



## Healthgrades Women's Care Ratings 2020 Methodology

- **Labor and Delivery** (C-Section Delivery, Vaginal Delivery)
- **Gynecologic Surgeries** (Hysterectomy and Gynecologic Procedures)

### Contents

|  |    |
|--|----|
| Women's Care Ratings .....   | 1  |
| Data Source .....  | 2  |
| Evaluating Performance in Labor and Delivery and Gynecologic Surgeries ..... | 2  |
| Multivariate Logistic Regression-Based Ratings .....                         | 3  |
| Developing Healthgrades Ratings .....  | 3  |
| Statistical Models .....   | 4  |
| Limitations of the Data Analysis .....                                       | 4  |
| Appendix A. Labor and Delivery Coefficient Summary Tables .....              | 5  |
| Appendix B. Gynecologic Surgeries Coefficient Summary Tables .....           | 10 |
| Appendix C. Model Fit Statistics .....                                       | 14 |
| Appendix D. All-Payer States Citations and Disclaimers .....                 | 15 |

### Women's Care Ratings

To help consumers evaluate and compare hospital performance in Labor and Delivery (C-Section Delivery, Vaginal Delivery) and Gynecologic Surgeries (Hysterectomy and Gynecologic Procedures), Healthgrades analyzed patient outcome data for all patients (all-payer data) provided by 16 individual states for years 2016 through 2018.

- The **Labor and Delivery service line** refers to the care of a mother during labor and delivery.
- The **Gynecologic Surgeries service line** refers to surgery on the female reproductive system and includes surgeries for benign conditions, cancer, infertility, and various other conditions. Ratings were based on Healthgrades risk-adjustment methodology, and the Healthgrades ratings are available at [www.healthgrades.com](http://www.healthgrades.com).

## Data Source

For the Labor and Delivery and Gynecologic Surgeries hospital ratings, all-payer state data were used for those states that make data available. These data were chosen because they represent virtually all discharges (across nearly all patient ages) for the associated states. However, patient volumes may differ due to data masking by state agencies to protect patient privacy. The data represent three years of discharges (2016 through 2018).

The following 16 states evaluated were:

- Colorado
- Florida
- Illinois
- Iowa
- Maryland
- Nevada\*
- New Jersey
- New York
- Oregon
- Pennsylvania
- Rhode Island\*
- Texas
- Virginia\*
- Washington\*
- West Virginia
- Wisconsin

\*See Appendix D. All-Payer States Citations and Disclaimers

## Evaluating Performance in Labor and Delivery and Gynecologic Surgeries

Fair and valid comparisons between hospital providers can be made only to the extent that the risk-adjustment methodology considers important differences in patient demographic and clinical characteristics. The purpose of risk adjustment is to obtain fair statistical comparisons among disparate populations or groups. Significant differences in demographic and clinical risk factors are found among patients treated in different hospitals. Risk adjustment of the data is needed to make accurate and valid comparisons of clinical outcomes at different hospitals.

The risk-adjustment methodology used by Healthgrades defines risk factors as those clinical and demographic variables that influence patient outcomes in significant and systematic ways. Risk factors may include age, gender, specific procedure performed, and comorbid conditions, such as hypertension, chronic renal failure, heart failure, and diabetes. The methodology is disease-specific and outcome-specific. This means that individual risk models are constructed and tailored for each clinical condition or procedure using multivariate logistic regression.

For multivariate logistic regression-based ratings (see below), Healthgrades conducted a series of data quality checks to preserve the integrity of the ratings. Based on the results of these checks, we excluded a limited number of cases because they were inappropriate for inclusion due to miscoding or missing data or other reasons as listed below.

### Labor and Delivery Exclusions

For Labor and Delivery (C-Section Delivery and Vaginal Delivery), hospital performance was evaluated in two areas:

- Women undergoing single live-born vaginal deliveries
- Women undergoing single or twin live-born C-section deliveries

The following patient records were excluded:

- Patients who left the hospital against medical advice, were transferred to another acute care facility, or whose discharge status was unknown
- Patients who were still in the hospital when the claim was filed
- Patients with gender listed as male or unknown
- Patients under the age of 15 or over the age of 55

## Gynecologic Surgeries Exclusions

For Gynecologic Surgeries (Hysterectomy and Gynecologic Procedures), hospital performance was evaluated in two areas:

- Women undergoing a hysterectomy
- Women undergoing all other gynecologic procedures

The following patient records were excluded:

- Patients who left the hospital against medical advice or who were transferred to another acute care hospital
- Patients who were still in the hospital when the claim was filed
- Patients with male gender
- Patients under the age of 18

## Multivariate Logistic Regression-Based Ratings

The initial analysis utilized all-payer data from 16 states for years 2016 through 2018. Patients were identified by their ICD-9 or ICD-10 principal procedure for gynecologic surgeries and Diagnosis Related Groups (DRGs) for labor and delivery. A full list of ICD-9 and ICD-10 codes can be found in Healthgrades ICD-10 Mapping Tool at <https://icd10mappingtool.healthgrades.com/>.

For these populations, potential risk factors and the outcome measure (complications) were then defined.

1. Potential risk factors were defined as all clinically relevant comorbid conditions and procedures. In addition, patient demographic factors, such as age, gender, and source of admission were also considered. Some diagnosis codes were merged together (e.g., primary and secondary pulmonary hypertension) to minimize the impact of coding variations.
2. Complications were identified using previous peer-reviewed research and thorough input from clinical and coding experts. While complications sometime occur during a patient's hospital stay, Healthgrades pinpoints complications that should not occur with a typical patient. Many of these complications are preventable and usually cause a prolonged hospital stay, additional and costly medical treatments, harm, and sometimes even death. Due to variation in coding requirements, practices, and quality in the Labor and Delivery service line, complications were defined solely by the ICD-9 or ICD-10 code. Present on admission was not considered in these definitions, as research determined it to be an unreliable indicator for this service line.

