11.2%) were born prematurely in 2009; of those, nearly three-quarters (6,678, or 8.1% of all births) were late pre-term. The percentage of late pre-term birth is slightly higher for black infants (9.2%) than white infants (8.1%).² In a 15-year period (1990-2006), the rate of late preterm singleton births in Tennessee rose by 15%. This trend mirrors the national trends, where late preterm births in the same period rose by 20%.¹

Generally speaking, the more prematurely an infant is born, the greater the likelihood of both short- and long-term complications, including death. Compared to smaller and more fragile-appearing premature infants, late preterm infants may appear relatively “well.” This appearance

is deceiving, though, as late preterm infants are at significant risk for a host of adverse outcomes. Compared to term infants, late preterm infants are more likely to suffer from hypoglycemia, jaundice, temperature instability, respiratory distress, and feeding difficulty.^{3,4,5,6,7} Additionally, late preterm infants are more likely than term infants to experience longer initial hospital stays.^{7,8,9} Late preterm infants are also more likely to be re-hospitalized during the first year of life compared to term infants; reasons for re-hospitalization include feeding difficulties, dehydration, jaundice, and possible infection.^{3,9} Those late preterm infants at higher risk of re-hospitalization include those who were never admitted to the Neonatal Intensive Care Unit (NICU) or those with short NICU stays.^{10,11} Home visits or scheduled outpatient visits within 72 hours of hospital discharge have been associated with lower risks of re-hospitalization.¹⁰

Compared to term infants, late preterm infants also are more likely to die during the first month of life (neonatal mortality) and first year of life (infant mortality); the rate of death for late preterm infants compared to term infants is as much as 5 times greater during the first month of life and approximately 3 times higher during the first year of life.^{3,12,13,14,15}

Problems associated with late preterm birth may extend beyond the early years of life. Recent literature reviews suggest that late preterm infants are more likely than term infants to experience neurodevelopmental disabilities (including cerebral palsy), exhibit poorer performance on standardized tests, and have increased diagnoses of developmental delay.^{13,16}

Clearly late preterm infants are a population at risk of serious adverse outcomes. These outcomes are frequently associated with increased costs, which may be substantial if intensive care is required. With this information in mind, workgroup members identified three major focus areas and outlined policy issues and recommendations relevant to the care of late preterm infants: Insurance/Reimbursement, Model of Care, and Follow-Up Care/Resources. A brief summary of the findings related to each topic is presented below, followed by relevant policy recommendations.

Summary of Workgroup Findings

Insurance/Reimbursement Issues Related to Late Preterm Infants

Some Tennessee NICUs and term nurseries are experiencing difficulty with insurance company denials of care needed for late preterm infants. Providers report that utilization management companies, employed by insurers to reduce costs associated with NICU care, frequently deny care for late preterm infants or make recommendations for care that are inconsistent with the clinical management recommended by the medical team caring for the infant. These denials result in time-consuming interactions between hospital utilization staff, physicians, and utilization management companies.

Beyond the initial hospital stay, services for late preterm infants may not be reimbursed well (or at all). An additional example of reimbursement challenges associated with the care of the late preterm population relates to ongoing follow-up care and screening. Given the complications associated with late preterm births that have been previously described as well as the risks for developmental delay, follow up in appropriate settings (such as a NICU follow-up clinic) is

important. NICU providers report that such visits are frequently not reimbursed well, placing a strain on hospitals and clinics striving to provide appropriate care for these at-risk infants.

Model of Care for Late Preterm Infants

The late preterm population is at risk for numerous adverse outcomes; their needs are quite different than other more premature infants or term infants. These infants can present a paradox to clinicians—their relatively large size and “well” appearance may make them appear to be “well babies” to neonatologists, who generally practice in intensive care units, while general pediatricians (who typically see babies in term nurseries) may be overwhelmed by the needs associated with the care of this population.

