

**A HOSPITAL PERFORMANCE REPORT
COMMON MEDICAL PROCEDURES AND TREATMENTS**

Technical Notes

for

Western Pennsylvania

Central and Northeastern Pennsylvania

Southeastern Pennsylvania

Calendar Year 2001

*Includes Methodology for Procedure and Treatment Groups in the
Printed Report and on the Council's Web Site*

**The Pennsylvania Health Care Cost Containment Council
December 2002**

FOREWORD

The *Hospital Performance Report (HPR)* continues to be a “flagship” report in which the Pennsylvania Health Care Cost Containment Council is able to disperse a wide range of information on various clinical conditions and outcomes. The analyses included were chosen in response to requests for information by purchasers, providers, insurers and individual consumers for a diversity of medical and surgical treatments.

This year’s report includes data from calendar year (CY) 2001 and provides quality information for 28 procedure and treatment groups. PHC4 has expanded this report beyond the evaluation of Diagnosis Related Groups (DRGs) and has included 16 “code-based conditions” defined by specific codes from the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD.9.CM codes). The printed report also presents information on 12 selected DRGs. The Web site includes the procedure and treatment groups in the printed report, as well as an additional 50 DRGs (denoted as Web-only DRGs).

Five new outcome measures have also been added to this year’s report and include a length of stay outlier (short and long) rate and rating, and the percent of cases readmitted for a principal diagnosis of a complication/infection. These are reported only for appropriate procedure and treatment groups. The Web version of the *CY2001 Hospital Performance Report* has also been expanded to include these five new outcome measures for many of the Web-only DRGs.

Individuals seeking further detail should reference the Council’s Web site.

Pennsylvania Health Care Cost Containment Council
225 Market Street, Suite 400
Harrisburg, PA 17101

Phone: (717) 232-6787
Fax: (717) 232-3821
www.phc4.org

Marc P. Volavka, Executive Director

TECHNICAL ADVISORY GROUP

TO THE PENNSYLVANIA HEALTH CARE COST CONTAINMENT COUNCIL

The Council has made decisions about the methodology used in this report in conjunction with its Technical Advisory Group (a standing committee charged with overseeing all technical and methodological aspects of the Council's Research). The Council appreciates the dedicated assistance it received in creating this report.

List of Members

David B. Nash, MD, MBA, Chair, Associate Dean and Director, Office of Health Policy & Clinical Outcomes, Thomas Jefferson University Hospital, Philadelphia, PA (*appointed April 1992*)

J. Marvin Bentley, PhD, Associate Professor of Health Economics, School of Public Affairs, Penn State University Harrisburg, Middletown, PA (*appointed February 1995*)

David B. Campbell, MD, Professor and Chief, Cardiothoracic Surgery, Milton S. Hershey Medical Center, Hershey, PA (*appointed April 1995*)

Paul N. Casale, MD, FACC, The Heart Group, Lancaster, PA (*appointed January 1995*)

Donald E. Fetterolf, MD, MBA, Vice President/Senior Medical Director, Highmark Blue Cross Blue Shield, Pittsburgh, PA (*appointed April 1992*)

George R. Green, MD, Physician-In-Chief, Division of Allergy and Immunology, Department of Medicine, Abington Memorial Hospital, Abington, PA (*appointed November 1993*)

Sheryl F. Kelsey, PhD, Professor of Epidemiology, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA (*appointed November 1993*)

Judith R. Lave, PhD, Professor of Health Economics, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA (*appointed April 1995*)

Timothy C. Zeddies, PhD, Senior Director, Research & Evaluation, Independence Blue Cross, Philadelphia, PA (*appointed February 2002*)

TABLE OF CONTENTS

Foreword	i
Technical Advisory Group List of Members	ii
Overview	1
What Is New for the CY2001 Hospital Performance Report?	2
Data Collection and Verification	4
Study Population	4
A. Inclusion Criteria	4
B. Hospital Exclusions from Printed and Web Reports	5
Procedure and Treatment Groups	6
A. Rationale for Including “Code-based Conditions”	6
B. Selection of Code-based Conditions and DRGs.....	6
C. Special Data Considerations.....	11
Methodology	13
A. Risk-Adjusted In-Hospital Mortality Analysis	13
B. Risk-Adjusted Length of Stay Analysis	19
C. Risk-Adjusted Length of Stay Outlier Rate and Rating.....	21
D. Risk-Adjusted Readmission Analyses (for <i>any reason</i> and for <i>complication/infection</i>)....	23
E. Regionally-Adjusted Charge Analysis.....	28
F. Reported Measures Specific to Heart Attack—Medical Management	29
Data Tables	30
1. Statewide Utilization and Outcome Data for Procedure and Treatment Groups in the Printed Report.....	31
2. Statewide Exclusions from Analysis	32
A. 16 Code-based Conditions.....	32
B. 12 DRGs in the Printed Report.....	33
C. 47 Adult DRGs on the Web	34
D. 5 Pediatric DRGs on the Web	35
3. Regional Charge Upper Trim Point by DRG	36
A. Western Pennsylvania, Region 1	36
B. Western Pennsylvania, Region 2	37
C. Western Pennsylvania, Region 3.....	38
D. Central and Northeastern Pennsylvania, Region 4.....	39
E. Central and Northeastern Pennsylvania, Region 5.....	40
F. Central and Northeastern Pennsylvania, Region 6.....	41
G. Southeastern Pennsylvania, Region 7	42
H. Southeastern Pennsylvania, Region 8	43
I. Southeastern Pennsylvania, Region 9.....	44
4. Regional Length of Stay Before & After Trimming by Procedure and Treatment Group .	45
A. Western Pennsylvania.....	45
B. Central and Northeastern Pennsylvania	46
C. Southeastern Pennsylvania.....	47
5. Summary of the Hospitals Excluded From the CY2001 Hospital Performance Report....	48

Appendix

Table A. Procedure and Treatment Groups for Which Length of Stay Outlier and
Readmissions Data Are ReportedA-2
Table B. ICD.9.CM Codes Used to Define Readmission for Complication/InfectionA-4
Glossary of Abbreviated TermsA-9

Technical Notes CY2001 Hospital Performance Report

OVERVIEW

This document serves as a technical supplement to the 2001 Hospital Performance Report (HPR). The Technical Notes describe the methodology of the analyses and outline development of the report format and presentation. This document also includes data tables containing region-specific information about trimmed data and the cases excluded from analysis.

The printed report presents quality measures for 28 procedure and treatment groups:

- *Risk-adjusted mortality* – In-hospital mortality was identified in the patient discharge record as a discharge status of “20.”
- *Risk-adjusted length of stay* – Length of stay was calculated by subtracting the admit date from the discharge date.
- *Risk-adjusted length of stay outlier rates and rating* – Length of stay outliers (short/long) were those hospitalizations in the 5th or 95th percentile of all statewide hospitalizations.
- *Risk-adjusted readmissions, by percent* – A hospital readmission was defined as an acute care rehospitalization, for any reason, which occurs within 30 days of the discharge date of the original hospitalization.
- *Risk-adjusted readmissions for complication/infection, by percent* – A readmission for complication/infection was a rehospitalization with a principal diagnosis of a complication/infection, which occurs within 30 days of the discharge date of the original hospitalization.
- *Regionally-adjusted average hospital charge* – Hospital charge was the patient total charge excluding professional fees.

It should be noted that not all outcome measures are appropriate for all procedure or treatment groups. Those measures not suitable for a particular procedure or treatment group were not analyzed and therefore are not reported.

New to the 2001 printed report is the inclusion of 16 code-based conditions designed to be more clinically cohesive. Each condition was defined by a particular set of ICD.9.CM codes and limited to certain DRGs. Twelve selected DRGs are also included in the printed report. An additional, 50 DRGs are included on the Council’s Web site (denoted as Web-only DRGs). A total of 16 code-based conditions and 62 DRGs (12 *printed report* and 50 *Web-only*) are published for 2001. Utilization and outcome data for the 16 code-based conditions and 12 selected DRGs are published in the traditional “paper format,” as well as in an “electronic format,” on the Council’s Web site. Outcomes for DRGs that are referred to as *Web-only* are not published in the traditional paper format, but can be viewed on the Council’s Web site.

The printed report is comprised of three separate “wide-area” regional reports, which include summaries by procedure and treatment groups for the state, region, and individual hospitals in the region. The three wide-area regions allow a broader range of comparison among acute care facilities. These wide-area regions are defined as:

- Western Pennsylvania (comprised of Southwestern Pennsylvania—Region 1, Northwest Pennsylvania—Region 2, and Southern Allegheny—Region 3)
- Central and Northeastern PA (comprised of Northcentral Pennsylvania—Region 4, Southcentral Pennsylvania—Region 5, and Northeastern Pennsylvania—Region 6)

- Southeastern Pennsylvania (comprised of Lehigh Valley/Reading—Region 7, Suburban Philadelphia—Region 8, and the City of Philadelphia—Region 9)

WHAT IS NEW FOR THE **CY2001 HOSPITAL PERFORMANCE REPORT?**

The following table summarizes methodologies developed for the CY2000 report and enhancements developed for the CY2001 report.

	2000 Methodology	2001 Methodology
Measures Reported	<ul style="list-style-type: none"> ✓ In-hospital mortality rating ✓ Average hospital charge ✓ Average length of stay ✓ Readmission rates reported for all appropriate DRGs ✓ Transfer-out to acute care % (Heart Attack—Medical Management DRG only) ✓ Notation of status as provider of advanced cardiac care services (Heart Attack—Medical Management DRG only) 	<p><i>Same with the following modifications:</i></p> <ul style="list-style-type: none"> • Addition of sixteen code-based conditions. • Addition of five new measures: <ul style="list-style-type: none"> ✓ Length of stay outlier (short/long) rate & rating. ✓ Percent of cases readmitted for complication/infection (reporting criteria same as for readmission rate).
Hospitals	Acute care facilities (excluding children's hospitals for adult DRGs)	Same
Definition of Compliance	Acute care facilities that submitted data containing less than 15% missing severity scores for all DRGs in which severity score is required	Acute care facilities that submitted data containing less than 10% missing severity scores for all DRGs in which severity score is required
Procedure/Treatment Groups: Printed Report <i>Code-based conditions</i> <i>DRGs</i>	Not applicable 22 in total	16 in total (7 diagnoses, 9 procedures) 12 in total
Procedure/Treatment Groups: Web site <i>Code-based conditions</i> <i>DRGs</i>	Not applicable 73 in total (22 printed report and 51 on the Web only)	16 in total (7 diagnoses, 9 procedures) 62 in total (12 printed report and 50 Web-only)
Comparative Database	Pennsylvania Hospital 2000 Inpatient Database with all relevant data <i>excluding pediatric cases for adult comparative analyses and excluding adult cases for pediatric comparative analyses</i>	Pennsylvania Hospital 2001 Inpatient Database with all relevant data <i>excluding pediatric cases for adult comparative analyses and excluding adult cases for pediatric comparative analyses</i>

*Includes 45 adult only DRGs, 3 pediatric only DRGs, and 2 DRGs separated into adult and pediatric study populations.

What Is New for the CY2001 Hospital Performance Report? continued

	2000 Methodology	2001 Methodology
Risk Adjustment Technique	Indirect standardization	Same
<i>Adjustment Factors: in-hospital mortality</i>	<ul style="list-style-type: none"> ✓ Atlas Outcomes™ Severity of Illness (ASG) ✓ Cancer categories: <ul style="list-style-type: none"> ▪ None¹ ▪ Malignant neoplasm & in situ² ▪ History of cancer³ ✓ Age categories: (DRG dependent⁴): <ul style="list-style-type: none"> ▪ Ages 18 – 64, 65 – 79, 80+, or ▪ Ages 18 – 39, 40 – 69, 70+, or ▪ Ages 0 – 5, 6 – 12, 13 – 17 ✓ For Pediatric analysis of DRGs 91, 98, 167, 184, and 410 risk factors vary from those used for adult populations.⁵ 	<p>Same</p> <p>Note that the cancer category "Malignant neoplasm & in situ" now includes the following ICD.9.CM diagnosis codes: 140.0 – 208.9 inclusive or 230.0 – 239.9 inclusive.</p>
<i>length of stay</i>	Same as <i>in-hospital mortality</i>	<ul style="list-style-type: none"> ✓ Atlas Outcomes™ Predicted Length of Stay (PLOS) ✓ Cancer: categories same as used for mortality ✓ Age: categories same as used for mortality ✓ For Pediatric analysis of DRGs 91, 98, 167, 184, and 410 risk factors vary from those for adult populations.⁵
<i>length of stay outliers</i>	Not applicable	Risk adjustment was based upon the Atlas Outcomes™ PLOS value calculated by MediQual®, Inc.
<i>readmission for any reason</i>	Same as <i>in-hospital mortality</i>	<ul style="list-style-type: none"> ✓ Atlas Outcomes™ ASG ✓ Diabetes categories: <ul style="list-style-type: none"> ▪ None⁶ ▪ Diabetes with complications⁷ ▪ Diabetes without complications⁸ ✓ Cancer: categories same as used for mortality
<i>readmission for complication/infection</i>	Not applicable	Same as readmission for any reason in 2001
Statistical Tests:		
<i>in-hospital mortality</i>	Exact Binomial Test	Same
<i>length of stay outliers</i>	Not applicable	Exact Binomial Test
Trim Methodology <i>charges and length of stay</i>	+/- 3.0 Interquartile Range	Same

¹No cancer diagnosis codes present.

²ICD.9.CM diagnosis codes 140.0 – 208.9 inclusive or 230.0 – 234.9 inclusive.

³ICD.9.CM diagnosis codes V10.00 – V10.90 inclusive.

⁴Age adjustment is dependent on the distribution of age in the cases captured by a particular procedure or treatment group.

⁵Risk factors: DRGs 91 and 98 —ASG, age, gender; DRGs 167 and 410—ASG and age only; DRG 184—ASG, cancer, age.

⁶No diabetes diagnosis codes present.

⁷ICD.9.CM diagnosis codes 250.10 – 250.93 inclusive.

⁸ICD.9.CM diagnosis codes 250.00 – 250.03 inclusive.

DATA COLLECTION AND VERIFICATION

The Pennsylvania Health Care Cost Containment Council is mandated by state law to collect and disseminate health care data using guidelines set forth by the Health Care Financing Administration. These data, obtained from the UB-92 (Uniform Billing Form), are submitted quarterly to the Council by Pennsylvania hospitals via magnetic media as directed under Section 912, Data Submission Requirements, of Act 89. The data include demographic information, hospital charges, and diagnosis and procedure codes using the ICD.9.CM (*International Classification of Diseases, Ninth Revision, Clinical Modification*).

In a contractual agreement with MediQual[®], Inc. in Marlborough, Massachusetts (a company of Cardinal Health Information Companies) hospitals are required to use MediQual's Atlas Outcomes[™] Severity of Illness System to abstract patient severity information. The Admission Severity Group (ASG) scores and the Predicted Length of Stay (PLOS) values generated by this system are submitted to the Council for a select group of acute care inpatient records covering approximately 80 percent of acute care hospital discharges.

The data used for this report were submitted to the Pennsylvania Health Care Cost Containment Council by Pennsylvania general acute care (GAC) and specialty acute care hospitals covering the period of calendar year 2001. Federal hospitals were not required to submit data.

Facilities are required to submit data to the Council on a quarterly basis by 90 days from the last day of each quarter. Upon receipt of the data, media verification was performed to assure data were submitted in a readable format. The data verification process continued with extensive quality assurance checks and matching of Atlas-derived records to inpatient records. Error reports were then generated and returned to each facility with an opportunity to correct any problems.

STUDY POPULATION

Inclusion Criteria

The study population for the *CY2001 Hospital Performance Report* printed and web reports included useable records from all Pennsylvania GAC and specialty acute care hospital discharges in 2001 for adults only (except for pediatric specific DRGs).

Only those cases with a valid age were included. Age was considered invalid when it was missing or captured as greater than 120 years. Pediatric cases (age < 18 years) were only included for three pediatric-specific DRGs and two DRGs that were separated into adult (age ≥ 18 years) and pediatric (< 18 years). [Adult and pediatric cases for Removal of Appendix, uncomplicated (DRG 167) and Chemotherapy Without Acute Leukemia as Secondary Diagnosis (DRG 410) are reported separately.]

Because of the importance of discharge status (e.g., in identifying excluded records) only records with valid discharge status were retained. The following types of discharge status were valid for CY2001 records:

- 01 Discharged to home or self-care (routine discharge)
- 02 Discharged/Transferred to another short-term general hospital
- 03 Discharged/Transferred to a SNF
- 04 Discharged/Transferred to an intermediate care facility
- 05 Discharged/Transferred to another type of institution or referred for outpatient services to another institution

- 06 Discharged/Transferred to home under care of organized home health service organization
- 07 Left against medical advice
- 08 Discharged/Transferred to home under care of a home IV provider
- 20 Expired
- 50 Discharged to Hospice—Home
- 51 Discharged to Hospice—Medical Facility
- 61 Discharged/Transferred within this institution to a hospital-based Medicare approved swing bed
- 62 Discharged/Transferred to another rehabilitation facility including rehabilitation distinct part units of a hospital
- 63 Discharged/Transferred to a long term care hospital
- 71 Charged/Transferred/Referred to another institution for outpatient services as specified by the discharge plan of care
- 72 Discharged/Transferred/Referred to this institution for outpatient services as specified by the discharge plan of care

Hospital Exclusions from Printed and Web Reports

In 2001 there were 182 general acute care facilities and seven specialty acute care facilities in Pennsylvania, for a total population of 189 facilities.

The number of cases included in any single type of analysis in the 2001 report varies because of unreported or incomplete data submitted by the 189 acute care facilities or differing exclusion criteria. Table 5 in the “Data Tables” section of this document lists the hospitals that were excluded in the 2001 printed report and Web release, for reasons related to non-compliance or closures. **Although data and analyses specific to these facilities are not included in the printed or Web release editions of the CY2001 Hospital Performance Report, their valid records were retained in the reference database for statistical analyses of in-hospital mortality, length of stay, length of stay outliers, readmission for any reason, readmission for complication/infection, and average charges.** Valid records for these hospitals are captured in the “Data Tables” section of this document.

Children’s Hospitals

Four children’s hospitals were excluded from any display of adult data (both printed and Web site reports). Because the majority of their patients were under the age of 18, comparisons between these special acute care hospitals and general acute care hospitals were not parallel. Note that the children’s hospitals were included in the analysis of pediatric DRGs and the two DRGs separated into adult and pediatric cases. Results are displayed on the Web site.

Hospitals with Few Cases

The printed report presents results for each hospital with at least five cases in the mortality analysis (see “Methodology: Risk-Adjusted Mortality Analysis” for detail). For those hospitals with < 5 cases in the mortality analysis, the number of cases analyzed is displayed and “NR” (not reported) appears in place of a particular result for practical reasons. Due to small sample size no further analysis is displayed on those data. Note that for Abdominal Aortic Aneurysm Repair there was a high percentage of hospitals with zero cases meeting the mortality analysis criteria; for practical reasons no information was displayed for these hospitals for this particular procedure.

Utilization and outcome data for the 50 Web-only DRGs are displayed only for those facilities with a minimum of five cases in the mortality analysis for that particular procedure or treatment group. **No information** is shown for those facilities with fewer than five cases.

PROCEDURE AND TREATMENT GROUPS

Rationale for Including “Code-based” Conditions

The 78 procedure and treatment groups included in the *CY2001 Hospital Performance Report* are comprised of both DRGs and ICD.9.CM code-based conditions (new to the CY2001 report). While DRGs typically represent a subset of all patients with a specific diagnosis or surgical treatment that are homogeneous with regard to resource use, the code-based conditions were designed to represent a more clinically cohesive group of patients.

Development of more clinically cohesive groups was accomplished by defining code-based conditions by specific ICD.9.CM codes—as the **principal diagnosis or principal procedure**—and restricting them to select DRGs. For example, Congestive Heart Failure (CHF) was defined as cases with a principal diagnosis of 398.91, 428.0, 428.1, and 428.9 and restricted to DRGs 124, 125, and 127. In addition, cases that were deemed to be clinically complex were excluded. For example, HIV infection in any diagnosis position was excluded from all code-based procedures.

