

Benchmarking

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CPQCC centers submit standardized data for very low birth weight infants (VLBW - ≤ 1500 gm; “Small Babies”) and selected low birth weight infants (LBW - > 1500 gm; “Big Babies”) through an online data interface to the CPQCC Data Center, where they are reviewed for errors and omissions. These data contain information on 64 variables. Question 13 of both the CPQCC Admission/Discharge Form and Delivery Room Death Form records whether mothers of eligible infants received treatment with antenatal steroids or not. Instructions¹ for completing forms are:

“*Note:* Corticosteroids include betamethasone, dexamethasone and hydrocortisone.

- Check **Yes** if corticosteroids were administered IM or IV to the mother during pregnancy at any time prior to delivery.
- Check **No** if no corticosteroids were administered IM or IV to the mother during pregnancy at any time prior to delivery.
- Check **Unk** if this information cannot be obtained.”

CPQCC aggregates data and computes indicators that reflect clinical procedures and outcomes. Each center receives its respective set of indicators, as well as the Network median and interquartile range for each indicator in the CPQCC real-time reports. Indicators are displayed in graphs to facilitate comparisons. Most of the tables/figures provided in this section of the Tool Kit may also be found in your center’s Annual Quality Management Webreport. The following sample tables/figures include:

Figure 1: Antenatal Steroid Administration Rates in all CPQCC NICUs in 2008

Figure 2.1: Percent Antenatal Steroids, 2000 to 2009; All Infants; Center 0000 Compared to All CPQCC Centers

Figure 2.2: Percent Antenatal Steroids, 2000 to 2009; All Infants; Center 0000 Compared to Same CCS Level Centers

Figure 2.3: Percent Antenatal Steroids, 2000 to 2009; All Infants; Center 0000 Compared to All Centers in the Same Region

Figure 3.1: Standardized Rates for Antenatal Steroids, Infants 401 to 1,500 grams or 22 to 29 weeks gestation, born between 1/1/1998 and 1/6/2009

Figure 3.2: Observed/Expected Ratios for Antenatal Steroids; Infants 401 to 1,500 grams or 22 to 29 weeks gestation, born between 1/1/1998 and 1/6/2009

¹ CPQCC Network Database, Manual of Definitions for Infants Born in 2009, Version 02.09, March 25, 2009

The indicator for antenatal steroid therapy is the rate of administration. CPQCC defines the rate of antenatal steroid administration for a given time period as:

$$\frac{\text{Number of Mothers Treated}}{\text{Number of Eligible Infants Reported to CPQCC}}$$

The numerator is defined as those mothers (of eligible infants) who received any antenatal corticosteroids at any time in pregnancy prior to delivery. The denominator is the number of eligible infants reported to CPQCC. This is not a perfect indicator. For example, the numerator is mothers, while the denominator is infants. When a mother of twins is treated and recorded, she will be counted once in the numerator but twice in the denominator. Thus, the denominator may be artificially inflated and the overall indicator deflated. In addition, the rates are not risk adjusted. Thus, comparing the rate at a given center to national or state figures without accounting for the unique patient population in that center can lead to inaccurate conclusions.

Over the last several years, the ANS administration rate as a quality measure of obstetrical care has gained considerable attention both locally and nationally. The importance of improving compliance with the national guidelines for utilizing antenatal steroids for mothers at risk of preterm birth has led to the development of several quality measures for this topic. Table 1 describes the similarities and differences in definition between four leading quality organizations, including the Leapfrog Group, CPQCC, the National Quality Forum (NQF) and the Joint Commission (JC).

