

## V16.4 Special Report: Perinatal Chorioamnionitis Analysis

### I. Introduction

NPIC has been monitoring the impact of ICD-10 on measure reporting since the coding transition took place in October 2015. The **V16.3 Quarterly Report**, the first report to display data representing four quarters of ICD-10 coding, provided an opportunity for comparison with the final report displaying four quarters of ICD-9 data (V15.3). The comparison showed a definite increase in the NPIC Data Base average for the overall Unexpected Newborn Complications Rate (NQF #716 Unexpected Complications in Term Newborns), a California Maternal Quality Care Collaborative (CMQCC) metric that NPIC has been reporting for a number of years. Further review indicated that cases falling within the UNC neonatal complication sub-category of *Infection* were the driving factor for this increase. (See attached table in Appendix A.) The majority of these infection cases were coded with **P02.7: Newborn affected by chorioamnionitis**.

This V16.4 Special Report is in response to the observed increase in these newborns and our curiosity as to how maternal chorioamnionitis and the newborn impact presents in your hospital's data.

### II. Chorioamnionitis Literature Review

Transmission of infection to the newborn can be due to multiple factors; more common infections are transmitted vertically through amniotic fluid or during delivery. Early onset infections affect multiple systems, particularly the lungs.<sup>1</sup> Early onset infections among VLBW infants have a higher rate of morbidity, resulting in an increased rate of IVH, PDA and prolonged assisted ventilation. The incidence of meconium-stained amniotic fluid (MSAF) and neonatal morbidity is higher in the presence of acute inflammation of placental membranes.<sup>2</sup> MSAF can alert the health care provider to the possibility of infection.

The individual signs that have been used to define clinical chorioamnionitis have varied among studies. In January 2015, the Eunice Kennedy Shriver National Institute of Child Health and Human Development convened a workshop of experts to address the diagnosis and management of pregnant women with chorioamnionitis. The panel recommended replacing the term chorioamnionitis with the term "Triple I", referring to intrauterine infection, intrauterine inflammation, or both. Classifications of Triple I

were suggested, along with strategies for evaluation and management of the mothers and newborns.<sup>3</sup> In a retrospective study utilizing slides from 641 term parturient placentas, histologic chorioamnionitis was found in 57% of the placentas. One-third of these placentas also had an inflammatory response while only 42% of the women had an intrapartum fever.<sup>4</sup> Since maternal fever alone does not necessarily lead to a diagnosis of infection, the panel recommended that practitioners should suspect Triple I when fever is present without a clear cause, plus any of the following: baseline fetal heart rate greater than 160 beats/minutes for 10 minutes or longer; maternal WBC greater than 15,000 in the absence of corticosteroids; purulent fluid from the cervical os. A diagnosis of Triple I is confirmed when all of the above plus biochemical or microbiologic amniotic fluid results consistent with microbial invasion of the amniotic cavity are obtained.<sup>5</sup> In the case of suspected diagnosis of suspected or confirmed Triple I, the combination of ampicillin and gentamicin should be effective. If a cesarean section is performed, it is recommended that the addition of an anaerobic agent (such as clindamycin or metronidazole) be considered.

In the United States, the most common pathogens responsible for early onset neonatal sepsis are GBS (Group B Streptococcus) and Esherichia coli.<sup>6</sup> In preventing early-onset GBS sepsis in the neonate, intrapartum antibiotics are indicated in the following: positive antenatal cultures for GBS (except for women who have a cesarean delivery without labor or ruptured membranes); unknown maternal colonization status with gestation <37 weeks, rupture of membranes >18 hours, or temperature >100.4; GBS bacteriuria during the current pregnancy; previous infant with invasive GBS.<sup>7</sup> Management guidelines for the newborn are available online at <https://www.cdc.gov/groupbstrep/about/index.html>. The sepsis calculator developed by Puopolo et al <https://neonatalsepsiscalculator.kaiserpermanente.org/> estimates the risk of early onset sepsis to infants born at 34 weeks or greater, using designated maternal risk factors. The benefit of the sepsis calculator is that it may reduce the number of newborn infants having unnecessary laboratory tests and antimicrobial agents. Recently the calculator has been refined by Escobar to incorporate the neonate's clinical presentation during the first 6-12 hours of life.<sup>8</sup>

