



HEALTHGRADES®

Hospital Report Cards™ Maternity Care Methodology 2012 (2008-2010 All-payer States Data)

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To help consumers evaluate and compare hospital performance in maternity care, HealthGrades analyzed patient outcome data for virtually every hospital in the 19 states that make their data available. The state data contained inpatient records for all patients. The HealthGrades ratings are available on the Internet at www.HealthGrades.com.

Data Acquisition

HealthGrades purchased the initial patient-level data for all states that made their data available. The data represent three years of discharges (2008 – 2010). These data were chosen because they represent all discharges for the associated states. The 19 all-payer states evaluated were as follows:

- Arizona
- California
- Colorado
- Florida
- Iowa
- Maryland
- Massachusetts
- Nevada
- New Jersey
- New York
- North Carolina
- Oregon
- Pennsylvania
- Rhode Island
- Texas
- Utah
- Virginia
- Washington
- Wisconsin

Methodology for Maternity Care Ratings

Maternity Care ratings are based on the analysis of four factors:

- Maternal complication rate among women undergoing single live born vaginal deliveries
- Maternal complication rate among women undergoing single live born C-section deliveries
- Newborn volume adjusted for low birth weight
- Newborn mortality risk-adjusted using eight birth weight categories and congenital risk factors developed by the Agency for Healthcare Quality and Research

For each factor, hospitals are ranked and a percentile score is calculated. Lower maternal complication rates correspond to lower percentile rankings. For newborn volume, hospitals are assigned a percentile rank based on their overall volume of single-live born neonates combined with the percentage of neonates falling into the 1,000 to 1,749 gram birth weight categories compared to the national average. Hospitals with higher volumes and higher percentages of these low birth weight infants receive lower percentile ranks. Finally, newborn risk-adjusted mortality is ranked based on the z-score.

Maternal Vaginal and C-section Deliveries

For the HealthGrades maternal complication rate calculations, only women with single, live-born deliveries were considered. A list of the DRGs (Diagnosis Related Groups) and diagnosis codes used by HealthGrades to identify patients can be found in *Appendix A*. The following records were excluded from the analysis:

- Patients with a code of V23.7 Insufficient Prenatal Care
- Patients under the age of 18 or over the age of 55 (except for California*)
- Patients whose sex were listed as male or unknown (except for California*)
- Patients who left against medical advice, were still in the hospital, were transferred to another acute care facility, or whose discharge status was unknown (except for California*)

*California data were treated differently due to intentional data masking done by the state.

Maternal Complication Rate: Vaginal and C-section Single Live-Born Deliveries

For the patient population determined above, the rate of major complications was calculated for both vaginal and c-section deliveries. A list of the complication codes analyzed can be found in *Appendix B*.

Percentiles were then calculated for each measure (vaginal or C-section delivery complication rates). Low complication rates produced low percentile rankings.

Newborn Volume Adjusted for Birth Weight

To adjust for hospitals with specialized neonatal services that receive higher rates of low birth weight newborns, HealthGrades calculated a newborn birth-weight adjusted volume score for each hospital. For each hospital, a percentile rank was calculated based on the overall volume of single live-born deliveries and the percentage of neonates born into the 1,000 to 1,749 gram weight category. Higher volumes in both categories resulted in lower percentile ranks.

This combination of birth weight and volume compensates the hospitals that have more difficult cases. The measure was developed using "discriminant analysis" – a statistical method that, in this case, was used to create a prediction equation indicating the presence of a Newborn Intensive Care Unit. Hospitals with newborn intensive care units attract the most difficult pregnancies. With the discriminant analysis approach, numerous factors including diagnoses and procedures were included and only the factors that provided the best prediction remained. In this case, volume and neonates in the 1,000 to 1,749 gram weight category provided the best prediction of the presence of a newborn intensive care unit.

