

**Medicaid Policy Changes
and its Detrimental Effects on Neonatal Reimbursement and Care**

John A. Kohler, Sr., MD¹, Ronald N. Goldberg, MD¹, and David T. Tanaka, MD¹

¹Division of Neonatal-Perinatal Medicine,
Department of Pediatrics,
Duke University, Durham, NC

ABSTRACT

BACKGROUND: In 2008, North Carolina Medicaid changed the way it classified neonatal care by adopting the Centers for Medicare & Medicaid Services Medicare Severity Diagnosis Related Group (MS-DRG) classification system. By changing the classification system, NC Medicaid merged two very different neonatal populations into one reimbursement class with implications both on hospital reimbursements and the regionalization of neonatal care in the state.

METHOD: We analyzed North Carolina Medicaid data to determine DRG weights and associated lengths of stay.

RESULTS: Following the adoption of the MS-DRG classification system, NC Medicaid reduced its reimbursement for extremely low birth weight (ELBW) infants but increased its reimbursement for infants with respiratory distress syndrome (RDS).

CONCLUSIONS: Large tertiary care NICUs in North Carolina are being poorly reimbursed for the costliest ELBW infants for which they shoulder the greatest responsibility. Meanwhile community special care nurseries are potentially being over compensated for less sick infants. This has led to not only the financial instability of large safety net NICUs which provide care for the sickest and costliest infants, but may also have promoted the decrease in the quality of care for sick neonates. By reducing financial support for the State's sickest infants and most vulnerable citizens, Medicaid may have inadvertently widened the disparity of care as safety net hospitals re-examine their abilities to renovate, let alone expand, neonatal services.

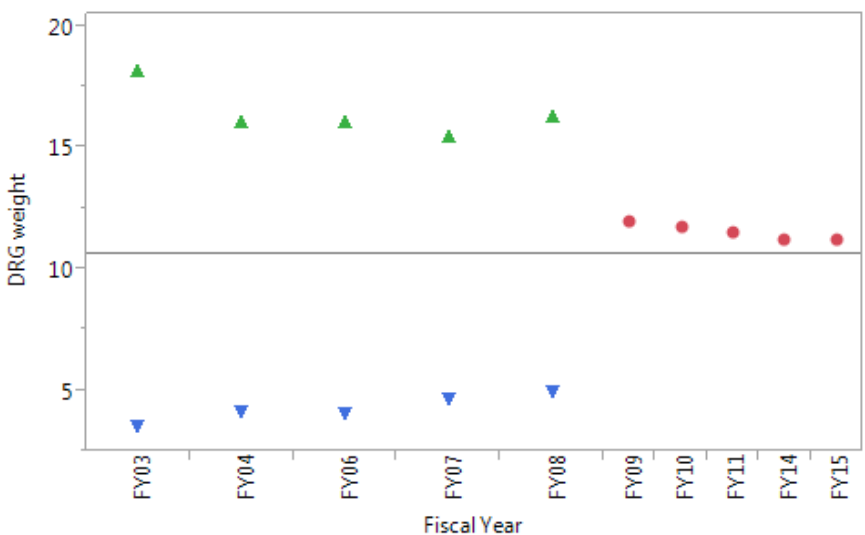
In the mid 1980's, North Carolina Medicaid adopted the Centers for Medicare & Medicaid Services (CMS) diagnosis-related group (DRG) prospective payment system. During subsequent discussions, NICUs at state academic medical centers expressed concerns that they would receive a concentration of the sickest, costliest infants and that their reimbursements would not reflect the severity of illness of their patients. Meanwhile, community hospitals would be over-compensated for neonates requiring less acute care because of how they were classified in the CMS system. To address these legitimate concerns, NC Medicaid agreed to a limited expansion of the seven CMS neonatal DRG system to six birth weight-based and four categorical DRGs (Table 1).