In some cases, an ICD-9 or ICD-10 code can be either a risk or a complication. In these cases, if Present on Admission information is not available, a code is differentiated by the presence or absence of an ICD-9 900 postoperative complication code or its ICD-10 equivalent. For example, in the case where a patient record contains "427.31 Atrial Fibrillation," that code is considered a risk if it occurs by itself and a complication if there is a corresponding ICD-9 "997.1 Cardiac Complications NEC" code or its ICD-10 equivalent also present in the patient record. Outcomes were binary, with documented complications either present or not. Mortality is considered a complication.

## Developing Healthgrades Ratings

Developing the Healthgrades ratings involved four steps.

1. The predicted value (predicted complications) was obtained using a logistic regression model discussed in the next section.
2. The predicted value was compared with the actual or observed number of complications. Only hospitals with at least 30 cases across three years of data and at least five cases in the most current year were included.

3. A test was conducted to determine whether the difference between the predicted and actual values was statistically significant. This test was performed to make sure that differences were very unlikely to be caused by chance alone.
4. Hospital performance was stratified into one of three performance categories as listed below:
  - ★★★★★ **Better Than Expected** – Actual performance was better than predicted and the difference was statistically significant.
  - ★★★ **As Expected** – Actual performance was not significantly different from what was predicted.
  - ★ **Worse Than Expected** – Actual performance was worse than predicted and the difference was statistically significant.

## Statistical Models

Using the list of potential risk factors described above, we used logistic regression to determine to what extent each one was correlated with the quality measure (complications). A risk factor stayed in the model if it had an odds ratio greater than one (except clinically relevant procedures, cohort defining principal diagnoses, and some protective factors, as documented in the medical literature, were allowed to have an odds ratio less than one) and were also required to be statistically significant ( $p < 0.05$ ).

Complications were not counted as risk factors, as they were considered a result of care received during the admission. Risk factors are those diagnoses that are the most highly correlated with the outcomes studied (complications). The most highly correlated risk factors are not necessarily those with the highest volume.

The statistical model was checked for validity and finalized. This model was then used to estimate the probability of a complication for each patient in the cohort. Patients were then aggregated for each hospital to obtain the predicted number of complications for each hospital. Statistical significance tests were performed to identify, by hospital, whether the actual and predicted rates were significantly different.

## Limitations of the Data Analysis

While these analyses 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 analyses are limited by the following factors:

- Cases may have been coded incorrectly or incompletely by the hospital.
- Healthgrades conditions and procedures models can only account for risk factors that are coded into the billing data. Therefore, 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.
- Although Healthgrades has taken steps to carefully compile these data, no techniques are infallible; 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 Healthgrades Operating Company, 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 identifier, 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 identifier.

## Appendix A. Labor and Delivery Coefficient Summary Tables

### C-Section Delivery

| Factor List   | Coefficient | Standard Error | Wald   | Odds Ratio |
|---|-------------|----------------|--------|------------|
| UNSPECIFIED INFLAMMATORY DISEASE OF UTERUS  | 3.221       | 0.045          | 71.61  | 25.06      |
| HYPOPOTASSEMIA  | 1.531       | 0.035          | 43.351 | 4.623      |
| UNSPECIFIED RENAL DISEASE IN PREGNANCY, WITHOUT MENTION OF HYPERTENSION, DELIVERED  | 1.305       | 0.03           | 42.906 | 3.686      |
| OTHER CARDIOVASCULAR DISEASES COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH MENTION OF POSTPARTUM COMPLICATION             | 1.287       | 0.042          | 30.37  | 3.621      |
| HEMORRHAGE FROM PLACENTA PREVIA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 1.284       | 0.028          | 46.101 | 3.613      |
| THROMBOCYTOPENIA, UNSPECIFIED   | 1.237       | 0.018          | 68.314 | 3.446      |
| TACHYCARDIA, UNSPECIFIED  | 1.142       | 0.022          | 51.774 | 3.132      |
| HD154_CVG DEHYDRATION   | 1.088       | 0.042          | 25.905 | 2.968      |
| LowBirthweightPercent   | 1.03        | 0.048          | 21.491 | 2.802      |
| ANEMIA COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH MENTION OF POSTPARTUM COMPLICATION                                    | 0.896       | 0.028          | 32.158 | 2.451      |
| MENTAL DISORDERS COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH MENTION OF POSTPARTUM COMPLICATION                          | 0.754       | 0.062          | 12.1   | 2.125      |
| HYPERTONIC, INCOORDINATE, OR PROLONGED UTERINE CONTRACTIONS, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                             | 0.744       | 0.065          | 11.473 | 2.104      |
| HD103_CVG HYPERTENSION  | 0.673       | 0.056          | 12.082 | 1.959      |
| DIZZINESS AND GIDDINESS   | 0.623       | 0.074          | 8.406  | 1.865      |
| CONGENITAL CARDIOVASCULAR DISORDERS COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM   | 0.57        | 0.026          | 22.046 | 1.768      |
| VASA PREVIA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.569       | 0.074          | 7.706  | 1.766      |
| MATERNAL INFECTIOUS AND PARASITIC DISEASES  | 0.563       | 0.032          | 17.475 | 1.756      |
| UNSPECIFIED PROLONGED LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.527       | 0.05           | 10.641 | 1.694      |
| PREMATURE SEPARATION OF PLACENTA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.525       | 0.021          | 24.847 | 1.69       |
| AdmitSourceXferHospital   | 0.493       | 0.027          | 17.923 | 1.637      |
| PROLONGED SECOND STAGE OF LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.466       | 0.04           | 11.757 | 1.594      |
| UNSPECIFIED FAILED TRIAL OF LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.456       | 0.03           | 15.452 | 1.578      |
| ANEMIA COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                            | 0.432       | 0.009          | 47.267 | 1.541      |
| EPILEPSY COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                          | 0.412       | 0.022          | 18.743 | 1.511      |
| Age45To64   | 0.405       | 0.049          | 8.236  | 1.499      |
| OTHER SURGICAL INDUCTION OF LABOR   | 0.404       | 0.02           | 20.696 | 1.497      |
| OTHER ABNORMALITIES IN SHAPE OR POSITION OF GRAVID UTERUS AND OF NEIGHBORING STRUCTURES, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION | 0.396       | 0.045          | 8.751  | 1.487      |
| PROLONGED FIRST STAGE OF LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.346       | 0.048          | 7.219  | 1.413      |