A percentile ranking is calculated for each hospital based on the discriminant function, and hospitals with the greatest number of births and with the highest percentages of neonates in the 1,000 to 1,749 gram category received the lowest percentile score.

Newborn Risk-Adjusted Mortality

HealthGrades identified single live-born newborns that were not transferred in or out of the hospital. Codes are listed in *Appendix A*.

To preserve the integrity of the calculation for newborn mortality, HealthGrades conducted a series of data quality checks. Based on the results of these checks, HealthGrades excluded a limited number of cases because they were inappropriate for inclusion. Examples of excluded patient records for newborn mortality were:

- Patients over the age of 0 or whose age was unknown (except for California*)
- Patients who had multiple weights in two or more categories for the same admission
- Patients who left against medical advice, were still in the hospital, or whose discharge status was unknown (except for California*)
- Patients having diagnosis codes indicating congenital defects or other conditions that would be incompatible with a live birth (See *Appendix C*.)
- Patients with birth weights less than 500 grams
- Patients who were transferred to another acute care facility or from any facility (except for California*)

*California data were treated differently due to intentional data masking done by the state.

Newborn risk-adjusted mortality rates were determined using a multivariate logistic regression model. We utilized eight neonate weight categories and congenital risk factor categories developed by the Agency for Healthcare Research and Quality (Reference: Agency for HealthCare Quality and Research. Risk Adjustment Coefficients for the PDI. Version 4.2, September 2010. Available at: http://www.qualityindicators.ahrq.gov/Modules/pdi_resources.aspx) as potential risk factors and using logistic regression determined which of these potential risk factors were statistically important in predicting mortality.

Using the model above, a predicted probability of mortality was calculated for each newborn. The individual predicted probabilities were summed to get an overall predicted number of deaths for the hospital and this was then compared to the actual mortality. The z-score between the predicted and actual was then calculating using the standard deviation and rank ordered.

Low percentile rankings corresponded to the hospitals which had fewer deaths than expected, and the greatest statistical significance associated with this difference.

Newborn mortality outcomes are measured by Newborn Survival ratings:

- **Better than expected** – Fewer newborn mortalities than expected
- **As expected** – About the same newborn mortalities as expected
- **Worse than expected** – More newborn mortalities than expected mortality.

Assignment of Star Ratings for Maternity Care

The four factors were weighted equally. Based upon each hospital's overall score, HealthGrades applied the following rating system.

- ★★★★★ **Best** – Top 15% of all hospitals within 19 all-payer states
- ★★★ **As Expected** – Middle 70% of all hospitals within 19 all-payer states
- ★ **Poor** – Bottom 15% of all hospitals within 19 all-payer states

Limitations of the Data Models for Maternity Care and Women's Health

It must be understood that while these models may be valuable in identifying hospitals that perform better than others, one should not use this information alone to determine the quality of care provided at each hospital. The models are limited by the following factors:

- Cases may have been coded incorrectly or incompletely by the hospital.
- The models can only account for risk factors that are coded into the billing data—if a particular risk factor was not coded into the billing data, such as a patient's socioeconomic status and health behavior, then it was not accounted for with these models.
- Although Health Grades, Inc. has taken steps to carefully compile these data using its proprietary methodology, no techniques are infallible, and therefore some information may be missing, outdated, or incorrect.

Please note that a high ranking for a particular hospital is not a recommendation or endorsement by Health Grades, Inc. of a particular hospital; it means that the data associated with a particular hospital has met the foregoing qualifications. Only individual patients can decide whether a particular hospital is suited for their unique needs.

Also note that if more than one hospital reported under a single provider ID, HealthGrades analyzed patient outcome data for those hospitals as a single unit. Throughout this document, therefore, "hospital" refers to one hospital or a group of hospitals reporting under a single provider ID.