Selection of Code-based Conditions and DRGs

The procedure and treatment groups included in the *CY2001 Hospital Performance Report* were selected primarily because they 1) showed high volume or mortality, 2) they showed high variability in mortality among hospitals, 3) they were described in the literature as high cost, high mortality conditions, or 4) the transfer rate (i.e., transfer-out to another acute care facility) was less than 5 percent (so that a complete picture of the care delivered could be obtained by examining a single discharge record). In addition, since the report includes data from acute care facilities regardless of bed size, procedure and treatment groups were selected that are prevalent at smaller facilities as well as at larger facilities. The selected conditions not only represent a broad range of both medical and surgical hospitalizations, but also represent a broad range of Major Diagnostic Categories (MDCs). The different body systems encompassed include Nervous System (01), Respiratory System (04), Circulatory System (05), Digestive System (06), Musculoskeletal System and Connective Tissue (08), Endocrine, Nutritional and Metabolic (10), Kidney and Urinary Tract (11), Infectious and Parasitic Diseases (18), and Injury, Poisoning and Toxic Effects of Drugs (21).

The following table outlines the code-based conditions (and the ICD.9.CM codes and DRGs used to define each) and DRGs included in the *CY2001 Hospital Performance Report*. Additional exclusions (clinically complex cases) are identified as footnotes.

CY2001 Hospital Performance Report: Technical Notes

The 16 Code-based Conditions in the CY2001 printed report and Web site release are:

<i>Diagnoses¹</i>	<i>Principal Diagnosis Codes</i>	<i>DRGs</i>
Chronic Obstructive Pulmonary Disease	491.20, 491.21, 492.0, 492.8, 496, 506.4	088
Congestive Heart Failure	398.91, 428.0, 428.1, 428.9	124, 125, 127
Heart Attack—Medical Management	410.01, 410.11, 410.21, 410.31, 410.41, 410.51, 410.61, 410.71, 410.81, 410.91	121, 122, 123
Pneumonia	480.0, 480.1, 480.2, 480.8, 480.9, 481, 482.0, 482.1, 482.2, 482.30, 482.31, 482.32, 482.39, 482.40, 482.41, 482.49, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483.0, 483.1, 483.8, 485, 486, 487.0	079, 080, 089, 090
Septicemia	038.0, 038.10, 038.11, 038.19, 038.2, 038.3, 038.40, 038.41, 038.42, 038.43, 038.44, 038.49, 038.8, 038.9	416
Stroke—Hemorrhagic	430, 431, 432.0, 432.1, 432.9	014
Stroke—Non-Hemorrhagic	433.01, 433.11, 433.21, 433.31, 433.81, 433.91, 434.01, 434.11, 434.91, 436	014
<i>Procedures¹</i>	<i>Principal Procedure Codes</i>	<i>DRGs</i>
Abdominal Aortic Aneurysm Repair	38.44, 38.64, 38.84 with a principal diagnosis of 441.4	110, 111
Gallbladder Removal—Laparoscopic	51.23, 51.24	195, 196, 493, 494
Gallbladder Removal—Open	51.21, 51.22	195, 196, 197, 198
Colorectal Procedures ²	45.71, 45.72, 45.73, 45.74, 45.75, 45.76, 45.79, 45.8, 45.92, 45.94, 46.03, 46.10, 46.11, 46.13, 46.42, 46.43, 46.52, 46.76, 46.94, 48.49, 48.5, 48.62, 48.63, 48.69, 48.75, 48.76, 70.72	146, 147, 148, 149
Heart Attack—Angioplasty/Stent	36.01, 36.02, 36.05, 36.06 ³ with principal diagnosis of 410.01, 410.11, 410.21, 410.31, 410.41, 410.51, 410.61, 410.71, 410.81, or 410.91	112, 116, 516 ⁴
Hysterectomy—Abdominal	68.3, 68.4, 68.6, 68.9	353, 354, 355, 357, 358, 359
Hysterectomy—Vaginal	68.51, 68.59, 68.7	353, 354, 355, 357, 358, 359
Prostatectomy—Radical	60.3, 60.4, 60.5, 60.62, 60.69	306, 307, 334, 335, 338, 339, 341
Prostatectomy—Transurethral	60.21, 60.29	306, 307, 334, 335, 336, 337, 338, 339, 341

¹ Cases involving HIV Infection (ICD.9.CM code 042, in any position) were excluded from all code-based diagnoses and procedures.

² Cases involving abdominal trauma were excluded. Abdominal trauma was defined by the following ICD.9.CM codes: 863.0—864.19, 868.00—869.1, 879.2—879.9, 902.0—902.9, 908.1, 908.2, 908.4, 908.6, 908.9, 922.2, 935.2, 936, 937, 938, 947.3.

³ Note that for 2001, all cases with these procedure codes—listed in any position—were included in the analysis because there were several occurrences of sequencing (of codes) errors identified in the data. Future reports will include only cases with these codes listed as the principal procedure.

⁴ DRGs 112 and 116 were applicable for the 1st, 2nd, and 3rd quarters of 2001. DRG 516 alone was applicable for the 4th quarter of 2001.

CY2001 Hospital Performance Report: Technical Notes

The 12 DRGs included in the CY2001 printed report and Web site release are:

<i>DRG</i>	<i>Description</i>	<i>Common Names</i>	<i>MDC</i>	<i>Medical/ Surgical</i>
078	Pulmonary Embolism	Blood Clot in Lung	04	Medical
079	Respiratory Infections & Inflammations, Age Greater Than 17 with CC [‡]	Lung Infections, complicated	04	Medical
082	Respiratory Neoplasms	Lung Cancer	04	Medical
130	Peripheral Vascular Disorders with CC [‡]	Vascular Disorders Except Heart, complicated	05	Medical
138	Cardiac Arrhythmia & Conduction Disorders with CC [‡]	Abnormal Heartbeat, complicated	05	Medical
154	Stomach, Esophageal & Duodenal Procedures, Age Greater Than 17 with CC [‡]	Stomach & Small Intestinal Operations, complicated	06	Surgical
174	GI Hemorrhage with CC [‡]	Stomach & Intestinal Bleeding, complicated	06	Medical
210	Hip & Femur Procedures Except Major Joint Procedures, Age Greater Than 17 with CC [‡]	Hip Operations Except Replacement, complicated	08	Surgical
294	Diabetes, Age Greater Than 35	Diabetes	10	Medical
316	Renal Failure	Kidney Failure	11	Medical
320	Kidney & Urinary Tract Infections, Age Greater Than 17 with CC [‡]	Kidney & Urinary Tract Infections, complicated	11	Medical
449	Poisoning & Toxic Effects of Drugs, Age Greater Than 17 with CC [‡]	Poisoning & Toxic Effects of Drugs, complicated	21	Medical

[‡] CC: complication or comorbid condition.

CY2001 Hospital Performance Report: Technical Notes

The 50 DRGs released on the Council's Web site only:

DRG	Description	Common Names	MDC	Medical/ Surgical
001	Craniotomy, Age Greater Than 17 Except for Trauma	Brain Surgery Except for Trauma	01	Surgical
005	Extracranial Vascular Procedures	Removal of Blockage of Head & Neck Vessels	01	Surgical
012	Degenerative Nervous System Disorders	Degenerative Neurologic Disorders	01	Medical
015	Transient Ischemic Attack & Precerebral Occlusions	Transient Ischemic Attack & Blocked Vessel of Head, Neck	01	Medical
024	Seizure & Headache, Age Greater Than 17 with CC [†]	Seizure & Headache, complicated	01	Medical
025	Seizure & Headache, Age Greater Than 17 without CC [†]	Seizure & Headache, uncomplicated	01	Medical
034	Other Disorders of Nervous System with CC [†]	Neurologic Symptoms & Disorders, complicated	01	Medical
075	Major Chest Procedures	Major Lung Operations	04	Surgical
076	Other Respiratory System OR Procedures with CC [†]	Miscellaneous Lung Procedures, complicated	04	Surgical
087	Pulmonary Edema & Respiratory Failure	Fluid in Lung & Breathing Failure	04	Medical
091	Simple Pneumonia & Pleurisy, Age 0 – 17	Pediatric Pneumonia	04	Medical
096	Bronchitis & Asthma, Age Greater Than 17 with CC [†]	Bronchitis & Asthma, complicated	04	Medical
097	Bronchitis & Asthma, Age Greater Than 17 without CC [†]	Bronchitis & Asthma, uncomplicated	04	Medical
098	Bronchitis & Asthma, Age 0 – 17	Pediatric Bronchitis & Asthma	04	Medical
113	Amputation for Circulatory System Disorders Except Upper Limb & Toe	Non-Traumatic Lower Limb Amputation Except Toe	05	Surgical
120	Other Circulatory System OR Procedures	Miscellaneous Circulatory Operations	05	Surgical
125	Circulatory Disorders Except Acute Myocardial Infarction with Cardiac Catheterization without Complex Diagnosis	Heart Catheterization Without Heart Attack, uncomplicated	05	Medical
131	Peripheral Vascular Disorders without CC [†]	Vascular Disorders Except Heart, uncomplicated	05	Medical
139	Cardiac Arrhythmia & Conduction Disorders without CC [†]	Abnormal Heartbeat, uncomplicated	05	Medical
141	Syncope & Collapse with CC [†]	Hypotension & Fainting, complicated	05	Medical
143	Chest Pain	Chest Pain	05	Medical
144	Other Circulatory System Diagnoses with CC [†]	Extensive Cardiovascular Complications & Disorders	05	Medical
167*	Appendectomy Age < 18 without Complicated Principal Diagnosis without CC [†]	Pediatric Removal of Appendix, uncomplicated	06	Surgical
167*	Appendectomy Age ≥ 18 without Complicated Principal Diagnosis without CC [†]	Removal of Appendix, uncomplicated	06	Surgical
172	Digestive Malignancy with CC [†]	Stomach & Intestinal Cancer, complicated	06	Medical

* Pediatric and adult cases for DRG 167 are reported separately.

† CC: complication or comorbid condition.

CY2001 Hospital Performance Report: Technical Notes

The 50 DRGs released on the Council's Web site only continued:

DRG	Description	Common Names	MDC	Medical/ Surgical
180	GI Obstruction with CC [‡]	Stomach & Intestinal Obstruction, complicated	06	Medical
182	Esophagitis, Gastroenteritis & Miscellaneous Digestive Disorders, Age Greater Than 17 with CC [‡]	Stomach & Intestinal Infections & Disorders, complicated	06	Medical
183	Esophagitis, Gastroenteritis & Miscellaneous Digestive Disorders, Age Greater Than 17 without CC [‡]	Stomach & Intestinal Infections & Disorders, uncomplicated	06	Medical
184	Esophagitis, Gastroenteritis & Miscellaneous Digestive Disorders, Age 0 – 17	Pediatric Stomach & Intestinal Infections & Disorders	06	Medical
188	Other Digestive System Diagnoses, Age Greater Than 17 with CC [‡]	Stomach & Intestinal Complications & Disorders	06	Medical
202	Cirrhosis & Alcoholic Hepatitis	Cirrhosis & Alcoholic Hepatitis	07	Medical
203	Malignancy of Hepatobiliary System or Pancreas	Liver, Gallbladder or Pancreatic Cancer	07	Medical
204	Disorders of Pancreas Except Malignancy	Noncancerous Pancreatic Disorders	07	Medical
205	Disorders of Liver Except Malignancy, Cirrhosis & Alcoholic Hepatitis with CC [‡]	Liver Disease Except Cancer, Cirrhosis, Alcoholic Hepatitis, complicated	07	Medical
217	Wound Debridement & Skin Graft Except Hand for Musculoskeletal & Connective Tissue Disorders	Wound Debridement & Skin Grafts Except Hand	08	Surgical
239	Pathological Fractures & Musculoskeletal & Connective Tissue Malignancy	Bone Cancer & Non-Traumatic Fractures	08	Medical
243	Medical Back Problems	Medical Back Problems	08	Medical
277	Cellulitis, Age Greater Than 17 with CC [‡]	Cellulitis, complicated	09	Medical
296	Nutritional & Miscellaneous Metabolic Disorders, Age Greater Than 17 with CC [‡]	Nutritional & Metabolic Deficiencies, complicated	10	Medical
297	Nutritional & Miscellaneous Metabolic Disorders, Age Greater Than 17 without CC [‡]	Nutritional & Metabolic Deficiencies, uncomplicated	10	Medical
310	Transurethral Procedures with CC [‡]	Transurethral Procedures Except Prostatectomy, complicated	11	Surgical
315	Other Kidney & Urinary Tract OR Procedures	Vascular Surgery for Dialysis	11	Surgical
323	Urinary Stones with CC [‡] &/or ESW Lithotripsy	Urinary Stones Including Lithotripsy, complicated	11	Medical
331	Other Kidney & Urinary Tract Diagnoses, Age Greater Than 17 with CC [‡]	Kidney & Urinary Disorders Except Infection, complicated	11	Medical
395	Red Blood Cell Disorders, Age Greater Than 17	Anemia & Transfusion Reaction	16	Medical
398	Reticuloendothelial & Immunity Disorders with CC [‡]	Lymphatic & Immune Disorders, complicated	16	Medical
403	Lymphoma & Nonacute Leukemia with CC [‡]	Lymphoma & Non-Acute Leukemia, complicated	17	Medical
410*	Chemotherapy Without Acute Leukemia as Secondary Diagnosis < 18	Pediatric Chemotherapy Except for Acute Leukemia	17	Medical
410*	Chemotherapy Without Acute Leukemia as Secondary Diagnosis Age ≥ 18	Chemotherapy Except for Acute Leukemia	17	Medical
415	OR Procedure for Infectious & Parasitic Diseases	Surgery for Infectious or Parasitic Disease	18	Surgical
418	Postoperative & Posttraumatic Infections	Infection After Surgery or Trauma	18	Medical
478	Other Vascular Procedures with CC [‡]	Vascular Operations Except Heart, complicated	05	Surgical

* Pediatric and adult cases for DRG 410 are reported separately.

‡ CC: complication or comorbid condition.

Special Data Considerations

Because utilization and outcome data may be different for cases on ventilator support compared to those without support, these cases were considered as possible exclusions from the code-based conditions. However, because the variation in utilization and outcome data across hospitals for cases requiring ventilator support may be related to “process of care” issues, ventilator support cases were retained in the analysis for all non-respiratory conditions. Review of the statewide ventilator support data (see the following table) may aid hospitals in understanding the impact of ventilator support on healthcare outcomes. The following table compares statewide data for cases with and without mechanical ventilation support.

Statewide Cases with/without Mechanical Ventilation for Code-based Conditions

	# of Cases¹	% of Cases	Avg. LOS	% Mortality	Avg. Charge
Code-based Diagnoses					
Chronic Obstructive Pulmonary Disease (COPD)²	28,543	100%	4.9	1.7%	\$12,716
Yes – Mechanical Ventilation	0	0.0%	—	—	—
No – Mechanical Ventilation	28,543	100%	4.9	1.7%	\$12,716
Congestive Heart Failure (CHF)	56,894	100%	5.3	4.0%	\$16,079
Yes – Mechanical Ventilation	1,411	2.5%	9.0	28.5%	\$45,778
No – Mechanical Ventilation	55,483	97.5%	5.2	3.4%	\$15,324
Heart Attack—Medical Management	17,685	100%	5.9	14.9%	\$20,579
Yes – Mechanical Ventilation	1,417	8.0%	11.0	61.9%	\$38,853
No – Mechanical Ventilation	16,268	92.0%	5.7	10.8%	\$18,987
Pneumonia²	42,950	100%	5.6	5.0%	\$14,437
Yes – Mechanical Ventilation	0	0.0%	—	—	—
No – Mechanical Ventilation	42,950	100%	5.6	5.0%	\$14,437
Septicemia	13,782	100%	7.5	18.6%	\$21,626
Yes – Mechanical Ventilation	912	6.6%	15.1	66.3%	\$63,201
No – Mechanical Ventilation	12,870	93.4%	7.3	15.2%	\$18,680
Stroke—Hemorrhagic	3,548	100%	6.9	33.1%	\$24,587
Yes – Mechanical Ventilation	716	20.2%	13.1	85.5%	\$30,232
No – Mechanical Ventilation	2,832	79.8%	6.7	19.9%	\$23,160
Stroke—Non-Hemorrhagic	21,647	100%	5.8	6.4%	\$19,134
Yes – Mechanical Ventilation	609	2.8%	13.8	59.6%	\$54,453
No – Mechanical Ventilation	21,038	97.2%	5.7	4.9%	\$18,112
Code-based Procedures					
Abdominal Aortic Aneurysm Repair	1,596	100%	8.3	3.3%	\$51,435
Yes – Mechanical Ventilation	159	10.0%	13.2	19.5%	\$87,368
No – Mechanical Ventilation	1,437	90.0%	7.9	1.5%	\$47,459
Gallbladder Removal—Laparoscopic	14,649	100%	3.3	0.3%	\$17,204
Yes – Mechanical Ventilation	107	0.7%	9.7	16.8%	\$51,833
No – Mechanical Ventilation	14,542	99.3%	3.2	0.2%	\$16,949
Gallbladder Removal—Open	3,493	100%	7.0	1.4%	\$29,137
Yes – Mechanical Ventilation	117	3.3%	13.9	14.5%	\$65,587
No – Mechanical Ventilation	3,376	96.7%	6.7	0.9%	\$27,874
Colorectal Procedures	15,301	100%	9.6	3.7%	\$40,033
Yes – Mechanical Ventilation	718	4.7%	16.5	33.0%	\$86,696
No – Mechanical Ventilation	14,583	95.3%	9.3	2.2%	\$37,735
Heart Attack—Angioplasty/Stent	10,669	100%	4.1	1.7%	\$40,183
Yes – Mechanical Ventilation	148	1.4%	10.8	30.4%	\$83,224
No – Mechanical Ventilation	10,521	98.6%	4.1	1.3%	\$39,577
Hysterectomy—Abdominal	18,752	100%	3.2	0.1%	\$14,058
Yes – Mechanical Ventilation	46	0.2%	8.9	17.4%	\$44,838
No – Mechanical Ventilation	18,706	99.8%	3.2	0.1%	\$13,983
Hysterectomy—Vaginal	7,808	100%	2.0	<0.1%	\$10,655
Yes – Mechanical Ventilation	2	<0.1%	14.0	0.0%	\$288,913
No – Mechanical Ventilation	7,806	99.9%	2.0	<0.1%	\$10,584
Prostatectomy—Radical	3,635	100%	3.5	0.3%	\$20,954
Yes – Mechanical Ventilation	11	0.3%	5.3	18.2%	\$58,584
No – Mechanical Ventilation	3,624	99.7%	3.5	0.2%	\$20,840
Prostatectomy—Transurethral	5,491	100%	2.8	0.2%	\$10,401
Yes – Mechanical Ventilation	5	0.1%	14.8	20.0%	\$39,675
No – Mechanical Ventilation	5,486	99.9%	2.8	0.2%	\$10,374

¹Prior to any exclusions.

²There are no ventilator support cases in the COPD or pneumonia disease populations. For these respiratory-related conditions the ventilator support cases were grouped into a DRG (DRG 475) not included in the condition definition.

METHODOLOGY

Risk-Adjusted Mortality Analysis

Exclusions to Analysis

The in-hospital mortality analysis included all inpatient records categorized into one of the reported treatment or procedure groups (both printed and Web-only) with the following exceptions:

- patients who left against medical advice
- patients who were transferred out to general acute care facilities
- records with an invalid or missing Atlas Outcomes™ ASG score
- records with no reference data

For the actual number and percent of statewide cases excluded from analyses, refer to Tables 2A, 2B, 2C, and 2D in the “Data Tables” section of this document.

Procedure and Treatment Groups for Which In-hospital Mortality Is Not Reported

For the *CY2001 Hospital Performance Report*, mortality outcomes are reported for all code-based conditions and DRGs (printed and Web-only) with the exception of Lung Cancer (DRG 82). Lung cancer was removed from the mortality analysis because it is typically a terminal illness.

Construction of Reference Database for Adult Analyses

A Pennsylvania statewide comparative database was computed for the 2001 Pennsylvania acute care hospital inpatient data. **The reference database for the measure of in-hospital mortality was indexed for each code-based condition and DRG by Atlas Outcomes™ Severity Group (ASG) score, cancer status, and age category.** ASG score, cancer status and age category were used as risk adjustment factors in the statistical analysis for in-hospital mortality. Indirect standardization was adopted as the risk-adjustment technique. In order to best support the statistical methods that were utilized, it was decided that the patient count in each of the final ASG/cancer/age categories should be twenty or more. When the number of patients in an ASG/cancer/age category did not meet this minimum threshold, collapsing of categories was necessary. Because high volume code-based conditions and DRGs were selected for this HPR, it was not typically necessary for the adult analyses to combine categories in order to achieve a minimum number of 20 patients per combination of ASG/cancer/age category.

