

SECTION II. SUPPLEMENTARY TABLES

Codes to Identify NICU Stay

| NICU TYPE | CPT |
|--|--|
| Neonatal Critical Care <28 Days | Before 2009: 99295, 99296 After 2009: 99468, 99469 |
| Critical Care > 28 Days | Before 2009: 99293, 99294 After 2009: 99471, 99472 |
| Neonatal Care, not “critical” | Before 2009: 99298, 99299, 99300 After 2009: 99477, 99478, 99479, 99480 |
| Less Intensive Hospital Stay (Initial Must Be < 1 DOL) | 99221, 99222, 99223, 99231, 99232, 99233 |

Codes to Identify NICU Complications/Comorbidities for additional risk-adjustment

| Condition/Procedure | Code |
|-----------------------------------|--|
| Bronchopulmonary dysplasia (BPD) | 7707 |
| Necrotizing enterocolitis (NEC) | 7775, 77750, 77751, 77752, 77753 |
| Retinopathy of prematurity (ROP) | Diagnosis Code: 36220, 36221, 36223, 36224, 36225, 36226, 36227 |
| | Surgical Procedure Code: ICD-9: 142, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1429, 1434, 144, 1441, 1449, 145, 1451, 1452, 1453, 1454, 1455, 1459 CPT: 67227, 67228, 67229 |
| Intraventricular hemorrhage (IVH) | 431, 7721, 77210, 77211, 77212, 77213, 77214 |
| Patent ductus arteriosus (PDA) | Diagnosis: 7470 |
| | Surgical Procedure Code: ICD-9: 3834, 3835, 3844, 3845, 3864, 3865, 3880, 3884, 3885 CPT: 37616 |
| Laparotomy | Surgical Procedure Code: ICD-9: 456, 4561, 4562, 4563, 457, 4571, 4572, 4573, 4574, 4575, 4576, 4579, 458, 459, 4590, 4591, 4592, 4593, 4594, 4595, 460, 4601, 4602, 4603, 4604, 461, 4610, 4611, 4612, 4613, 4614, 462, 4620, 4621, 4622, 4623, 4624, 463, 4631, 4632, 4639, 464, 4640, 4641, 4642, 4643, 465, 4650, 4651, 4652, 468, 4680, 4681, 4682, 4685, 541, 5411, 5412, 5419 CPT: 49000, 49002, 49010, 49020, 49040, 49060 |

Table 1: Exclusion Criteria- ICD-9 Codes for Congenital Anomalies

| Congenital Anomaly Group | ICD-9 Codes |
|---------------------------------|---|
| Cardio | 746.6, 746.7, 746.81, 746.82, 746.83, 746.84, 746.85, 746.87, 746.89, 746.9, 747.10, 747.11, 747.21, 747.22, 747.29, 747.40, 747.41, 747.42, 747.49 |
| Chromosomes | 758.3, 758.5, 758.89, 758.9, 759.4, 759.7, 759.89, 759.9 |
| Central Nervous System | 741.00, 741.01, 741.02, 741.03, 741.90, 741.91, 741.92, 741.93, 742.0, 742.1, 742.2, 742.3, 742.4, 742.59, 742.8, 742.9 |
| Conanomoth | 759.6, 776.5, 778.0 |
| Gastrointestinal | 560.2, 750.3, 750.4, 750.5, 750.7, 750.8, 750.9, 751.0, 751.1, 751.2, 751.3, 751.4, 751.5, 751.60, 751.61, 751.69, 751.7, 751.8, 751.9, 756.70, 756.79, 777.1 |
| Genitourinary | 753.0, 753.10, 753.12, 753.14, 753.15, 753.19, 753.20, 753.21, 753.22, 753.23, 753.29, 753.3, 753.4, 753.6, 753.7, 753.8, 753.9, 756.71 |
| Pulmonary | 519.4, 553.3, 748.3, 748.4, 748.60, 748.61, 748.69, 748.8, 748.9, 750.6, 756.6 |
| Skeletal | 756.50, 756.51, 756.55, 756.56, 756.59 |
| Skin | 757.1 |