Appendix A. Patient Cohorts and Related ICD-9-CM Codes

Cesarean Section with Single Birth

Inclusions

Diagnosis Related Groups: 765, 766

Exclusions

Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 765, 766

Diagnoses (Primary or Secondary): 651.00, 651.01, 651.03, 651.10, 651.11, 651.13, 651.20, 651.21, 651.23, 651.30, 651.31, 651.33, 651.40, 651.41, 651.43, 651.50, 651.51, 651.53, 651.60, 651.61, 651.63, 651.70, 651.71, 651.73, 651.80, 651.81, 651.83, 651.90, 651.91, 651.93, 652.61, 660.50, 660.51, 660.53, 678.10, 678.11, 678.13, 996.8, 996.80, 996.81, 996.82, 996.83, 996.84, 996.85, 996.86, 996.87, 996.89, V23.7, V27.1, V27.2, V27.3, V27.4, V27.5, V27.6, V27.7, V27.9, V32.00, V32.01, V32.1, V32.2, V33.01, V33.1, V33.2, V34.00, V34.01, V34.1, V34.2, V35.00, V35.01, V35.1, V35.2, V36.00, V36.01, V36.1, V36.2, V37.00, V37.01, V37.1, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V91.00, V91.01, V91.02, V91.03, V91.09, V91.10, V91.11, V91.12, V91.19, V91.20, V91.21, V91.22, V91.29, V91.90, V91.91, V91.92, V91.99

Vaginal Delivery with Single Birth

Inclusions

Diagnosis Related Groups: 767, 768, 774, 775

Exclusions

Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63, 74.0, 74.1, 74.2, 74.4, 74.99, 767, 768, 774, 775

Diagnoses (Primary or Secondary): 651.00, 651.01, 651.03, 651.10, 651.11, 651.13, 651.20, 651.21, 651.23, 651.30, 651.31, 651.33, 651.40, 651.41, 651.43, 651.50, 651.51, 651.53, 651.60, 651.61, 651.63, 651.70, 651.71, 651.73, 651.80, 651.81, 651.83, 651.90, 651.91, 651.93, 652.61, 660.50, 660.51, 660.53, 678.10, 678.11, 678.13, 996.8, 996.80, 996.81, 996.82, 996.83, 996.84, 996.85, 996.86, 996.87, 996.89, V23.7, V27.1, V27.2, V27.3, V27.4, V27.5, V27.6, V27.7, V27.9, V32.00, V32.01, V32.1, V32.2, V33.01, V33.1, V33.2, V34.00, V34.01, V34.1, V34.2, V35.00, V35.01, V35.1, V35.2, V36.00, V36.01, V36.1, V36.2, V37.00, V37.01, V37.1, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V91.00, V91.01, V91.02, V91.03, V91.09, V91.10, V91.11, V91.12, V91.19, V91.20, V91.21, V91.22, V91.29, V91.90, V91.91, V91.92, V91.99

Newborn Mortality

Inclusions

Diagnoses (Primary or Secondary): 764.02, 764.03, 764.04, 764.05, 764.06, 764.07, 764.08, 764.09, 764.12, 764.13, 764.14, 764.15, 764.16, 764.17, 764.18, 764.19, 764.22, 764.23, 764.24, 764.25, 764.26, 764.27, 764.28, 764.29, 764.92, 764.93, 764.94, 764.95, 764.96, 764.97, 764.98, 764.99, 765.02, 765.03, 765.04, 765.05, 765.06, 765.07, 765.08, 765.09, 765.12, 765.13, 765.14, 765.15, 765.16, 765.17, 765.18, 765.19, V30.00, V30.01

Congenital Condition Exclusions

Central Nervous System:

Excluding patients with diagnosis codes 740.0 Anencephalus, 740.1 Craniorachischis, 740.2 Inencephaly, 742.1 Microcephalus, 742.2 Reduction deformities of brain

Cardiac:

Excluding patients with diagnosis codes 745.7 Cor biloculare, 746.7 Hypoplastic left heart syndrome, 746.82 Cor triatriatum, 747.22 Atresia & stenosis of aorta, 745.10 Complete transposition of great vessels