## C-Section Delivery Continued

| Factor List  | Coefficient | Standard Error | Wald   | Odds Ratio |
|--|-------------|----------------|--------|------------|
| CERVICAL INCOMPETENCE, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.341       | 0.038          | 9.07   | 1.406      |
| SECONDARY UTERINE INERTIA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.331       | 0.012          | 27.224 | 1.392      |
| EDEMA OR EXCESSIVE WEIGHT GAIN IN PREGNANCY, WITHOUT MENTION OF HYPERTENSION, DELIVERED  | 0.329       | 0.042          | 7.892  | 1.39       |
| OTHER CURRENT CONDITIONS CLASSIFIABLE ELSEWHERE COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM  | 0.312       | 0.008          | 41.073 | 1.366      |
| MATERNAL CARE FOR BENIGN TUMOR OF CORPUS UTERI   | 0.279       | 0.017          | 16.438 | 1.321      |
| OTHER CONGENITAL OR ACQUIRED ABNORMALITY OF CERVIX, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.278       | 0.056          | 4.963  | 1.321      |
| PRETERM GESTATION  | 0.256       | 0.014          | 17.695 | 1.291      |
| AdmitSourceXferNonHospital   | 0.231       | 0.063          | 3.656  | 1.26       |
| OTHER PLACENTAL CONDITIONS AFFECTING MANAGEMENT OF MOTHER, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                                  | 0.23        | 0.054          | 4.247  | 1.258      |
| ABNORMALITY IN FETAL HEART RATE/RHYTHM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.219       | 0.009          | 25.335 | 1.244      |
| PERSONAL HISTORY OF URINARY (TRACT) INFECTION  | 0.216       | 0.044          | 4.898  | 1.241      |
| ELEVATED BLOOD PRESSURE READING WITHOUT DIAGNOSIS OF HYPERTENSION  | 0.211       | 0.039          | 5.357  | 1.235      |
| Conditions complicating pregnancy  | 0.207       | 0.01           | 21.065 | 1.229      |
| HD155_CVG CHRONIC ANEMIA   | 0.197       | 0.021          | 9.465  | 1.218      |
| PREMATURE RUPTURE OF MEMBRANES   | 0.193       | 0.015          | 13.079 | 1.213      |
| MATERNAL CARE FOR OTHER SPECIFIED FETAL PROBLEMS   | 0.186       | 0.012          | 15.227 | 1.204      |
| Maternal Care for abnormalites of pelvic organ   | 0.18        | 0.027          | 6.747  | 1.197      |
| SUPERVISION OF HIGH-RISK PREGNANCY WITH INSUFFICIENT PRENATAL CARE   | 0.163       | 0.034          | 4.769  | 1.177      |
| FAILED MECHANICAL INDUCTION OF LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.158       | 0.049          | 3.214  | 1.172      |
| PRIMARY UTERINE INERTIA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.156       | 0.015          | 10.364 | 1.169      |
| OTHER KNOWN OR SUSPECTED FETAL ABNORMALITY, NOT ELSEWHERE CLASSIFIED, AFFECTING MANAGEMENT OF MOTHER, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM | 0.156       | 0.034          | 4.59   | 1.168      |
| OTHER GENITAL SYSTEM AND OBSTETRIC DISORDERS   | 0.154       | 0.036          | 4.314  | 1.167      |
| DRUG DEPENDENCE COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                      | 0.154       | 0.024          | 6.337  | 1.166      |
| OTHER CAUSES OF OBSTRUCTED LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.149       | 0.064          | 2.319  | 1.161      |
| DIABETES MELLITUS COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                    | 0.149       | 0.022          | 6.678  | 1.161      |
| OTHER SPECIFIED INDICATIONS FOR CARE OR INTERVENTION RELATED TO LABOR AND DELIVERY, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION         | 0.137       | 0.017          | 8.15   | 1.147      |
| CONGENITAL ABNORMALITIES OF UTERUS, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.131       | 0.048          | 2.746  | 1.14       |
| OBESITY COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                              | 0.129       | 0.014          | 9.429  | 1.137      |