Some studies have indicated that Group B Streptococcal infection can lead to weakening of the amniotic epithelial cell membrane integrity, leading to PPRM.<sup>9</sup> Evidence suggests that infection can be one of the triggers in preterm labor and birth, one of the major causes of perinatal morbidity and mortality. While gestational tissue may provide more accurate information about the state of a pregnancy, accessible biological fluids such as blood, serum/plasma, urine, saliva, amniotic fluid and cervicovaginal fluid may provide the creation of rapid bedside biomarkers for predicting preterm labor and PPRM.<sup>10</sup> A strong body of evidence suggests that hidden intra-uterine infections may go undetected due to a subclinical state but also

because they may be caused by cultivation- resistant microbes. Molecular studies that can define the diversity and abundance of microbes invading the amniotic cavity are lacking.<sup>11</sup>

**III.** Data displayed in this V16.4 Report covers the period **1/01/2016-12/31/2016**.

**Table 1: Overview**

**Section A** displays your total deliveries for the period in comparison to your peer subgroup average and NPIC Data Base average.

**Subsections A.1 and A.2** show your count of deliveries with and without coded chorioamnionitis, amnionitis, membranitis and placentitis (Appendix B), their average length of stay (ALOS), average charge, case mix index, adjusted length of stay, adjusted charge in comparison to the averages for your peer subgroup and entire NPIC data base of hospitals.

**Section B** displays your total inborns (newborns) for the period in comparison to your peer subgroup average and NPIC Data Base average.

**Subsections B.1 and B.2** display inborn cases coded with and without P02.7: Inborns affected by chorioamnionitis (includes amnionitis, membranitis, placentitis) along with the same average metrics and comparisons shown in the maternal section.

The inborn subsections also include the following outcome measures: % of cases admitted to the special care nursery or transferred out to another hospital within one day, % of cases < 2500 grams, % < 37 completed weeks gestation, % coded with RDS, and % coded with septicemia and having a LOS > 4 days. These rates for your hospital are also compared to the average rates for your peer subgroup and NPIC Data Base.

The data show that while the rate of newborn cases coded with P02.7 is lower (see Graph 1) their ALOS, average charge and outcomes are much longer, higher and resource intense.

**Table 2: Linked Mother/Baby Analysis**

**Section A** shows the rate that deliveries coded with chorioamnionitis are linked to newborns coded with P02.7 for your hospital, peer subgroup and NPIC Data Base. (Data Base average rate displayed is 32.1%). The data show that the majority of coded maternal cases are not resulting in a corresponding code for their newborn(s). Verifying these rates for your facility will insure accurate ICD-10 coding and we are happy to provide case lists for your audit process.

### **Graph 1: Comparative Rates of Perinatal Chorioamnionitis**

The graph displays your hospital's rate of deliveries coded with chorioamnionitis (Maternal Rate) and the rate of inborns affected by chorioamnionitis (Inborn Rate) each with a 95% confidence interval. The graph also displays dashed and solid horizontal lines representing the average rates for your peer subgroup. The confidence interval bars allow you to determine if you are significantly different from the subgroup average rates. The NPIC Data Base average rates for each measure are noted in the legend.

### **Table 3: Cost Analysis of Perinatal Chorioamnionitis**

This table is our initial introduction into displaying comparative cost data for a profile of maternal and newborn cases with and without a coded clinical condition, in this instance chorioamnionitis.

The data displayed are aggregated information from a subset of NPIC hospitals for which we have cost data for the period 10/01/2015-6/30/2016. It is based on a total of approximately 37,000 perinatal events, a volume which is large enough to be stable but not necessarily representative of your hospital. We are looking forward to developing more cost analyses and will be reaching out to your administrators to request cost data from your hospital.

Questions regarding this special report can be directed to Sandra Boyle, Director of Data Services ([sboyle@npic.org](mailto:sboyle@npic.org)) or Janet Muri, President ([jmuri@npic.org](mailto:jmuri@npic.org))

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<sup>1</sup> Dima, M., Ilie, C., Boia, M., Iacob, D., Manea, A., Ionata, N...Iacob, RE. (2013). Prevalence of infection in low birth weight infants. *Jurnalul Pediatriei*, 16(61), 107-110.

<sup>2</sup> Rao, S., Pavlova, Z., Incerpi, M & Ramanathan, R. (2001). Meconium-stained amniotic fluid and neonatal morbidity in near-term and term deliveries with acute histologic chorioamnionitis and/or funisitis. *Journal of Perinatology*, 21(8), 557

<sup>3</sup> Higgins, R., Saade, G., Polin, R., Grobman, W., Buhimschi, I, Watterberg, Sivler, R., & Raju, T. (2016). Evaluation and Management of Women and Newborns with a Diagnosis of Chorioamnionitis. *Obstetrics and Gynecology*, 127(3), 426-436.