Renal:

Excluding patients with diagnosis codes 753.0 Renal agenesis & dysgenesis (only if bilateral)

Chromosomal:

Excluding patients with diagnosis codes 758.1 Patau's syndrome (trisomy 13), 758.2 Edward's syndrome (trisomy 18)

Respiratory:

Excluding patients with diagnosis codes 748.5 Lung agenesis/Hypoplasia, Aplasia of lung, Hypoplasia of lung (lobe), Sequestration of lung. An argument can be made that not all are fatal (e.g., hypoplasia if unilateral). Due to the high frequency of associated malformations, the mortality rate is variable but high.

Multiple Birth Exclusions

Multiple Births - Diagnoses (Primary or Secondary): 759.4, V31.00, V31.01, V31.1, V31.2, V32.00, V32.01, V32.1, V32.2, V33.00, V33.01, V33.1, V33.2, V34.00, V34.01, V34.1, V34.2, V35.00, V35.01, V35.1, V35.2, V36.00, V36.01, V36.1, V36.2, V37.00, V37.01, V37.1

Other Exclusions

Procedures (Primary or Secondary): 37.51, 37.52, 37.53, 37.54, 37.62, 37.63

Diagnoses (Primary or Secondary): 764.00, 764.01, 764.10, 764.11, 764.20, 764.21, 764.90, 764.91, 765.00, 765.01, 765.10, 765.11, 996.8, 996.80, 996.81, 996.82, 996.83, 996.84, 996.85, 996.86, 996.87, 996.89, V42.0, V42.1, V42.4, V42.6, V42.7, V42.81, V42.82, V42.83, V42.84, V42.89, V42.9, V66.7

Appendix B. Maternity Care Major Complications

Independent complications are conditions that are clearly hospital-acquired or by the coding definition are defined as post-operative. For 2009 and 2010 these conditions were not counted as complications if the POA indicator was "Yes" or "Clinically Undetermined."