## C-Section Delivery Continued

| Factor List  | Coefficient | Standard Error | Wald     | Odds Ratio |
|--|-------------|----------------|----------|------------|
| GRAND MULTIPARITY, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.122       | 0.051          | 2.398    | 1.13       |
| POST TERM PREGNANCY, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.114       | 0.012          | 9.462    | 1.121      |
| POLYHYDRAMNIOS, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.107       | 0.022          | 4.961    | 1.113      |
| INDUCTION OF LABOR BY ARTIFICIAL RUPTURE OF MEMBRANES  | 0.099       | 0.012          | 8.516    | 1.104      |
| Abnormal maternal glucose tolerance  | 0.095       | 0.012          | 8.176    | 1.099      |
| MENTAL DISORDERS COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION | 0.081       | 0.013          | 6.127    | 1.085      |
| Other Viral Diseases Complicating Pregnancy, Childbirth, or the Puerperium.  | 0.079       | 0.018          | 4.357    | 1.082      |
| DECREASED FETAL MOVEMENTS AFFECTING MANAGEMENT OF MOTHER, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION               | 0.078       | 0.027          | 2.913    | 1.081      |
| RHESUS ISOIMMUNIZATION AFFECTING MANAGEMENT OF MOTHER, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                  | 0.075       | 0.035          | 2.144    | 1.078      |
| MEDICAL INDUCTION OF LABOR   | 0.073       | 0.012          | 6.306    | 1.075      |
| Excessive Fetal Growth   | 0.072       | 0.016          | 4.423    | 1.075      |
| ELDERLY MULTIGRAVIDA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.069       | 0.015          | 4.737    | 1.072      |
| FAILED MEDICAL OR UNSPECIFIED INDUCTION OF LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                       | 0.064       | 0.017          | 3.658    | 1.066      |
| HD177_CVG BODY MASS INDEX 30-39  | 0.059       | 0.016          | 3.636    | 1.061      |
| Age19To44  | -0.042      | 0.024          | -1.706   | 0.959      |
| Constant   | -3.587      | 0.025          | -144.294 | 0.028      |



## Vaginal Delivery

| Factor List  | Coefficient | Standard Error | Wald   | Odds Ratio |
|--|-------------|----------------|--------|------------|
| Forceps Extraction (Low, Mid, & High)  | 1.078       | 0.018          | 60.876 | 2.94       |
| TACHYCARDIA, UNSPECIFIED   | 1.044       | 0.021          | 50.743 | 2.84       |
| HYPOPOTASSEMIA   | 0.953       | 0.037          | 25.672 | 2.593      |
| ANEMIA COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH MENTION OF POSTPARTUM COMPLICATION             | 0.931       | 0.023          | 40.858 | 2.536      |
| HD154_CVG DEHYDRATION  | 0.751       | 0.043          | 17.324 | 2.119      |
| THROMBOCYTOPENIA, UNSPECIFIED  | 0.674       | 0.015          | 46.185 | 1.963      |
| PROLONGED SECOND STAGE OF LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                                  | 0.633       | 0.018          | 35.055 | 1.884      |
| CONGENITAL ABNORMALITIES OF UTERUS, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                               | 0.537       | 0.049          | 10.955 | 1.711      |
| SHOULDER (GIRDLE) DYSTOCIA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                                       | 0.527       | 0.011          | 46.748 | 1.694      |
| UNSPECIFIED PROLONGED LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                                      | 0.463       | 0.032          | 14.463 | 1.588      |
| UNSPECIFIED RENAL DISEASE IN PREGNANCY, WITHOUT MENTION OF HYPERTENSION, DELIVERED   | 0.445       | 0.031          | 14.31  | 1.561      |
| LowBirthweightPercent  | 0.439       | 0.036          | 12.231 | 1.551      |
| Excessive Fetal Growth   | 0.407       | 0.014          | 29.19  | 1.502      |
| SECONDARY UTERINE INERTIA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.385       | 0.027          | 14.064 | 1.47       |
| PROLONGED FIRST STAGE OF LABOR, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                                   | 0.377       | 0.03           | 12.574 | 1.457      |
| OTHER PLACENTAL CONDITIONS AFFECTING MANAGEMENT OF MOTHER, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION        | 0.363       | 0.03           | 11.916 | 1.437      |
| CERVICAL INCOMPETENCE, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.348       | 0.033          | 10.569 | 1.417      |
| EDEMA OR EXCESSIVE WEIGHT GAIN IN PREGNANCY, WITHOUT MENTION OF HYPERTENSION, DELIVERED                                      | 0.34        | 0.029          | 11.57  | 1.405      |
| PREMATURE SEPARATION OF PLACENTA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                                 | 0.327       | 0.023          | 14.198 | 1.387      |
| OTHER SURGICAL INDUCTION OF LABOR  | 0.305       | 0.011          | 26.89  | 1.357      |
| MATERNAL CARE FOR BENIGN TUMOR OF CORPUS UTERI   | 0.299       | 0.02           | 14.824 | 1.348      |
| ANEMIA COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION     | 0.29        | 0.006          | 47.461 | 1.336      |
| Other Vacuum Extraction  | 0.271       | 0.013          | 20.766 | 1.311      |
| Conditions complicating pregnancy  | 0.268       | 0.007          | 40.177 | 1.308      |
| ELEVATED BLOOD PRESSURE READING WITHOUT DIAGNOSIS OF HYPERTENSION  | 0.255       | 0.023          | 11.336 | 1.291      |
| AdmitSourceXferHospital  | 0.251       | 0.022          | 11.442 | 1.285      |
| DEEP TRANSVERSE ARREST AND PERSISTENT OCCIPITOPOSTERIOR POSITION, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION | 0.239       | 0.031          | 7.793  | 1.27       |
| POST TERM PREGNANCY, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.239       | 0.005          | 44.821 | 1.269      |
| ELDERLY PRIMIGRAVIDA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.229       | 0.021          | 10.701 | 1.258      |
| MATERNAL CARE FOR SCAR FROM PREVIOUS CESAREAN DELIVERY   | 0.224       | 0.011          | 21.318 | 1.251      |