Table 1: Quality Measures of Antenatal Steroids (ANS) Utilization
May 2009

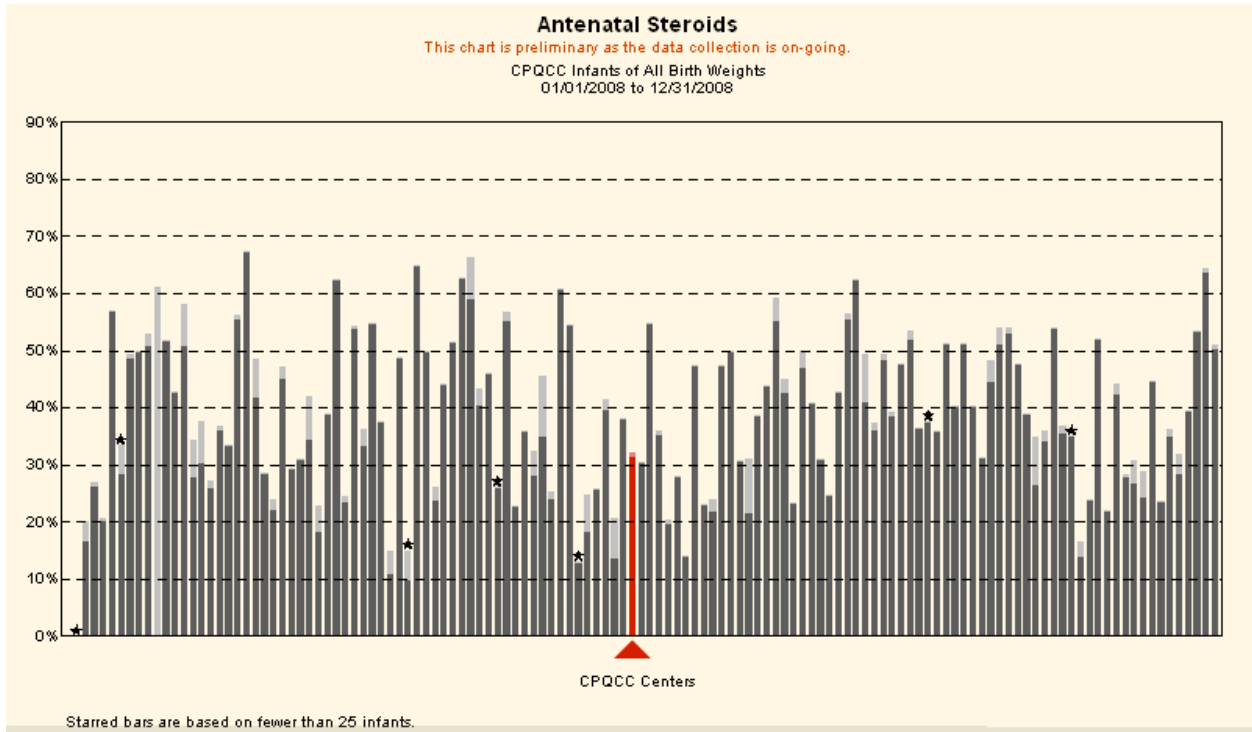
Criteria	Leapfrog Group (NICU-1) 2009	CPQCC 2009	NQF/JC 2009
Birthweight	500-1499 gm	401-1500 gm	Not used "as this is not known prior to delivery"
Gestational Age	AND: 24+0 to 32+6	AND: 24+0 to 33+6	24+0 to 33+6 (if membranes intact) 24+0 to 31+6 (if PROM)
Exclusions	Maternal age <18yr Transfers in/out Contraindications: Maternal Infection Chorioamnionitis Thyrotoxicosis Cardiomyopathy Fetal demise Maternal TB	None	None
Base population	<u>Mothers</u> meeting criteria who received ANS	<u>Infants</u> meeting criteria whose mothers received ANS	<u>Mothers</u> meeting criteria who received ANS
ANS criteria	Any steroid used for lung maturation at any point prior to delivery (an earlier admission or outpatient use is acceptable). An incomplete course is also acceptable.	Any steroid used for lung maturation at any point prior to delivery (an earlier admission or outpatient use is acceptable). An incomplete course is also acceptable.	Any steroid used for lung maturation at any point prior to delivery (an earlier admission or outpatient use is acceptable). An incomplete course is also acceptable.