<sup>4</sup> Op cit, Curtin et al, pg. 429.

<sup>5</sup> Op cit., Higgins, pg. 429.

<sup>6</sup> Polin R. & the Committee on Feus and Newborn. (2012). Management of neonates with suspected or proven early-onset bacterial sepsis. *Pediatrics*, 129, 1006-1015. doi:10.1542/peds2012-0541

<sup>7</sup> Ibid, pg. 1011.

<sup>8</sup> Op cit, Higgins, pg. 428.

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<sup>9</sup> Vanderhoeven, J, Bierle, C., Kapur, R., McAdams, R., Beyer, R., Bammier, T.... Waldorf, K. (2014) Group B streptococcal infection of the choriodecidua induces dysfunction of the cytokeratin network in amniotic epithelium: A pathway to membrane weakness. *PLOS Pathogens*, 10(3)e1003920. doi: 10:1371/journal.ppat.1003920

<sup>10</sup> Georgiou, H, DiQuinzio, M, Permezel, M & Brennecke, S. (2015). Predicting Preterm Labour: Current Status and Future Prospects. *Disease Markers* Retrieved from <http://dx.doi.org/10:1155/2015/435014>

<sup>11</sup> DiGuillo, D., Romero, R, Amogen, H., Kusanovic, J., Bik, E., Gotsch, F...Reiman, D. (2008). Microbial Prevalence, diversity and Abundance in Amniotic Fluid during Preterm labor: A Molecular and culture- Based Investigation. *PLoS ONE*, 3(8). E3056. doi: 10:1371/journal.pone.0003056

## V16.4 Special Report: Perinatal Chorioamnionitis Analysis

| Table 1: Overview                                                  | Hospital<br>SAMPLE | Subgroup<br>Average | Database<br>Average |
|--------------------------------------------------------------------|--------------------|---------------------|---------------------|
| <b>A. Total Deliveries</b>                                         | <b>2,616</b>       | <b>3,750</b>        | <b>3,489</b>        |
| <b>A1. Deliveries coded with Chorioamnionitis <sup>1</sup></b>     | <b>44</b>          | <b>148</b>          | <b>115</b>          |
| <b>Percent of total deliveries</b>                                 | <b>1.7%</b>        | <b>4.0%</b>         | <b>2.5%</b>         |
| Average Length of Stay (ALOS)                                      | 3.4                | 4.4                 | 4.0                 |
| Average Charge                                                     | \$20,360           | \$30,643            | \$25,685            |
| Case Mix Index (CMI)                                               | 0.7360             | 0.6450              | 0.6259              |
| CMI Adjusted ALOS                                                  | 4.6                | 6.9                 | 6.4                 |
| CMI Adjusted Average Charge                                        | \$27,663           | \$47,511            | \$41,034            |
| <b>A2. Deliveries not coded with Chorioamnionitis <sup>1</sup></b> | <b>2,572</b>       | <b>3,602</b>        | <b>3,375</b>        |
| <b>Percent of total deliveries</b>                                 | <b>98.3%</b>       | <b>96.0%</b>        | <b>97.5%</b>        |
| Average Length of Stay (ALOS)                                      | 2.7                | 3.2                 | 2.8                 |
| Average Charge                                                     | \$14,012           | \$21,868            | \$17,758            |
| Case Mix Index (CMI)                                               | 0.4751             | 0.4614              | 0.4448              |
| CMI Adjusted ALOS                                                  | 5.6                | 6.8                 | 6.2                 |
| CMI Adjusted Average Charge                                        | \$29,490           | \$47,399            | \$39,925            |

<sup>1</sup> Also includes amnionitis, membranitis, and placentitis. Please see appendix for list of qualifying ICD-10 codes for deliveries.