This paradoxical clinical scenario may also present a challenge to hospitals and payers. Given the complications previously described (hypoglycemia, temperature instability, jaundice, feeding difficulty, and respiratory distress), late preterm infants may require additional care beyond that of the typical term newborn. The staffing ratios found in a typical term nursery are likely not adequate for the extra care needed for the late preterm infant, while those in the NICU may provide more intense staffing than is actually needed. Hospitals may not be adequately reimbursed for the advanced care needed for these infants unless they are admitted to the NICU, although the late preterm population may not truly need NICU-level care. Hospitals may experience pressure to discharge late preterm infants prematurely from the term nursery (in accordance with care standards for term infants) or to send the infant to the NICU, neither of which may be appropriate for this population.

Another important consideration is the pairing of the late preterm infant and its mother (referred to as the mother/baby dyad). Keeping the mother/baby dyad intact is important to support breastfeeding, provide education on routine newborn care, and promote bonding. When mothers give birth at term, they are typically discharged from the hospital 24-48 hours following birth (barring any complications). Late preterm infants, however, frequently have longer hospital stays than other term infants. Discharging the mother from the hospital in accordance with standard policies separates the infant from the mother during this crucial time. Hospitals may not have sufficient facilities to allow discharged mothers to “room-in” with their infants who remain in the hospital. Where room-in facilities are available, there may be inadequate monitoring for these infants who are more vulnerable to adverse outcomes compared to term infants.

Follow-Up Care/Resources for the Late Preterm Infant

In the immediate period following birth, late preterm infants are at higher risk of re-hospitalization and even death. Because they are physiologically immature, they face challenges with basic infant functions, such as feeding, and are more susceptible to problems such as hypoglycemia, dehydration, and jaundice. Poor feeding is particularly dangerous for late preterm infants, because they do not have the energy reserves that term infants have. Poor feeding can exacerbate problems such as cold stress, illness, jaundice, apnea, or failure to thrive and can result in emergency room visits and hospitalizations.

Even after late preterm infants are discharged from the hospital, they need close monitoring to ensure that they remain healthy. Such close monitoring is typically above that recommended for

the care of the term newborn infants. Additionally, primary care physicians may need specific additional education on the challenges associated with and management of late preterm infants. Follow-up in settings other than pediatric clinics (such as home visits) may support the monitoring and educational needs of late preterm infants and their families.

Late preterm infants are at risk for disability and mental and/or physical developmental delays. These infants and their families require multidisciplinary support to assure a successful transition home and throughout the early years of life. Specific resources may be needed to address developmental issues, such as cerebral palsy, which are more prevalent among late preterm infants compared to term infants. Payment for follow-up clinic visits, developmental monitoring, and necessary therapies is crucial to ensure appropriate care for this vulnerable population.

Workgroup Findings and Recommendations for Policy and Legislation

The following table contains a summary of the findings of the workgroup as well as the group's recommendations for policy and legislation.

**Perinatal Advisory Committee: Hospital Discharge Study Group
Summary of Findings and Policy/Legislative Recommendations**

Findings	Policy Recommendations <i>*suggested responsible department(s)/entity(ies) in bold</i>	Recommended Legislation
<ul style="list-style-type: none"> • Reimbursement for hospitalization and other medical services for late preterm infants is often inadequate for the specific needs of this population. 	<ul style="list-style-type: none"> • TennCare/Commerce and Insurance <ul style="list-style-type: none"> ○ Strongly encourage payment for follow-up developmental screening/testing for premature infants. ○ Strongly encourage adequate payment for NICU follow-up clinic visits. ○ Strongly discourage utilization management practices that pressure hospital providers to discharge late preterm infants prematurely. • Department of Health <ul style="list-style-type: none"> ○ Incorporate new models of care that support the mother/baby dyad into licensing guidelines. • Birthing Hospitals/NICUs <ul style="list-style-type: none"> ○ Embrace and incorporate new models of care that support the mother/baby dyad for late preterm infants. 	None
<ul style="list-style-type: none"> • The needs of the late preterm population are quite different than other more premature infants or term infants. • Care guidelines should provide a framework within which individual hospitals can develop specific plans for care. 	<ul style="list-style-type: none"> • Department of Health <ul style="list-style-type: none"> ○ Incorporate guidelines for care of the late preterm infant in the Department’s <i>“Tennessee Perinatal Care System, Guidelines for Regionalization Hospital Care Levels, Staffing and Facilities”</i> and <i>“Tennessee Perinatal Care System Guidelines for Transportation.”</i> • Birthing Hospitals/NICUs <ul style="list-style-type: none"> ○ Develop specific care plans for the late preterm population. 	None