The Leapfrog group has brought their measure much closer to CPQCC/VON for the 2009 reporting year. They allow for a series of exclusions but are minimally different for the gestational age/birth weight criteria. NQF and the Joint Commission have defined their measure adhering to the ACOG guideline that all mothers who are at risk for delivery before 34 weeks should receive ANS. Hence, their inclusion criteria are much broader all the way up to 34 weeks and increase the number of mothers covered two to three fold. All measures require chart review, though case identification and some data collection can be done using an electronic database or EMR. At this point, it is not known how these different specifications affect a given hospital's ranking, as they have not been done simultaneously in a sufficient sample size of hospitals. Until the differences in these measures can be reconciled, the use of the NQF definition is recommended for QI efforts to enhance the utilization of ANS. The CPQCC/VON definitions represent subsets of the NQF and will therefore fall into place.

In 1998, only 25 percent of CPQCC hospitals administered ANS at the recommended rate, which was determined by an expert panel of obstetricians and maternal-fetal medicine specialists to be 85%. Following CPQCC improvement strategies over the next five years, 75 percent of the hospitals were found to be administering ANS at or above the recommended rate. While many providers strive for ANS rates exceeding 90-95%, there are numerous barriers to achieving and sustaining ANS rates at this level. Subsequently, CPQCC's expert OB/MFM panel has reaffirmed ANS rates of 85% as the CPQCC benchmark.

An important goal of this tool kit is to give your center the opportunity to look beyond the indicator and to better understand the actual patterns and practices that affect your rate. The Problem Identification Worksheets in the next section will facilitate this understanding.

Figure 1: Antenatal Steroid Administration Rates in all CPQCC NICUs in 2008



	Antenatal Steroids
	Unknown
Bar for Center 0000 based on 182 Infants.	

CPQCC	N	Median	Q1	Q3
2007	127	37.0%	27.8%	48.9%
2008	127	38.1%	26.8%	50.0%

Figure 2.1: Percent Antenatal Steroids, 2000 to 2009; All Infants; Center 0000 Compared to All CPQCC Centers

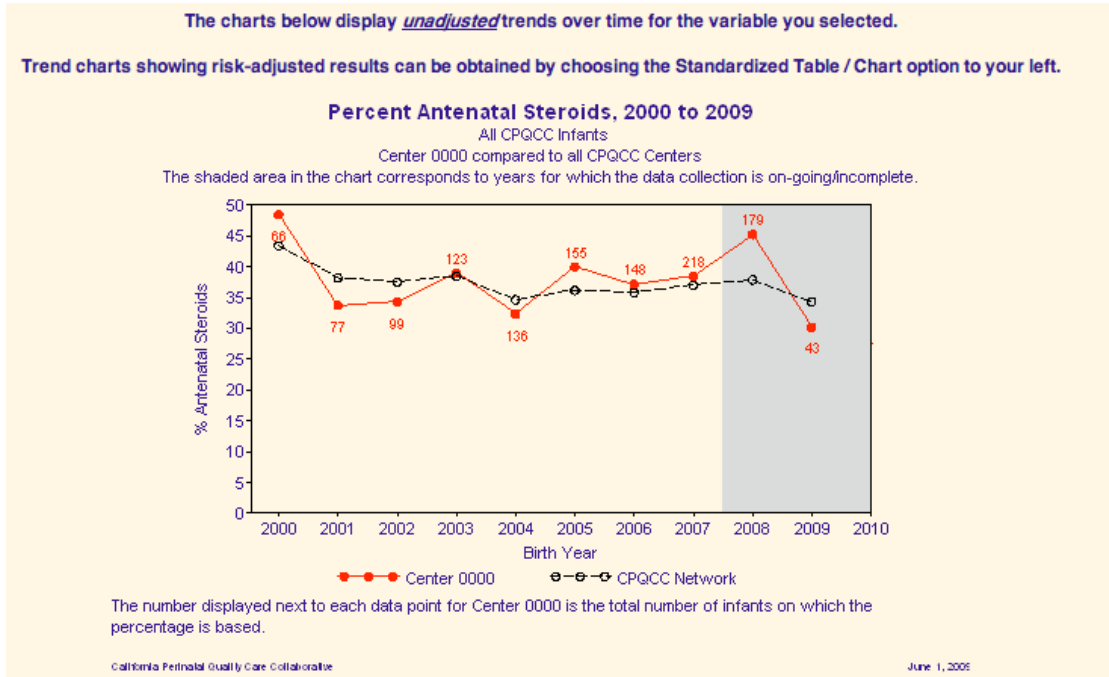


Figure 2.2: Percent Antenatal Steroids, 2000 to 2009; All Infants; Center 0000 Compared to Same CCS Level Centers