## V16.4 Special Report: Perinatal Chorioamnionitis Analysis

| Table 1: Overview <i>(continued)</i>                                                             | Hospital<br>SAMPLE | Subgroup<br>Average | Database<br>Average |
|--------------------------------------------------------------------------------------------------|--------------------|---------------------|---------------------|
| <b>B. Total Inborns</b>                                                                          | <b>2,688</b>       | <b>3,865</b>        | <b>3,542</b>        |
| <b>B1. Inborns affected by Chorioamnionitis <sup>1</sup></b>                                     | <b>9</b>           | <b>64</b>           | <b>58</b>           |
| <b>Percent of total inborns</b>                                                                  | <b>0.3%</b>        | <b>1.8%</b>         | <b>1.2%</b>         |
| Average Length of Stay (ALOS)                                                                    | 9.6                | 10.2                | 8.6                 |
| Average Charge                                                                                   | \$36,085           | \$79,340            | \$50,976            |
| Case Mix Index (CMI)                                                                             | 1.2216             | 1.6648              | 1.4394              |
| CMI Adjusted ALOS                                                                                | 7.8                | 6.1                 | 6.0                 |
| CMI Adjusted Average Charge                                                                      | \$29,538           | \$47,656            | \$35,414            |
| % Admitted to special care <sup>2</sup> or transferred to another hospital within 1 day of birth | 100.0%             | 54.2%               | 56.9%               |
| % < 2500 grams                                                                                   | 11.1%              | 16.4%               | 15.4%               |
| % < 37 completed weeks gestation                                                                 | 11.1%              | 16.0%               | 13.9%               |
| % coded with Respiratory Distress Syndrome (RDS) <sup>3</sup>                                    | 0.0%               | 7.4%                | 8.2%                |
| % coded with septicemia (LOS > 4 days) <sup>4</sup>                                              | 11.1%              | 9.3%                | 10.1%               |
| <b>B2. Inborns not affected by Chorioamnionitis <sup>1</sup></b>                                 | <b>2,679</b>       | <b>3,801</b>        | <b>3,485</b>        |
| <b>Percent of total inborns</b>                                                                  | <b>99.7%</b>       | <b>98.2%</b>        | <b>98.8%</b>        |
| Average Length of Stay (ALOS)                                                                    | 5.8                | 5.4                 | 4.0                 |
| Average Charge                                                                                   | \$23,714           | \$33,423            | \$16,864            |
| Case Mix Index (CMI)                                                                             | 0.8880             | 0.6983              | 0.4474              |
| CMI Adjusted ALOS                                                                                | 6.5                | 7.7                 | 8.9                 |
| CMI Adjusted Average Charge                                                                      | \$26,704           | \$47,863            | \$37,697            |
| % Admitted to special care <sup>2</sup> or transferred to another hospital within 1 day of birth | 29.0%              | 18.0%               | 12.8%               |
| % < 2500 grams                                                                                   | 15.2%              | 12.4%               | 9.5%                |
| % < 37 completed weeks gestation                                                                 | 14.7%              | 13.0%               | 9.7%                |
| % coded with Respiratory Distress Syndrome (RDS) <sup>3</sup>                                    | 3.9%               | 3.9%                | 2.7%                |
| % coded with septicemia (LOS > 4 days) <sup>4</sup>                                              | 2.5%               | 1.2%                | 0.9%                |

<sup>1</sup> Also includes amnionitis, membranitis, and placentitis. Neonatal ICD-10 code: P02.7 - Newborn affected by chorioamnionitis (prior to 10/01/2016, ICD-10 description read "Newborn suspected to be affected by chorioamnionitis").

<sup>2</sup> Special care discharges are those having NICU and/or NINT days/charges > 0.

<sup>3,4</sup> Please see appendix for list of qualifying ICD-10 codes.