## Vaginal Delivery Continued

| Factor List  | Coefficient | Standard Error | Wald     | Odds Ratio |
|--|-------------|----------------|----------|------------|
| OTHER CONGENITAL OR ACQUIRED ABNORMALITY OF CERVIX, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.215       | 0.039          | 5.481    | 1.24       |
| MATERNAL CARE FOR OTHER SPECIFIED FETAL PROBLEMS   | 0.205       | 0.007          | 31.252   | 1.228      |
| PRIMARY UTERINE INERTIA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.186       | 0.022          | 8.364    | 1.205      |
| HD155_CVG CHRONIC ANEMIA   | 0.182       | 0.015          | 12.138   | 1.199      |
| EPILEPSY COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                             | 0.175       | 0.017          | 10.431   | 1.192      |
| PREMATURE RUPTURE OF MEMBRANES   | 0.174       | 0.008          | 23.124   | 1.19       |
| ABNORMALITY IN FETAL HEART RATE/RHYTHM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.163       | 0.006          | 29.589   | 1.177      |
| MATERNAL INFECTIOUS AND PARASITIC DISEASES   | 0.143       | 0.022          | 6.608    | 1.153      |
| OTHER KNOWN OR SUSPECTED FETAL ABNORMALITY, NOT ELSEWHERE CLASSIFIED, AFFECTING MANAGEMENT OF MOTHER, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM | 0.136       | 0.025          | 5.495    | 1.146      |
| Abnormal maternal glucose tolerance  | 0.102       | 0.008          | 12.858   | 1.108      |
| CONGENITAL CARDIOVASCULAR DISORDERS COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM  | 0.093       | 0.023          | 4.033    | 1.097      |
| MEDICAL INDUCTION OF LABOR   | 0.093       | 0.005          | 19.349   | 1.097      |
| AdmitSourceXferNonHospital   | 0.09        | 0.042          | 2.138    | 1.094      |
| SHORT CORD, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION   | 0.089       | 0.033          | 2.704    | 1.093      |
| OTHER AND UNSPECIFIED UTERINE INERTIA, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.078       | 0.017          | 4.511    | 1.081      |
| PERSONAL HISTORY OF URINARY (TRACT) INFECTION  | 0.077       | 0.027          | 2.815    | 1.08       |
| ESOPHAGEAL REFLUX  | 0.075       | 0.013          | 5.673    | 1.078      |
| ANXIETY STATE, UNSPECIFIED   | 0.075       | 0.012          | 6.225    | 1.078      |
| DIABETES MELLITUS COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                    | 0.068       | 0.024          | 2.787    | 1.07       |
| UNSPECIFIED HYPOTHYROIDISM   | 0.067       | 0.012          | 5.785    | 1.069      |
| DECREASED FETAL MOVEMENTS AFFECTING MANAGEMENT OF MOTHER, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                                   | 0.056       | 0.018          | 3.108    | 1.058      |
| OTHER CURRENT CONDITIONS CLASSIFIABLE ELSEWHERE COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM  | 0.039       | 0.005          | 8.29     | 1.04       |
| OBSESITY COMPLICATING PREGNANCY, CHILDBIRTH, OR THE PUERPERIUM, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION                             | 0.033       | 0.007          | 4.512    | 1.034      |
| OLIGOHYDRAMNIOS, DELIVERED, WITH OR WITHOUT MENTION OF ANTEPARTUM CONDITION  | 0.025       | 0.013          | 1.983    | 1.025      |
| INDUCTION OF LABOR BY ARTIFICIAL RUPTURE OF MEMBRANES  | -0.025      | 0.005          | -5.427   | 0.976      |
| Age45To64  | -0.208      | 0.053          | -3.925   | 0.812      |
| Age19To44  | -0.313      | 0.009          | -33.596  | 0.731      |
| OTHER MANUALLY ASSISTED DELIVERY   | -0.424      | 0.011          | -37.956  | 0.654      |
| Constant   | -2.065      | 0.014          | -144.904 | 0.127      |

## Appendix B. Gynecologic Surgeries Coefficient Summary Tables

### Hysterectomy

| Factor List   | Coefficient | Standard Error | Wald   | Odds Ratio |
|---|-------------|----------------|--------|------------|
| EXPLORATORY LAPAROTOMY  | 1.053       | 0.084          | 12.561 | 2.866      |
| HD115_CVG PULMONARY HYPERTENSION  | 0.883       | 0.083          | 10.663 | 2.418      |
| HD106_CVG NON-MALIGNANT RENAL DISEASE W/O FAILURE                       | 0.796       | 0.056          | 14.226 | 2.217      |
| HYDRONEPHROSIS  | 0.794       | 0.058          | 13.7   | 2.212      |
| HEMOPERITONEUM (NONTRAUMATIC)   | 0.695       | 0.149          | 4.656  | 2.005      |
| UNSPECIFIED PLEURAL EFFUSION  | 0.649       | 0.095          | 6.862  | 1.913      |
| Age75AndOver  | 0.644       | 0.042          | 15.209 | 1.904      |
| CLOSED SURGICAL PROCEDURE CONVERTED TO OPEN PROCEDURE                   | 0.554       | 0.046          | 12.168 | 1.74       |
| MALIGNANT NEOPLASM OF UTERUS, PART UNSPECIFIED                          | 0.545       | 0.06           | 9.027  | 1.724      |
| MALIGNANT NEOPLASM OF ENDOCERVIX  | 0.54        | 0.135          | 4.005  | 1.716      |
| MALIGNANT NEOPLASM OF OVARY   | 0.54        | 0.036          | 15.099 | 1.715      |
| AdmitSourceXferHospital   | 0.526       | 0.069          | 7.669  | 1.693      |
| HD152_CVG HYPOTENSION, UNSP OR NEC                                      | 0.525       | 0.111          | 4.743  | 1.691      |
| URINARY TRACT INFECTION, SITE NOT SPECIFIED                             | 0.52        | 0.068          | 7.617  | 1.683      |
| MALIGNANT NEOPLASM OF CERVIX UTERI, UNSPECIFIED                         | 0.505       | 0.077          | 6.56   | 1.657      |
| OTHER DISORDERS OF BLADDER  | 0.443       | 0.073          | 6.088  | 1.557      |
| SECONDARY MALIGNANT NEOPLASM OF RETROPERITONEUM AND PERITONEUM          | 0.439       | 0.047          | 9.365  | 1.551      |
| TACHYCARDIA, UNSPECIFIED  | 0.437       | 0.092          | 4.728  | 1.548      |
| OTHER ASCITES   | 0.425       | 0.048          | 8.824  | 1.53       |
| MALIGNANT NEOPLASM OF CORPUS UTERI, EXCEPT ISTHMUS                      | 0.414       | 0.03           | 13.856 | 1.512      |
| OTHER SPECIFIED DISORDERS OF KIDNEY AND URETER                          | 0.406       | 0.166          | 2.446  | 1.501      |
| OTHER LYSIS OF PERIRENAL OR PERIURETERAL ADHESIONS                      | 0.389       | 0.044          | 8.929  | 1.475      |
| Age65To74   | 0.385       | 0.034          | 11.447 | 1.47       |
| SECONDARY MALIGNANT NEOPLASM OF LARGE INTESTINE AND RECTUM              | 0.358       | 0.066          | 5.444  | 1.431      |
| HYPOXEMIA   | 0.335       | 0.159          | 2.105  | 1.397      |
| CORONARY ATHEROSCLEROSIS OF NATIVE OR UNSPECIFIED CORONARY VESSEL       | 0.334       | 0.05           | 6.677  | 1.397      |
| Atrial Fibrillation - Inclusive   | 0.321       | 0.055          | 5.854  | 1.378      |
| HD176_CVG BODY MASS INDEX 40 AND OVER                                   | 0.318       | 0.027          | 11.806 | 1.374      |
| OBSTRUCTIVE SLEEP APNEA (ADULT) (PEDIATRIC)                             | 0.315       | 0.044          | 7.21   | 1.37       |
| SECONDARY MALIGNANT NEOPLASM OF OTHER SPECIFIED SITES                   | 0.313       | 0.073          | 4.291  | 1.367      |
| PERSONAL HISTORY OF VENOUS THROMBOSIS AND EMBOLISM                      | 0.303       | 0.057          | 5.34   | 1.354      |
| PERITONEAL ADHESIONS (POSTOPERATIVE) (POSTINFECTION)                    | 0.277       | 0.032          | 8.639  | 1.32       |
| SECONDARY AND UNSPECIFIED MALIGNANT NEOPLASM OF INTRAPELVIC LYMPH NODES | 0.277       | 0.066          | 4.174  | 1.319      |