Maternity Care – Vaginal Delivery

038.0	STREPTOCOCCAL SEPTICEMIA	673.04	OB AIR EMBOLISM-PP
038.10	STAPH SEPTICEMIA NOS	673.20	OB BLOOD-CLOT EMBOL-NOS
038.11	MSSA SEPTICEMIA	673.21	OB BLOOD-CLOT EMBOL-DEL
038.12	MRSA SEPTICEMIA	673.22	OB BLD-CLOT EMBOL-DEL PP
038.19	STAPH SEPTICEMIA NEC	673.23	OB BLOOD-CLOT EMBOL-AP
038.2	PNEUMOCOCCAL SEPTICEMIA	673.24	OB BLOOD-CLOT EMBOL-PP
038.3	ANAEROBIC SEPTICEMIA	673.30	OB PYEMIC EMBOLISM-NOS
038.40	GRAM-NEG SEPTICEMIA NOS	673.31	OB PYEMIC EMBOL-DEL
038.41	H. INFLUENZAE SEPTICEMIA	673.32	OB PYEMIC EMBOL-DEL PP
038.42	E. COLI SEPTICEMIA	673.33	OB PYEMIC EMBOL-AP
038.43	PSEUDOMONAS SEPTICEMIA	673.34	OB PYEMIC EMBOL-PP
038.44	SERRATIA SEPTICEMIA	673.80	OB PULMON EMBOL NEC-NOS
038.49	GRAM-NEG SEPTICEMIA NEC	673.81	OB PULMON EMBOL NEC-DEL
038.8	SEPTICEMIA NEC	673.82	OB PULMON EMBOL-DEL PP
038.9	SEPTICEMIA NOS	673.83	OB PULMON EMBOL NEC-AP
512.1	IATROGENIC PNEUMOTHORAX	673.84	OB PULMON EMBOL NEC-PP
518.4	ACUTE LUNG EDEMA NOS	785.51	CARDIOGENIC SHOCK
518.7	TRALI	785.59	SHOCK W/O TRAUMA NEC
518.81	AC RESPIRATORY FAILURE	996.31	MECH COMP URETHRAL CATH
584.5	AC KF W TUBULAR NEPHR	996.60	INFECT DUE TO DEVICE NOS
584.8	ACUTE KIDNEY FAILURE NEC	996.62	INFECT D/T VASC DEVICE
584.9	ACUTE KIDNEY FAILURE NOS	997.00	NERV SYST SURG COMP NOS
664.21	DEL W 3 DEGREE LAC-DEL	997.01	CNS SURG COMP
664.31	DEL W 4 DEGREE LAC-DEL	997.02	IATROGEN CV INFARCT/HEM
665.10	RUPTURE UTERUS NOS-NOS	997.09	NERV SYST SURG COMP NEC
665.11	RUPTURE UTERUS NOS-DEL	997.1	SURG COMP-HEART
665.22	INVERSION UTERUS-DEL PP	997.3	SURG COMP-RESP NEC
665.31	LACERATION OF CERVIX-DEL	997.32	POSTPX ASP PNEUMONIA
665.41	HIGH VAGINAL LAC-DEL	997.39	OTH SURG COMP-RESP
666.02	3RD STAGE PP HEMOR-DEL	997.4	SURG COMP-DIGESTIVE
666.04	3RD STAGE PP HEMOR-PP	997.5	SURG COMP-URINARY NEC
666.10	IMMED PP HEMOR NEC-NOS	997.91	SURG COMP-HYPERTENSION
666.12	IMMED PP HEMOR NEC-DEL	998.0	POSTOPERATIVE SHOCK
666.14	IMMED PP HEMOR NEC-PP	998.00	POSTOP SHOCK NOS
666.20	DELAYED PP HEMOR-NOS	998.01	POSTOP CARDIOGENIC SHOCK
666.22	DELAYED PP HEMOR-DEL PP	998.02	POSTOP SEPTIC SHOCK
666.24	DELAYED PP HEMOR-PP	998.09	POSTOP SHOCK NEC
666.30	PP COAG DEFECT-NOS	998.11	HEMORRHAGE COMP PX
666.32	PP COAG DEFECT-DEL PP	998.2	ACCIDENTAL OP LACERATION
666.34	PP COAG DEFECT-PP	998.3	WOUND DISRUPTION
667.02	RET PLAC S HEMOR-DEL PP	998.4	FB LEFT DURING PROCEDURE
668.02	ANES PULM COMP DEL-DELPP	998.59	POSTOP INFECTION NEC
668.12	ANES CARD COMP DEL-DELPP	998.7	POSTOP FOREIGN SUBST RXN
668.14	ANES CARD COMP DEL-PP	998.81	EMPHYSEMA DUE TO PX
668.22	ANES CNS COMP DEL-DEL PP	998.9	SURGICAL COMP NOS
668.82	ANES COMP DEL NEC-DEL PP	999.1	AIR EMBOL COMP MED CARE
669.12	OBSTETRIC SHOCK-DEL PP	999.2	VASC COMP MED CARE NEC
669.14	OBSTETRIC SHOCK-PP	999.3	OTH INFECT COMP MED CARE
670.02	MAJ PP INFECT NOS-DEL PP	999.31	INFECT NEC & NOS D/T CVC
670.12	PP ENDOMETRITIS-DEL PP	999.32	BLOODSTREAM INF D/T CVC
670.14	PP ENDOMETRITIS-PP	999.34	AC INF POST TRANSFUSION
670.22	PUERPERAL SEPSIS-DEL PP	999.39	INFECT COMP MED CARE NEC
670.24	PUERPERAL SEPSIS-PP	999.4	ANAPHYLACTIC RXN-SERUM
670.32	PP SEPTIC TP-DEL PP	999.5	OTH SERUM REACTION NEC
670.34	PP SEPTIC TP-PP	999.6	ABOI RXN D/T TRANSFUSION
670.82	MAJ PP INFECT NEC-DEL PP	999.7	RH/NON-ABOI RXN-TRANSFUS
670.84	MAJ PP INFECT NEC-PP	999.8	TRANSF/INFUS RXN NEC&NOS
673.00	OB AIR EMBOLISM-NOS	999.80	TRANSFUSION REACTION NOS
673.01	OB AIR EMBOLISM-DEL	999.83	HTR INCOMPATIBILITY NOS
673.02	OB AIR EMBOLISM-DEL PP	999.84	AHTR INCOMPATIBILITY NOS
673.03	OB AIR EMBOLISM-AP	999.85	DHTR INCOMPATIBILITY NOS
		999.9	COMP MED CARE NEC & NOS