## V16.4 Special Report: Perinatal Chorioamnionitis Analysis

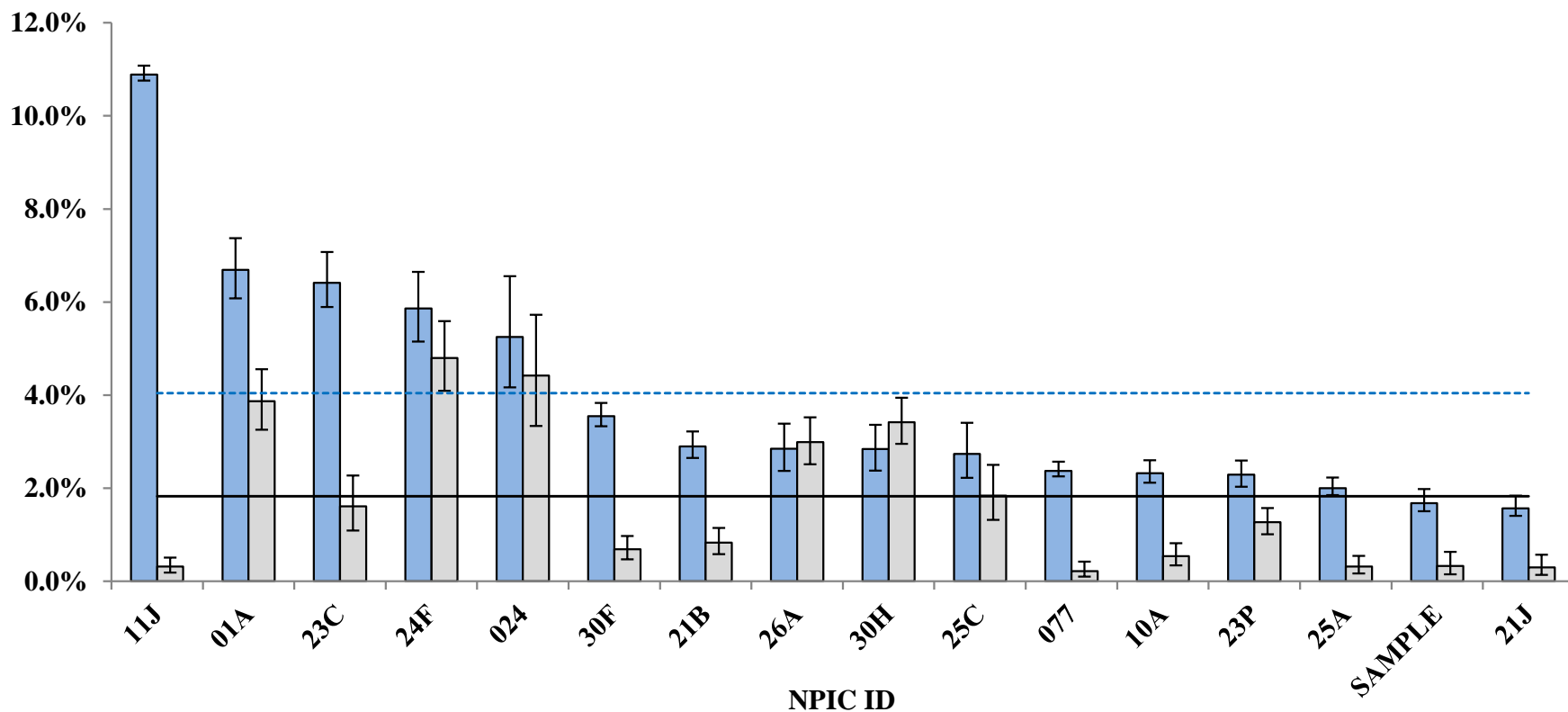
| Table 2: Linked Mother/Baby Analysis                                                | Hospital<br>SAMPLE | Subgroup<br>Average * | Database<br>Average * |
|-------------------------------------------------------------------------------------|--------------------|-----------------------|-----------------------|
| <b>A. Total Deliveries</b>                                                          | <b>2,616</b>       | <b>3,730</b>          | <b>3,602</b>          |
| Total deliveries linked to an inborn(s)                                             | 2,516              | 3,520                 | 3,488                 |
| Percent of total deliveries                                                         | 96.2%              | 94.0%                 | 96.8%                 |
| <b>Linked deliveries coded with chorioamnionitis <sup>1</sup></b>                   | <b>41</b>          | <b>140</b>            | <b>111</b>            |
| <b>Percent of total linked deliveries</b>                                           | <b>1.6%</b>        | <b>4.0%</b>           | <b>2.5%</b>           |
| Deliveries coded with chorioamnionitis linked to an inborn<br>with dx code P02.7    | 6                  | 43                    | 46                    |
| Percent of linked deliveries coded with chorioamnionitis                            | 14.6%              | 38.4%                 | 32.1%                 |
| Deliveries coded with chorioamnionitis linked to an inborn<br>without dx code P02.7 | 35                 | 97                    | 65                    |
| Percent of linked deliveries coded with chorioamnionitis                            | 85.4%              | 62.0%                 | 68.1%                 |

\* Subgroup and Database Averages for the linked analysis are calculated using only those hospitals with a mother/baby linking rate  $\geq 70\%$ .

<sup>1</sup> Also includes amnionitis, membranitis, and placentitis. Please see appendix for list of qualifying ICD-10 codes for deliveries.