## Hysterectomy Continued

| Factor List  | Coefficient | Standard Error | Wald     | Odds Ratio |
|--|-------------|----------------|----------|------------|
| PELVIC PERITONEAL ADHESIONS, FEMALE (POSTOPERATIVE) (POSTINFECTION)      | 0.247       | 0.027          | 9.05     | 1.281      |
| LAPAROSCOPY  | 0.237       | 0.061          | 3.884    | 1.267      |
| MITRAL VALVE DISORDERS   | 0.221       | 0.092          | 2.394    | 1.248      |
| CONGESTIVE HEART FAILURE, UNSPECIFIED - INCLUSIVE                        | 0.211       | 0.093          | 2.263    | 1.235      |
| CHRONIC AIRWAY OBSTRUCTION, NOT ELSEWHERE CLASSIFIED                     | 0.204       | 0.053          | 3.834    | 1.226      |
| SECONDARY MALIGNANT NEOPLASM OF GENITAL ORGANS                           | 0.178       | 0.059          | 3.021    | 1.194      |
| UMBILICAL HERNIA WITHOUT MENTION OF OBSTRUCTION OR GANGRENE              | 0.171       | 0.065          | 2.627    | 1.186      |
| OTHER UNILATERAL SALPINGO-OOPHORECTOMY                                   | 0.163       | 0.046          | 3.562    | 1.177      |
| Repair of Cystocele and Rectocele  | 0.144       | 0.05           | 2.878    | 1.155      |
| STRESS INCONTINENCE, FEMALE  | 0.139       | 0.052          | 2.689    | 1.149      |
| DEPRESSIVE DISORDER, NOT ELSEWHERE CLASSIFIED                            | 0.134       | 0.034          | 3.949    | 1.144      |
| PERSONAL HISTORY OF TOBACCO USE, PRESENTING HAZARDS TO HEALTH            | 0.124       | 0.029          | 4.311    | 1.132      |
| HD155_CVG CHRONIC ANEMIA   | 0.118       | 0.033          | 3.542    | 1.125      |
| TOBACCO USE DISORDER   | 0.101       | 0.033          | 3.078    | 1.106      |
| HD103_CVG HYPERTENSION   | 0.097       | 0.021          | 4.7      | 1.102      |
| Age45To64  | 0.087       | 0.023          | 3.875    | 1.091      |
| HD122_CVG ASTHMA   | 0.082       | 0.031          | 2.635    | 1.086      |
| ANXIETY STATE, UNSPECIFIED   | 0.071       | 0.033          | 2.149    | 1.073      |
| UNSPECIFIED HYPOTHYROIDISM   | 0.069       | 0.029          | 2.369    | 1.071      |
| ESOPHAGEAL REFLUX  | 0.057       | 0.026          | 2.222    | 1.058      |
| HD101_CVG DISORDERS OF LIPOID METABOLISM - INCLUSIVE                     | 0.05        | 0.025          | 1.98     | 1.051      |
| OTHER AND UNSPECIFIED SUBTOTAL ABDOMINAL HYSTERECTOMY                    | -0.08       | 0.019          | -4.284   | 0.923      |
| LAPAROSCOPIC REMOVAL OF BOTH OVARIES AND TUBES AT SAME OPERATIVE EPISODE | -0.237      | 0.035          | -6.764   | 0.789      |
| BILATERAL PARTIAL SALPINGECTOMY, NOT OTHERWISE SPECIFIED                 | -0.271      | 0.054          | -5.042   | 0.763      |
| Constant   | -3.089      | 0.022          | -139.739 | 0.046      |