Maternity Care – C-section Single Delivery

038.0	STREPTOCOCCAL SEPTICEMIA	673.23	OB BLOOD-CLOT EMBOL-AP
038.10	STAPH SEPTICEMIA NOS	673.24	OB BLOOD-CLOT EMBOL-PP
038.11	MSSA SEPTICEMIA	673.30	OB PYEMIC EMBOLISM-NOS
038.12	MRSA SEPTICEMIA	673.31	OB PYEMIC EMBOL-DEL
038.19	STAPH SEPTICEMIA NEC	673.32	OB PYEMIC EMBOL-DEL PP
038.2	PNEUMOCOCCAL SEPTICEMIA	673.34	OB PYEMIC EMBOL-PP
038.3	ANAEROBIC SEPTICEMIA	673.80	OB PULMON EMBOL NEC-NOS
038.40	GRAM-NEG SEPTICEMIA NOS	673.81	OB PULMON EMBOL NEC-DEL
038.41	H. INFLUENZAE SEPTICEMIA	673.82	OB PULMON EMBOL-DEL PP
038.42	E. COLI SEPTICEMIA	673.83	OB PULMON EMBOL NEC-AP
038.43	PSEUDOMONAS SEPTICEMIA	673.84	OB PULMON EMBOL NEC-PP
038.44	SERRATIA SEPTICEMIA	674.12	DISRUPT CD WND-DEL PP
038.49	GRAM-NEG SEPTICEMIA NEC	674.32	OB SURG COMP NEC-DEL PP
038.8	SEPTICEMIA NEC	785.50	SHOCK NOS
038.9	SEPTICEMIA NOS	785.51	CARDIOGENIC SHOCK
512.1	IATROGENIC PNEUMOTHORAX	785.59	SHOCK W/O TRAUMA NEC
518.4	ACUTE LUNG EDEMA NOS	996.31	MECH COMP URETHRAL CATH
518.7	TRALI	996.60	INFECT DUE TO DEVICE NOS
518.81	AC RESPIRATORY FAILURE	996.62	INFECT D/T VASC DEVICE
584.5	AC KF W TUBULAR NEPHR	997.00	NERV SYST SURG COMP NOS
584.8	ACUTE KIDNEY FAILURE NEC	997.01	CNS SURG COMP
584.9	ACUTE KIDNEY FAILURE NOS	997.02	IATROGEN CV INFARCT/HEM
666.00	3RD STAGE PP HEMOR-NOS	997.09	NERV SYST SURG COMP NEC
666.02	3RD STAGE PP HEMOR-DEL	997.1	SURG COMP-HEART
666.04	3RD STAGE PP HEMOR-PP	997.3	SURG COMP-RESP NEC
666.10	IMMED PP HEMOR NEC-NOS	997.32	POSTPX ASP PNEUMONIA
666.12	IMMED PP HEMOR NEC-DEL	997.39	OTH SURG COMP-RESP
666.14	IMMED PP HEMOR NEC-PP	997.4	SURG COMP-DIGESTIVE
666.20	DELAYED PP HEMOR-NOS	997.5	SURG COMP-URINARY NEC
666.22	DELAYED PP HEMOR-DEL PP	997.91	SURG COMP-HYPERTENSION
666.24	DELAYED PP HEMOR-PP	998.0	POSTOPERATIVE SHOCK
666.30	PP COAG DEFECT-NOS	998.00	POSTOP SHOCK NOS
666.32	PP COAG DEFECT-DEL PP	998.01	POSTOP CARDIOGENIC SHOCK
666.34	PP COAG DEFECT-PP	998.02	POSTOP SEPTIC SHOCK