The algorithm used to combine categories was determined under the premise that Atlas Outcomes™ ASG was regarded as the best indicator of patient risk, followed by cancer status, then age category. (Note that age in years, as an independent predictor of mortality, was already evaluated and retained—where statistically significant—in the Atlas Outcomes™ severity score developed by MediQual®, Inc.).

When an age category had a small patient count, it was combined with an adjacent age category.

CY2001 Hospital Performance Report: Technical Notes

For the majority of the procedure and treatment groups, age categories were defined as:

- Age 18 through age 64.
- Age 65 through age 79.
- Age 80 and over.

For some of the procedure or treatment groups, the previously defined age categories were not effective with respect to risk-adjustment because a high proportion of patients were in the 18 through 64 years category. In an effort to capture the large number of non-elderly patients, the age categories were defined as:

- Age 18 through age 39
- Age 40 through age 69
- Age 70 and over

The procedure and treatment groups that were age-adjusted using the “younger” categories are listed below:

Code-based Conditions	DRGs	DRGs
Gallbladder Removal—Laparoscopic	001 Brain Surgery Except for Trauma	204 Noncancerous Pancreatic Disorders
Gallbladder Removal—Open	024 Seizure & Headache, complicated	217 Wound Debridement & Skin Grafts Except Hand
Hysterectomy—Vaginal	025 Seizure & Headache, uncomplicated	297 Nutritional & Metabolic Deficiencies, uncomplicated
	096 Bronchitis & Asthma, complicated	323 Urinary Stones Including Lithotripsy, complicated
	097 Bronchitis & Asthma, uncomplicated	395 Anemia & Transfusion Reaction
	167 Removal of Appendix, uncomplicated (<i>This DRG is also analyzed for pediatric cases using the pediatric age categories.</i>)	418 Infection After Surgery or Trauma
	183 Stomach & Intestinal Infections & Disorders, uncomplicated	449 Poisoning & Toxic Effects of Drugs, complicated

Patients were next risk-adjusted with respect to cancer status. When small patient counts were encountered, the adjustment algorithm combined patients with a history of cancer with those patients who did not have cancer diagnosis codes present. Cancer categories were combined only when age category collapsing did not improve small patient counts. The three applicable categories were:

- no cancer (that is, no cancer diagnosis codes present)
- malignant neoplasm or cancer in situ (ICD.9.CM diagnosis codes 140.0–208.9 inclusive or 230.0–239.9 inclusive.)
- history of cancer (ICD.9.CM diagnosis codes V10.00–V10.90 inclusive)

When the patient count for an ASG level was small, and all acceptable collapsing of cancer status categories was performed, collapsing of ASG levels became necessary. When combining severity, counts for scores 0 and 1 may have been combined; and counts for scores 3 and 4 may have been combined. A severity score of 2 was considered an independent category. The conversion of probabilities of death to admission severity categories is as follows:

<u>Admission Severity Group</u>	<u>Probability of Death</u>
0 no risk of clinical instability	0.000 – 0.001
1 minimum risk of clinical instability	0.002 – 0.011
2 moderate risk of clinical instability	0.012 – 0.057
3 severe risk of clinical instability	0.058 – 0.499
4 maximum risk of clinical instability	0.500 – 1.000

Construction of Reference Database for Pediatric Analyses

A Pennsylvania statewide comparative database was computed for the 2001 Pennsylvania acute care hospital inpatient data based on pediatric cases only.

The methods used to construct this comparative database were similar to those employed in constructing the comparative database used for the adult in-hospital mortality analysis. However, there were differences in the five pediatric DRGs with respect to the risk adjustment factors utilized and the hierarchy of implementing cell collapsing within these factors.

For the pediatric analyses of DRG 91, *Pediatric Pneumonia, uncomplicated* and DRG 98, *Pediatric Bronchitis & Asthma*, the following risk factors were used:

- Atlas Outcomes™ ASG score (regarded as the best indicator of risk)
- age category
- gender (regarded as the least important indicator of risk)

For the pediatric analyses of DRG 167, *Pediatric Removal of Appendix, uncomplicated* and DRG 410, *Pediatric Chemotherapy Except for Acute Leukemia*, the following risk factors were used:

- Atlas Outcomes™ ASG score (regarded as the best indicator of risk; that is, cells were only collapsed with respect to ASG if there was no other way to maintain a statewide reference cell size of at least 20 cases)
- age category

For the pediatric analyses of DRG 184, *Pediatric Stomach & Intestinal Infections & Disorders*, the following risk factors were used. (Note that both the risk factors and their hierarchy of importance were the same as that used for all the adult analyses):

- Atlas Outcomes™ ASG score (regarded as the best indicator of risk)
- cancer status
- age category (regarded as the least important indicator of risk)

For these five pediatric specific DRGs, **it was necessary to collapse cells more frequently than in the adult analyses.** This occurred, in particular, due to the low cancer incidence among pediatric patients and less variation in risk levels (for example, ASG).

The algorithm used to combine categories for the pediatric statewide comparative database was similar to the techniques that were used in creating the adult statewide comparative database.

Calculation of the Statewide Mortality Rate

Using the Pennsylvania comparative database, the statewide mortality rate was calculated for each ASG/cancer/age category for each of the code-based conditions and DRGs. These statewide mortality rates for each ASG/cancer/age category were calculated as follows: **by dividing the total number of deaths in that category by the total number of hospitalizations in that ASG/cancer/age category.**

$$\text{Statewide Mortality Rate}_{\text{ASG/Cancer/Age Category}} = \frac{\text{Total Number of Deaths Statewide}_{\text{ASG/Cancer/Age Category}}}{\text{Total Number of Hospitalizations Statewide}_{\text{ASG/Cancer/Age Category}}}$$

These statewide mortality rates provided the basis for a standard comparison for individual hospitals.

Calculation of Hospital's Expected Mortality

The number of deaths for each hospital within each procedure or treatment group was the *actual* or *observed in-hospital mortality*. For adults the number of deaths "expected" for each hospital within each procedure or treatment group was calculated using the statewide mortality rates for each of the ASG/cancer/age categories. (Note that for the pediatric analyses of mortality, the indices referencing the respective statewide comparative database were not always ASG, cancer status, and age category. However, the methodology used to calculate the expected mortality was the same.)

Note that since there are five ASG categories, three cancer categories, and three age categories, there are potentially 45 different combinations of these categories for every code-based condition or DRG. In the notation presented for the calculation of the **Expected Number of Deaths** (see below), the variable, *i*, can range from 1 to 45. (For a particular procedure or treatment group, the maximum of the variable, *i*, is given by the number of final combinations of ASG/cancer/age categories.) The ***i*th combination** is a generic term used to signify each of the final combinations of ASG/cancer/age categories.

The expected number of mortalities for each procedure or treatment group within each hospital is calculated as follows:

$$\text{Expected Number of Deaths} = \sum(p_i \times n_i)$$

where, for each of the of ASG/cancer/age categories within the procedure or treatment group

p_i = the statewide mortality rate for the *i*th combination

n_i = the number of cases for the hospital of the *i*th combination

Then the expected mortality (or the estimated probability of death, **p**), for each procedure or treatment group within each hospital is calculated as follows:

$$\text{Expected Mortality Rate} = (\text{Expected Number of Deaths})/N$$

where, **N** = the total number of cases for a particular procedure or treatment group within a particular hospital. (Note: $\sum n_i = N$)

The following example illustrates the calculation of the expected number of deaths for Congestive Heart Failure at Hospital "A."

Hospital "A" had a total of 463 patients treated for Congestive Heart Failure. Of those 463 patients, the expected number of deaths was 29.5601 and the expected mortality rate was 6.4 percent. (Note: For display purposes the expected number of deaths within each ASG/cancer/age category was rounded to four decimal places.)

Example: Congestive Heart Failure (CHF) Expected Mortality for Hospital “A”

Admission Severity Group	Cancer Status	Age Category	a = Number of Patients Treated at Hospital “A”	b = Statewide Mortality Rate	a x b = Expected Number of Deaths for Hospital “A”
0	No Cancer	Under Age 65	2	0.019608	0.0392
1	No Cancer	Under Age 65	10	0.004388	0.0439
		Age 65–79	5	0.004261	0.0213
		Age 80 & Over	1	0.017094	0.0171
2	No Cancer	Under Age 65	20	0.009498	0.1900
		Age 65–79	80	0.013526	1.0821
		Age 80 & Over	70	0.020612	1.4429
	Malignant Neoplasm or Cancer In Situ	Under Age 65	1	0.055901	0.0559
		Age 65–79	5	0.039179	0.1959
		Age 80 & Over	3	0.030471	0.0914
	History of Cancer	Age 80 & Over	5	0.009050	0.0452
3	No Cancer	Under Age 65	10	0.069703	0.6970
		Age 65–79	50	0.075641	3.7821
		Age 80 & Over	150	0.086699	13.0049
	Malignant Neoplasm or Cancer In Situ	Under Age 65	1	0.135135	0.1351
		Age 65–79	7	0.110887	0.7762
		Age 80 & Over	12	0.090056	1.0807
	History of Cancer	Under Age 65	2	0.000000	0.0000
		Age 65–79	4	0.032338	0.1294
		Age 80 & Above	6	0.064350	0.3861
4	No Cancer	Under Age 65	2	0.266667	0.5333
		Age 65–79	5	0.343096	1.7155
		Age 80 & Over	7	0.406417	2.8449
	History of Cancer	All Age Categories Combined	5	0.250000	1.2500
Total			463		29.5601

Actual In-Hospital Mortality Compared with Expected In-Hospital Mortality

Binomial Test Though a hospital’s observed mortality may be comparable to the calculated expected mortality, random variation plays a factor in these comparisons. Statistical evaluation can determine when the difference between the observed and the expected value is *too large* to be attributed solely to chance. Statistical evaluation of in-hospital mortality was performed for each code-based condition and DRG using the binomial test. The binomial test is appropriate for situations where the possible outcome is dichotomous—in this case, death or survival for each patient. The binomial test was based upon the following assumptions:

- the probability of death for each patient within a procedure or treatment group was the statewide mortality rate provided by the reference database. This probability of death was assumed to be a constant number from one patient to the next.
- the death or survival of one patient has no impact on the death or survival of any other patient. In other words, patients were independent entities.

Inferential Error. A type of inferential error that can be made in statistics is called Type I error or false positive. The probability of committing a Type I error is equal to the level of significance established by the researcher. For this analysis, the level of significance was set to 0.05. In the context of the *CY2001 Hospital Performance Report*, a Type I error occurred when the difference between the observed in-hospital mortality and the expected in-hospital mortality was declared statistically significant, when in fact, the difference was due to chance. That is, for a particular code-based condition or DRG, the hospital was declared to be statistically higher or lower than expected, when in reality the hospital's level of performance was comparable to what was expected. Since the level of significance was set to 0.05, there was a 5% (or 1 in 20) chance of committing this type of error.

P-value Calculation. Calculating the p-value for the binomial test is defined by a formula, which sums discrete probabilities based upon the binomial distribution. The binomial formula was written as:

$$P(X=a) = \frac{[N!]}{[a!(N-a)!]} p^a(1-p)^{N-a}$$

where,

X was the binomial random variable (X is a discrete random variable and $0 \leq X \leq N$)

a was the actual number of mortalities in a procedure or treatment group for a particular hospital

N was the number of patients in a procedure or treatment group for a particular hospital

p was the estimated probability of patient death (or the expected mortality rate) in a procedure or treatment group for a particular hospital

For each procedure or treatment group within each hospital, **p** was calculated using the expected number of deaths.

Statistical Rating. A statistical rating was assigned to each hospital if the difference between what was observed and what was expected in a particular code-based condition or DRG was statistically significant. The p-value, calculated in terms of a "two-tailed" test was compared to the level of significance.

- If the calculated p-value was greater than 0.05, then the conclusion was made that the difference between what was expected and what was observed was *not* statistically significant. It *cannot be concluded* that the in-hospital mortality for that particular procedure or treatment group was different from the expected mortality.
- If the calculated p-value was less than or equal to 0.05, then the conclusion was made that the difference between what was expected and what was observed was statistically significant. The ratings were then applied as follows:
 - ✓ If the observed in-hospital mortality was *less than* the expected in-hospital mortality, the hospital was assigned the symbol labeled "Significantly lower than expected" for a particular procedure or treatment group.
 - ✓ If the observed in-hospital mortality was *higher than* the expected in-hospital mortality, the hospital was assigned the symbol labeled "Significantly higher than expected" for a particular procedure or treatment group.

Risk-Adjusted Length of Stay Analysis

Exclusions to Analysis

The risk-adjusted length of stay (LOS) analysis included all inpatient records categorized into one of the reported procedure or treatment groups with the following exceptions:

- patients who died in the hospital
- patients who left against medical advice
- patients who were transferred to general acute care facilities
- records with an invalid or missing PLOS score
- records with an invalid (e.g., negative) or missing length of stay
- records with no reference data
- LOS outlier

For the actual number and percent of statewide cases excluded from analyses, refer to Tables 2A, 2B, 2C, and 2D in the “Data Tables” section of this document.

Construction of Reference Database

The reference database for length of stay was indexed for each code-based condition or DRG by *Atlas Outcomes*[™] Predicted Length of Stay (PLOS) score, cancer status, and age category. The methods used to construct this comparative database were similar to those employed in constructing the comparative database used for in-hospital mortality.

Trim Methodology & Risk Adjustment Computations

Trimming methodology was used to remove outlier length of stay values from the study population. Identification of outliers was imperative for the elimination of extreme values that have a significant and unrepresentative impact on the mean (average). For the *CY2001 Hospital Performance Report* the risk-adjusted mean was the measure used for length of stay.

The trimming (that is, deleting) of individual records from the database was performed after all other exclusions were satisfied. If the length of stay of a particular record was less than the lower trim point or in excess of the upper trim point, that record was removed from the database, and thus, from subsequent analyses.

For the Pennsylvania comparative database, upper and lower trim points were calculated using the “+/- 3.0 interquartile range” method (IQR). This non-parametric methodology was used because historically the distribution for length of stay data does not follow a “normal, bell-shaped” pattern. The distribution was generally right-skewed, with values gathered closely together at the lower end of the distribution, becoming more widely dispersed at the upper end of the distribution.

Upper and lower trim points for length of stay were calculated for each procedure or treatment group by each PLOS/cancer/age category statewide, providing 45 potential combinations for each procedure or treatment group.

Trim points were determined as follows:

Q1 = the first quartile (25th percentile length of stay value) of all patient records from the comparative database in a particular category

Q3 = the third quartile (75th percentile length of stay value) of all patient records from the comparative database in a particular category

IQR = Q3 – Q1

Lower Trim Point = Q1 – (3.0 x IQR)

Upper Trim Point = Q3 + (3.0 x IQR)

Risk Adjustment Computations

Trimmed and risk-adjusted length of stay values are reported for each code-based condition or DRG by each hospital. Length of stay values may vary within a procedure or treatment group due to variance in PLOS, cancer status, and age data. Therefore, in order to report a comparable risk-adjusted length of stay for each of the code-based conditions or DRGs across all hospitals, a risk-adjustment technique was employed. The following steps were implemented:

First, statewide relative weights for each PLOS/cancer/age category combination within each code-based condition or DRG were determined using the reference database for length of stay. After all exclusions were satisfied and outlier trimming was performed, the relative weight for each PLOS/cancer/age category within each procedure or treatment group was calculated using the formula:

$$\text{Relative Weight} = \frac{\text{Average Length of Stay for a PLOS/Cancer/Age Combination}}{\text{Length of Stay for the Procedure or Treatment Group}}$$

Next, each hospital's risk index for each procedure or treatment group was calculated. Each hospital had a different risk index associated with length of stay for each procedure or treatment group analyzed for the CY2001 HPR.

$$\text{A Hospital's Risk Index for a particular procedure or treatment group} = \frac{\sum(n_i \times RW_i)}{\sum n_i}$$

where, for each of the PLOS/cancer/age combinations within the procedure or treatment group

RW_i = the statewide relative weight for the ith combination
n_i = the number of cases for the hospital of the ith combination
 and **Σn_i** = the total number of cases for the hospital for the procedure or treatment group

Finally, for each hospital the trimmed and risk-adjusted average length of stay was calculated for each procedure or treatment group:

$$\text{Trimmed and Risk-Adjusted Length of Stay} = \frac{\text{Average LOS for the Procedure or Treatment Group}}{\text{Risk Index for the Procedure or Treatment Group}}$$

Note that for pediatric analyses the techniques involved in indirect standardization remained the same even though the combination of risk factors was different. Risk factors for pediatric DRGs 91 and 98 were ASG, age category and gender; for analyses of DRGs 167 and 410 ASG and age were used as risk factors; for DRG 184 the risk factors were ASG, cancer status and age category.

Risk-Adjusted Length of Stay Outlier Rate and Rating

Overview

The length of stay outlier rate and rating are new to the *CY2001 Hospital Performance Report*. These measures were added to provide information about abnormally short or long lengths of stay. That is, separate rates and ratings are reported for both short and long hospital stays. How long someone stays in the hospital depends in part on the reason for the hospitalization and the overall health of the patient. Yet, many other factors can affect length of stay. A high percent of short stays may reflect limitations imposed by payors, unnecessary admissions due to inadequate health and social support in the community, a lack of patient education, poor patient compliance, or adverse drug reactions due to polypharmacy. A high percent of long hospital stays may result from complications of care, delays in diagnostic testing, nursing shortages, weekend admissions, or a lack of alternatives to acute care facilities. These examples are just a few of the many factors that may contribute to abnormally short or long hospitalizations.

Exclusions to Analysis

The risk-adjusted length of stay outlier (short/long) analyses include all inpatient records categorized into one of the reported procedure or treatment groups with the following exceptions:

- patients who died in the hospital
- patients who left against medical advice
- patients who were transferred out to general acute care facilities
- records with an invalid or missing PLOS score
- records with an invalid (e.g., negative) or missing length of stay

Note that these exclusions are very similar to those cases excluded from the length of stay analyses except LOS outliers were not excluded (for practical reasons).

For the actual number and percent of statewide cases excluded from analyses, refer to Tables 2A, 2B, 2C, and 2D in the "Data Tables" section of this document.

Procedure and Treatment Groups for Which LOS Outlier Data Is Not Reported

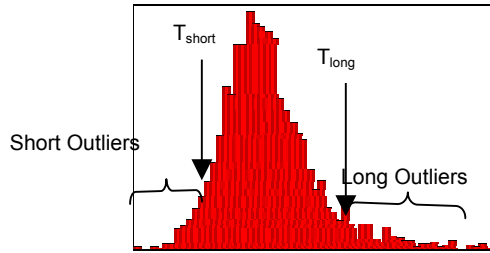
Because these measures are based on Atlas Outcomes™ Predicted Length of Stay (PLOS) values, outlier rates and ratings were calculated and are displayed only for those procedure and treatment groups for which the Atlas Outcomes™ algorithms (used to calculate the PLOS) could be suitably applied. Refer to the appendix (Table A) for a listing of the procedure and treatment groups for which these rates and ratings were calculated.

Calculation of Length of Stay Outlier Rates

The variable of analysis for the calculation of the length of stay outlier rates was the residual length of stay (ResLOS). This value was calculated for each record as the difference between the PLOS and the actual length of stay. The PLOS values were calculated (by MediQual®, Inc.) using linear regression models that are based on Key Clinical Findings (KCFs). LOS outliers were based on the statewide distribution of the ResLOS for each procedure or treatment group. That is, LOS outliers were identified as hospitalizations (for a given procedure or treatment group) in which the ResLOS was below the 5th percentile (short

LOS outliers) or above the 95th percentile (long LOS outliers) of the statewide distribution of ResLOS data.

The following example shows the statewide distribution of the ResLOS for a mock DRG.



The left (T_{short}) and right (T_{high}) trim points were the 5th and 95th percentile scores, respectively, of the statewide ResLOS distribution for the DRG.

For each individual record in the DRG, the ResLOS was compared to the T_{short} and T_{long} trim points.

