



Special Care Nursery Admissions

Background

Regionalization is a system of maternal and perinatal health care, developed within geographic regions, that works to ensure that pregnant women and their babies can receive the care they need while also managing resources and costs. Outlined by the March of Dimes in 1976 in *Towards Improving the Outcomes of Pregnancy*, the system recommended Level I hospitals for normal care, Level II hospitals (with neonatal intermediate care units, NINTs) for moderately ill infants, and Level III hospitals (with neonatal intensive care units, NICUs) for the most seriously ill infants.

The March of Dimes partnered with the National Perinatal Information Center/Quality Analytic Services (NPIC/QAS) to describe special care nursery admissions among NPIC/QAS member hospitals from 07/01/09 to 06/30/10. Infants admitted to special care nurseries were defined as newborns that were either born in the hospital or transferred in from another hospital following delivery and spent time in a Level II (NINT) or Level III (NICU) bed at any time during the hospital stay.

Results

Among 183,030 newborns delivered during the study period, **14.4% were admitted to a special care nursery** (Figure 1). More than 90% of infants less than 34 weeks were admitted compared to almost half of late preterm (34-36 weeks, 47.8%) infants. More than 1 in 10 infants born at 37-38 weeks and more than 1 in 13 infants born at 39-41 weeks were admitted. Among post-term (42+ weeks) infants, 13.6% spent time in a special care nursery.

Among all special care admissions, nearly half were preterm (<37 weeks gestation, 49.1%), 50.4% were term (37-41 weeks) and 0.5% were post-term (42+ weeks) (Figure 2). More than 85% of special care admissions were singleton births and 14.8% were multiples (twins, triplets and higher order).

For all gestational ages, 57.9% of special care admissions spent some amount of time in a NICU level bed (includes NICU only, NICU combined with NINT level bed, or NICU combined with normal newborn nursery bassinet), with the remaining admitted to NINT or NINT combined with normal newborn nursery. More than 70% of preterm infants admitted to a special care nursery spent time in a NICU, compared to 46.9% of infants born at 37-38 weeks and 44.2% of infants born at 39-41 weeks.

Figure 1. Specialty Care Nursery Admissions by Gestational Age

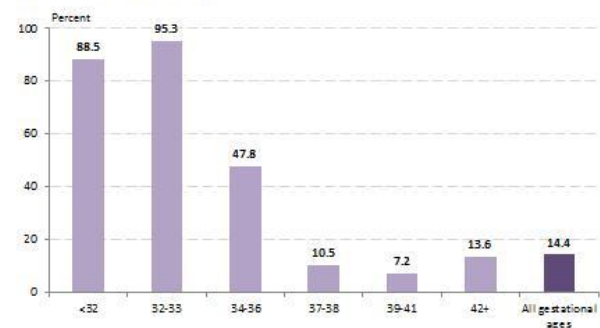


Figure 2. Gestational Age Distribution Among Special Care Nursery Admissions

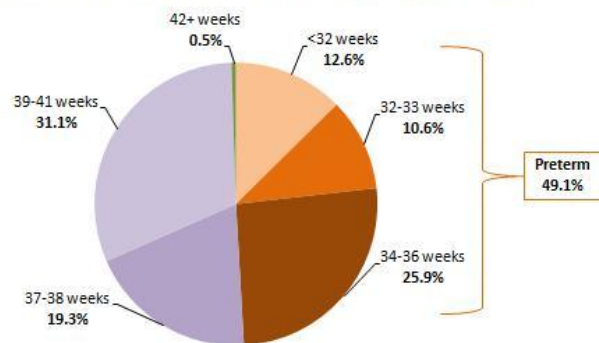


Table 1. Length of Stay and Hospital Charges Among Special Care Nursery Admissions

Gestational Age	Average Length of Stay (Days)	Average Hospital Charges (Dollars)
All Admissions	13.2	\$76,164
<32 weeks	46.2	\$280,811
32-33 weeks	20.3	\$102,182
34-36 weeks	9.8	\$51,083
37-38 weeks	5.9	\$37,137
39-41 weeks	4.9	\$29,771
42+ weeks	6.5	\$47,282

Average Length of Stay and Hospital Charges

Among all gestational ages, infants admitted to a special care unit had an average length of stay of 13.2 days, ranging from 4.9 days among infants born at 39-41 weeks to 46.2 days among infants <32 weeks (Table 1). Average hospital stays among infants admitted to special care nurseries were 20% longer for infants born just a few weeks early (37-38 weeks) and twice as long for late preterm infants compared to infants born at 39-41 weeks.

