

## NPIC/QAS Analysis of Late Preterm Births

Over the past several years national attention has focused on the increase in the preterm birth rate (<37 weeks of completed gestation). Since 1981 the percent of births occurring before 37 weeks has increased by 37%. (Preterm rates 1981- 9.1%; 2004- 12.5%) Since late preterm births (34-36 weeks completed gestation) account for almost two-thirds of all preterm births, they also account for two-thirds of the increase in the overall preterm birth rate.

Explanations for this increase in late preterm birth rates are varied. There is an increase in the age of the primigravida mother. Women older than 35 years have an increase in medically indicated deliveries. There is increasing surveillance of the fetal status to reduce the incidence of still births. Finally, the introduction of ART has resulted in an increase in multiple births.

Both the Institute of Medicine and the March of Dimes have proposed initiatives to reduce the preterm birth rate and the resulting poor outcome and higher costs.

In examining the cost of preterm births researchers at the March of Dimes proposed the overall cost nationally for preterm births at \$5.8 billion which represents 47% of costs for all infant hospitalization (Russell, RB et al Cost of Hospitalization for Preterm and LBW infants in the US. Pediatrics (120) July 2007). Although late preterm births individually cost significantly less than early preterm births they are double the cost of term infants and the volume represent the largest percent of over- all cost for preterm birth.

Recognizing the importance of the impact of the late preterm births on the cost of care, NPIC/QAS conducted an analysis for the March of Dimes that focused on infants between 33-36 weeks gestation. Using CY 2006 data from the NPIC/QAS Perinatal Data Base, our analysis links mother/infant records and arrives at infant gestational age using the logic displayed in Figure 1. The following attachments highlight the analysis.

Figure 1- NPIC Algorithm for linked mother/infant births segmented in late preterm and term categories.

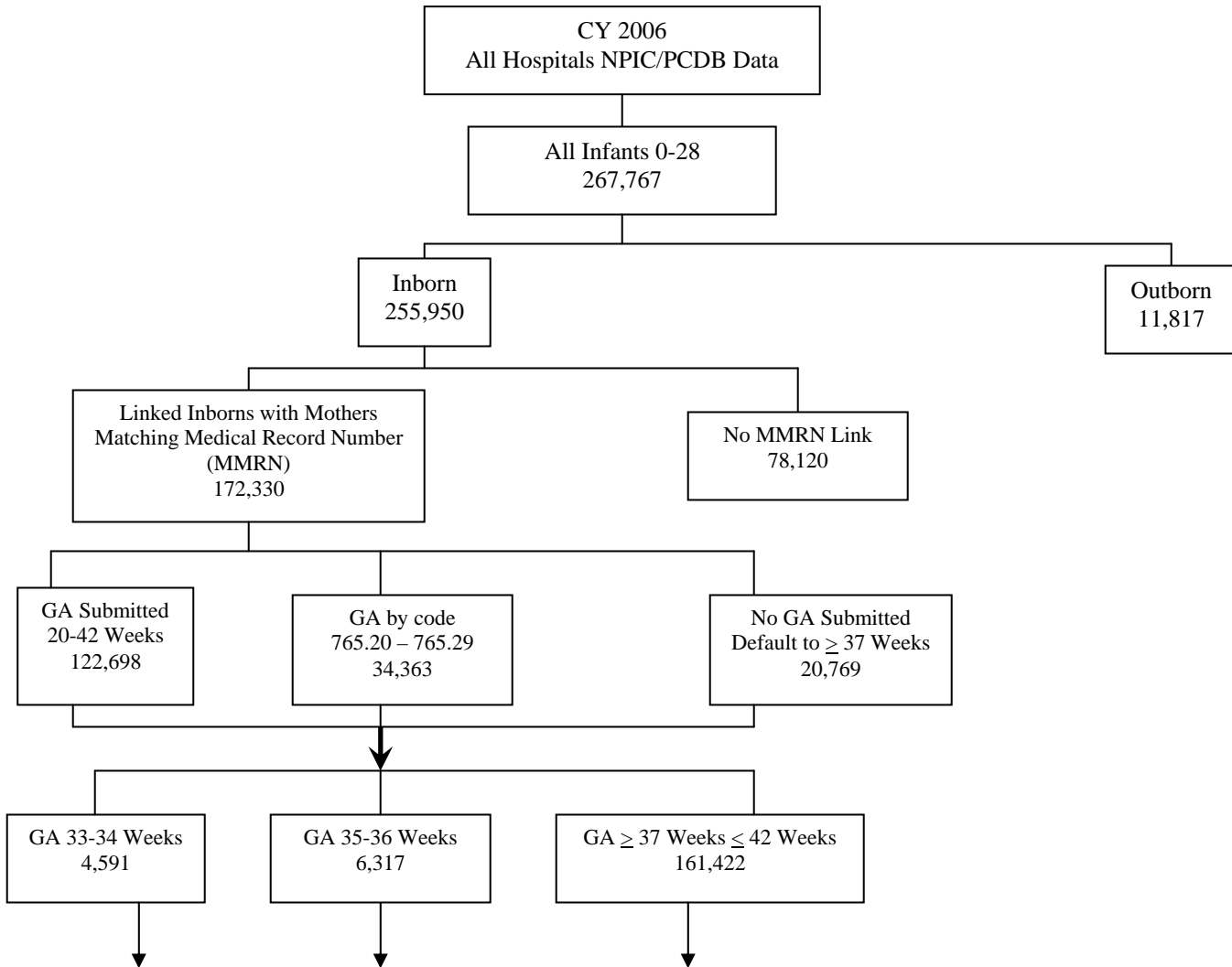
Table 1- Top ten Principal diagnoses for late preterm and term births.