Tables 2a-2e: Readmission Rates by Year, Unadjusted

| Table 2a. Readmission within 7 days, unadjusted rates | | | | | | | | | | | | | | |
|---|-------|---------|-------|-------|---------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Mean | Std Dev | Min | Max | IQR | Deciles | | | | | | | | |
| | | | | | | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% |
| 2006 | 0.026 | 0.013 | 0.009 | 0.067 | (0.015-0.029) | 0.014 | 0.015 | 0.018 | 0.023 | 0.024 | 0.025 | 0.029 | 0.034 | 0.040 |
| 2007 | 0.027 | 0.014 | 0.011 | 0.058 | (0.02-0.034) | 0.014 | 0.018 | 0.020 | 0.021 | 0.022 | 0.023 | 0.029 | 0.038 | 0.057 |
| 2008 | 0.027 | 0.009 | 0.016 | 0.047 | (0.02-0.036) | 0.017 | 0.018 | 0.021 | 0.022 | 0.023 | 0.026 | 0.032 | 0.036 | 0.041 |
| Data Description: MAX Data 2006-2008 | | | | | | | | | | | | | | |

| Table 2b. Readmission within 14 days, unadjusted rates | | | | | | | | | | | | | | |
|--|-------|---------|-------|-------|---------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Mean | Std Dev | Min | Max | IQR | Deciles | | | | | | | | |
| | | | | | | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% |
| 2006 | 0.038 | 0.014 | 0.021 | 0.080 | (0.03-0.042) | 0.023 | 0.026 | 0.030 | 0.035 | 0.037 | 0.039 | 0.041 | 0.044 | 0.053 |
| 2007 | 0.041 | 0.017 | 0.023 | 0.079 | (0.031-0.042) | 0.027 | 0.031 | 0.031 | 0.034 | 0.036 | 0.038 | 0.041 | 0.051 | 0.078 |
| 2008 | 0.039 | 0.009 | 0.027 | 0.060 | (0.033-0.044) | 0.030 | 0.031 | 0.033 | 0.034 | 0.036 | 0.036 | 0.040 | 0.048 | 0.058 |
| Data Description: MAX Data 2006-2008 | | | | | | | | | | | | | | |

| Table 2c. Readmission within 30 days, unadjusted rates | | | | | | | | | | | | | | |
|--|-------|---------|-------|-------|---------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Mean | Std Dev | Min | Max | IQR | Deciles | | | | | | | | |
| | | | | | | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% |
| 2006 | 0.061 | 0.015 | 0.036 | 0.103 | (0.053-0.067) | 0.039 | 0.051 | 0.054 | 0.057 | 0.060 | 0.062 | 0.065 | 0.067 | 0.080 |
| 2007 | 0.066 | 0.018 | 0.041 | 0.111 | (0.055-0.073) | 0.045 | 0.054 | 0.055 | 0.059 | 0.060 | 0.065 | 0.071 | 0.078 | 0.094 |
| 2008 | 0.061 | 0.015 | 0.039 | 0.095 | (0.051-0.07) | 0.042 | 0.048 | 0.052 | 0.056 | 0.058 | 0.060 | 0.068 | 0.072 | 0.081 |
| Data Description: MAX Data 2006-2008 | | | | | | | | | | | | | | |

| Table 2d. Readmission within 90 days, unadjusted rates | | | | | | | | | | | | | | |
|--|-------|---------|-------|-------|---------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Mean | Std Dev | Min | Max | IQR | Deciles | | | | | | | | |
| | | | | | | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% |
| 2006 | 0.109 | 0.022 | 0.067 | 0.155 | (0.092-0.121) | 0.088 | 0.090 | 0.093 | 0.103 | 0.107 | 0.118 | 0.120 | 0.123 | 0.142 |
| 2007 | 0.117 | 0.025 | 0.074 | 0.174 | (0.105-0.124) | 0.077 | 0.094 | 0.106 | 0.112 | 0.117 | 0.121 | 0.124 | 0.133 | 0.153 |
| 2008 | 0.107 | 0.023 | 0.072 | 0.153 | (0.088-0.124) | 0.080 | 0.081 | 0.088 | 0.098 | 0.110 | 0.119 | 0.123 | 0.125 | 0.130 |
| Data Description: MAX Data 2006-2008 | | | | | | | | | | | | | | |