On average, hospital charges for infants admitted to a special care nursery totaled \$76,164 for the initial hospital stay following delivery (Table 1). Infants born <32 weeks had an average hospital charge of \$280,811, more than 9 times as high as charges for infants born at 39-41 weeks. Infants born just a few weeks early (37-38 weeks) had average charges more than \$7,000 higher than infants born 39-41 weeks.

Table 2. Top diagnoses among inborn specialty care admissions.

All Gestational Ages		
ICD-9 Code	Description	Percent
765.1	Preterm	23.6
769	Respiratory distress syndrome	11.9
771.81	Newborn septicemia	4.0
770.06	Transitory tachypnea of newborn	3.9
V29.0	Observation for suspected infection	3.7
<37 Weeks		
ICD-9 Code	Description	Percent
765.1	Preterm	46.3
769	Respiratory distress syndrome	21.8
765.0	Extreme immaturity	4.2
774.2	Neonatal jaundice associated w/ preterm delivery	2.3
771.81	Newborn septicemia	1.6
37-38 weeks		
ICD-9 Code	Description	Percent
770.6	Transitory tachypnea of newborn	7.6
775.6	Neonatal hypoglycemia	5.8
V29.0	Observation for suspected infection	5.4
771.81	Newborn septicemia	5.2
770.89	Respiratory problems after birth (NEC)	4.0
39-41 weeks		
ICD-9 Code	Description	Percent
V29.0	Observation for suspected infection	8.1
770.6	Transitory tachypnea of newborn	7.1
771.81	Newborn septicemia	7.0
770.89	Respiratory problems after birth (NEC)	4.3
775.6	Neonatal hypoglycemia	4.0
42+ weeks		
ICD-9 Code	Description	Percent
771.81	Newborn septicemia	8.5
V05.3	Prophylactic vaccination for viral hepatitis	8.5
V29.0	Observation for suspected infection	7.8
766.21	Post-term infant	5.4
775.6	Neonatal hypoglycemia	5.4
NEC=Not elsewhere classified		

Diagnoses among Special Care Admissions

Generally for infants born in the hospital and not transferred after birth, the principal diagnosis is "live birth, delivered by vaginal delivery or cesarean section." An analysis of the first other listed diagnosis code on record, referred to as the "first-associated diagnosis," among infants born in the hospital showed that 23.6% of special care nursery admissions had preterm infant listed as the first-associated diagnosis, regardless of gestational age, followed by 11.9% with respiratory distress syndrome (Table 2). Among all gestational ages, nearly 6% of newborns admitted to a special care nursery had no first-associated diagnosis code in addition to the code for the delivery.

The diagnoses listed on the medical record varied slightly by gestational age (Table 2). Among infants born preterm, the most frequently listed first diagnosis codes were preterm infant (46.3%), respiratory distress syndrome (21.8%), extreme immaturity (4.2%), neonatal jaundice associated with preterm

delivery (2.3%), and newborn septicemia (1.6%). The most frequently listed diagnosis was transitory tachypnea of newborn among infants born 37-38 weeks (7.6%) and observation for suspected infection among infants born 39-41 weeks (8.1%). Approximately 10% of infants born at 37-38 weeks and 39-41 weeks had no first-associated diagnoses listed. Among post-term infants admitted to a special care nursery, the most frequently listed first-associated diagnoses were newborn septicemia (8.5%) and prophylactic vaccination for viral hepatitis (8.5%).

Summary

- 14.4% of newborns delivered at or transferred to NPIC/QAS member hospitals were admitted to a special care nursery. Admissions varied by gestational age: 90% of infants born <34 weeks, nearly half of infants born late preterm, 10.5% of infants born at 37-38 weeks, and 7.2% of infants born at 39-41 weeks were admitted to a special care nursery.
- Among all special care nursery admissions, 49.1% were preterm, 50.4% were term (37-41 weeks) and 0.5% were post-term.
- The average length of hospital stay for newborns admitted to a special care nursery was 13.2 days.
 - On average, late preterm infants admitted to a special care nursery had a length of stay 4.9 days longer compared to infants born 39-41 weeks.
- The average hospital charge for newborns admitted to a special care nursery was \$76,000, with charges exceeding \$280,000 for the earliest infants (<32 weeks).
- Among all special care nursery admissions, almost one-quarter (23.6%) had preterm birth listed as the first associated diagnosis, followed by respiratory distress syndrome (11.9%), newborn septicemia (4.0%) and transitory tachypnea of newborn (3.9%).

For More Information, Please Contact:

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Notes: Hospital charges represent the amount charged for the hospital stay and do not reflect the amount that was paid for the hospitalization. Charges are for hospital care and do not include physician or other fees, rehabilitation expenses or other costs associated with follow-up or home care.

*Source: National Perinatal Information System/Quality Analytic Services; www.npic.org.
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