DRG	Description
385	Neonates, Died or transferred to another acute care facility, length of stay less than 3 days
389	Full term neonate with major problems
390	Neonate with other significant problems
391	Normal newborn
801	Neonates < 1,000 grams
802	Neonates, 1,000 - 1,499 grams
803	Neonates, 1500 - 1,999 grams
804	Neonates, > 2,000 grams with respiratory distress syndrome (RDS)
805	Neonates, > 2,000 grams, premature with major problems
810	Neonate, Low birth weight, over 28 days old at admission

In 2008, NC Medicaid requested and received permission from CMS to amend its state plan which resulted in the transition of neonatal patients to the seven CMS MS-DRG system (Table 2), a non-weight based system. Both the CMS and the American Academy of Pediatrics (AAP) have noted the inadequacy of the CMS system to adequately describe neonatal populations and the inability of the CMS to provide statistical validity for neonatal DRGs.^{1,2} With this transition, NC Medicaid reversed its earlier support for regional NICUs and placed a financial burden on all non-governmental NC Level 4 nurseries and over-compensated other nurseries relative to their cost of care (Figure 1). To illustrate how the DRG classification of neonates dramatically impacted neonatal reimbursement, it is helpful to examine infants with respiratory distress syndrome (RDS) and extremely low birth weight (ELBW) (<1000 grams), two very disparate NICU populations, and how they are treated within the two classification systems.

MS-DRG	Description
789	Neonates, died or transferred to another acute care facility
790	Extreme immaturity or respiratory distress syndrome, neonate
791	Prematurity with major problems
792	Prematurity without major problems
793	Full term neonate with major problems
794	Neonate with other significant problems
795	Normal newborn

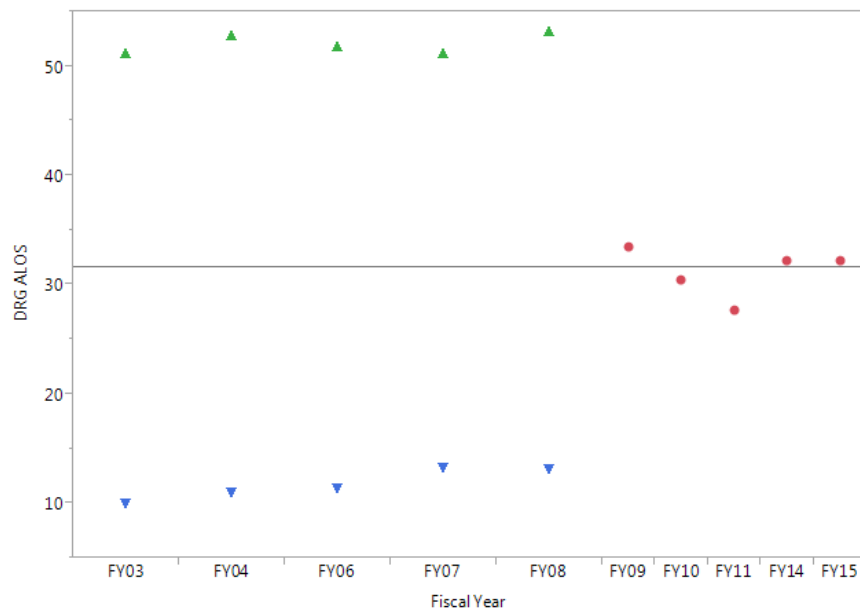
Figure 1: DRG weight by DRG



Legend: up arrow heads – NC Medicaid DRG 801 (ELBW infants); down arrow heads – NC Medicaid DRG 804 (RDS infants); circles – MS-DRG 790 (ELBW or RDS)

Respiratory distress syndrome (RDS) results when newborn lungs are deficient in surfactant that, when present in sufficient quantity, allows the lungs to adequately expand and function properly. While developing *in utero*, most fetuses do not begin to produce adequate amounts of surfactant until approximately 28-30 weeks gestation. Infants born before this time typically require administration of exogenous surfactant to survive. Surfactant is delivered after the baby is intubated and the medication is given directly into the lungs. Those infants born after that time may still show signs of surfactant deficiency due to insufficient quantities being present at the time of birth. These larger, late preterm infants typically weigh over 2000 grams. Their lengths of hospital stay are relatively brief, approximately 10 days, and they do not typically require extensive care beyond the initial management of their RDS (Figure 2). The provision of care for these infants is typically provided in level II-III NICUs with the ability to deliver short-term ventilation to neonates.