Table 2e. Readmission within 365 days, unadjusted rates

| | Mean | Std Dev | Min | Max | IQR | Deciles | | | | | | | | |
|-------------|-------|---------|-------|-------|---------------|---------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | | | | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% |
| 2006 | 0.177 | 0.034 | 0.117 | 0.240 | (0.147-0.192) | 0.138 | 0.145 | 0.149 | 0.172 | 0.179 | 0.185 | 0.190 | 0.200 | 0.229 |
| 2007 | 0.185 | 0.038 | 0.120 | 0.256 | (0.164-0.214) | 0.125 | 0.153 | 0.164 | 0.178 | 0.183 | 0.190 | 0.204 | 0.215 | 0.249 |
| 2008 | 0.169 | 0.032 | 0.095 | 0.211 | (0.14-0.196) | 0.131 | 0.137 | 0.149 | 0.162 | 0.176 | 0.187 | 0.195 | 0.201 | 0.205 |

Data Description: MAX Data 2006-2008

Table 3. Readmission Rates Stratified by Federal Insurance Type, by State

| Table 3. Readmission Rates Stratified by Federal Insurance Type | | | | | | |
|--|-----------------|------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|
| | | Readmission 7 Day Rate (CL) | Readmission 14 Day Rate (CL) | Readmission 30 Day Rate (CL) | Readmission 90 Day Rate (CL) | Readmission 365 Day Rate (CL) |
| AZ | M-CHIP/Medicaid | 0.024 (0.02-0.027) | 0.039 (0.035-0.044) | 0.063 (0.057-0.069) | 0.118 (0.111-0.126) | 0.179 (0.17-0.188) |
| | S-CHIP | 0 (0-0.206) | 0 (0-0.206) | 0 (0-0.206) | 0 (0-0.206) | 0.125 (0.016-0.383) |
| ID | M-CHIP/Medicaid | 0.021 (0.015-0.03) | 0.032 (0.024-0.041) | 0.046 (0.037-0.058) | 0.088 (0.075-0.102) | 0.141 (0.125-0.159) |
| | S-CHIP | 0.032 (0.001-0.167) | 0.032 (0.001-0.167) | 0.032 (0.001-0.167) | 0.065 (0.008-0.214) | 0.065 (0.008-0.214) |
| IL | M-CHIP/Medicaid | 0.056 (0.052-0.061) | 0.069 (0.064-0.074) | 0.092 (0.087-0.098) | 0.145 (0.138-0.152) | 0.216 (0.208-0.223) |
| | S-CHIP | 0.053 (0.006-0.177) | 0.053 (0.006-0.177) | 0.053 (0.006-0.177) | 0.053 (0.006-0.177) | 0.053 (0.006-0.177) |
| IN | M-CHIP/Medicaid | 0.017 (0.014-0.021) | 0.027 (0.023-0.032) | 0.046 (0.04-0.051) | 0.081 (0.074-0.088) | 0.135 (0.127-0.144) |
| | S-CHIP | 0 (0-0.975) | 0 (0-0.975) | 0 (0-0.975) | 0 (0-0.975) | 0 (0-0.975) |
| KS | M-CHIP/Medicaid | 0.023 (0.017-0.03) | 0.036 (0.029-0.045) | 0.062 (0.053-0.072) | 0.118 (0.106-0.132) | 0.201 (0.185-0.217) |
| | S-CHIP | 0.021 (0.016-0.025) | 0.038 (0.032-0.044) | 0.063 (0.056-0.071) | 0.115 (0.105-0.125) | 0.207 (0.194-0.219) |
| KY | M-CHIP/Medicaid | 0 (0-0.128) | 0.074 (0.009-0.243) | 0.148 (0.042-0.337) | 0.148 (0.042-0.337) | 0.148 (0.042-0.337) |
| | S-CHIP | 0.016 (0.013-0.019) | 0.028 (0.025-0.033) | 0.058 (0.053-0.064) | 0.121 (0.113-0.129) | 0.206 (0.197-0.216) |
| LA | M-CHIP/Medicaid | 0.023 (0.018-0.028) | 0.038 (0.032-0.045) | 0.068 (0.06-0.076) | 0.121 (0.111-0.132) | 0.191 (0.179-0.204) |
| MO | M-CHIP/Medicaid | 0 (0-0.708) | 0 (0-0.708) | 0 (0-0.708) | 0 (0-0.708) | 0.667 (0.094-0.992) |
| | S-CHIP | 0.046 (0.033-0.062) | 0.059 (0.044-0.077) | 0.084 (0.067-0.105) | 0.142 (0.119-0.167) | 0.213 (0.186-0.242) |
| MT | M-CHIP/Medicaid | 0 (0-0.842) | 0 (0-0.842) | 0 (0-0.842) | 0 (0-0.842) | 0 (0-0.842) |
| | S-CHIP | 0.022 (0.019-0.025) | 0.033 (0.03-0.036) | 0.053 (0.049-0.057) | 0.095 (0.09-0.1) | 0.153 (0.147-0.16) |
| NC | M-CHIP/Medicaid | 0.025 (0.014-0.04) | 0.036 (0.023-0.054) | 0.051 (0.035-0.071) | 0.082 (0.062-0.107) | 0.11 (0.086-0.138) |
| NH | M-CHIP/Medicaid | 0.02 (0.016-0.025) | 0.033 (0.027-0.039) | 0.055 (0.048-0.063) | 0.114 (0.104-0.125) | 0.19 (0.177-0.203) |