If the record's **ResLOS** < T_{short} , the record was deemed a **Short LOS Outlier**

If the record's **ResLOS** > T_{long} , the record was deemed a **Long LOS Outlier**

Then, for each hospital:

The **Percent of Short LOS Outliers** was calculated as:

$$\frac{\text{Actual \# of Short LOS Outliers}}{\text{Total \# of Cases in the LOS Outlier Analysis (after exclusions)}}$$

and the **Percent of Long LOS Outliers** was calculated as:

$$\frac{\text{Actual \# of Long LOS Outliers}}{\text{Total \# of Cases in the LOS Outlier Analysis (after exclusions)}}$$

Actual Outlier Rate Compared With Expected Outlier Rate

The percent of short (or long) outliers for each hospital within each procedure or treatment group was the *actual* or *observed* short (or long) outlier rate. Since the LOS outlier rates were based on Atlas Outcomes™ PLOS values, the calculated percent of outliers for each facility was already “risk-adjusted” and additional adjustments were not necessary.

The “expected” percent of short (or long) LOS outliers for each hospital within each code-based condition or DRG was equal to the statewide percent—near 5%—of short (or long) LOS outliers. (Note that since outliers were defined as being strictly *less than* the 5th percentile or *greater than* the 95th percentile, the statewide rates of outliers will be near, *but less than*, 5%.)

Statistical Rating for LOS Outlier Rates

Using the exact binomial test, the short (or long) LOS outlier rate for each hospital was compared to the statewide rate (about 5%) of short (or long) LOS outliers. The methods used to determine statistical significance (i.e., binomial test, inferential error, p-value calculation, etc.) for these measures were similar to those employed in the in-hospital

mortality analysis. Note that separate tests were calculated for short and long LOS outlier rates.

A statistical rating was assigned to each hospital if the difference between what was observed and what was expected in a particular code-based condition or DRG was statistically significant. The p-value, calculated in terms of a “two-tailed” test was compared to the level of significance.

- If the calculated p-value was greater than 0.05, then the conclusion was made that the difference between what was expected and what was observed was *not* statistically significant. It *cannot be concluded* that the outlier rate for that particular code-based condition or DRG was different from the expected outlier rate.
- If the calculated p-value was less than or equal to 0.05, then the conclusion was made that the difference between what was expected and what was observed was statistically significant. The ratings were then applied as follows:
 - ✓ If the observed LOS outlier rate was *less than* the statewide outlier rate, the hospital was assigned the symbol labeled “Significantly lower than expected” for a particular code-based condition or DRG.
 - ✓ If the observed LOS outlier rate was *greater than* the statewide outlier rate, the hospital was assigned the symbol labeled “Significantly higher than expected” for a particular code-based condition or DRG.

Risk-Adjusted Readmission Analyses

Overview

A readmission was defined as an acute care hospitalization (for the same patient) in which the admit date was within 30 days of the discharge date of the original hospitalization. That is, the “readmissions for any reason (%)” figure in the *Hospital Performance Report* is derived from the total volume of hospitalizations with at least one subsequent acute care hospitalization within 30 days. Under this definition, same day readmissions were acceptable only if the original hospitalization resulted in a discharge to “home.” (“Home” discharges included those patients who were discharged to: 1) home or self care [routine discharge], 2) home under the care of an organized home health service organization, or 3) home under the care of a Home IV provider.) Note that the readmission had to be one in which the patient was admitted to any GAC or specialty general acute care facility for an acute care condition (not related to behavioral health, physical rehabilitation, mental health, or skilled nursing).

Exclusions to Analysis

The risk-adjusted readmission analyses (*for any reason or for complication/infection*) included all inpatient records categorized into one of the reported procedure or treatment groups with the following exceptions:

- patients who left against medical advice
- patients transferred out to general acute care facilities
- records with invalid or missing ASG
- records with invalid (e.g., negative) or missing LOS
- patients who died in the hospital
- patients who were out of state residents
- patients who were discharged to hospice care
- records with inconsistent or missing identifiers (SSN, Gender, DOB)

- records with admission, readmission and discharge date discrepancies (overlaps or embedded records)
- records with no reference data

For the actual number and percent of statewide cases excluded from analyses, refer to Tables 2A, 2B, 2C, and 2D in the “Data Tables” section of this document.

To calculate the readmission %, it was necessary to link or match patient records across multiple hospitalizations; that is, it was necessary to create a patient history for the study period. Records that were problematic when trying to link multiple patient hospitalizations were excluded from analysis. Ideally, complete patient histories should be identified using the key matching variables of social security number (SSN), gender, and date of birth. Unfortunately, data obtained from the UB-92 (Uniform Billing Form) and submitted quarterly to the Council by Pennsylvania hospitals were neither flawless nor complete. Attempts were made to resolve inconsistencies in patient identifier data when they occurred. However, in some instances these inconsistencies could not be resolved (e.g., if a record did not have a valid SSN or birth date associated with it) and the record could not be identified as a readmission.

Procedure and Treatment Groups for Which Readmission Data Are Not Reported

Risk-adjusted readmission data (*for any reason or for complication/infection*) are not displayed in the *CY2001 Hospital Performance Report* for the following procedure and treatment groups since these cases frequently involve planned readmissions:

- Heart Attack—Medical Management.
- Lung Cancer (DRG 082).
- Code-based conditions and DRGs with a high volume (i.e., $\geq 10\%$) of cancer-related cases.

In addition, since readmission data is not reported for Heart Attack—Medical Management, it is not reported for Heart Attack—Angioplasty/Stent to maintain consistency in the AMI conditions. Readmission data is also not reported for those DRGs that contain the terms “miscellaneous” or “other” in the DRG name since defining appropriate readmissions for this mix of cases is problematic. Lastly, readmission data is not reported for pediatric DRGs because these records frequently lack important patient identifier information (i.e., SSNs) and are difficult to link. Refer to Appendix Table A for a list of the code-based conditions and DRGs for which readmission data is reported.

Construction of Reference Database

The same reference database was used in the analysis of readmissions for any reason and readmissions for complication/infection. This reference database was indexed for each code-based condition and DRG by ASG score, diabetes status and cancer status. The methods used to construct this comparative database were similar to those employed in constructing the comparative database used for in-hospital mortality. Note that while it was necessary to examine data in the first quarter of 2002 for potential readmissions for patients discharged in the 4th quarter of 2001, *only useable records from 2001 were contained in the comparative database*. Records were flagged in this database as to whether or not there was a subsequent 30-day readmission. Using indirect standardization, the percent of readmissions for any reason and the percent of readmissions for complication/infection were computed separately for each compliant facility.

Calculation of Risk-Adjusted Readmissions for Any Reason

Using the Pennsylvania comparative database for readmission, the statewide rate of readmissions for any reason was calculated for the final ASG/diabetes/cancer status combinations for each of the code-based conditions and DRGs in which readmission was reported. The actual percent of readmissions for any reason for each code-based condition or DRG within each hospital was calculated as:

$$\text{Percent Readmissions}_{\text{Any Reason}} = \frac{\text{Number of Hospitalizations with a Readmission}_{\text{Any Reason}}}{\text{Total Number of Hospitalizations in the Readmission Analysis}}$$

The statewide percent of readmissions_{any reason} was the actual (observed) readmission_{any reason} percent for each code-based condition or DRG (across all hospitals) and was calculated from the reference database after all exclusions were removed. Refer to the sections outlining the methodology used for in-hospital mortality for further information regarding these calculations.

The calculations used to determine the expected readmission percent were similar to those used to determine the expected in-hospital mortality rates. Then, for each hospital, the **risk-adjusted percent of readmissions_{any reason}** for a given procedure or treatment group was calculated as:

$$\frac{\text{Actual \% Readmissions}_{\text{Any Reason}}}{\text{Expected \% Readmissions}_{\text{Any Reason}}} \times \text{Statewide \% Readmissions}_{\text{Any Reason}}$$

Calculation of Risk-Adjusted Readmissions for Complication/Infection

Calculation of the percent of readmissions for complication/infection for each code-based condition and DRG within each hospital was very similar to that used to determine the percent of readmissions for any reason **except** it includes only those readmission cases that had a complication or infection coded as the principal diagnosis or principal procedure (see Appendix Table B for a list of these codes).

The actual percent of readmissions for complication/infection for each code-based condition or DRG within each hospital was calculated as:

$$\text{Percent Readmission}_{\text{comp/infect}} = \frac{\text{\# of Hospitalizations with a Readmission}_{\text{comp/infect}}}{\text{Total Number of Hospitalizations in the Readmission Analysis}}$$

The calculations used to determine the expected readmission percent were similar to those used to determine the expected in-hospital mortality rates. Then, for each hospital, the **risk-adjusted percent of readmissions_{comp/infect}** for a given procedure or treatment group was calculated as:

$$\frac{\text{Actual \% Readmission}_{\text{comp/infect}}}{\text{Expected \% Readmission}_{\text{comp/infect}}} \times \text{Statewide \% Readmission}_{\text{comp/infect}}$$

The following table provides detailed information (statewide) about the percent of cases readmitted for a complication/infection. Shown are the total cases readmitted for each of the 12 categories of complications/infections.

Statewide Cases Readmitted for Complication/Infection, by Reason for Readmission

Procedure and Treatment Groups in the Printed Report

Procedure and Treatment Groups in the Printed Report	# of Cases Meeting Readmission Criteria	Total # of Cases Readmitted for Complication/Infection	% of Cases Readmitted for Complication/Infection	Reason for Readmission											
				Procedure/Medical Care Related Events	Digestive System Complications	Pulmonary Compromise	Hemorrhage	Infection	Pneumonia	Cardiac Complications	Venous Thrombosis/Pulmonary Embolism	Hypo/Hypertension	Stroke/Anoxic Brain Damage	Device, Implant or Graft Complications	Gastric/Intestinal Hemorrhage or Ulceration
Chronic Obstructive Pulmonary Disease (COPD)	27,372	1,498	5.5%	3	0	400	8	73	713	112	65	1	59	8	65
Chronic Heart Failure (CHF)	52,690	2,174	4.1%	13	1	264	19	320	610	450	76	2	229	43	153
Stroke—Hemorrhagic	2,174	149	6.9%	0	0	4	0	16	14	9	24	0	76	2	5
Stroke—Non-Hemorrhagic	19,327	922	4.8%	1	1	48	6	123	105	55	56	0	466	12	54
Abdominal Aortic Aneurysm Repair	1,426	74	5.2%	8	18	4	1	20	2	2	7	0	3	3	6
Gallbladder Removal—Laparoscopic	13,991	267	1.9%	22	83	5	14	44	28	13	29	1	15	5	9
Gallbladder Removal —Open	3,291	130	4.0%	11	22	4	3	44	12	5	20	0	2	2	5
Hysterectomy--Vaginal	7,524	138	1.8%	8	9	2	35	72	2	0	10	0	0	0	0
079 Lung Infections, complicated	9,733	801	8.2%	3	3	115	3	146	356	39	41	0	25	30	46
138 Abnormal Heartbeat, complicated	17,681	462	2.6%	2	0	46	10	81	142	60	21	1	59	13	28
174 Stomach & Intestinal Bleeding, Complicated	18,952	999	5.3%	13	4	58	11	158	146	75	56	2	75	18	388
210 Hip Operations Except Replacement, complicated	8,303	393	4.7%	4	5	28	30	99	82	31	52	0	17	7	39
294 Diabetes	9,383	288	3.1%	1	1	22	2	76	77	37	23	0	28	11	14
316 Kidney Failure	8,600	502	5.8%	1	1	42	7	168	97	65	33	2	34	19	38
320 Kidney & Urinary Tract Infections, complicated	14,013	661	4.7%	7	2	49	7	220	157	51	57	0	51	21	40
449 Poisoning & Toxic Effects of Drugs, complicated	5,609	74	1.3%	2	0	11	0	14	16	13	6	0	5	3	5

Note: For some conditions or DRGs, the sum of the readmits for complications/infections may be higher than the total because some records had both a principal diagnosis and a principal procedure that met the criteria for being captured in this analysis. When this occurs, the record is shown in each readmission category; however, the record was counted only once in determining the percent of readmissions for complications/infections.

Statewide Cases Readmitted for Complication/Infection, by Reason for Readmission

Web-only DRGs

Web-only DRGs	# of Cases Meeting Readmission Criteria	Total # of Cases Readmitted for Complication/Infection	% of Cases Readmitted for Complication/Infection	Reason for Readmission												
				Procedure/Medical Care Related Events	Digestive System Complications	Pulmonary Compromise	Hemorrhage	Infection	Pneumonia	Cardiac Complications	Venous Thrombosis/Pulmonary Embolism	Hypo/Hypertension	Stroke/Anoxic Brain Damage	Device, Implant or Graft Complications	Gastric/Intestinal Hemorrhage or Ulceration	
005	Removal Of Blockage in Head & Neck Vessels	7,645	203	2.7%	3	1	11	19	25	22	34	14	0	66	6	6
012	Degenerative Neurologic Disorders	4,601	139	3.0%	0	1	16	3	23	36	12	14	0	27	4	6
015	Transient Ischemic Attack & Blocked Vessel Of Head, Neck	14,096	397	2.8%	0	1	12	2	34	58	37	8	1	208	5	31
024	Seizure & Headache, complicated	6,279	189	3.0%	2	1	8	0	55	48	7	31	0	22	5	10
025	Seizure & Headache, uncomplicated	5,452	52	1.0%	0	0	5	0	7	9	1	9	0	19	1	2
087	Fluid In Lung & Breathing Failure	3,176	353	11.1%	1	0	212	0	17	79	18	8	0	5	0	16
096	Bronchitis & Asthma, complicated	5,994	160	2.7%	0	1	19	0	27	70	12	13	0	15	1	2
097	Bronchitis & Asthma, uncomplicated	6,465	70	1.1%	3	0	20	0	0	32	6	6	0	1	1	1
113	Non-Traumatic Lower Limb Amputation Except Toe	2,716	201	7.4%	12	0	15	2	79	32	16	9	0	10	11	16
125	Heart Catheterization Without Heart Attack, uncomplicated	11,492	167	1.5%	9	3	15	11	24	20	20	17	1	14	27	6
131	Vascular Disorders Except Heart, uncomplicated	3,292	120	3.6%	0	0	3	2	6	4	4	87	0	5	8	1
139	Abnormal Heartbeat, uncomplicated	10,024	100	1.0%	3	0	8	1	10	18	19	5	0	24	1	11
141	Hypotension & Fainting, complicated	9,808	210	2.1%	4	4	10	3	34	42	36	17	0	27	10	23
143	Chest Pain	36,405	484	1.3%	5	2	33	8	63	103	127	32	2	56	21	36
167	Removal Of Appendix, uncomplicated	4,420	74	1.7%	2	15	1	5	44	1	2	3	0	1	0	0
202	Cirrhosis & Alcoholic Hepatitis	3,077	86	2.8%	2	0	6	0	30	14	1	4	0	5	3	21
204	Noncancerous Pancreatic Disorders	8,194	167	2.0%	0	15	9	8	49	25	11	13	1	10	8	18
205	Liver Disease Except Cancer, Cirrhosis, Alcoholic Hepatitis, complicated	2,699	89	3.3%	5	2	8	1	35	9	7	1	0	3	1	18
217	Wound Debridement & Skin Grafts Except Hand	2,343	115	4.9%	13	0	2	3	62	13	4	6	0	2	6	5
243	Medical Back Problems	10,338	235	2.3%	2	2	13	3	48	64	24	22	1	34	1	21
277	Cellulitis, complicated	10,179	262	2.6%	3	1	18	2	59	62	24	30	0	30	8	25
323	Urinary Stones Including Lithotripsy, complicated	3,668	53	1.4%	2	2	1	4	15	6	5	4	0	5	9	0
415	Surgery for Infectious or Parasitic Disease	4,134	404	9.8%	35	3	8	8	243	36	15	27	1	10	14	5

Note: For some conditions or DRGs, the sum of the readmits for complications/infections may be higher than the total because some records had both a principal diagnosis and a principal procedure that met the criteria for being captured in this analysis. When this occurs, the record is shown in each readmission category; however, the record was counted only once in determining the percent of readmissions for complications/infections.

Regionally-Adjusted Charge Analysis

Exclusions to Analysis

The charge analysis included all inpatient records for the reported procedures and treatments with the following exceptions:

- patients who left against medical advice
- patients who were transferred out to general acute care facilities
- records with an invalid (negative or zero dollars) or missing charge
- records with an invalid or missing Atlas Outcomes™ ASG score
- charge outliers
- records without reference data

For the actual number and percent of statewide cases excluded from analyses, refer to Tables 2A, 2B, 2C, and 2D in the “Data Tables” section of this document.

Construction of Reference Database

The reference database for the charge analysis was indexed by code-based condition or DRG and region. The methods used to construct this comparative database were similar to those employed in constructing the comparative database for in-hospital mortality.

Trim Methodology

Trimming methodology, similar to that performed for length of stay, was used to remove outlier charge values from the study population. Identification of outliers was imperative for the elimination of extreme values that had a significant and unrepresentative impact on the mean (average). For the *CY2001 Hospital Performance Report* the mean was the primary descriptive measure for charge. As described in the “Trim Methodology” section under “Length of Stay Analysis”, outlier charges were trimmed after all other exclusions were satisfied; the “+/- 3.0 interquartile range” methodology was again utilized.

Since charges vary dramatically among regions for the same code-based condition or DRG, upper and lower trim points were calculated at the regional level. There are nine regions; therefore, nine different sets of upper and lower trim points were used for each procedure or treatment group. Hospitals were consolidated into three “wide-area” regions after the trimming of outlier charges was performed.

Case-Mix Adjustment of Average Charge for the Code-based Conditions

For the *CY2001 Hospital Performance Report*, average charges are reported for each of the DRGs. For the code-based conditions, case-mix adjustment was used to calculate a composite average charge for the combined DRGs representing the condition.

For example, Heart Attack—Medical Management is comprised of a subset of cases in DRGs 121, 122 and 123. The charges associated with DRGs 121, 122 and 123 were adjusted according to the number of patients and the relative cost associated with treating patients in each of these three DRGs.

First, regional relative weights for each of the three DRGs (121, 122, and 123) were determined using the reference database for charge. After all exclusions were satisfied and outlier trimming was performed, the relative weight for each of the three DRGs within each of the nine regions was calculated using the formula:

$$\text{Relative Weight} = \frac{\text{Average Charge for Each DRG (either 121, 122 or 123)}}{\text{Average Charge for DRGs 121, 122 and 123 (combined)}}$$

Next, each hospital's case-mix index for Heart Attack—Medical Management was calculated.

$$\text{A Hospital's Case-Mix Index} = \frac{\sum(n_i \times RW_i)}{\sum n_i}$$

where, for a hospital located in a particular region

RW_i = the regional relative weights (corresponding to DRGs 121, 122, 123)

n_i = the number of cases (corresponding to DRGs 121, 122, 123)

and $\sum n_i$ = the total number of cases for the hospital for medical heart attack

Finally, for each hospital the trimmed and case-mix adjusted (based on nine regional standards) average charge for Heart Attack—Medical Management (DRGs 121, 122, and 123) was calculated.

$$\text{Trimmed and Adjusted Charge} = \frac{\text{Avg. Charge for DRGs 121, 122, 123 (combined)}}{\text{Case-Mix Index}}$$

Reported Measures Specific to Heart Attack—Medical Management

Transfer-out to Acute Care

Transfer to an acute care facility is represented as "02" (short term) or "63" (long term) for the discharge status of an inpatient hospital record. By definition these patients were discharged to another GAC or specialty general acute care facility for continuation of treatment.

The percent of patients transferred out to acute care is provided, because patients admitted to a facility that does not provide advanced cardiac care services may be transferred to a facility that offers these services. Hospitals with advanced cardiac capabilities may also transfer patients to another acute care facility, but this is usually done to return a patient to their originating hospital. A footnote is provided that identifies facilities that provide advanced cardiac care services to aid readers in understanding differences among hospitals that exist in the percent of patients *transferred-out to acute care*, as well as differences that may exist in other outcomes.