Findings	Policy Recommendations <i>*suggested responsible department(s)/entity(ies) in bold</i>	Recommended Legislation
<ul style="list-style-type: none"> Primary care physicians need specific additional education on the challenges associated with late preterm infants. 	<ul style="list-style-type: none"> Regional Perinatal Centers <ul style="list-style-type: none"> Provide education on the specific needs of the late preterm population, resources and purpose of the follow-up program, and a rapid support system for primary care provider questions regarding management of the late preterm infant. 	<p>Expand outreach education to primary care providers to include information on the care of late preterm infants.</p> <p>Fully fund regional perinatal centers with recurring funding.</p>
<ul style="list-style-type: none"> Late-preterm infants are physiologically and metabolically immature. This puts them at higher risk than term infants for re-hospitalization and death. 	<ul style="list-style-type: none"> Birthing Hospitals/ NICUs <ul style="list-style-type: none"> Appointments for follow-up visit should be made with the pediatric primary care provider within 24-48 hours of hospital discharge. Department of Health/Community Agencies <ul style="list-style-type: none"> Home visit by a nurse during the first week of life for high-risk (NICU-admitted) infants. An additional visit should occur 48 hours after the first to monitor feeding/lactation/hydration status. Department of Health <ul style="list-style-type: none"> Support statewide database to collect outcomes of late preterm infants discharged from the hospital to monitor effectiveness of interventions. TennCare/Commerce and Insurance <ul style="list-style-type: none"> Late preterm infants should be eligible for the same feeding/lactation services as very-preterm infants regardless of the mother's parity. 	<p>Adequately fund regional perinatal centers with recurring dollars to provide follow-up care to this population</p>

Findings	Policy Recommendations <i>*suggested responsible department(s)/entity(ies) in bold</i>	Recommended Legislation
<ul style="list-style-type: none"> Late preterm infants are at greater risk of disability and mental and/or physical developmental delays. 	<ul style="list-style-type: none"> Primary Care Providers/Birthing Hospitals/NICUs <ul style="list-style-type: none"> High-risk late preterm infants should be seen at 9 months corrected age for a developmental assessment (standardized test and exam) in a specialized clinic. Connect patient with primary care medical home prior to discharge. NICU Follow-Up Clinics <ul style="list-style-type: none"> If there are concerns at the 9-month visit, infants should be referred for a Tennessee Early Intervention System (TEIS) evaluation and followed up at an 18-24 month visit to the specialty clinic. 	<p>Support TEIS with recurring resources needed to carry out these recommendations.</p>
<ul style="list-style-type: none"> Late preterm infants require multidisciplinary support of both the patient and family to assure a successful transition to home and throughout the early years of life. 	<ul style="list-style-type: none"> Birthing hospitals/NICUs <ul style="list-style-type: none"> High-risk late premature infants should be referred by discharge care coordinators to TEIS while in the NICU. The care coordinator should identify a contact at TEIS and add the contact's name to the patient's medical and coordination chart. Department of Education (TEIS)/Birthing Hospital/NICUs <ul style="list-style-type: none"> A two-way release of information between TEIS and the follow-up medical home should be obtained before the patient leaves the hospital to facilitate exchange of information. 	<p>None</p>

**Appendix A
Workgroup Members**

Perinatal Advisory Committee Representatives/Designees

Dr. Judy Aschner (Nashville)