**Graph 1: Comparative Rates of Perinatal Chorioamnionitis**  
**NPIC ID: SAMPLE**



Maternal Rate (1.7%)  
 Inborn Rate (0.3%)

Subgroup AR Maternal Rate (4.0%)  
 Subgroup AR Inborn Rate (1.8%)

*Not displayed on graph:*

NPIC Database Maternal Rate: 2.5%  
 NPIC Database Inborn Rate: 1.2%

## V16.4 Special Report: Perinatal Chorioamnionitis Analysis

| <b>Table 3: Cost Analysis of Perinatal Chorioamnionitis *</b><br><b>Date Range of Hospital Data: 10/1/2015 - 6/30/2016</b> | <b>With<br/>Chorioamnionitis coding <sup>1</sup></b> | <b>Without<br/>Chorioamnionitis coding <sup>1</sup></b> |
|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------|
| <b>A. Average Total Deliveries</b>                                                                                         | <b>52</b>                                            | <b>1,945</b>                                            |
| <b>Percent of total deliveries</b>                                                                                         | <b>2.4%</b>                                          | <b>97.7%</b>                                            |
| Average Length of Stay (ALOS)                                                                                              | 6.3                                                  | 2.9                                                     |
| Average Charge                                                                                                             | \$29,161                                             | \$17,639                                                |
| Average Cost                                                                                                               | \$8,770                                              | \$5,532                                                 |
| Case Mix Index (CMI)                                                                                                       | 0.6857                                               | 0.4763                                                  |
| CMI Adjusted ALOS                                                                                                          | 9.1                                                  | 6.1                                                     |
| CMI Adjusted Average Charge                                                                                                | \$42,524                                             | \$37,037                                                |
| CMI Adjusted Average Cost                                                                                                  | \$12,789                                             | \$8,770                                                 |
| <b>B. Average Total Inborns</b>                                                                                            | <b>16</b>                                            | <b>1,927</b>                                            |
| <b>Percent of total inborns</b>                                                                                            | <b>0.9%</b>                                          | <b>99.1%</b>                                            |
| Average Length of Stay (ALOS)                                                                                              | 23.0                                                 | 6.0                                                     |
| Average Charge                                                                                                             | \$133,772                                            | \$22,027                                                |
| Average Cost                                                                                                               | \$36,612                                             | \$6,967                                                 |
| Case Mix Index (CMI)                                                                                                       | 5.4328                                               | 1.0073                                                  |
| CMI Adjusted ALOS                                                                                                          | 4.2                                                  | 6.0                                                     |
| CMI Adjusted Average Charge                                                                                                | \$24,623                                             | \$21,867                                                |
| CMI Adjusted Average Cost                                                                                                  | \$6,739                                              | \$6,917                                                 |
| % Admitted to special care <sup>2</sup> or transferred to another hospital within 1 day of birth                           | 56.0%                                                | 19.3%                                                   |

**\* This cost analysis is based on a subset of NPIC hospitals that have submitted cost data. The total number of perinatal events in this subset of hospitals is approximately 37,000. We are looking forward to developing more cost analyses and will be reaching out to your administrators to request cost data from your hospital.**

<sup>1</sup> Also includes amnionitis, membranitis, and placentitis. Please see appendix for list of qualifying ICD-10 codes for deliveries. ICD-10 code for neonates is P02.7 - Newborn affected by chorioamnionitis (prior to 10/01/2016, ICD-10 description read "Newborn suspected to be affected by chorioamnionitis").

<sup>2</sup> Special care discharges are those having NICU and/or NINT days/charges > 0.

**Appendix A NPIC Database Comparison of UNC Infection Codes (ICD 9 vs ICD 10)**

| <b>V15.3</b> | <b>ICD 9</b>                 | <b>Codes</b>      |
|--------------|------------------------------|-------------------|
|              | 77181 NB septicemia [sepsis] | 904               |
|              | 7700 Congenital pneumonia    | 151               |
|              | 77183 Bacteremia of newborn  | 27                |
|              |                              | 1,082 1,036 CASES |