DATA TABLES

Table 1

Statewide Utilization and Outcome Data for Procedure and Treatment Groups

<i>Description</i>	<i># of Cases¹</i>	<i>% Mortality²</i>	<i>Length of Stay²</i>	<i>Readmissions</i>		<i>Average Charge²</i>	
				<i>% for Any Reason²</i>	<i>% for Complication or Infection²</i>		
Diagnoses in Printed Report and on the Web							
Chronic Obstructive Pulmonary Disease (COPD)	28,542	1.7%	4.7	22.7%	5.5%	\$11,807	
Congestive Heart Failure (CHF)	56,889	4.0%	5.0	25.4%	4.1%	\$14,366	
Heart Attack—Medical Management	17,685	14.9%	5.7	NR	NR	\$18,961	
Pneumonia	42,947	5.0%	5.4	NR	NR	\$13,340	
Septicemia	13,782	18.6%	7.1	NR	NR	\$17,482	
Stroke—Hemorrhagic	3,548	33.1%	6.5	15.9%	6.9%	\$21,116	
Stroke—Non-Hemorrhagic	21,646	6.4%	5.5	14.0%	4.8%	\$16,777	
Procedures in Printed Report and on the Web							
Abdominal Aortic Aneurysm Repair	1,596	3.3%	7.8	10.7%	5.2%	\$45,832	
Gallbladder Removal—Laparoscopic	14,649	0.3%	3.2	6.7%	1.9%	\$16,063	
Gallbladder Removal—Open	3,493	1.4%	6.6	9.9%	4.0%	\$26,625	
Colorectal Procedures	15,300	3.7%	9.0	NR	NR	\$35,173	
Heart Attack—Angioplasty/Stent	10,668	1.7%	4.0	NR	NR	\$38,537	
Hysterectomy—Abdominal	18,752	0.1%	3.1	NR	NR	\$13,174	
Hysterectomy—Vaginal	7,795	<0.1%	2.0	2.9%	1.8%	\$10,190	
Prostatectomy—Radical	3,633	0.3%	3.4	NR	NR	\$20,523	
Prostatectomy—Transurethral	5,491	0.2%	2.7	NR	NR	\$9,677	
DRGs in Printed Report and on the Web							
78 Blood Clot in Lung	M	4,307	4.0%	6.0	NR	NR	\$15,997
79 Lung Infections, complicated	M	11,710	13.8%	7.9	25.4%	8.2%	\$20,758
82 Lung Cancer	M	6,486	NR	6.4	NR	NR	\$19,874
130 Vascular Disorders Except Heart, complicated	M	8,410	3.8%	5.1	NR	NR	\$12,702
138 Abnormal Heartbeat, complicated	M	18,826	2.4%	3.9	18.3%	2.6%	\$11,415
154 Stomach & Small Intestinal Operations, complicated	S	3,254	8.0%	10.8	NR	NR	\$55,051
174 Stomach & Intestinal Bleeding, complicated	M	20,235	3.3%	4.5	17.9%	5.3%	\$13,206
210 Hip Operations Except Replacement, complicated	S	8,884	2.4%	6.2	15.0%	4.7%	\$22,074
294 Diabetes	M	9,820	1.4%	3.9	16.8%	3.1%	\$10,434
316 Kidney Failure	M	9,874	9.4%	6.2	26.9%	5.8%	\$18,288
320 Kidney & Urinary Tract Infections, complicated	M	14,737	2.0%	4.7	19.3%	4.7%	\$12,138
449 Poisoning & Toxic Effects of Drugs, complicated	M	6,091	1.6%	2.5	9.4%	1.3%	\$10,301

¹Number of cases after mortality exclusions.

²All measures, Mortality, Length of Stay, Readmissions and Average Charge were calculated after specific exclusion criteria were met for each measure.

M: Medical DRG
S: Surgical DRG
NR: Not Reported

Table 2A

Statewide Exclusions from Analysis for the 16 Code-based Conditions

For each measure, the exclusions are listed in the order in which the excluded cases were removed from the reference database.

Exclusions from in-hospital mortality analysis		Cases	
	N	%	
Total cases before exclusions	285,780	100.0%	
<i>Exclusions:</i>			
patients who left against medical advice	1,283	0.4%	
patients transferred out to general acute care facilities	12,247	4.3%	
invalid or missing Atlas Outcomes™ ASG	5,819	2.0%	
no reference data	15	<0.1%	
Total Exclusions	19,364	6.8%	
Total cases in analysis	266,416	93.2%	

Exclusions from length of stay analysis		Cases	
	N	%	
Total cases before exclusions	285,780	100.0%	
<i>Exclusions:</i>			
patients who died	13,992	4.9%	
patients who left against medical advice	1,283	0.4%	
patients transferred out to general acute care facilities	12,247	4.3%	
invalid or missing Atlas Outcomes™ PLOS	5,439	1.9%	
invalid (e.g., negative) or missing LOS	47	<0.1%	
no reference data	0	0.0%	
LOS outlier	3,906	1.4%	
Total Exclusions	36,914	12.9%	
Total cases in analysis	248,866	87.1%	

Exclusions from length of stay outlier analysis		Cases	
	N	%	
N (16 Conditions) = 285,780			
Total cases before exclusions, for Conditions analyzed for LOS outliers	202,553	100.0%	
<i>Exclusions:</i>			
patients who died	13,038	6.4%	
patients who left against medical advice	1,204	0.6%	
patients transferred out to general acute care facilities	11,841	5.8%	
invalid or missing Atlas Outcomes™ PLOS	4,109	2.0%	
invalid (e.g., negative) or missing LOS	41	<0.1%	
Total Exclusions	30,233	14.9%	
Total cases in analysis	172,320	85.1%	

Exclusions from readmission analyses		Cases	
	N	%	
N (16 Conditions) = 285,780			
Total cases before exclusions, for Conditions analyzed for readmission	145,935	100.0%	
<i>Exclusions:</i>			
patients who left against medical advice	692	0.5%	
patients transferred out to general acute care facilities	3,842	2.6%	
invalid or missing Atlas Outcomes™ ASG	3,230	2.2%	
invalid (e.g., negative) or missing LOS	32	<0.1%	
patients who died	5,497	3.8%	
patients who were out of state residents	3,721	2.5%	
patients who were discharged to hospice care	146	0.1%	
patient identifiers inconsistent or missing (SSN, Gender, DOB)	665	0.5%	
admission, readmission and discharge date discrepancies	315	0.2%	
no reference data	13	<0.1%	
Total Exclusions	18,153	12.4%	
Total cases in analysis	127,782	87.6%	

Exclusions from charge analysis:		Cases	
	N	%	
Total cases before exclusions	285,781	100.0%	
<i>Exclusions:</i>			
patients who left against medical advice	1,283	0.4%	
patients transferred out to general acute care facilities	12,247	4.3%	
invalid (negative or zero dollars) or missing charges	149	0.1%	
invalid or missing Atlas Outcomes™ ASG	5,803	2.0%	
charge outliers	5,609	2.0%	
no reference data	832	0.3%	
Total Exclusions	25,923	9.1%	
Total cases in analysis	259,858	90.9%	

Table 2B

Statewide Exclusions from Analysis for the 12 DRGs in the Printed Report

For each measure, the exclusions are listed in the order in which the excluded cases were removed from the reference database.

Exclusions from in-hospital mortality analysis		Cases	
	<i>N</i>	<i>%</i>	
Total cases before exclusions	130,828	100.0%	
<i>Exclusions:</i>			
patients who left against medical advice	1,221	0.9%	
patients transferred out to general acute care facilities	3,615	2.8%	
invalid or missing Atlas Outcomes™ ASG	3,350	2.6%	
no reference data	8	<0.1%	
Total Exclusions	8,194	6.3%	
Total cases in analysis	122,634	93.7%	
Exclusions from length of stay analysis		Cases	
	<i>N</i>	<i>%</i>	
Total cases before exclusions	130,828	100.0%	
<i>Exclusions:</i>			
patients who died	6,467	4.9%	
patients who left against medical advice	1,221	0.9%	
patients transferred out to general acute care facilities	3,615	2.8%	
invalid or missing Atlas Outcomes™ PLOS	3,115	2.4%	
invalid (e.g., negative) or missing LOS	27	<0.1%	
no reference data	0	0.0%	
LOS outlier	1,562	1.2%	
Total Exclusions	16,007	12.2%	
Total cases in analysis	114,821	87.8%	
Exclusions from length of stay outlier analysis		Cases	
	N (12 DRGs) = 130,828		
	<i>N</i>	<i>%</i>	
Total cases before exclusions, for Conditions analyzed for LOS outliers	75,316	100.0%	
<i>Exclusions:</i>			
patients who died	3,295	4.4%	
patients who left against medical advice	932	1.2%	
patients transferred out to general acute care facilities	2,399	3.2%	
invalid or missing Atlas Outcomes™ PLOS	1,708	2.3%	
invalid (e.g., negative) or missing LOS	16	<0.1%	
Total Exclusions	8,350	11.1%	
Total cases in analysis	66,966	88.9%	
Exclusions from readmission analyses		Cases	
	N (12 DRGs) = 130,828		
	<i>N</i>	<i>%</i>	
Total cases before exclusions, for Conditions analyzed for readmission	106,847	100.0%	
<i>Exclusions:</i>			
patients who left against medical advice	1,095	1.0%	
patients transferred out to general acute care facilities	2,916	2.7%	
invalid or missing Atlas Outcomes™ ASG	2,659	2.5%	
invalid (e.g., negative) or missing LOS	25	<0.1%	
patients who died	4,402	4.1%	
patients who were out of state residents	2,403	2.2%	
patients who were discharged to hospice care	145	0.1%	
patient identifiers inconsistent or missing (SSN, Gender, DOB)	711	0.7%	
admission, readmission and discharge date discrepancies	217	0.2%	
no reference data	0	0.0%	
Total Exclusions	14,573	13.6%	
Total cases in analysis	92,274	86.4%	
Exclusions from charge analysis:		Cases	
	<i>N</i>	<i>%</i>	
Total cases before exclusions	130,828	100.0%	
<i>Exclusions:</i>			
patients who left against medical advice	1,221	0.9%	
patients transferred out to general acute care facilities	3,615	2.8%	
invalid (negative or zero dollars) or missing charges	87	0.1%	
invalid or missing Atlas Outcomes™ ASG	3,342	2.6%	
Charge outliers	3,180	2.4%	
no reference data	0	0.0%	
Total Exclusions	11,445	8.7%	
Total cases in analysis	119,383	91.3%	

Table 2C

Statewide Exclusions from Analysis for the 47 Adult DRGs on the Web Only

For each measure, the exclusions are listed in the order in which the excluded cases were removed from the reference database.

Exclusions from in-hospital mortality analysis		Cases	
	<i>N</i>		<i>%</i>
Total cases before exclusions	377,381		100.0%
<i>Exclusions:</i>			
patients who left against medical advice	3,886		1.0%
patients transferred out to general acute care facilities	8,121		2.2%
invalid or missing Atlas Outcomes™ ASG	9,638		2.6%
no reference data	18		< 0.1%
Total Exclusions	21,663		5.7%
Total cases in analysis	355,718		94.3%

Exclusions from length of stay analysis		Cases	
	<i>N</i>		<i>%</i>
Total cases before exclusions	377,381		100.0%
<i>Exclusions:</i>			
patients who died	8,716		2.3%
patients who left against medical advice	3,886		1.0%
patients transferred out to general acute care facilities	8,121		2.2%
invalid or missing Atlas Outcomes™ PLOS	9,581		2.5%
invalid (e.g., negative) or missing LOS	72		< 0.1%
no reference data	0		0.0%
LOS outlier	4,820		1.3%
Total Exclusions	35,196		9.3%
Total cases in analysis	342,185		90.7%

Exclusions from length of stay outlier analysis		Cases	
	<i>N</i>		<i>%</i>
		N (47 DRGs) = 377,381	
Total cases before exclusions, for Conditions analyzed for LOS outliers	154,723		100.0%
<i>Exclusions:</i>			
patients who died	8,716		5.6%
patients who left against medical advice	3,886		2.5%
patients transferred out to general acute care facilities	8,121		5.2%
invalid or missing Atlas Outcomes™ PLOS	9,581		6.2%
invalid (e.g., negative) or missing LOS	72		< 0.1%
Total Exclusions	30,376		19.6%
Total cases in analysis	124,347		80.4%

Exclusions from readmission analyses		Cases	
	<i>N</i>		<i>%</i>
		N (47 DRGs) = 377,381	
Total cases before exclusions, for Conditions analyzed for readmission	210,053		100.0%
<i>Exclusions:</i>			
patients who left against medical advice	3,886		1.9%
patients transferred out to general acute care facilities	8,121		3.9%
invalid or missing Atlas Outcomes™ ASG	9,638		4.6%
invalid (e.g., negative) or missing LOS	32		< 0.1%
patients who died	2,719		1.3%
patients who were out of state residents	7,182		3.4%
patients who were discharged to hospice care	78		< 0.1%
patient identifiers inconsistent or missing (SSN, Gender, DOB)	1,533		0.7%
admission, readmission and discharge date discrepancies	367		0.2%
no reference data	14		< 0.1%
Total Exclusions	33,570		16.0%
Total cases in analysis	176,483		84.0%

Exclusions from charge analysis:		Cases	
	<i>N</i>		<i>%</i>
Total cases before exclusions	377,381		100.0%
<i>Exclusions:</i>			
patients who left against medical advice	3,886		1.0%
patients transferred out to general acute care facilities	8,121		2.2%
invalid (negative or zero dollars) or missing charges	196		0.1%
invalid or missing Atlas Outcomes™ ASG	9,616		2.5%
charge outliers	7,915		2.1%
no reference data	0		0.0%
Total Exclusions	29,734		7.9%
Total cases in analysis	347,647		92.1%

Table 2D

Statewide Exclusions from Analysis for the 5 Pediatric DRGs on the Web Only

For each measure, the exclusions are listed in the order in which the excluded cases were removed from the reference database.

Exclusions from in-hospital mortality analysis		Cases	
	<i>N</i>		<i>%</i>
Total cases before exclusions	28,607		100.0%
<i>Exclusions:</i>			
patients who left against medical advice	35		0.1%
patients transferred out to general acute care facilities	324		1.1%
invalid or missing Atlas Outcomes™ ASG	458		1.6%
no reference data	16		0.1%
Total Exclusions	833		2.9%
Total cases in analysis	27,774		97.1%
Exclusions from length of stay analysis		Cases	
	<i>N</i>		<i>%</i>
Total cases before exclusions	28,607		100.0%
<i>Exclusions:</i>			
patients who died	9		< 0.1%
patients who left against medical advice	35		0.1%
patients transferred out to general acute care facilities	324		1.1%
invalid or missing Atlas Outcomes™ PLOS	458		1.6%
invalid (e.g., negative) or missing LOS	43		0.2%
no reference data	15		0.1%
LOS outlier	704		2.5%
Total Exclusions	1,588		5.6%
Total cases in analysis	27,019		94.4%
Exclusions from length of stay outlier analysis		Cases	
	<i>N</i> (5 DRGs) = 28,607		
	<i>N</i>		<i>%</i>
Total cases before exclusions, for Conditions* analyzed for LOS outliers	6,946		100.0%
<i>Exclusions:</i>			
patients who died	9		0.1%
patients who left against medical advice	35		0.5%
patients transferred out to general acute care facilities	324		4.7%
Invalid or missing Atlas Outcomes™ PLOS	458		6.6%
invalid (e.g., negative) or missing LOS	43		0.6%
Total Exclusions	869		12.5%
Total cases in analysis	6,077		87.5%
Exclusions from charge analysis:		Cases	
	<i>N</i>		<i>%</i>
Total cases before exclusions	28,607		100.0%
<i>Exclusions:</i>			
patients who left against medical advice	35		0.1%
patients transferred out to general acute care facilities	324		1.1%
invalid (negative or zero dollars) or missing charges	13		< 0.1%
invalid or missing Atlas Outcomes™ ASG	457		1.6%
charge outliers	726		2.5%
no reference data	11		< 0.1%
Total Exclusions	1,566		5.3%
Total cases in analysis	27,041		94.7%

Table 3A

Regional Charge Upper Trim Point by DRG

Western Pennsylvania, Region 1

<i>Description</i>	<i>DRG</i>	<i>Avg. Charge (Before Trimming)</i>	<i>Upper Trim Point</i>	<i>Description</i>	<i>DRG</i>	<i>Avg. Charge (Before Trimming)</i>	<i>Upper Trim Point</i>
Code-based Conditions				Code-based Conditions continued			
Chronic Obstructive Pulmonary Disease (COPD)	088	\$9,363	\$30,725	Prostatectomy—Radical	306	NREF	NREF
					307	NREF	NREF
Congestive Heart Failure (CHF)	124	\$25,739	\$75,758		334	\$18,305	\$59,929
	125	NREF	NREF		335	\$16,361	\$59,541
	127	\$11,669	\$37,578		338	NREF	NREF
Heart Attack—Medical Management	121	\$19,250	\$61,729		339	NREF	NREF
	122	\$13,853	\$44,424		341	NREF	NREF
	123	\$18,204	\$70,904	Prostatectomy—Transurethral	306	\$15,500	\$60,734
Pneumonia	079	\$18,511	\$69,207		307	NREF	NREF
	080	\$8,133	\$28,473		334	NREF	NREF
	089	\$11,275	\$37,411		335	NREF	NREF
	090	\$6,365	\$20,919		336	\$9,828	\$24,619
Septicemia	416	\$18,811	\$59,024		337	\$6,697	\$16,369
Stroke—Hemorrhagic	014	\$23,206	\$84,052		338	NREF	NREF
Stroke—Non-Hemorrhagic	014	\$15,791	\$49,503		339	NREF	NREF
Abdominal Aortic Aneurysm Repair	110	\$45,699	\$135,718		341	NREF	NREF
	111	\$28,750	\$98,514	DRGs in Printed Report			
Gallbladder Removal— Laparoscopic	195	NREF	NREF	Blood Clot in Lung	078	\$14,950	\$51,179
	196	NREF	NREF	Lung Infections, complicated	079	\$17,335	\$60,434
	493	\$18,277	\$57,070	Lung Cancer	082	\$18,372	\$67,607
	494	\$11,966	\$33,358	Vascular Disorders Except Heart, complicated	130	\$12,276	\$40,663
Gallbladder Removal—Open	195	\$27,847	\$79,380	Abnormal Heartbeat, complicated	138	\$10,319	\$33,550
	196	\$15,691	\$36,642	Stomach & Small Intestinal Operations, complicated	154	\$59,252	\$200,681
	197	\$27,711	\$84,759	Stomach & Intestinal Bleeding, complicated	174	\$12,502	\$38,337
	198	\$14,815	\$44,720	Hip Operations Except Replacement, complicated	210	\$22,667	\$62,254
Colorectal Procedures	146	\$32,842	\$108,667	Diabetes	294	\$9,008	\$29,067
	147	\$22,328	\$67,746	Kidney Failure	316	\$17,440	\$59,936
	148	\$37,119	\$116,597	Kidney & Urinary Tract Infections, complicated	320	\$9,286	\$29,456
	149	\$19,199	\$55,264	Poisoning & Toxic Effects of Drugs, complicated	449	\$11,590	\$32,060
Heart Attack— Angioplasty/Stent	112	\$31,634	\$89,988				
	116	\$36,547	\$98,937				
	516	\$36,314	\$98,742				
Hysterectomy—Abdominal	353	\$25,609	\$60,842				
	354	\$21,627	\$53,488				
	355	\$12,651	\$41,888				
	357	\$27,228	\$82,009				
	358	\$13,359	\$40,953				
	359	\$9,469	\$28,318				
Hysterectomy—Vaginal	353	NREF	NREF				
	354	NREF	NREF				
	355	\$9,102	\$27,550				
	357	NREF	NREF				
	358	\$11,622	\$35,350				
	359	\$8,895	\$23,585				