## Gynecologic Procedures

| Factor List   | Coefficient | Standard Error | Wald   | Odds Ratio |
|---|-------------|----------------|--------|------------|
| OTHER REPAIR OF UTERUS  | 1.572       | 0.101          | 15.496 | 4.815      |
| UNSPECIFIED PLEURAL EFFUSION                                      | 1.001       | 0.097          | 10.367 | 2.72       |
| UNSPECIFIED SEPTICEMIA  | 0.87        | 0.179          | 4.855  | 2.386      |
| SEVERE SEPSIS   | 0.833       | 0.198          | 4.214  | 2.301      |
| Age75AndOver  | 0.806       | 0.046          | 17.516 | 2.24       |
| EXPLORATORY LAPAROTOMY  | 0.763       | 0.082          | 9.327  | 2.144      |
| HD115_CVG PULMONARY HYPERTENSION                                  | 0.738       | 0.102          | 7.204  | 2.092      |
| REPAIR OF RECTOVAGINAL FISTULA                                    | 0.716       | 0.244          | 2.931  | 2.046      |
| Age65To74   | 0.656       | 0.04           | 16.505 | 1.927      |
| SYSTEMIC LUPUS ERYTHEMATOSUS                                      | 0.645       | 0.123          | 5.269  | 1.907      |
| HYDRONEPHROSIS  | 0.644       | 0.065          | 9.844  | 1.905      |
| MALIGNANT NEOPLASM OF OVARY                                       | 0.626       | 0.04           | 15.748 | 1.869      |
| INTRINSIC (URETHRAL) SPHINCTER DEFICIENCY [ISD]                   | 0.571       | 0.235          | 2.428  | 1.77       |
| HD106_CVG NON-MALIGNANT RENAL DISEASE W/O FAILURE                 | 0.561       | 0.069          | 8.17   | 1.753      |
| CARCINOMA IN SITU OF CERVIX UTERI                                 | 0.541       | 0.207          | 2.608  | 1.718      |
| TACHYCARDIA, UNSPECIFIED  | 0.53        | 0.088          | 6.037  | 1.699      |
| OTHER REPAIR OF OVARY   | 0.529       | 0.218          | 2.422  | 1.697      |
| AMPUTATION OF CERVIX  | 0.473       | 0.119          | 3.988  | 1.605      |
| PERITONEAL ADHESIONS (POSTOPERATIVE) (POSTINFECTION)              | 0.468       | 0.036          | 13.175 | 1.596      |
| OTHER SPECIFIED DISORDERS OF KIDNEY AND URETER                    | 0.457       | 0.193          | 2.371  | 1.579      |
| SECONDARY MALIGNANT NEOPLASM OF RETROPERITONEUM AND PERITONEUM    | 0.453       | 0.053          | 8.483  | 1.573      |
| OTHER REMOVAL OF BOTH OVARIES AND TUBES AT SAME OPERATIVE EPISODE | 0.422       | 0.035          | 12.153 | 1.525      |
| CLOSED SURGICAL PROCEDURE CONVERTED TO OPEN PROCEDURE             | 0.408       | 0.057          | 7.158  | 1.503      |
| OTHER REMOVAL OF REMAINING OVARY AND TUBE                         | 0.402       | 0.04           | 10.112 | 1.494      |
| HD152_CVG HYPOTENSION, UNSP OR NEC                                | 0.391       | 0.097          | 4.046  | 1.479      |
| OTHER REMOVAL OF BOTH OVARIES AT SAME OPERATIVE EPISODE           | 0.376       | 0.074          | 5.082  | 1.457      |
| URINARY TRACT INFECTION, SITE NOT SPECIFIED                       | 0.376       | 0.065          | 5.771  | 1.457      |
| Age45To64   | 0.372       | 0.03           | 12.449 | 1.451      |
| SECONDARY MALIGNANT NEOPLASM OF LARGE INTESTINE AND RECTUM        | 0.364       | 0.073          | 4.964  | 1.439      |
| LAPAROSCOPIC OOPHOROTOMY  | 0.355       | 0.122          | 2.91   | 1.426      |
| PrimaryFacilityPresentOnAdmissionKnownPercent                     | 0.349       | 0.13           | 2.693  | 1.418      |
| MALIGNANT NEOPLASM OF CERVIX UTERI, UNSPECIFIED                   | 0.349       | 0.143          | 2.441  | 1.418      |
| MALIGNANT NEOPLASM OF UTERUS, PART UNSPECIFIED                    | 0.341       | 0.149          | 2.289  | 1.407      |
| HD180_CVG BODY MASS INDEX 25-29                                   | 0.34        | 0.087          | 3.887  | 1.404      |
| EXCISION OR DESTRUCTION OF LESION OF VAGINA                       | 0.337       | 0.074          | 4.554  | 1.401      |
| CONGESTIVE HEART FAILURE, UNSPECIFIED - INCLUSIVE                 | 0.334       | 0.105          | 3.19   | 1.396      |