Table 2- Late preterm and term births designated by APRDRG sub class, Delivery type and charges.

**Figure 1**

**Near Term Infants Analysis**

**NPIC/Perinatal Center Data Base 2006**



**ICD-9-CM Code Designation**

- 765.20 Unspecified weeks of GA
- 765.21 <24 weeks GA
- 765.22 24 completed weeks of GA
- 765.23 25-26 completed weeks of GA
- 765.24 27-28 completed weeks of GA
- 765.25 29-30 completed weeks of GA
- 765.26 31-32 completed weeks of GA
- 765.27 33-34 completed weeks of GA
- 765.28 35-36 completed weeks of GA
- 765.29 >36 completed weeks of GA

**Table 1- Top ten Principal diagnoses for late preterm and term births**

<b>Gestational age 33-34 weeks</b>				
<b>Ranking of PDX Codes (top 10 DX codes) (excluding V30XX- Live born &amp; 765.x)</b>		<b>Count</b>	<b>% of total</b>	<b>ALOS</b>
774.2	Neonatal jaundice associated with preterm delivery	3074	67.0%	13.9
769.0	Respiratory Distress Syndrome	452	9.8%	13.1
779.3	Feeding problems in newborn	189	4.1%	14.4
775.6	Neonatal hypoglycemia	61	1.3%	8.7
771.81	Septicemia (sepsis) of newborn	78	1.7%	11.0
V29.0	Observation for suspected infectious condition	261	5.7%	9.4
770.6	Transitory tachypnea of newborn	45	1.0%	9.8
V05.3	Need for other prophylactic vaccination: viral hepatitis	143	3.1%	5.5
770.89	Other Respiratory problems after birth	59	1.3%	11.3
775.5	Other transitory neonatal electrolyte disturbances	4	0.1%	4.3
<b>Top 10 PDX Codes (GA 33-34 wks) Subtotal</b>		<b>4366</b>	<b>95.1%</b>	<b>10.1</b>
<b>Total (GA 33-34 wks)</b>		<b>4591</b>	<b>100.0%</b>	<b>12.8</b>