NREF: No Reference Data

Table 3B

Regional Charge Upper Trim Point by DRG

Western Pennsylvania, Region 2

Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point	Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point
Code-based Conditions				Code-based Conditions continued			
Chronic Obstructive Pulmonary Disease (COPD)	088	\$6,654	\$21,520	Prostatectomy—Radical	306	NREF	NREF
					307	NREF	NREF
Congestive Heart Failure (CHF)	124	\$20,635	\$56,337		334	\$16,029	\$34,911
	125	NREF	NREF		335	\$13,430	\$29,445
	127	\$8,416	\$27,021		338	NREF	NREF
Heart Attack—Medical Management	121	\$15,485	\$52,561		339	NREF	NREF
	122	\$11,674	\$42,380		341	NREF	NREF
	123	\$11,479	\$36,078	Prostatectomy—Transurethral	306	\$8,522	\$17,393
Pneumonia	079	\$11,115	\$35,064		307	NREF	NREF
	080	NREF	NREF		334	NREF	NREF
	089	\$8,276	\$26,438		335	NREF	NREF
	090	\$4,872	\$16,079		336	\$6,952	\$17,394
Septicemia	416	\$11,073	\$35,201		337	\$5,593	\$13,351
Stroke—Hemorrhagic	014	\$11,658	\$40,864		338	NREF	NREF
Stroke—Non-Hemorrhagic	014	\$10,272	\$32,038		339	NREF	NREF
Abdominal Aortic Aneurysm Repair	110	\$39,002	\$90,955		341	NREF	NREF
	111	\$23,696	\$44,049	DRGs in Printed Report			
Gallbladder Removal— Laparoscopic	195	NREF	NREF	Blood Clot in Lung	078	\$11,755	\$33,105
	196	NREF	NREF	Lung Infections, complicated	079	\$11,543	\$37,139
	493	\$13,578	\$38,787	Lung Cancer	082	\$10,641	\$45,256
	494	\$9,161	\$24,085	Vascular Disorders Except Heart, complicated	130	\$7,473	\$23,920
Gallbladder Removal—Open	195	\$28,842	\$56,578	Abnormal Heartbeat, complicated	138	\$7,710	\$23,885
	196	NREF	NREF	Stomach & Small Intestinal Operations, complicated	154	\$33,523	\$124,226
	197	\$21,868	\$65,807	Stomach & Intestinal Bleeding, complicated	174	\$8,943	\$28,943
	198	\$10,267	\$25,476	Hip Operations Except Replacement, complicated	210	\$15,689	\$39,106
Colorectal Procedures	146	\$21,648	\$61,675	Diabetes	294	\$6,173	\$20,999
	147	NREF	NREF	Kidney Failure	316	\$11,472	\$39,894
	148	\$26,321	\$81,473	Kidney & Urinary Tract Infections, complicated	320	\$6,261	\$20,419
	149	\$13,912	\$33,543	Poisoning & Toxic Effects of Drugs, complicated	449	\$6,084	\$18,419
Heart Attack— Angioplasty/Stent	112	\$33,623	\$74,005				
	116	\$35,372	\$73,703				
	516	\$34,257	\$69,327				
Hysterectomy—Abdominal	353	NREF	NREF				
	354	\$10,260	\$23,580				
	355	\$7,343	\$16,537				
	357	\$13,097	\$40,851				
	358	\$8,748	\$22,195				
	359	\$6,997	\$16,211				
Hysterectomy—Vaginal	353	NREF	NREF				
	354	NREF	NREF				
	355	NREF	NREF				
	357	NREF	NREF				
	358	\$8,366	\$23,793				
	359	\$7,415	\$20,242				

NREF: No Reference Data

Table 3C

Regional Charge Upper Trim Point by DRG

Western Pennsylvania, Region 3

Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point	Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point
Code-based Conditions				Code-based Conditions continued			
Chronic Obstructive Pulmonary Disease (COPD)	088	\$8,270	\$24,983	Prostatectomy—Radical	306	NREF	NREF
					307	NREF	NREF
Congestive Heart Failure (CHF)	124	\$20,342	\$57,174		334	\$14,297	\$29,774
	125	NREF	NREF		335	\$11,617	\$22,562
	127	\$9,653	\$30,733		338	NREF	NREF
Heart Attack—Medical Management	121	NREF	NREF		339	NREF	NREF
	122	\$10,432	\$33,028		341	NREF	NREF
	123	\$14,666	\$56,582	Prostatectomy—Transurethral	306	NREF	NREF
Pneumonia	079	\$13,891	\$47,091		307	NREF	NREF
	080	NREF	NREF		334	NREF	NREF
	089	\$9,810	\$32,970		335	NREF	NREF
	090	\$5,811	\$18,230		336	\$7,237	\$21,000
Septicemia	416	\$13,877	\$45,909		337	\$5,560	\$13,359
Stroke—Hemorrhagic	014	\$11,472	\$40,279		338	NREF	NREF
Stroke—Non-Hemorrhagic	014	\$11,502	\$33,479		339	NREF	NREF
Abdominal Aortic Aneurysm Repair	110	\$37,225	\$96,753		341	NREF	NREF
	111	NREF	NREF	DRGs in Printed Report			
Gallbladder Removal—Laparoscopic	195	NREF	NREF	Blood Clot in Lung	078	\$11,628	\$34,012
	196	NREF	NREF	Lung Infections, complicated	079	\$13,426	\$46,722
	493	\$18,407	\$54,646	Lung Cancer	082	\$15,676	\$59,602
	494	\$10,532	\$27,595	Vascular Disorders Except Heart, complicated	130	\$8,085	\$26,119
Gallbladder Removal—Open	195	NREF	NREF	Abnormal Heartbeat, complicated	138	\$8,137	\$25,929
	196	NREF	NREF	Stomach & Small Intestinal Operations, complicated	154	\$33,550	\$117,790
	197	\$20,464	\$57,381	Stomach & Intestinal Bleeding, complicated	174	\$9,194	\$29,323
	198	\$12,657	\$37,478	Hip Operations Except Replacement, complicated	210	\$19,514	\$46,693
Colorectal Procedures	146	\$27,099	\$87,875	Diabetes	294	\$6,355	\$23,377
	147	NREF	NREF	Kidney Failure	316	\$13,507	\$46,395
	148	\$27,408	\$80,547	Kidney & Urinary Tract Infections, complicated	320	\$7,881	\$24,242
	149	\$16,275	\$38,209	Poisoning & Toxic Effects of Drugs, complicated	449	\$6,355	\$19,089
Heart Attack—Angioplasty/Stent	112	NREF	NREF				
	116	\$31,359	\$89,356				
	516	\$30,198	\$83,490				
Hysterectomy—Abdominal	353	NREF	NREF				
	354	\$12,231	\$26,351				
	355	\$8,465	\$17,804				
	357	NREF	NREF				
	358	\$9,496	\$22,651				
	359	\$7,345	\$15,673				
Hysterectomy—Vaginal	353	NREF	NREF				
	354	NREF	NREF				
	355	NREF	NREF				
	357	NREF	NREF				
	358	\$15,423	\$19,710				
	359	\$7,585	\$20,523				

NREF: No Reference Data

Table 3D

Regional Charge Upper Trim Point by DRG

Central and Northeastern Pennsylvania, Region 4

Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point	Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point
Code-based Conditions				Code-based Conditions continued			
Chronic Obstructive Pulmonary Disease (COPD)	088	\$7,717	\$24,262	Prostatectomy—Radical	306	NREF	NREF
					307	NREF	NREF
Congestive Heart Failure (CHF)	124	\$13,502	\$27,899		334	\$13,175	\$25,243
	125	NREF	NREF		335	\$10,802	\$31,082
	127	\$7,580	\$24,646		338	NREF	NREF
Heart Attack—Medical Management	121	\$11,462	\$36,074		339	NREF	NREF
	122	\$8,824	\$26,745		341	NREF	NREF
	123	\$11,745	\$47,233	Prostatectomy—Transurethral	306	NREF	NREF
Pneumonia	079	\$12,484	\$39,896		307	NREF	NREF
	080	NREF	NREF		334	NREF	NREF
	089	\$8,081	\$25,683		335	NREF	NREF
	090	\$5,167	\$16,537		336	\$7,352	\$16,378
Septicemia	416	\$13,914	\$50,032		337	\$6,511	\$14,664
Stroke—Hemorrhagic	014	\$11,888	\$36,442		338	NREF	NREF
Stroke—Non-Hemorrhagic	014	\$9,700	\$29,094		339	NREF	NREF
Abdominal Aortic Aneurysm Repair	110	\$36,678	\$69,884		341	NREF	NREF
	111	NREF	NREF	DRGs in Printed Report			
Gallbladder Removal—Laparoscopic	195	NREF	NREF	Blood Clot in Lung	078	\$10,371	\$32,745
	196	NREF	NREF	Lung Infections, complicated	079	\$11,819	\$41,481
	493	\$15,839	\$43,459	Lung Cancer	082	\$10,493	\$40,647
	494	\$9,142	\$25,298	Vascular Disorders Except Heart, complicated	130	\$6,632	\$20,819
Gallbladder Removal—Open	195	\$15,491	\$67,586	Abnormal Heartbeat, complicated	138	\$6,869	\$21,706
	196	NREF	NREF	Stomach & Small Intestinal Operations, complicated	154	\$32,559	\$130,243
	197	\$19,746	\$68,361	Stomach & Intestinal Bleeding, complicated	174	\$8,562	\$27,405
	198	\$8,975	\$37,777	Hip Operations Except Replacement, complicated	210	\$15,691	\$41,930
Colorectal Procedures	146	\$20,369	\$52,619	Diabetes	294	\$6,426	\$22,112
	147	NREF	NREF	Kidney Failure	316	\$11,029	\$37,347
	148	\$25,182	\$71,239	Kidney & Urinary Tract Infections, complicated	320	\$6,822	\$22,514
	149	\$13,302	\$32,102	Poisoning & Toxic Effects of Drugs, complicated	449	\$6,192	\$22,905
Heart Attack—Angioplasty/Stent	112	\$21,997	\$60,067				
	116	\$22,449	\$59,659				
	516	\$27,505	\$66,731				
Hysterectomy—Abdominal	353	NREF	NREF				
	354	\$11,438	\$23,159				
	355	\$7,719	\$15,217				
	357	\$14,741	\$44,844				
	358	\$8,702	\$20,096				
	359	\$6,861	\$13,235				
Hysterectomy—Vaginal	353	NREF	NREF				
	354	NREF	NREF				
	355	NREF	NREF				
	357	NREF	NREF				
	358	\$8,344	\$22,224				
	359	\$5,778	\$18,041				

NREF: No Reference Data

Table 3E

Regional Charge Upper Trim Point by DRG

Central and Northeastern Pennsylvania, Region 5

Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point	Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point
Code-based Conditions				Code-based Conditions continued			
Chronic Obstructive Pulmonary Disease (COPD)	088	\$9,133	\$31,001	Prostatectomy—Radical	306	NREF	NREF
					307	NREF	NREF
Congestive Heart Failure (CHF)	124	\$19,195	\$55,808		334	\$12,441	\$32,310
	125	NREF	NREF		335	\$11,003	\$27,312
	127	\$10,345	\$33,638		338	NREF	NREF
Heart Attack—Medical Management	121	\$14,879	\$45,702		339	NREF	NREF
	122	\$11,240	\$32,451		341	NREF	NREF
	123	\$15,609	\$55,780	Prostatectomy—Transurethral	306	\$12,181	\$48,773
Pneumonia	079	\$16,600	\$62,941		307	NREF	NREF
	080	NREF	NREF		334	NREF	NREF
	089	\$10,432	\$35,275		335	NREF	NREF
	090	\$6,189	\$20,054		336	\$7,446	\$17,458
Septicemia	416	\$15,200	\$52,768		337	\$5,952	\$13,450
Stroke—Hemorrhagic	014	\$11,583	\$44,160		338	NREF	NREF
Stroke—Non-Hemorrhagic	014	\$10,819	\$33,070		339	NREF	NREF
Abdominal Aortic Aneurysm Repair	110	\$36,587	\$97,830		341	NREF	NREF
	111	\$24,607	\$57,939	DRGs in Printed Report			
Gallbladder Removal—Laparoscopic	195	NREF	NREF	Blood Clot in Lung	078	\$12,154	\$36,230
	196	NREF	NREF	Lung Infections, complicated	079	\$16,447	\$57,814
	493	\$15,262	\$45,312	Lung Cancer	082	\$12,743	\$50,652
	494	\$9,009	\$22,876	Vascular Disorders Except Heart, complicated	130	\$8,456	\$28,571
Gallbladder Removal—Open	195	\$28,561	\$72,135	Abnormal Heartbeat, complicated	138	\$8,937	\$28,426
	196	NREF	NREF	Stomach & Small Intestinal Operations, complicated	154	\$40,781	\$152,233
	197	\$21,063	\$59,174	Stomach & Intestinal Bleeding, complicated	174	\$9,999	\$31,528
	198	\$11,657	\$33,138	Hip Operations Except Replacement, complicated	210	\$16,797	\$44,480
Colorectal Procedures	146	\$22,842	\$69,164	Diabetes	294	\$7,786	\$26,300
	147	\$14,487	\$35,796	Kidney Failure	316	\$14,286	\$51,370
	148	\$27,556	\$80,302	Kidney & Urinary Tract Infections, complicated	320	\$8,536	\$27,948
	149	\$14,374	\$36,155	Poisoning & Toxic Effects of Drugs, complicated	449	\$8,749	\$25,688
Heart Attack—Angioplasty/Stent	112	\$24,358	\$71,682				
	116	\$26,462	\$65,612				
	516	\$26,417	\$64,163				
Hysterectomy—Abdominal	353	\$12,716	\$34,173				
	354	\$11,684	\$31,887				
	355	\$8,476	\$19,908				
	357	\$16,275	\$41,513				
	358	\$9,197	\$21,215				
	359	\$7,481	\$17,012				
Hysterectomy—Vaginal	353	NREF	NREF				
	354	NREF	NREF				
	355	\$5,918	\$12,730				
	357	NREF	NREF				
	358	\$8,099	\$19,023				
	359	\$7,060	\$16,296				

NREF: No Reference Data

Table 3F

Regional Charge Upper Trim Point by DRG

Central and Northeastern Pennsylvania, Region 6

Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point	Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point
Code-based Conditions				Code-based Conditions continued			
Chronic Obstructive Pulmonary Disease (COPD)	088	\$9,175	\$28,802	Prostatectomy—Radical	306	NREF	NREF
					307	NREF	NREF
					334	\$15,645	\$32,453
Congestive Heart Failure (CHF)	124	\$18,578	\$52,388		335	\$11,775	\$22,898
	125	NREF	NREF		338	NREF	NREF
	127	\$10,022	\$32,700	339	NREF	NREF	
Heart Attack—Medical Management	121	\$16,710	\$54,804	341	NREF	NREF	
	122	\$12,207	\$42,004	Prostatectomy—Transurethral	306	NREF	NREF
	123	\$15,129	\$55,292		307	NREF	NREF
Pneumonia	079	\$18,508	\$63,977		334	NREF	NREF
	080	NREF	NREF		335	NREF	NREF
	089	\$10,532	\$34,889		336	\$7,934	\$18,180
	090	\$6,388	\$19,667	337	\$6,001	\$14,214	
Septicemia	416	\$14,751	\$50,829	338	NREF	NREF	
Stroke—Hemorrhagic	014	\$14,713	\$53,887	339	NREF	NREF	
Stroke—Non-Hemorrhagic	014	\$13,323	\$40,220	341	NREF	NREF	
Abdominal Aortic Aneurysm Repair	110	\$38,860	\$103,273	DRGs in Printed Report			
	111	NREF	NREF	Blood Clot in Lung	078	\$12,643	\$40,105
Gallbladder Removal—Laparoscopic	195	NREF	NREF	Lung Infections, complicated	079	\$16,703	\$56,989
	196	NREF	NREF	Lung Cancer	082	\$16,531	\$67,131
	493	\$17,195	\$50,597	Vascular Disorders Except Heart, complicated	130	\$10,496	\$33,136
	494	\$11,615	\$28,673	Abnormal Heartbeat, complicated	138	\$8,630	\$28,411
Gallbladder Removal—Open	195	\$25,536	\$83,719	Stomach & Small Intestinal Operations, complicated	154	\$39,523	\$152,132
	196	\$16,718	\$35,297	Stomach & Intestinal Bleeding, complicated	174	\$9,778	\$30,259
	197	\$22,836	\$77,363	Hip Operations Except Replacement, complicated	210	\$18,132	\$43,406
	198	\$10,462	\$32,606	Diabetes	294	\$7,588	\$25,922
Colorectal Procedures	146	\$26,876	\$68,353	Kidney Failure	316	\$14,368	\$48,803
	147	\$17,937	\$53,929	Kidney & Urinary Tract Infections, complicated	320	\$8,198	\$24,651
	148	\$31,841	\$99,723	Poisoning & Toxic Effects of Drugs, complicated	449	\$8,566	\$27,753
	149	\$14,780	\$40,815				
Heart Attack—Angioplasty/Stent	112	\$28,081	\$97,245				
	116	\$32,256	\$101,686				
	516	\$30,027	\$107,746				
Hysterectomy—Abdominal	353	NREF	NREF				
	354	\$14,280	\$33,590				
	355	\$9,121	\$17,894				
	357	\$16,016	\$43,140				
	358	\$10,591	\$22,886				
	359	\$8,098	\$15,553				
Hysterectomy—Vaginal	353	NREF	NREF				
	354	NREF	NREF				
	355	NREF	NREF				
	357	NREF	NREF				
	358	\$9,746	\$22,288				
	359	\$7,830	\$22,233				

NREF: No Reference Data

Table 3G

Regional Charge Upper Trim Point by DRG

Southeastern Pennsylvania, Region 7

Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point	Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point
Code-based Conditions				Code-based Conditions continued			
Chronic Obstructive Pulmonary Disease (COPD)	088	\$8,549	\$27,326	Prostatectomy—Radical	306	NREF	NREF
					307	NREF	NREF
Congestive Heart Failure (CHF)	124	\$17,194	\$46,911		334	\$11,512	\$26,738
	125	NREF	NREF		335	\$10,052	\$24,747
	127	\$9,355	\$29,014		338	NREF	NREF
Heart Attack—Medical Management	121	\$15,146	\$49,679		339	NREF	NREF
	122	\$11,177	\$33,844		341	NREF	NREF
	123	\$13,168	\$48,659	Prostatectomy—Transurethral	306	\$9,638	\$34,224
Pneumonia	079	\$15,617	\$52,103		307	NREF	NREF
	080	NREF	NREF		334	NREF	NREF
	089	\$9,551	\$30,119		335	NREF	NREF
	090	\$5,766	\$16,567		336	\$8,329	\$19,723
Septicemia	416	\$13,311	\$42,255		337	\$6,087	\$14,033
Stroke—Hemorrhagic	014	\$13,424	\$50,287		338	NREF	NREF
Stroke—Non-Hemorrhagic	014	\$11,775	\$35,163		339	NREF	NREF
Abdominal Aortic Aneurysm Repair	110	\$31,021	\$83,541		341	NREF	NREF
	111	\$21,215	\$51,851	DRGs in Printed Report			
Gallbladder Removal—Laparoscopic	195	NREF	NREF	Blood Clot in Lung	078	\$10,879	\$32,354
	196	NREF	NREF	Lung Infections, complicated	079	\$13,269	\$48,304
	493	\$14,905	\$43,771	Lung Cancer	082	\$13,282	\$46,970
	494	\$7,992	\$26,835	Vascular Disorders Except Heart, complicated	130	\$7,802	\$24,770
Gallbladder Removal—Open	195	\$28,338	\$96,672	Abnormal Heartbeat, complicated	138	\$8,000	\$25,917
	196	NREF	NREF	Stomach & Small Intestinal Operations, complicated	154	\$34,179	\$117,773
	197	\$19,944	\$57,558	Stomach & Intestinal Bleeding, complicated	174	\$9,139	\$29,078
	198	\$11,076	\$29,390	Hip Operations Except Replacement, complicated	210	\$17,229	\$46,558
Colorectal Procedures	146	\$20,756	\$59,779	Diabetes	294	\$7,038	\$24,541
	147	\$14,097	\$36,859	Kidney Failure	316	\$11,895	\$42,526
	148	\$25,554	\$80,511	Kidney & Urinary Tract Infections, complicated	320	\$7,919	\$23,531
	149	\$13,884	\$35,468	Poisoning & Toxic Effects of Drugs, complicated	449	\$7,330	\$21,195
Heart Attack—Angioplasty/Stent	112	\$25,322	\$70,663				
	116	\$29,599	\$78,507				
	516	\$29,538	\$82,972				
Hysterectomy—Abdominal	353	\$13,684	\$22,646				
	354	\$12,506	\$29,853				
	355	\$8,560	\$20,838				
	357	\$18,193	\$53,933				
	358	\$9,329	\$21,900				
	359	\$6,990	\$16,758				
Hysterectomy—Vaginal	353	NREF	NREF				
	354	\$9,862	\$28,434				
	355	\$8,579	\$30,689				
	357	NREF	NREF				
	358	\$7,674	\$19,992				
	359	\$6,141	\$15,322				