| <b>V16.3</b> | <b>ICD 10</b>                                      | <b>Codes</b>      |
|--------------|----------------------------------------------------|-------------------|
| P231         | Congenital pneumonia due to Chlamydia              | 1                 |
| P233         | Congenital pneumonia due to streptococcus, group B | 3                 |
| P234         | Congenital pneumonia due to Escherichia coli       | 1                 |
| P236         | Congenital pneumonia due to other bacterial agents | 2                 |
| P238         | Congenital pneumonia due to other organisms        | 2                 |
| P239         | Congenital pneumonia, unspecified                  | 217               |
| R6520        | Severe sepsis without septic shock                 | 4                 |
| R6521        | Severe sepsis with septic shock                    | 1                 |
| <b>P027</b>  | <b>Newborn affected by chorioamnionitis</b>        | <b>919</b>        |
| P360         | Sepsis of newborn due to streptococcus, group B    | 33                |
| P3610        | Sepsis of newborn due to unspecified streptococci  | 3                 |
| P3619        | Sepsis of newborn due to other streptococci        | 2                 |
| P362         | Sepsis of newborn due to Staphylococcus aureus     | 1                 |
| P3630        | Sepsis of newborn due to unspecified staphylococci | 1                 |
| P3639        | Sepsis of newborn due to other staphylococci       | 3                 |
| P364         | Sepsis of newborn due to Escherichia coli          | 13                |
| P368         | Other bacterial sepsis of newborn                  | 29                |
| P369         | Bacterial sepsis of newborn, unspecified           | 729               |
| R7881        | Bacteremia                                         | 13                |
|              |                                                    | 1,977 1,696 CASES |

**Percent increase in codes**

**82.70%**

## Appendix B: ICD-10-CM Diagnosis Codes

### Maternal

| Code    | Description                                                                                           |
|---------|-------------------------------------------------------------------------------------------------------|
| O411010 | Infection of amniotic sac and membranes, unspecified, first trimester, not applicable or unspecified  |
| O411011 | Infection of amniotic sac and membranes, unspecified, first trimester, fetus 1                        |
| O411012 | Infection of amniotic sac and membranes, unspecified, first trimester, fetus 2                        |
| O411013 | Infection of amniotic sac and membranes, unspecified, first trimester, fetus 3                        |
| O411014 | Infection of amniotic sac and membranes, unspecified, first trimester, fetus 4                        |
| O411015 | Infection of amniotic sac and membranes, unspecified, first trimester, fetus 5                        |
| O411019 | Infection of amniotic sac and membranes, unspecified, first trimester, other fetus                    |
| O411020 | Infection of amniotic sac and membranes, unspecified, second trimester, not applicable or unspecified |
| O411021 | Infection of amniotic sac and membranes, unspecified, second trimester, fetus 1                       |
| O411022 | Infection of amniotic sac and membranes, unspecified, second trimester, fetus 2                       |
| O411023 | Infection of amniotic sac and membranes, unspecified, second trimester, fetus 3                       |
| O411024 | Infection of amniotic sac and membranes, unspecified, second trimester, fetus 4                       |
| O411025 | Infection of amniotic sac and membranes, unspecified, second trimester, fetus 5                       |
| O411029 | Infection of amniotic sac and membranes, unspecified, second trimester, other fetus                   |
| O411030 | Infection of amniotic sac and membranes, unspecified, third trimester, not applicable or unspecified  |
| O411031 | Infection of amniotic sac and membranes, unspecified, third trimester, fetus 1                        |
| O411032 | Infection of amniotic sac and membranes, unspecified, third trimester, fetus 2                        |
| O411033 | Infection of amniotic sac and membranes, unspecified, third trimester, fetus 3                        |
| O411034 | Infection of amniotic sac and membranes, unspecified, third trimester, fetus 4                        |
| O411035 | Infection of amniotic sac and membranes, unspecified, third trimester, fetus 5                        |
| O411039 | Infection of amniotic sac and membranes, unspecified, third trimester, other fetus                    |
| O411210 | Chorioamnionitis, first trimester, not applicable or unspecified                                      |
| O411211 | Chorioamnionitis, first trimester, fetus 1                                                            |
| O411212 | Chorioamnionitis, first trimester, fetus 2                                                            |
| O411213 | Chorioamnionitis, first trimester, fetus 3                                                            |
| O411214 | Chorioamnionitis, first trimester, fetus 4                                                            |
| O411215 | Chorioamnionitis, first trimester, fetus 5                                                            |
| O411219 | Chorioamnionitis, first trimester, other fetus                                                        |
| O411220 | Chorioamnionitis, second trimester, not applicable or unspecified                                     |
| O411221 | Chorioamnionitis, second trimester, fetus 1                                                           |
| O411222 | Chorioamnionitis, second trimester, fetus 2                                                           |
| O411223 | Chorioamnionitis, second trimester, fetus 3                                                           |
| O411224 | Chorioamnionitis, second trimester, fetus 4                                                           |
| O411225 | Chorioamnionitis, second trimester, fetus 5                                                           |
| O411229 | Chorioamnionitis, second trimester, other fetus                                                       |
| O411230 | Chorioamnionitis, third trimester, not applicable or unspecified                                      |
| O411231 | Chorioamnionitis, third trimester, fetus 1                                                            |
| O411232 | Chorioamnionitis, third trimester, fetus 2                                                            |
| O411233 | Chorioamnionitis, third trimester, fetus 3                                                            |
| O411234 | Chorioamnionitis, third trimester, fetus 4                                                            |
| O411235 | Chorioamnionitis, third trimester, fetus 5                                                            |
| O411239 | Chorioamnionitis, third trimester, other fetus                                                        |
| O411410 | Placentitis, first trimester, not applicable or unspecified                                           |
| O411411 | Placentitis, first trimester, fetus 1                                                                 |
| O411412 | Placentitis, first trimester, fetus 2                                                                 |
| O411413 | Placentitis, first trimester, fetus 3                                                                 |
| O411414 | Placentitis, first trimester, fetus 4                                                                 |
| O411415 | Placentitis, first trimester, fetus 5                                                                 |
| O411419 | Placentitis, first trimester, other fetus                                                             |
| O411420 | Placentitis, second trimester, not applicable or unspecified                                          |
| O411421 | Placentitis, second trimester, fetus 1                                                                |