| | | | | | | |
|-----------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | Medicaid | | | | | |
| NJ | M-CHIP/ Medicaid | 0 (0-0.522) | 0 (0-0.522) | 0 (0-0.522) | 0 (0-0.522) | 0.2 (0.005-0.716) |
| | S-CHIP | 0.019 (0.014-0.024) | 0.03 (0.024-0.037) | 0.053 (0.045-0.062) | 0.087 (0.077-0.098) | 0.158 (0.145-0.172) |
| NM | M-CHIP/ Medicaid | 0.022 (0.02-0.025) | 0.035 (0.032-0.037) | 0.059 (0.056-0.063) | 0.11 (0.105-0.115) | 0.179 (0.173-0.185) |
| NY | M-CHIP/ Medicaid | 0.036 (0.031-0.043) | 0.048 (0.042-0.055) | 0.072 (0.064-0.081) | 0.116 (0.106-0.126) | 0.171 (0.16-0.183) |
| VA | M-CHIP/ Medicaid | 0.042 (0.001-0.211) | 0.083 (0.01-0.27) | 0.083 (0.01-0.27) | 0.125 (0.027-0.324) | 0.125 (0.027-0.324) |
| | S-CHIP | 0.028 (0.014-0.05) | 0.036 (0.02-0.06) | 0.052 (0.032-0.079) | 0.093 (0.066-0.126) | 0.155 (0.12-0.195) |
| VT | M-CHIP/ Medicaid | 0 (0-0.336) | 0 (0-0.336) | 0 (0-0.336) | 0 (0-0.336) | 0 (0-0.336) |
| | S-CHIP | 0.021 (0.017-0.026) | 0.034 (0.029-0.04) | 0.059 (0.052-0.067) | 0.1 (0.091-0.11) | 0.15 (0.139-0.161) |
| WI | M-CHIP/ Medicaid | 0 (0-0.522) | 0 (0-0.522) | 0 (0-0.522) | 0 (0-0.522) | 0 (0-0.522) |
| | S-CHIP | 0.042 (0.028-0.059) | 0.059 (0.043-0.079) | 0.087 (0.068-0.11) | 0.148 (0.123-0.175) | 0.233 (0.203-0.265) |
| WY | M-CHIP/ Medicaid | 0.024 (0.02-0.027) | 0.039 (0.035-0.044) | 0.063 (0.057-0.069) | 0.118 (0.111-0.126) | 0.179 (0.17-0.188) |