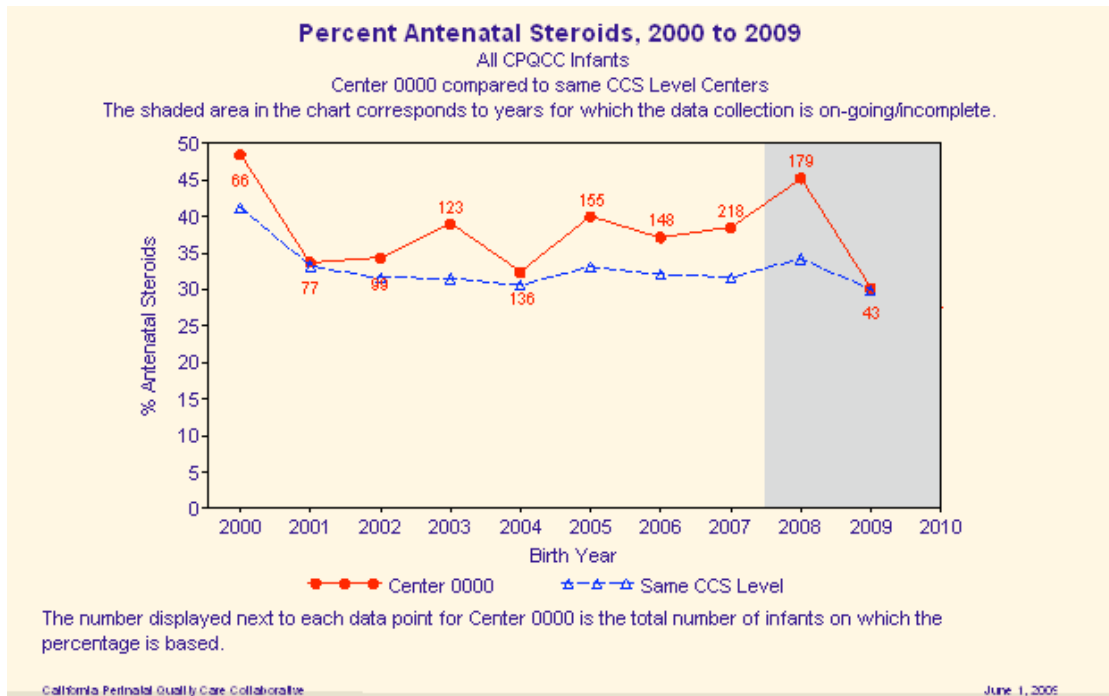


Figure 2.3: Percent Antenatal Steroids, 2000 to 2009; All Infants; Center 0000 Compared to All Centers in the Same Region.