NREF: No Reference Data

Table 3H

Regional Charge Upper Trim Point by DRG

Southeastern Pennsylvania, Region 8

Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point	Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point
Code-based Conditions				Code-based Conditions continued			
Chronic Obstructive Pulmonary Disease (COPD)	088	\$21,369	\$77,569	Prostatectomy—Radical	306	NREF	NREF
					307	NREF	NREF
Congestive Heart Failure (CHF)	124	\$37,900	\$122,537		334	\$29,966	\$95,331
	125	NREF	NREF		335	\$23,511	\$78,236
	127	\$23,743	\$85,831		338	NREF	NREF
Heart Attack—Medical Management	121	\$38,528	\$138,394		339	NREF	NREF
	122	\$26,131	\$96,534		341	NREF	NREF
	123	\$37,845	\$151,664	Prostatectomy—Transurethral	306	\$23,912	\$74,136
Pneumonia	079	\$37,054	\$131,937		307	NREF	NREF
	080	NREF	NREF		334	NREF	NREF
	089	\$23,912	\$85,632		335	NREF	NREF
	090	\$12,715	\$40,737		336	\$17,261	\$51,921
Septicemia	416	\$34,831	\$115,168		337	\$12,624	\$34,517
Stroke—Hemorrhagic	014	\$29,270	\$108,260		338	NREF	NREF
Stroke—Non-Hemorrhagic	014	\$27,556	\$92,823		339	NREF	NREF
Abdominal Aortic Aneurysm Repair	110	\$78,097	\$235,758		341	NREF	NREF
	111	\$40,499	\$130,549	DRGs in Printed Report			
Gallbladder Removal—Laparoscopic	195	NREF	NREF	Blood Clot in Lung	078	\$26,485	\$86,148
	196	NREF	NREF	Lung Infections, complicated	079	\$33,835	\$121,635
	493	\$30,758	\$101,893	Lung Cancer	082	\$32,324	\$114,314
	494	\$15,797	\$46,754	Vascular Disorders Except Heart, complicated	130	\$20,924	\$73,485
Gallbladder Removal—Open	195	\$71,457	\$271,010	Abnormal Heartbeat, complicated	138	\$18,283	\$62,926
	196	NREF	NREF	Stomach & Small Intestinal Operations, complicated	154	\$96,821	\$337,425
	197	\$50,598	\$163,738	Stomach & Intestinal Bleeding, complicated	174	\$22,382	\$77,519
	198	\$27,413	\$82,656	Hip Operations Except Replacement, complicated	210	\$36,238	\$98,536
Colorectal Procedures	146	\$48,343	\$143,101	Diabetes	294	\$16,812	\$61,522
	147	\$32,879	\$108,021	Kidney Failure	316	\$32,308	\$109,818
	148	\$64,524	\$205,167	Kidney & Urinary Tract Infections, complicated	320	\$19,729	\$72,513
	149	\$31,824	\$99,348	Poisoning & Toxic Effects of Drugs, complicated	449	\$15,809	\$54,157
Heart Attack—Angioplasty/Stent	112	\$50,119	\$176,006				
	116	\$54,982	\$149,464				
	516	\$58,789	\$154,085				
Hysterectomy—Abdominal	353	NREF	NREF				
	354	\$37,338	\$143,242				
	355	\$21,666	\$82,078				
	357	\$51,671	\$164,502				
	358	\$23,726	\$82,105				
	359	\$17,429	\$58,983				
Hysterectomy—Vaginal	353	NREF	NREF				
	354	NREF	NREF				
	355	NREF	NREF				
	357	NREF	NREF				
	358	\$21,275	\$81,145				
	359	\$15,501	\$45,943				

NREF: No Reference Data

Table 3I

Regional Charge Upper Trim Point by DRG

Southeastern Pennsylvania, Region 9

Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point	Description	DRG	Avg. Charge (Before Trimming)	Upper Trim Point
Code-based Conditions				Code-based Conditions continued			
Chronic Obstructive Pulmonary Disease (COPD)	088	\$23,957	\$79,298	Prostatectomy—Radical	306	NREF	NREF
					307	NREF	NREF
					334	\$45,948	\$107,315
Congestive Heart Failure (CHF)	124	\$62,009	\$211,211		335	\$37,431	\$88,692
	125	NREF	NREF		338	NREF	NREF
	127	\$27,852	\$91,244	339	NREF	NREF	
Heart Attack—Medical Management	121	\$45,356	\$148,414	341	NREF	NREF	
	122	\$31,288	\$97,716	Prostatectomy—Transurethral	306	\$25,087	\$69,838
	123	\$43,161	\$166,277		307	\$17,040	\$44,267
Pneumonia	079	\$57,606	\$211,499		334	NREF	NREF
	080	NREF	NREF		335	NREF	NREF
	089	\$27,331	\$91,207		336	\$20,617	\$57,678
	090	\$15,408	\$52,107	337	\$15,306	\$39,075	
Septicemia	416	\$47,506	\$172,141	338	NREF	NREF	
Stroke—Hemorrhagic	014	\$47,717	\$179,255	339	NREF	NREF	
Stroke—Non-Hemorrhagic	014	\$37,944	\$117,940	341	NREF	NREF	
Abdominal Aortic Aneurysm Repair	110	\$117,620	\$304,720	DRGs in Printed Report			
	111	\$78,726	\$169,302	Blood Clot in Lung	078	\$35,389	\$116,634
Gallbladder Removal—Laparoscopic	195	NREF	NREF	Lung Infections, complicated	079	\$40,714	\$138,331
	196	NREF	NREF	Lung Cancer	082	\$37,083	\$141,542
	493	\$38,902	\$117,159	Vascular Disorders Except Heart, complicated	130	\$26,241	\$90,331
	494	\$20,955	\$51,258	Abnormal Heartbeat, complicated	138	\$24,388	\$81,979
Gallbladder Removal—Open	195	NREF	NREF	Stomach & Small Intestinal Operations, complicated	154	\$112,187	\$387,125
	196	NREF	NREF	Stomach & Intestinal Bleeding, complicated	174	\$28,273	\$94,378
	197	\$57,760	\$163,765	Hip Operations Except Replacement, complicated	210	\$53,838	\$151,155
	198	\$35,957	\$95,930	Diabetes	294	\$21,298	\$73,953
Colorectal Procedures	146	\$71,719	\$166,086	Kidney Failure	316	\$37,535	\$132,891
	147	\$41,607	\$103,751	Kidney & Urinary Tract Infections, complicated	320	\$25,586	\$83,682
	148	\$89,679	\$282,845	Poisoning & Toxic Effects of Drugs, complicated	449	\$19,295	\$65,649
	149	\$46,026	\$132,038				
Heart Attack—Angioplasty/Stent	112	\$65,460	\$159,038				
	116	\$66,320	\$179,317				
	516	\$77,566	\$204,689				
Hysterectomy—Abdominal	353	\$48,317	\$109,461				
	354	\$43,268	\$117,136				
	355	\$26,997	\$64,332				
	357	\$48,441	\$115,135				
	358	\$33,736	\$85,435				
	359	\$24,475	\$58,521				
Hysterectomy—Vaginal	353	NREF	NREF				
	354	NREF	NREF				
	355	\$20,186	\$59,069				
	357	NREF	NREF				
	358	\$33,794	\$91,262				
	359	\$28,050	\$75,881				

NREF: No Reference Data

Table 4A

Regional Length of Stay Before and After Trimming By Procedure and Treatment Groups

Western Pennsylvania

		Mean LOS Before Trimming	Mean LOS After Trimming	Outliers	
				N	%
Code-based Conditions					
Chronic Obstructive Pulmonary Disease (COPD)		4.7	4.6	109	0.9
Congestive Heart Failure (CHF)		5.2	5.0	201	0.9
Heart Attack—Medical Management		5.8	5.7	48	0.6
Pneumonia		5.5	5.3	106	0.6
Septicemia		7.0	6.7	58	1.2
Stroke—Hemorrhagic		6.5	6.3	4	0.4
Stroke—Non-Hemorrhagic		5.4	5.2	53	0.7
Abdominal Aortic Aneurysm Repair		8.1	7.7	11	1.8
Gallbladder Removal—Laparoscopic		4.0	3.9	165	4.0
Gallbladder Removal —Open		6.9	6.5	21	1.7
Colorectal Procedures		9.5	9.0	99	2.0
Heart Attack—Angioplasty/Stent		3.9	3.9	22	0.5
Hysterectomy—Abdominal		3.1	3.0	98	1.5
Hysterectomy—Vaginal		2.1	2.0	19	0.6
Prostatectomy—Radical		3.6	3.5	20	1.6
Prostatectomy—Transurethral		2.9	2.8	98	5.1
DRGs in Printed Report					
078	Blood Clot in Lung	6.0	5.9	10	0.7
079	Lung Infections, Complicated	7.8	7.5	37	0.9
082	Lung Cancer	6.2	6.1	10	0.4
130	Vascular Disorders Except Heart, complicated	5.2	5.0	21	0.6
138	Abnormal Heartbeat, Complicated	3.9	3.8	47	0.6
154	Stomach and Small Intestinal Operations, Complicated	10.4	9.6	21	1.6
174	Stomach & Intestinal Bleeding, Complicated	4.6	4.5	62	0.8
210	Hip Operations, except Replacement, Complicated	6.3	6.0	44	1.3
294	Diabetes	4.0	3.8	26	0.7
316	Kidney Failure	6.4	6.2	35	1.0
320	Kidney & Urinary Tract Infections, Complicated	4.6	4.4	51	0.9
449	Poisoning & Toxic Effects of Drugs, Complicated	2.6	2.3	58	3.0

Table 4B

Regional Length of Stay Before and After Trimming By Procedure and Treatment Groups

Central and Northeastern Pennsylvania

		Mean LOS Before Trimming	Mean LOS After Trimming	Outliers	
				N	%
Code-based Conditions					
Chronic Obstructive Pulmonary Disease (COPD)		4.8	4.7	56	0.9
Congestive Heart Failure (CHF)		5.1	4.9	113	0.9
Heart Attack—Medical Management		5.5	5.4	38	0.6
Pneumonia		5.6	5.4	67	0.6
Septicemia		7.4	7.1	34	1.1
Stroke—Hemorrhagic		6.4	6.0	9	1.4
Stroke—Non-Hemorrhagic		5.7	5.4	54	1.0
Abdominal Aortic Aneurysm Repair		8.4	7.8	10	2.4
Gallbladder Removal—Laparoscopic		3.8	3.7	122	3.8
Gallbladder Removal —Open		6.9	6.6	16	1.7
Colorectal Procedures		9.5	8.9	84	2.2
Heart Attack—Angioplasty/Stent		4.1	4.0	18	0.7
Hysterectomy—Abdominal		3.1	3.0	71	1.3
Hysterectomy—Vaginal		2.0	1.9	23	1.0
Prostatectomy—Radical		3.4	3.3	8	0.9
Prostatectomy—Transurethral		2.7	2.6	47	3.4
DRGs in Printed Report					
078	Blood Clot in Lung	6.1	6.0	8	0.6
079	Lung Infections, Complicated	8.3	8.0	21	1.1
082	Lung Cancer	6.5	6.3	5	0.4
130	Vascular Disorders Except Heart, complicated	5.4	5.1	16	0.9
138	Abnormal Heartbeat, Complicated	4.0	3.9	29	0.6
154	Stomach and Small Intestinal Operations, Complicated	11.9	11.0	17	2.4
174	Stomach & Intestinal Bleeding, Complicated	4.7	4.4	53	1.1
210	Hip Operations, except Replacement, Complicated	6.4	6.1	42	1.7
294	Diabetes	4.3	4.1	18	0.9
316	Kidney Failure	6.9	6.5	25	1.2
320	Kidney & Urinary Tract Infections, Complicated	4.9	4.7	44	1.5
449	Poisoning & Toxic Effects of Drugs, Complicated	2.8	2.5	36	2.8

Table 4C

Regional Length of Stay Before and After Trimming By Procedure and Treatment Groups

Southeastern Pennsylvania

		Mean LOS Before Trimming	Mean LOS After Trimming	Outliers	
				N	%
Code-based Conditions					
Chronic Obstructive Pulmonary Disease (COPD)		5.1	4.8	145	1.3
Congestive Heart Failure (CHF)		5.4	5.0	356	1.5
Heart Attack—Medical Management		6.2	5.9	98	1.3
Pneumonia		5.7	5.5	174	1.1
Septicemia		8.3	7.6	107	2.6
Stroke—Hemorrhagic		7.6	6.9	31	2.7
Stroke—Non-Hemorrhagic		6.2	5.8	167	1.9
Abdominal Aortic Aneurysm Repair		8.6	7.9	17	3.0
Gallbladder Removal—Laparoscopic		2.7	2.6	371	4.9
Gallbladder Removal —Open		7.1	6.6	27	1.9
Colorectal Procedures		9.7	8.9	170	2.7
Heart Attack—Angioplasty/Stent		4.4	4.2	47	1.1
Hysterectomy—Abdominal		3.4	3.2	160	2.4
Hysterectomy—Vaginal		2.0	1.9	28	1.2
Prostatectomy—Radical		3.4	3.4	10	0.6
Prostatectomy—Transurethral		2.9	2.8	96	4.2
DRGs in Printed Report					
078	Blood Clot in Lung	6.3	6.1	16	1.1
079	Lung Infections, Complicated	8.7	8.3	50	1.1
082	Lung Cancer	7.1	6.7	30	1.3
130	Vascular Disorders Except Heart, complicated	5.4	5.1	41	1.1
138	Abnormal Heartbeat, Complicated	4.1	3.9	81	1.0
154	Stomach and Small Intestinal Operations, Complicated	13.3	12.0	37	3.2
174	Stomach & Intestinal Bleeding, Complicated	4.9	4.6	105	1.3
210	Hip Operations, except Replacement, Complicated	7.4	6.6	99	3.0
294	Diabetes	4.1	3.8	74	1.6
316	Kidney Failure	6.5	6.1	77	2.0
320	Kidney & Urinary Tract Infections, Complicated	5.2	4.9	124	1.9
449	Poisoning & Toxic Effects of Drugs, Complicated	2.7	2.6	92	2.5

Table 5

Summary of Hospitals Excluded from the *CY2001 Hospital Performance Report*

Printed Report and Web Site Release

<i>Hospital Name</i>	<i>Cases¹</i> #	<i>Missing ASG</i> # %		<i>Reason for Exclusion</i>
Facilities that are currently in operation				
<i>Facilities that submitted incomplete data²:</i>				
Western Pennsylvania				
<i>Brownsville General</i>	920	920	100.0%	Missing severity = 100%, Missing two quarters (Q1–Q2, 2001) of UB data.
<i>UPMC St. Margaret</i>	9,164	4,658	50.8%	Missing severity = 50.8%
<i>Jameson Memorial</i>	6,797	2,220	32.7%	Missing severity = 32.7%
<i>Suburban General/Pittsburgh</i>	3,477	536	15.4%	Missing severity = 15.4%
Central and Northeastern Pennsylvania				
<i>Mercy Hospital/Scranton</i>	10,457	8,297	79.3%	Missing severity = 79.3%
Southeastern Pennsylvania				
<i>Ashland Regional</i>	1,757	50	2.8%	Missing one quarter (Q4, 2001) of UB data
Facilities that closed in 2001:				
Western Pennsylvania				
<i>Union City Memorial</i>				Closed facility – effective 11/30/01
<i>Mercy Community Hospital</i>				Closed facility – effective 02/02/02
<i>St. Francis New Castle</i>				Closed facility – effective 10/31/02
<i>St. Francis/Cranberry</i>				Closed facility – effective 10/31/02
<i>St. Francis Medical Center</i>				Closed facility – effective 09/06/02

¹Includes cases only from DRGs for which Atlas Outcomes™ severity scores (ASG) are required.

²Noncompliant hospitals with ≥ 10% missing ASGs (for all DRGs for which ASGs are required to be reported) or facilities missing one or more quarters of UB data.

APPENDIX

Appendix Table A

Procedure and Treatment Groups for which LOS Outlier and Readmission Data Are Reported

<i>Printed Report</i>	<i>Description</i>	<i>LOS Outlier Measures</i>	<i>Readmission Measures</i>
Code-based Diagnoses			
	Chronic Obstructive Pulmonary Disease (COPD)	✓	✓
	Congestive Heart Failure (CHF)	✓	✓
	Heart-Attack Medical Management	✓	
	Pneumonia	✓	
	Septicemia	✓	
	Stroke—Hemorrhagic	✓	✓
	Stroke—Non-Hemorrhagic	✓	✓
Code-based Procedures			
	Abdominal Aortic Aneurysm Repair (AAA)		✓
	Gallbladder Removal—Laparoscopic		✓
	Gallbladder Removal —Open		✓
	Colorectal Procedures		
	Heart Attack—Angioplasty/Stent		
	Hysterectomy—Abdominal		
	Hysterectomy—Vaginal		✓
	Prostatectomy—Radical		
	Prostatectomy—Transurethral		
DRGs in Printed Report			
078	Pulmonary Embolism	✓	
079	Respiratory Infections and Inflammations, Age Greater Than 17 with CC [‡]		✓
082	Respiratory Neoplasms	✓	
130	Peripheral Vascular Disorders with CC [‡]		
138	Cardiac Arrhythmia and Conduction Disorders with CC [‡]	✓	✓
154	Stomach, Esophageal and Duodenal Procedures, Age Greater Than 17 with CC [‡]		
174	GI Hemorrhage with CC [‡]		✓
210	Hip and Femur Procedures Except Major Joint Procedures, Age > 17 with CC [‡]		✓
294	Diabetes, Age Greater Than 35	✓	✓
316	Renal Failure	✓	✓
320	Kidney and Urinary Tract Infections, Age Greater Than 17 with CC [‡]	✓	✓
449	Poisoning and Toxic Effects of Drugs, Age Greater Than 17 with CC [‡]	✓	✓

[‡] CC: complication or comorbid condition.

Appendix Table A continued

Procedure and Treatment Groups for which LOS Outlier and Readmission Data Are Reported

Web DRGs	Description	LOS Outlier Measures	Readmission Measures
001	Craniotomy, Age Greater Than 17 Except for Trauma		
005	Extracranial Vascular Procedures		✓
012	Degenerative Nervous System Disorders		✓
015	Transient Ischemic Attack and Precerebral Occlusions		✓
024	Seizure and Headache, Age Greater Than 17 with CC [‡]		✓
025	Seizure and Headache, Age Greater Than 17 without CC [‡]		✓
034	Other Disorders of Nervous System with CC [‡]		
075	Major Chest Procedures		
076	Other Respiratory System OR Procedures with CC [‡]		
087	Pulmonary Edema and Respiratory Failure	✓	✓
091	Simple Pneumonia and Pleurisy, Age 0 - 17	✓	
096	Bronchitis and Asthma, Age Greater Than 17 with CC [‡]		✓
097	Bronchitis and Asthma, Age Greater Than 17 without CC [‡]		✓
098	Bronchitis and Asthma, Age 0 - 17		
113	Amputation for Circulatory System Disorders Except Upper Limb and Toe		✓
120	Other Circulatory System OR Procedures		
125	Circulatory Disorders Except Acute Myocardial Infarction with Cardiac Catheterization		✓
131	Peripheral Vascular Disorders without CC [‡]		✓
139	Cardiac Arrhythmia and Conduction Disorders without CC [‡]	✓	✓
141	Syncope and Collapse with CC [‡]	✓	✓
143	Chest Pain	✓	✓
144	Other Circulatory System Diagnoses with CC [‡]		
167*	Appendectomy Age < 18 Without Complicated Principal Diagnosis without CC [‡]		
167*	Appendectomy Age ≥ 18 Without Complicated Principal Diagnosis without CC [‡]		✓
172	Digestive Malignancy with CC [‡]	✓	
180	GI Obstruction with CC [‡]	✓	
182	Esophagitis, Gastroenteritis and Misc Digestive Disorders, > 17 with CC [‡]		
183	Esophagitis, Gastroenteritis & Misc Digestive Disorders, Age > 17 without CC [‡]		
184	Esophagitis, Gastroenteritis and Miscellaneous Digestive Disorders, Age 0 - 17		
188	Other Digestive System Diagnoses, Age Greater Than 17 with CC [‡]		
202	Cirrhosis and Alcoholic Hepatitis	✓	✓
203	Malignancy of Hepatobiliary System or Pancreas		
204	Disorders of Pancreas Except Malignancy	✓	✓
205	D.O. of Liver Except Malignancy, Cirrhosis and Alcoholic Hepatitis with CC [‡]	✓	✓
217	Wound Debridement & Skin Graft Except Hand for Musculoskeletal and Connective Tissue Disorders		✓
239	Pathological Fractures and Musculoskeletal and Connective Tissue Malignancy		
243	Medical Back Problems		✓
277	Cellulitis, Age Greater Than 17 with CC [‡]	✓	✓
296	Nutritional & Misc Metabolic D.O., Age > 17 with CC [‡]		
297	Nutritional & Misc Metabolic D.O., Age > 17 without CC [‡]		
310	Transurethral Procedures with CC [‡]		
315	Other Kidney and Urinary Tract OR Procedures		
323	Urinary Stones with CC [‡] and/or ESW Lithotripsy	✓	✓
331	Other Kidney and Urinary Tract Diagnoses, > 17 with CC [‡]		
395	Red Blood Cell Disorders, Age Greater Than 17	✓	
398	Reticuloendothelial and Immunity Disorders with CC [‡]	✓	
403	Lymphoma and Nonacute Leukemia with CC [‡]	✓	
410*	Chemotherapy without Acute Leukemia as Secondary Diagnosis Age < 18	✓	
410*	Chemotherapy without Acute Leukemia as Secondary Diagnosis Age ≥ 18	✓	
415	OR Procedure for Infectious and Parasitic Diseases		✓
418	Postoperative and Posttraumatic Infections	✓	
478	Other Vascular Procedures with CC [‡]		

[‡] CC: complication or comorbid condition.