Dr. Xylina Bean (Nashville)

Dr. Jon Betts (Nashville)

Dr. Vicki DeVito (Nashville)

Dr. Ramasubbareddy Dhanireddy (Memphis)

Dr. Nathalie Maitre (Nashville)

Dr. Marta Papp (Nashville)

Susan Reed, RN, MSN-NNP (Nashville)

Dr. Marilyn Robinson (Memphis)

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Margaret Major, MPA, RD
Director, Women's Health/Genetics, Maternal and Child Health Section
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Michael D. Warren, MD, MPH, FAAP
Director, Title V/Maternal and Child Health
Tennessee Department of Health

REFERENCES

- ¹ Martin JA, Kirmeyer S, Osterman M, Shepherd RA. Born a bit too early: Recent trends in late preterm births. NCHS data brief, no 24. Hyattsville, MD: National Center for Health Statistics. 2009.
- ² Tennessee Department of Health, Office of Policy, Planning, and Assessment, Division of Health Statistics.
- ³ Engle WA, Tomashek KM, Wallman C. “Late Preterm” Infants: A Population at Risk. *Pediatrics*. 2007; 120(6): 1390-1401.
- ⁴ Bastek JA, et al. Adverse neonatal outcomes: examining the risks between preterm, late preterm, and term infants. *American Journal of Obstetrics and Gynecology*. 2008; 199: 367.e1-367.e8.
- ⁵ Escobar GJ, Clark RH, Greene JD. Short-term outcomes of infants born at 35 and 36 weeks gestation: we need to ask more questions. *Seminars in Perinatology*. 2006; 30:28-33.
- ⁶ Cheng YW, Kaimal AJ, Bruckner TA, Hallaron DR, Caughey AB. Perinatal morbidity associated with late preterm deliveries compared with deliveries between 37 and 40 weeks of gestation. *British Journal of Obstetrics and Gynecology*. 2011; 118:1446-1454.
- ⁷ Leone A, et al. Neonatal morbidity in singleton late preterm infants compared with full-term infants. *Acta Paediatrica*. 2012; 101: e6-e10.
- ⁸ Bird TM, et al. Late preterm infants: birth outcomes and health care utilization in the first year. *Pediatrics*. 2010; 126(2): e311-e319.
- ⁹ McLaurin KM, et al. Persistence of morbidity and cost differences between late-preterm and term infants during the first year of life. *Pediatrics*. 2009; 123(2): 653-659.
- ¹⁰ Escobar GJ, et al. Rehospitalisation after birth hospitalization: patterns among infants of all gestations. *Archives of Disease in Childhood*. 2005; 90: 125-131.
- ¹¹ Tomashek KM et al. Early discharge among late preterm and term newborns and risk of neonatal mortality. *Seminars in Perinatology*. 2006; 30: 61-68.
- ¹² Gyamfi-Bannerman, C. The scope of the problem: the epidemiology of late preterm and early-term birth. *Seminars in Perinatology*. 2011; 35: 246-248.
- ¹³ Teune MJ et al. A systematic review of severe morbidity in infants born late preterm. *American Journal of Obstetrics and Gynecology*. 2011; 205: 374.e1-9.
- ¹⁴ Tomashek KM, Shapiro-Mendoza CK, Davidoff MJ, Petrini JR. Differences in mortality between late-preterm and term singleton infants in the United States, 1995-2002. *The Journal of Pediatrics*. 2007; 151:450-456.
- ¹⁵ Khashu M, Narayanan M, Bhargava S, Osiovich H. Perinatal outcomes associated with preterm birth at 33 to 36 weeks’ gestation: a population-based cohort study. *Pediatrics*. 2009; 123(1): 109-113.
- ¹⁶ McGowan JE, Alderdice FA, Holmes VA, Johnston L. Early childhood development of late-preterm infants: a systematic review. *Pediatrics*. 2011; 127(6): 1111-1124.