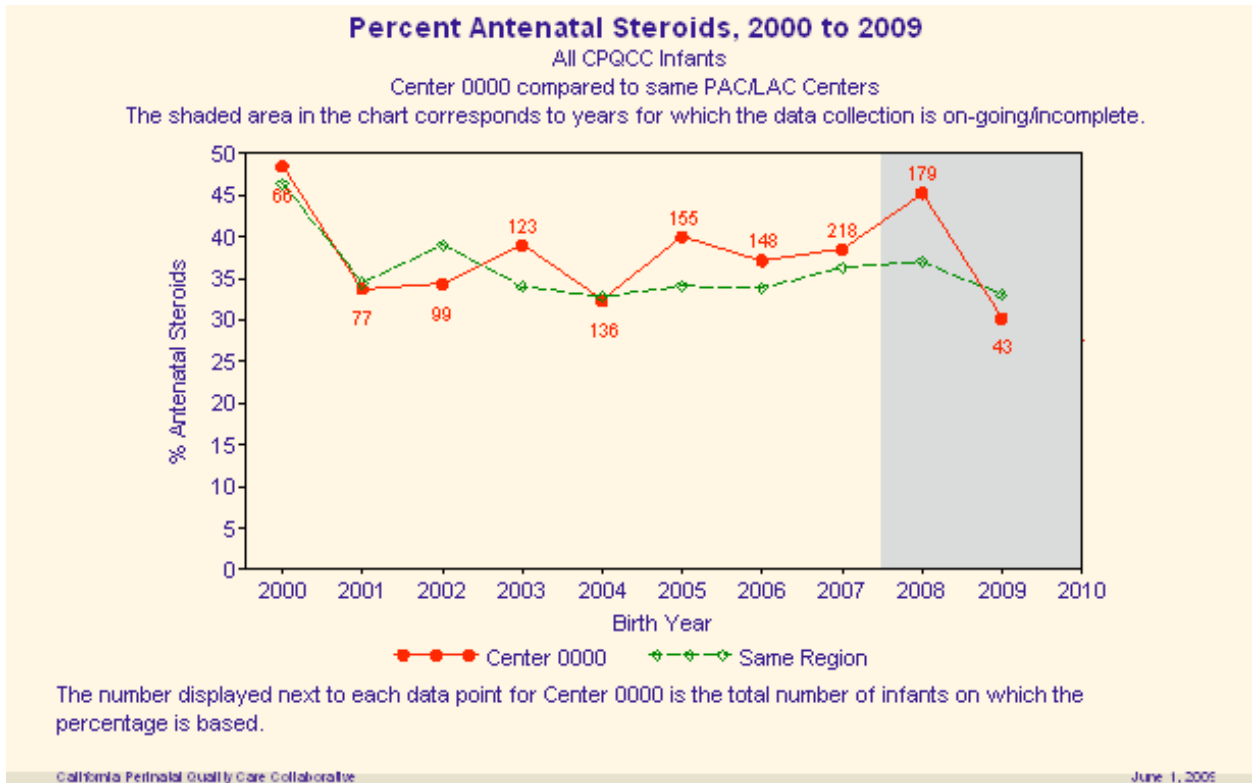


Figure 3.1: Standardized Rates for Antenatal Steroids, Infants 401 to 1,500 grams or 22 to 29 weeks gestation, born between 1/1/1998 and 1/6/2009

Standardized Rates for Antenatal Steroids
 Infants 401 to 1,500 grams or 22 to 29 weeks of Gestation born between 01/01/1998 and 01/06/2009
This report is final for years 2007 and earlier. The report is preliminary for 2008 and 2009 as the data collection is on-going.
 California Perinatal Quality Care Collaborative (CPQCC)
 CENTER ID: 0000

Year	Center Infants	Observed Events	Observed %	Expected %	OE Ratio	95% Confidence Limits for OE Ratio		Unadjusted % for ...		
						Lower	Upper	CPQCC Network	Regional CCS Level	Demo Region
1998	5	2	40.0	84.6	0.47	0.06	1.71	45.4	44.0	69.1
1999	3	1	33.3	No results produced since fewer than 5 center infants or fewer than 1 expected events.				56.1	55.2	72.6
2000	9	7	77.8	86.0	0.90	0.36	1.86	58.9	60.8	69.9
2001	6	4	66.7	83.8	0.80	0.22	2.04	62.8	70.1	57.9
2002	21	18	85.7	84.9	1.01	0.60	1.60	81.2	85.5	78.7
2003	27	18	66.7	82.8	0.81	0.48	1.27	82.7	85.0	77.7
2004	25	18	72.0	83.6	0.86	0.51	1.36	79.4	84.8	75.0
2005	34	26	76.5	82.6	0.93	0.61	1.36	80.6	87.1	73.3
2006	47	42	89.4	82.2	1.09	0.78	1.47	79.5	86.8	72.9
2007	60	47	78.3	81.7	0.96	0.70	1.27	82.9	86.0	81.1
2008	47	35	74.5	81.9	0.91	0.63	1.26	83.5	90.0	81.4
2009	9	7	77.8	81.7	0.95	0.38	1.96	83.1	85.2	78.3
2005 to 2007 Aggregate	141	115	81.6	82.1	0.99	0.82	1.19	81.0	86.7	76.0

Figure 3.2: Observed/Expected Ratios for Antenatal Steroids; Infants 401 to 1,500 grams or 22 to 29 weeks gestation, born between 1/1/1998 and 1/6/2009