*Pediatric and Adults are reported separately for DRGs 167 and 410.

Appendix Table B

ICD.9.CM Codes Used to Define Readmissions for Complication/Infection

Readmissions that have one of the following ICD.9.CM codes listed as the principal diagnosis or principal procedure are included in this measure.

<i>ICD.9.CM Codes Diagnosis/Procedure</i>	<i>Description</i>
Procedure/Medical Care Related Events	
54.61 (procedure)	RECLOSURE OF POSTOPERATIVE DISRUPTION OF ABDOMINAL WALL
909.3	LATE EFFECT OF COMPLICATIONS OF SURGICAL & MEDICAL CARE
995.4	SHOCK DUE TO ANESTHESIA
995.86	MALIGNANT HYPERTHERMIA (E.G. DUE TO ANESTHESIA)
995.89	OTHER SPECIFIED ADVERSE EFFECTS, NOT ELSEWHERE CLASSIFIED (E.G. HYPOTHERMIA DUE TO ANESTHESIA)
998.0	POSTOPERATIVE SHOCK
998.2	ACCIDENTAL PUNCTURE OR LACERATION DURING A PROCEDURE
998.3	DISRUPTION OF OPERATION WOUND
998.4	FOREIGN BODY ACCIDENTALLY LEFT DURING A PROCEDURE
998.6	PERSISTENT POSTOPERATIVE FISTULA
998.7	ACUTE REACTION TO FOREIGN SUBSTANCE ACCIDENTALLY LEFT DURING A PROCEDURE
998.83	NON-HEALING SURGICAL WOUND
998.89	OTHER SPECIFIED COMPLICATIONS OF PROCEDURES
998.9	UNSPECIFIED COMPLICATION OF PROCEDURE, NOT ELSEWHERE CLASSIFIED
999.2	OTHER VASCULAR COMPLICATIONS (E.G. FOLLOWING INFUSION, PERFUSION, OR TRANSFUSION)
999.4	ANAPHYLACTIC SHOCK DUE TO SERUM
999.5	OTHER SERUM REACTION
999.6	ABO INCOMPATIBILITY REACTION
999.7	RH INCOMPATIBILITY REACTION
999.8	OTHER TRANSFUSION REACTION
999.9	OTHER & UNSPECIFIED COMPLICATIONS OF MEDICAL CARE, NOT ELSEWHERE CLASSIFIED
Digestive System Complications	
564.2	POSTGASTRIC SURGERY SYNDROMES
997.4	DIGESTIVE SYSTEM COMPLICATIONS (E.G. HEPATIC FAILURE, INTESTINAL OBSTRUCTION)
Pulmonary Compromise	
31.1 (procedure)	TEMPORARY TRACHEOSTOMY
31.21 (procedure)	MEDIASTINAL TRACHEOSTOMY
31.29 (procedure)	OTHER PERMANENT TRACHEOSTOMY
512.1	IATROGENIC PNEUMOTHORAX
514	PULMONARY CONGESTION & HYPOSTASIS
518.4	ACUTE EDEMA OF LUNG, UNSPECIFIED
518.5	PULMONARY INSUFFICIENCY FOLLOWING TRAUMA & SURGERY
518.81	ACUTE RESPIRATORY FAILURE
518.82	OTHER PULMONARY INSUFFICIENCY, NOT ELSEWHERE CLASSIFIED
518.84	ACUTE & CHRONIC RESPIRATORY FAILURE
997.3	RESPIRATORY COMPLICATIONS (E.G. ASPIRATION PNEUMONIA, MENDELSON'S SYNDROME)
998.81	EMPHYSEMA (SUBCUTANEOUS) (SURGICAL) RESULTING FROM A PROCEDURE
Hemorrhage	
39.41 (procedure)	CONTROL OF HEMORRHAGE FOLLOWING VASCULAR SURGERY
39.98 (procedure)	CONTROL OF HEMORRHAGE, NOT OTHERWISE SPECIFIED
57.93 (procedure)	CONTROL OF (POSTOPERATIVE) HEMORRHAGE OF BLADDER
998.11	HEMORRHAGE COMPLICATING A PROCEDURE
998.12	HEMATOMA COMPLICATING A PROCEDURE
998.13	SEROMA COMPLICATING A PROCEDURE

Appendix Table B continued

ICD.9.CM Codes Used to Define Readmissions for Complication/Infection

<i>ICD.9.CM Codes</i>	<i>Description</i>
<i>Diagnosis/Procedure</i>	<i>Description</i>
Infection	
038.0	STREPTOCOCCAL SEPTICEMIA
038.10	STAPH SEPTICEMIA, UNSPEC
038.11	STAPH AUREUS SEPTICEMIA
038.19	OTHER STAPH SEPTICEMIA
038.2	PNEUMOCOCCAL SEPTICEMIA
038.3	ANAEROBIC SEPTICEMIA
038.40	GRAM-NEG SEPTICEMIA NOS
038.41	H. INFLUENAE SEPTICEMIA
038.42	E COLI SEPTICEMIA
038.43	PSEUDOMONAS SEPTICEMIA
038.44	SERRATIA SEPTICEMIA
038.49	GRAM-NEG SEPTICEMIA NEC
038.8	SEPTICEMIA NEC
038.9	SEPTICEMIA NOS
536.41	INFECTION OF GASTROSTOMY
569.61	INFECTION OF COLOSTOMY OR ENTEROSTOMY
996.60	INFECTION & INFLAMMATORY REACTION DUE TO UNSPECIFIED DEVICE, IMPLANT & GRAFT
996.61	INFECTION & INFLAMMATORY REACTION DUE TO CARDIAC DEVICE, IMPLANT & GRAFT
996.62	INFECTION & INFLAMMATORY REACTION DUE TO VASCULAR DEVICE, IMPLANT & GRAFT
996.64	INFECTION & INFLAMMATORY REACTION DUE TO INDWELLING URINARY CATHETER
996.65	INFECTION DUE TO OTHER GENITOURINARY DEVICE, IMPLANT & GRAFT
996.69	INFECTION & INFLAMMATORY REACTION DUE TO OTHER INTERNAL PROSTHETIC DEVICE, IMPLANT & GRAFT
998.51	INFECTED POSTOPERATIVE SEROMA
998.59	OTHER POSTOPERATIVE INFECTION
999.3	OTHER INFECTION
Pneumonia (coded by causative organism)	
481	PNEUMOCOCCAL PNEUMONIA (STREPTOCOCCUS PNEUMONIAE PNEUMONIA)
482.0	KLEBSIELLA PNEUMONIAE
482.1	PSEUDOMONAS
482.2	HEMOPHILUS INFLUENZA
482.30	STREPTOCOCCUS UNSPECIFIED
482.31	STREPTOCOCCUS GROUP A
482.32	STREPTOCOCCUS GROUP B
482.39	STREPTOCOCCUS OTHER
482.40	STAPHYLOCOCCUS UNSPECIFIED
482.41	STAPHYLOCOCCUS AUREUS
482.49	STAPHYLOCOCCUS OTHER
482.81	ANAEROBES
482.82	ESCHERICHIA COLI
482.83	OTHER GRAM-NEGATIVE BACTERIA
482.84	LEGIONNAIRES' DISEASE
482.89	OTHER SPECIFIED BACTERIA
482.9	BACTERIAL PNEUMONIA UNSPECIFIED
483.0	MYCOPLASMA PNEUMONIAE
483.1	CHLAMYDIA
483.8	OTHER SPECIFIED ORGANISM
485	BRONCHOPNEUMONIA, ORGANISM UNSPECIFIED
486	PNEUMONIA, ORGANISM UNSPECIFIED

Appendix Table B continued

ICD.9.CM Codes Used to Define Readmissions for Complication/Infection

<i>ICD.9.CM Codes</i>	
<i>Diagnosis/Procedure</i>	<i>Description</i>
Cardiac Complications	
410.01	ACUTE MYOCARDIAL INFARCTION OF ANTEROLATERAL WALL– INITIAL EPISODE OF CARE ONLY
410.11	ACUTE MYOCARDIAL INFARCTION OF OTHER ANTERIOR WALL – INITIAL EPISODE OF CARE ONLY
410.21	ACUTE MYOCARDIAL INFARCTION OF INFEROLATERAL WALL – INITIAL EPISODE OF CARE ONLY
410.31	ACUTE MYOCARDIAL INFARCTION OF INFEROPOSTERIOR WALL – INITIAL EPISODE OF CARE ONLY
410.41	ACUTE MYOCARDIAL INFARCTION OF OTHER INFERIOR WALL– INITIAL EPISODE OF CARE ONLY
410.51	ACUTE MYOCARDIAL INFARCTION OF OTHER LATERAL WALL – INITIAL EPISODE OF CARE ONLY
410.61	ACUTE MYOCARDIAL TRUE POSTERIOR WALL INFARCTION– INITIAL EPISODE OF CARE ONLY
410.71	ACUTE MYOCARDIAL SUBENDOCARDIAL INFARCTION – INITIAL EPISODE OF CARE ONLY
410.81	ACUTE MYOCARDIAL INFARCTION—OTHER SPECIFIED SITES – INITIAL EPISODE OF CARE ONLY
410.91	ACUTE MYOCARDIAL INFARCTION—UNSPECIFIED SITE – INITIAL EPISODE OF CARE ONLY
997.1	CARDIAC COMPLICATIONS (E.G. CARDIAC ARREST, HEART FAILURE)
Venous Thrombosis/Pulmonary Embolism	
415.11	IATROGENIC PULMONARY EMBOLISM & INFARCTION
415.19	OTHER PULMONARY EMBOLISM & INFARCTION
451.11	PHLEBITIS & THROMBOPHLEBITIS OF FEMORAL VEIN (DEEP) (SUPERFICIAL)
451.19	PHLEBITIS & THROMBOPHLEBITIS OF OTHER DEEP VESSELS OF LOWER EXTREMITIES
451.81	PHLEBITIS & THROMBOPHLEBITIS OF ILIAC VEIN
453.8	OTHER VENOUS EMBOLISM & THROMBOSIS OF OTHER SPECIFIED VEINS
997.2	PERIPHERAL VASCULAR COMPLICATIONS
999.1	AIR EMBOLISM
Hypo/Hypertension	
458.2	IATROGENIC HYPOTENSION
997.91	<i>HYPERTENSION, NOT ELSEWHERE CLASSIFIED</i>
Stroke/Anoxic Brain Damage	
348.1	ANOXIC BRAIN DAMAGE
430	SUBARACHNOID HEMORRHAGE
431	INTRACEREBRAL HEMORRHAGE
432.0	NONTRAUMATIC EXTRADURAL HEMORRHAGE
432.1	SUBDURAL HEMORRHAGE
432.9	UNSPECIFIED INTRACRANIAL HEMORRHAGE
433.01	OCCLUSION & STENOSIS OF PRECEREBRAL ARTERIES—BASILAR ARTERY WITH CEREBRAL INFARCTION
433.11	OCCLUSION & STENOSIS OF PRECEREBRAL ARTERIES—CAROTID ARTERY WITH CEREBRAL INFARCTION
433.21	OCCLUSION & STENOSIS OF PRECEREBRAL ARTERIES—VERTEBRAL ARTERY WITH CEREBRAL INFARCTION
433.31	OCCLUSION & STENOSIS OF PRECEREBRAL MULTIPLE & BILATERAL ARTERIES WITH CEREBRAL INFARCTION
433.81	OCCLUSION & STENOSIS OF OTHER SPECIFIED PRECEREBRAL ARTERIES WITH CEREBRAL INFARCTION
433.91	OCCLUSION & STENOSIS OF UNSPECIFIED PRECEREBRAL ARTERIES WITH CEREBRAL INFARCTION
434.01	CEREBRAL THROMBOSIS WITH CEREBRAL INFARCTION
434.11	CEREBRAL EMBOLISM WITH CEREBRAL INFARCTION
434.91	CEREBRAL ARTERY OCCLUSION, UNSPECIFIED WITH CEREBRAL INFARCTION
436	ACUTE, BUT ILL-DEFINED CEREBROVASCULAR DISEASE
997.00	NERVOUS SYSTEM COMPLICATION, UNSPECIFIED
997.01	CENTRAL NERVOUS SYSTEM COMPLICATIONS (E.G. ANOXIC BRAIN DAMAGE, CEREBRAL HYPOXIA)
997.02	IATROGENIC CEREBROVASCULAR INFARCTION OR HEMORRHAGE
997.09	OTHER NERVOUS SYSTEM COMPLICATIONS

Appendix Table B continued

ICD.9.CM Codes Used to Define Readmissions for Complication/Infection

<i>ICD.9.CM Codes Diagnosis/Procedure</i>	<i>Description</i>
Device, Implant or Graft Complications	
536.40	GASTROSTOMY COMPLICATION, UNSPECIFIED
536.42	MECHANICAL COMPLICATION OF GASTROSTOMY
536.49	OTHER GASTROSTOMY COMPLICATIONS
569.60	COLOSTOMY & ENTEROSTOMY COMPLICATION, UNSPECIFIED
569.62	MECHANICAL COMPLICATION OF COLOSTOMY & ENTEROSTOMY
569.69	OTHER COLOSTOMY & ENTEROSTOMY COMPLICATIONS
996.04	MECHANICAL COMPLICATION DUE TO AUTOMATIC IMPLANTABLE CARDIAC DEFIBRILLATOR
996.1	MECHANICAL COMPLICATION OF OTHER VASCULAR DEVICE, IMPLANT, & GRAFT
996.30	MECHANICAL COMPLICATION OF UNSPECIFIED GENITOURINARY DEVICE, IMPLANT, & GRAFT
996.31	MECHANICAL COMPLICATION DUE TO URETHRAL (INDWELLING) CATHETER
996.39	MECHANICAL COMPLICATION OF OTHER GENITOURINARY DEVICE, IMPLANT, & GRAFT
996.52	MECHANICAL COMPLICATION DUE TO GRAFT OF OTHER TISSUE, NOT ELSEWHERE CLASSIFIED
996.59	MECHANICAL COMPLICATION DUE TO OTHER IMPLANT & INTERNAL DEVICE, NOT ELSEWHERE CLASSIFIED
996.70	OTHER COMPLICATIONS DUE TO UNSPECIFIED DEVICE, IMPLANT & GRAFT
996.72	OTHER COMPLICATIONS DUE TO OTHER CARDIAC DEVICE, IMPLANT & GRAFT
996.74	OTHER COMPLICATIONS DUE TO VASCULAR DEVICE, IMPLANT & GRAFT
996.76	OTHER COMPLICATIONS DUE TO GENITOURINARY DEVICE, IMPLANT & GRAFT
996.79	OTHER COMPLICATIONS DUE TO OTHER INTERNAL PROSTHETIC DEVICE, IMPLANT & GRAFT
Gastric/Intestinal Hemorrhage or Ulceration	
49.95 (procedure)	CONTROL OF (POSTOPERATIVE) HEMORRHAGE OF ANUS
531.00	GASTRIC ULCER ACUTE WITH HEMORRHAGE WITHOUT OBSTRUCTION
531.01	GASTRIC ULCER ACUTE WITH HEMORRHAGE WITH OBSTRUCTION
531.10	GASTRIC ULCER ACUTE WITH PERFORATION WITHOUT OBSTRUCTION
531.11	GASTRIC ULCER ACUTE WITH PERFORATION WITH OBSTRUCTION
531.20	GASTRIC ULCER ACUTE WITH HEMORRHAGE & PERFORATION WITHOUT OBSTRUCTION
531.21	GASTRIC ULCER ACUTE WITH HEMORRHAGE & PERFORATION WITH OBSTRUCTION
531.40	GASTRIC ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE WITHOUT OBSTRUCTION
531.41	GASTRIC ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE WITH OBSTRUCTION
531.60	GASTRIC ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITHOUT OBSTRUCTION
531.61	GASTRIC ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITH OBSTRUCTION
532.00	DUODENAL ULCER ACUTE WITH HEMORRHAGE WITHOUT OBSTRUCTION
532.01	DUODENAL ULCER ACUTE WITH HEMORRHAGE WITH OBSTRUCTION
532.10	DUODENAL ULCER ACUTE WITH PERFORATION WITHOUT OBSTRUCTION
532.11	DUODENAL ULCER ACUTE WITH PERFORATION WITH OBSTRUCTION
532.20	DUODENAL ULCER ACUTE WITH HEMORRHAGE & PERFORATION WITHOUT OBSTRUCTION
532.21	DUODENAL ULCER ACUTE WITH HEMORRHAGE & PERFORATION WITH OBSTRUCTION
532.40	DUODENAL ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE WITHOUT OBSTRUCTION
532.41	DUODENAL ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE WITH OBSTRUCTION
532.60	DUODENAL ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITHOUT OBSTRUCTION
532.61	DUODENAL ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITH OBSTRUCTION
533.60	PEPTIC ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITHOUT OBSTRUCTION
533.61	PEPTIC ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITH OBSTRUCTION
534.00	GASTROJEJUNAL ULCER ACUTE WITH HEMORRHAGE WITHOUT OBSTRUCTION
534.01	GASTROJEJUNAL ULCER ACUTE WITH HEMORRHAGE WITH OBSTRUCTION
534.10	GASTROJEJUNAL ULCER ACUTE WITH PERFORATION WITHOUT OBSTRUCTION
534.11	GASTROJEJUNAL ULCER ACUTE WITH PERFORATION WITH OBSTRUCTION
534.20	GASTROJEJUNAL ULCER ACUTE WITH HEMORRHAGE & PERFORATION WITHOUT OBSTRUCTION
534.21	GASTROJEJUNAL ULCER ACUTE WITH HEMORRHAGE & PERFORATION WITH OBSTRUCTION
534.40	GASTROJEJUNAL ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE WITHOUT OBSTRUCTION
534.41	GASTROJEJUNAL ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE WITH OBSTRUCTION

Appendix Table B continued

ICD.9.CM Codes Used to Define Readmissions for Complication/Infection

<i>ICD.9.CM Codes Diagnosis/Procedure</i>	<i>Description</i>
Gastric/Intestinal Hemorrhage or Ulceration continued	
534.60	GASTROJEJUNAL ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITHOUT OBSTRUCTION
534.61	GASTROJEJUNAL ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITH OBSTRUCTION
578.9	HEMORRHAGE OF GASTROINTESTINAL TRACT, UNSPECIFIED
533.60	PEPTIC ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITHOUT OBSTRUCTION
533.61	PEPTIC ULCER CHRONIC OR UNSPECIFIED WITH HEMORRHAGE & PERFORATION WITH OBSTRUCTION

Glossary of Abbreviated Terms

AMI	Acute Myocardial Infarction
ASG	Atlas Outcomes™ Admission Severity Group
CC	Complication or Comorbid Condition
CHF	Congestive Heart Failure
COPD	Chronic Obstructive Pulmonary Disease
DOB	Date of Birth
DRG	Diagnosis Related Group
GAC	General Acute Care Hospital
HPR	Hospital Performance Report
ICD.9.CM	International Classification of Diseases, Ninth Revision, Clinical Modification
IQR	Interquartile Range
LOS	Length Of Stay
MDC	Major Diagnostic Category
PLOS	Atlas Outcomes™ Predicted Length of Stay
Q	Quarter
SSN	Social Security Number
UB-92	Uniform Billing Form