667.02	RET PLAC S HEMOR-DEL PP	998.09	POSTOP SHOCK NEC
668.02	ANES PULM COMP DEL-DELPP	998.11	HEMORRHAGE COMP PX
668.04	ANES PULM COMP DEL-PP	998.2	ACCIDENTAL OP LACERATION
668.12	ANES CARD COMP DEL-DELPP	998.3	WOUND DISRUPTION
668.14	ANES CARD COMP DEL-PP	998.4	FB LEFT DURING PROCEDURE
668.22	ANES CNS COMP DEL-DEL PP	998.51	INFECTED POSTOP SEROMA
668.24	ANES CNS COMP DEL-PP	998.59	POSTOP INFECTION NEC
668.82	ANES COMP DEL NEC-DEL PP	998.7	POSTOP FOREIGN SUBST RXN
669.42	OTH OB SURG COMP-DEL PP	998.81	EMPHYSEMA DUE TO PX
669.44	OTH OB SURG COMP-PP	998.9	SURGICAL COMP NOS
670.02	MAJ PP INFECT NOS-DEL PP	999.1	AIR EMBOL COMP MED CARE
670.12	PP ENDOMETRITIS-DEL PP	999.2	VASC COMP MED CARE NEC
670.14	PP ENDOMETRITIS-PP	999.3	OTH INFECT COMP MED CARE
670.22	PUERPERAL SEPSIS-DEL PP	999.31	INFECT NEC & NOS D/T CVC
670.24	PUERPERAL SEPSIS-PP	999.32	BLOODSTREAM INF D/T CVC
670.32	PP SEPTIC TP-DEL PP	999.34	AC INF POST TRANSFUSION
670.34	PP SEPTIC TP-PP	999.39	INFECT COMP MED CARE NEC
670.82	MAJ PP INFECT NEC-DEL PP	999.4	ANAPHYLACTIC RXN-SERUM
670.84	MAJ PP INFECT NEC-PP	999.5	OTH SERUM REACTION NEC
673.00	OB AIR EMBOLISM-NOS	999.6	ABOI RXN D/T TRANSFUSION
673.01	OB AIR EMBOLISM-DEL	999.7	RH/NON-ABOI RXN-TRANSFUS
673.02	OB AIR EMBOLISM-DEL PP	999.8	TRANSF/INFUS RXN NEC&NOS
673.03	OB AIR EMBOLISM-AP	999.80	TRANSFUSION REACTION NOS
673.04	OB AIR EMBOLISM-PP	999.83	HTR INCOMPATIBILITY NOS
673.20	OB BLOOD-CLOT EMBOL-NOS	999.84	AHTR INCOMPATIBILITY NOS
673.21	OB BLOOD-CLOT EMBOL-DEL	999.85	DHTR INCOMPATIBILITY NOS
673.22	OB BLD-CLOT EMBOL-DEL PP	999.9	COMP MED CARE NEC & NOS

Appendix C. Maternity Care 2012 Summary of Changes

Indicator	Change	Rationale
Vaginal and cesarean maternal complications	Vaginal deliveries and c-section deliveries are now defined by using Diagnosis Related Groups rather than individual ICD-9 codes.	Using the DRG to identify vaginal and c-section deliveries simplifies the definition of the patient cohort.