## Gynecologic Procedures Continued

| Factor List   | Coefficient | Standard Error | Wald    | Odds Ratio |
|---|-------------|----------------|---------|------------|
| AdmitSourceXferHospital   | 0.331       | 0.063          | 5.254   | 1.393      |
| OBSTRUCTIVE SLEEP APNEA (ADULT) (PEDIATRIC)                             | 0.319       | 0.057          | 5.61    | 1.376      |
| OTHER REMOVAL OF OVARY  | 0.317       | 0.058          | 5.459   | 1.373      |
| Atrial Fibrillation - Inclusive   | 0.302       | 0.064          | 4.716   | 1.353      |
| CHRONIC AIRWAY OBSTRUCTION, NOT ELSEWHERE CLASSIFIED                    | 0.299       | 0.058          | 5.161   | 1.349      |
| LAPAROSCOPY   | 0.298       | 0.059          | 5.088   | 1.348      |
| OTHER EXCISION OR DESTRUCTION OF LESION OF UTERUS                       | 0.287       | 0.034          | 8.444   | 1.333      |
| HD176_CVG BODY MASS INDEX 40 AND OVER                                   | 0.285       | 0.036          | 7.842   | 1.33       |
| PELVIC PERITONEAL ADHESIONS, FEMALE (POSTOPERATIVE) (POSTINFECTION)     | 0.285       | 0.034          | 8.429   | 1.33       |
| OTHER LYSIS OF PERIRENAL OR PERIURETERAL ADHESIONS                      | 0.284       | 0.053          | 5.408   | 1.329      |
| SECONDARY MALIGNANT NEOPLASM OF OTHER SPECIFIED SITES                   | 0.27        | 0.083          | 3.238   | 1.31       |
| SECONDARY AND UNSPECIFIED MALIGNANT NEOPLASM OF INTRAPELVIC LYMPH NODES | 0.254       | 0.11           | 2.309   | 1.289      |
| HD155_CVG CHRONIC ANEMIA  | 0.24        | 0.047          | 5.145   | 1.271      |
| PERSONAL HISTORY OF VENOUS THROMBOSIS AND EMBOLISM                      | 0.221       | 0.073          | 3.037   | 1.247      |
| UMBILICAL HERNIA WITHOUT MENTION OF OBSTRUCTION OR GANGRENE             | 0.209       | 0.091          | 2.291   | 1.232      |
| ENDOMETRIOSIS OF OVARY  | 0.206       | 0.054          | 3.821   | 1.229      |
| MALIGNANT NEOPLASM OF CORPUS UTERI, EXCEPT ISTHMUS                      | 0.191       | 0.068          | 2.79    | 1.21       |
| CORONARY ATHEROSCLEROSIS OF NATIVE OR UNSPECIFIED CORONARY VESSEL       | 0.188       | 0.057          | 3.295   | 1.207      |
| TOTAL OR PARTIAL UNILATERAL SALPINGECTOMY                               | 0.167       | 0.069          | 2.435   | 1.182      |
| ACQUIRED ABSENCE OF GENITAL ORGANS                                      | 0.165       | 0.076          | 2.161   | 1.179      |
| OTHER AND UNSPECIFIED SUBTOTAL ABDOMINAL HYSTERECTOMY                   | 0.154       | 0.044          | 3.507   | 1.167      |
| DEPRESSIVE DISORDER, NOT ELSEWHERE CLASSIFIED                           | 0.128       | 0.041          | 3.123   | 1.137      |
| ANXIETY STATE, UNSPECIFIED  | 0.124       | 0.039          | 3.148   | 1.132      |
| REMOVAL OF BOTH FALLOPIAN TUBES AT SAME OPERATIVE EPISODE               | 0.117       | 0.048          | 2.427   | 1.124      |
| HD122_CVG ASTHMA  | 0.112       | 0.037          | 3.04    | 1.119      |
| TOBACCO USE DISORDER  | 0.101       | 0.037          | 2.736   | 1.107      |
| HD103_CVG HYPERTENSION  | 0.098       | 0.027          | 3.681   | 1.103      |
| ESOPHAGEAL REFLUX   | 0.085       | 0.031          | 2.733   | 1.089      |
| OTHER REPAIR OF VAGINA  | -0.196      | 0.057          | -3.416  | 0.822      |
| ENDOMETRIAL ABLATION  | -0.314      | 0.057          | -5.518  | 0.73       |
| SALPINGECTOMY WITH REMOVAL OF TUBAL PREGNANCY                           | -0.358      | 0.068          | -5.264  | 0.699      |
| BILATERAL PARTIAL SALPINGECTOMY, NOT OTHERWISE SPECIFIED                | -0.61       | 0.084          | -7.268  | 0.543      |
| Bilateral occlusion of Fallopian Tubes                                  | -0.664      | 0.272          | -2.446  | 0.515      |
| OTHER REPAIR OF INTERNAL CERVICAL OS                                    | -1.272      | 0.146          | -8.695  | 0.28       |
| OTHER BILATERAL LIGATION AND DIVISION OF FALLOPIAN TUBES                | -1.462      | 0.221          | -6.618  | 0.232      |
| Constant  | -3.622      | 0.105          | -34.345 | 0.027      |

## Appendix C. Model Fit Statistics

| Cohort                 | In-hospital Complications |          |          |
|------------------------|---------------------------|----------|----------|
|                        | c-Stat                    | Lower CI | Upper CI |
| C-Section Delivery     | 0.686                     | 0.684    | 0.688    |
| Vaginal Delivery       | 0.617                     | 0.616    | 0.619    |
|                        |                           |          |          |
| Hysterectomy           | 0.686                     | 0.681    | 0.691    |
| Gynecologic Procedures | 0.739                     | 0.734    | 0.744    |

## Appendix D. All-Payer States Citations and Disclaimers

We respectfully list the following citations and disclaimers as requested from the following states that provide inpatient data.

**Nevada:** This information is from the records of the Nevada Division of Health Care Financing and Policy (DHCFP) and was released through the Center of Health Information Analysis (CHIA) of the University of Nevada, Las Vegas. Authorization to release this information does not imply endorsement of this study or its findings by either DHCFP or CHIA.

**Rhode Island:** Rhode Island Hospital Discharge Data, Center for Health Data & Analysis, Rhode Island Department of Health

**Virginia:** Virginia Health Information (VHI) has provided non-confidential patient level information used in this file, report, publication, or database which it has compiled in accordance with Virginia law but which it has no authority to independently verify. By using this file, report, publication, or database, the user agrees to assume all risks that may be associated with or arise from the use of inaccurate data. VHI cannot and does not represent that the use of VHI's data was appropriate for this file, report, publication, or database or endorse or support any conclusions or inferences that may be drawn from the use of VHI's data.

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