Figure 2: Length of Stay by DRG classification



Legend: up arrow heads – NC Medicaid DRG 801 (ELBW infants); down arrow heads – NC Medicaid DRG 804 (RDS infants); circles – MS-DRG 790 (ELBW or RDS)

Extremely low birth weight (ELBW) infants are typically very premature, < 27-28 weeks gestation, and require highly specialized care in large neonatal centers able to care for these medically fragile newborns. Their lengths of stay are prolonged and costly (Figure 2).³ With rare exceptions, these infants will have respiratory distress syndrome and commonly receive surfactant therapy. The NC Medicaid birth weight based DRG system previously coded these babies into DRG 801 that recognized the unique characteristics of this population (Table 1).

When NC Medicaid switched DRG systems from the weight-based to the MS-DRG system, they merged these two very different populations into one statistical and reimbursement class. This is not only important in light of the very disproportionate lengths of stay of the two populations, but also because the DRG weights were dramatically altered by the transition as well. DRG weights are used by Medicare and state Medicaid agencies to determine hospital reimbursements for each DRG. An institution's base rate is multiplied by the weight and the resulting product is the base reimbursement provided to the institution. For fiscal year 2008, the year prior to the change in DRG systems, NC Medicaid DRG 801(ELBW infants) had a weight of 16.3 and NC Medicaid DRG 804 (RDS infants) had a weight of 4.9. The following year, the new MS-DRG 790 (combining ELBW and RDS) had a weight of only 12.0 (Figure 1).

The changes in DRG weight for both classes of infants have important implications on reimbursement. With Medicaid reimbursements well below that of private insurers, Medicaid payments already poorly compensate the costs associated with the care of a sick newborn.² When NC Medicaid transitioned to the new MS-DRG system and accompanying DRG weight change, the NICUs that were already struggling to pay for the high cost of ELBW care received

another cut in reimbursement. This change represented a 26% reduction in DRG weight. The adoption of the CMS DRG system disproportionately reduced reimbursement for regional neonatal centers that, due to the design of regionalized neonatal care, shoulder the overwhelming burden of cost of caring for these infants. The change makes it even more difficult for these centers to fiscally manage their NICUs, especially in an era of cost containment.

The reimbursement for infants after 2008 with RDS fared much better. The DRG weight of these infants rose by an astounding 240%. The increased DRG weight for RDS babies created a financial incentive for community special care nurseries to hold on to those infants that otherwise would have been transferred to higher levels of care in the past. Due to this “lucrative reimbursement for high-risk obstetric and neonatal care, the last two decades have witnessed the erosion of regionalized referral systems.”⁴ Moreover, the retention of these infants in local community nurseries contrasted with the principles outlined in the *Guidelines for Perinatal Care* developed by the AAP and the American College of Obstetricians and Gynecologists.⁵

As more institutions open newborn centers to take advantage of this disproportionate reimbursement model, the system-level costs of newborn medicine could rise due to duplication in services and worse outcomes for the ELBW infant who requires the expertise and services only available at large NICUs.⁶ As drivers of pediatric payment systems, state Medicaid policy makers must be mindful of the untoward effects that changes, such as a new DRG system, can have on the provision of care in their respective states. North Carolina recognized more than twenty years ago the need for regionalization of neonatal services and the resources needed to support it. Although the infant mortality rate in North Carolina continues to improve, these changes to the NC Medicaid reimbursement policy will make it difficult to maintain the health care of the State’s most vulnerable citizens.

References

1. Centers for Medicare & Medicaid Services. Medicare Program; Proposed Changes to the Hospital Inpatient Prospective Payment Systems and Fiscal Year 2008 Rates. *Federal Register*. 3 May 2007 2007;72(85):24684-24705.
2. Muldoon JH. Structure and Performance of Different DRG Classification Systems for Neonatal Medicine. *Pediatrics*. 1999;103(1):302-318.
3. Caughey AB, Burchfield DJ. Costs and cost-effectiveness of periviable care. *Seminars in Perinatology*. 2014;38(1):56-62.
4. Profit J, Wise PH, Lee HC. Consequences of the Affordable Care Act for Sick Newborns. *Pediatrics*. 2014;134(5):e1284-e1286.
5. American Academy of Pediatrics, The American College of Obstetricians and Gynecologists. *Guidelines for Perinatal Care*. 6 ed 2007.
6. Kastenber JZ, Lee HC, Profit J, Gould JB, Sylvester KG. Effect of deregionalized care on mortality in very low-birth-weight infants with necrotizing enterocolitis. *JAMA Pediatr*. 2015;169(1):26-32.