<b>Gestational age 35-36 weeks</b>				
<b>10 Predetermined PDX codes (see above)</b>		<b>Count</b>	<b>% of total</b>	<b>ALOS</b>
774.2	Neonatal jaundice associated with preterm delivery	2436	38.6%	6.8
769	Respiratory Distress Syndrome	167	2.6%	10.6
779.3	Feeding problems in newborn	201	3.2%	11.2
775.6	Neonatal hypoglycemia	229	3.6%	4.7
771.81	Septicemia (sepsis) of newborn	95	1.5%	8.2
V29.0	Observation for suspected infectious condition	473	7.5%	4.4
770.6	Transitory tachypnea of newborn	145	2.3%	5.1
V05.3	Need for other prophylactic vaccination: viral hepatitis	1064	16.8%	2.8
770.89	Other Respiratory problems after birth	76	1.2%	5.8
775.5	Other transitory neonatal electrolyte disturbances	8	0.1%	7.5
<b>10 Predetermined PDX Codes (GA 35-36 wks) Subtotal</b>		<b>4894</b>	<b>77.5%</b>	<b>6.7</b>
<b>Total (GA 35-36 wks)</b>		<b>6317</b>	<b>100.0%</b>	<b>5.2</b>

<b>Gestational age 37-42 weeks</b>				
<b>10 Predetermined PDX codes (see above)</b>		<b>Count</b>	<b>% of total</b>	<b>ALOS</b>
774.2	Neonatal jaundice associated with preterm delivery	1575	1.0%	10.5
769	Respiratory Distress Syndrome	819	0.5%	9.1
779.3	Feeding problems in newborn	2597	1.6%	6.1
775.6	Neonatal hypoglycemia	1832	1.1%	3.8
771.81	Septicemia (sepsis) of newborn	1391	0.9%	6.1
V29.0	Observation for suspected infectious condition	12120	7.5%	2.8
770.6	Transitory tachypnea of newborn	2221	1.4%	3.4
V05.3	Need for other prophylactic vaccination: viral hepatitis	50983	31.6%	2.3
770.89	Other Respiratory problems after birth	676	0.4%	4.0
775.5	Other transitory neonatal electrolyte disturbances	564	0.3%	9.6
<b>10 Predetermined PDX Codes (GA 37-42 wks) Subtotal</b>		<b>74778</b>	<b>46.3%</b>	<b>5.8</b>
<b>Total (GA 37-42 wks)</b>		<b>161422</b>	<b>100.0%</b>	<b>2.6</b>

**Table 2- Late preterm and term births designated by APRDRG Sub class, delivery type and charges**

<b>Cases with Coded Conditions</b>	<b>GA 33-34</b>	<b>GA 35-36</b>	<b>GA 37-42</b>
Count of cases	4366	4894	74778
Percent of total in GA category	95.1%	77.5%	46.3%
ALOS	10.1	6.7	5.8
Average APGAR 1	7	8	9
Average APGAR 5	8	8	9
<b>APR DRG Subclass Distribution (Percent of total)</b>			
Subclass 1 Minor complications	28.7%	30.6%	65.6%
Subclass 2 Moderate complication	36.6%	38.3%	24.4%
Subclass 3 Major complications	29.7%	28.1%	7.3%
Subclass 4 Extreme complications	3.8%	1.9%	0.4%
APRDRG Subclass undefined	1.2%	1.0%	2.3%
	100.0%	100.0%	100.0%
<b>Delivery Type (case linked to mother's record)</b>			
Percent delivered by c-section	51.7%	43.5%	32.5%
Percent delivered by c-section with induction code	3.7%	3.7%	4.2%
Percent delivered vaginally	48.3%	56.5%	67.5%
Percent delivered vaginally with induction code	8.8%	11.4%	14.7%
Percent with operative vaginal delivery code	2.6%	4.6%	9.2%
<b>Charge analysis</b>			
Percent with Special care charges/days	93.4%	52.7%	14.1%
Percent with NICU only charges/days	20.0%	12.9%	4.4%
Percent with NINT only charges/days	28.1%	21.0%	6.5%
Average total charge	\$49,573	\$19,381	\$5,906
Average total ancillary charge	\$12,839	\$6,376	\$2,303
Average routine nursery charge	\$3,104	\$3,898	\$1,394
Average Special care charge	\$17,663	\$10,238	\$6,742
Average NICU charge	\$31,321	\$19,559	\$14,726
Average NINT charge	\$20,227	\$11,206	\$7,590