O411422 Placentitis, second trimester, fetus 2  
 O411423 Placentitis, second trimester, fetus 3  
 O411424 Placentitis, second trimester, fetus 4  
 O411425 Placentitis, second trimester, fetus 5  
 O411429 Placentitis, second trimester, other fetus  
 O411430 Placentitis, third trimester, not applicable or unspecified  
 O411431 Placentitis, third trimester, fetus 1  
 O411432 Placentitis, third trimester, fetus 2  
 O411433 Placentitis, third trimester, fetus 3  
 O411434 Placentitis, third trimester, fetus 4  
 O411435 Placentitis, third trimester, fetus 5  
 O411439 Placentitis, third trimester, other fetus  
 O411090 Infct of amniotic sac and membranes, unsp, unsp trimester  
 O411091 Infct of amniotic sac and membrns, unsp, unsp tri, fetus 1  
 O411092 Infct of amniotic sac and membrns, unsp, unsp tri, fetus 2  
 O411093 Infct of amniotic sac and membrns, unsp, unsp tri, fetus 3  
 O411094 Infct of amniotic sac and membrns, unsp, unsp tri, fetus 4  
 O411099 Infct of amniotic sac and membrns, unsp, unsp trimester, oth  
 O411290 Chorioamnionitis, unsp trimester, not applicable or unsp  
 O411291 Chorioamnionitis, unspecified trimester, fetus 1  
 O411292 Chorioamnionitis, unspecified trimester, fetus 2  
 O411293 Chorioamnionitis, unspecified trimester, fetus 3  
 O411294 Chorioamnionitis, unspecified trimester, fetus 4  
 O411295 Chorioamnionitis, unspecified trimester, fetus 5  
 O411095 Infct of amniotic sac and membrns, unsp, unsp tri, fetus 5  
 O411299 Chorioamnionitis, unspecified trimester, other fetus  
 O411490 Placentitis, unsp trimester, not applicable or unspecified  
 O411491 Placentitis, unspecified trimester, fetus 1  
 O411492 Placentitis, unspecified trimester, fetus 2  
 O411493 Placentitis, unspecified trimester, fetus 3  
 O411494 Placentitis, unspecified trimester, fetus 4  
 O411495 Placentitis, unspecified trimester, fetus 5  
 O411499 Placentitis, unspecified trimester, other fetus

#### **Neonatal**

P027 Newborn affected by chorioamnionitis

#### **Septecemia (LOS > 4 days)**

P360 Sepsis of newborn due to streptococcus, group B  
 P3610 Sepsis of newborn due to unspecified streptococci  
 P3619 Sepsis of newborn due to other streptococci  
 P362 Sepsis of newborn due to Staphylococcus aureus  
 P3630 Sepsis of newborn due to unspecified staphylococci  
 P3639 Sepsis of newborn due to other staphylococci  
 P364 Sepsis of newborn due to Escherichia coli  
 P365 Sepsis of newborn due to anaerobes  
 P368 Other bacterial sepsis of newborn  
 P369 Bacterial sepsis of newborn, unspecified  
 R7881 Bacteremia

#### **Respiratory Distress Syndrome (RDS)**

P220 Respiratory distress syndrome of newborn