Data Description: MAX data 2006-2008

CL- Exact Binomial Confidence Limits

Table 4: Adjusted Model with complications of prematurity Readmission Rates by State, Patients with Gestational Age Only

| Table 4 Adjusted Model with complications of prematurity Readmission Rates by State, Patients with Gestational Age Only | | | | | |
|--|-----------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| | Readmission 7 Day Rate | Readmission 14 Day Rate | Readmission 30 Day Rate | Readmission 90 Day Rate | Readmission 365 Day Rate |
| AZ | 0.023 | 0.038 | 0.060 | 0.114 | 0.175 |
| ID | 0.022 | 0.032 | 0.048 | 0.090 | 0.146 |
| IL | 0.058 | 0.070 | 0.092 | 0.145 | 0.214 |
| IN | 0.018 | 0.029 | 0.048 | 0.085 | 0.141 |
| KS | 0.023 | 0.038 | 0.064 | 0.122 | 0.206 |
| KY | 0.019 | 0.036 | 0.063 | 0.114 | 0.206 |
| LA | 0.016 | 0.029 | 0.059 | 0.121 | 0.205 |
| MO | 0.023 | 0.039 | 0.070 | 0.124 | 0.196 |
| MT | 0.042 | 0.055 | 0.081 | 0.137 | 0.209 |
| NC | 0.021 | 0.031 | 0.051 | 0.091 | 0.148 |
| NH | 0.025 | 0.037 | 0.054 | 0.086 | 0.116 |
| NJ | 0.020 | 0.032 | 0.054 | 0.113 | 0.187 |
| NM | 0.019 | 0.031 | 0.055 | 0.090 | 0.163 |
| NY | 0.023 | 0.036 | 0.062 | 0.114 | 0.184 |
| VA | 0.034 | 0.045 | 0.068 | 0.110 | 0.162 |
| VT | 0.029 | 0.037 | 0.053 | 0.095 | 0.159 |
| WI | 0.020 | 0.032 | 0.056 | 0.096 | 0.144 |
| WY | 0.043 | 0.064 | 0.095 | 0.159 | 0.247 |
| Data Description: MAX data 2006-2008 | | | | | |

Table 5: Adjusted Model with complications of prematurity Readmission Rates by State, Patients with Imputed Gestational Age

| Table 5 Adjusted Model with complications of prematurity Readmission Rates by State, Patients with Imputed Gestational Age | | | | | |
|---|-------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|
| | Readmission 7 Day Rate | Readmission 14 Day Rate | Readmission 30 Day Rate | Readmission 90 Day Rate | Readmission 365 Day Rate |
| AZ | 0.021 | 0.031 | 0.052 | 0.095 | 0.147 |
| ID | 0.019 | 0.027 | 0.037 | 0.071 | 0.118 |
| IL | 0.037 | 0.045 | 0.060 | 0.097 | 0.152 |
| IN | 0.018 | 0.026 | 0.041 | 0.073 | 0.122 |
| KS | 0.020 | 0.028 | 0.045 | 0.086 | 0.158 |
| KY | 0.019 | 0.031 | 0.051 | 0.093 | 0.173 |
| LA | 0.015 | 0.026 | 0.052 | 0.104 | 0.181 |
| MO | 0.022 | 0.033 | 0.055 | 0.103 | 0.167 |
| MT | 0.037 | 0.049 | 0.067 | 0.115 | 0.179 |
| NC | 0.019 | 0.028 | 0.044 | 0.078 | 0.129 |
| NH | 0.027 | 0.034 | 0.048 | 0.073 | 0.109 |
| NJ | 0.015 | 0.024 | 0.043 | 0.085 | 0.151 |
| NM | 0.021 | 0.029 | 0.045 | 0.076 | 0.138 |
| NY | 0.021 | 0.029 | 0.048 | 0.087 | 0.145 |
| VA | 0.030 | 0.038 | 0.055 | 0.090 | 0.142 |
| VT | 0.023 | 0.034 | 0.047 | 0.078 | 0.129 |
| WI | 0.023 | 0.033 | 0.051 | 0.084 | 0.129 |
| WY | 0.041 | 0.057 | 0.080 | 0.131 | 0.217 |
| Data Description: MAX data 2006-2008 | | | | | |