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Refinement of the HCUP Quality Indicators: Appendix 6 Indicator Definitions

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APPENDIX 6

Indicator Definitions

Table of indicator includes complete specification of current HCUP indicators and potential HCUP indicators evaluated in this evidence report.

Indicators are organized by indicator type. Each indicator is numbered with a unique identifier used throughout the report.

The numerator refers to the outcome of interest and the denominator refers to the population at risk.

Some indicators specification are so detailed that the full specifications are included after the table.

Appendix 6 Indicator Definitions – Potential HCUP Indicators.

** indicates current HCUP indicators

Indicator	Numerator	Denominator	#
Volume Outcome			
<ul style="list-style-type: none"> ▪ AAA repair volume 	<p>Discharges with ICD-9 codes 38.34, 38.44, or 38.64 in any procedure field and diagnosis of AAA (see below) in any field.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	Not applicable.	1
<ul style="list-style-type: none"> ▪ Carotid Endarterectomy volume 	<p>Discharges with ICD-9 code 38.12 in any procedure field.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	Not applicable	2
<ul style="list-style-type: none"> ▪ CABG volume 	<p>Discharges with ICD-9 codes 36.10 – 36.19 in any procedure field.</p> <p>Age 40 years and older.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	Not applicable	3
<ul style="list-style-type: none"> ▪ Esophageal resection volume 	<p>Discharges with ICD-9 codes 42.40 – 42.42 in any procedure field and diagnosis code of esophageal cancer in any field.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	Not applicable	4
<ul style="list-style-type: none"> ▪ Pancreatic resection volume 	<p>Discharges with ICD-9 codes 52.6 or 52.7 in any procedure field and diagnosis code of pancreatic cancer in any field.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other</p>	Not applicable	5

Indicator	Numerator	Denominator	#
	neonates).		
<ul style="list-style-type: none"> ▪ Pediatric heart surgery volume 	<p>Discharges with ICD-9 codes for specified heart surgery (see below) in any field, or for any heart surgery and a diagnosis of hypoplastic left heart syndrome (see below) in any field</p> <p>Age less than 18. See NOTE for additional exclusions Exclude MDC 14 (pregnancy, childbirth, and puerperium).</p>	Not applicable	6
<ul style="list-style-type: none"> ▪ PTCA volume 	<p>Discharges with ICD-9 codes 36.01, 36.02, 36.05, or 36.06 in any procedure field.</p> <p>Age 40 years and older.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	Not applicable	7
Utilization – provider level			
<ul style="list-style-type: none"> ▪ Cesarean section delivery rate 	Number of C-sections per 100 deliveries (see below).	All deliveries (see below)	8
<ul style="list-style-type: none"> ▪ Incidental appendectomy among elderly rate 	Number of incidental appendectomies per 100 elderly discharges with intra-abdominal procedure (see below).	<p>All non-maternal/non-neonatal discharges age 65 years and older with intra-abdominal procedure in any procedure field (see below).</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	9
<ul style="list-style-type: none"> ▪ Bi-lateral catheterization rate 	<p>Number of simultaneous right and left heart catheterizations per 100 discharges with procedure code of heart catheterization (see below).</p> <p>Exclude valid indications for right sided catheterization (see below) in any diagnosis field.</p>	<p>All non-maternal/non-neonatal discharges with heart catheterization (see below) in any procedure field.</p> <p>Include only coronary artery disease (see below) Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	10
<ul style="list-style-type: none"> ▪ Successful vaginal birth after cesarean section (VBAC) rate 	Number of vaginal births per 100 deliveries with diagnosis of previous C-section (see below).	All deliveries with previous C-section diagnosis in any diagnosis field (see below).	11

Indicator	Numerator	Denominator	#
<ul style="list-style-type: none"> Laparoscopic cholecystectomy rate 	<p>Number of laparoscopic cholecystectomies per 100 discharges with procedure code of cholecystectomy (see below).</p>	<p>All non-maternal/non-neonatal discharges with cholecystectomy (see below) in any procedure field.</p> <p>Include only discharges with uncomplicated cases: cholecystitis and/or cholelithiasis (see below) in any diagnosis field.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	12
Utilization – area level			
<ul style="list-style-type: none"> Coronary artery bypass graft (CABG) rate 	<p>Number of CABGs (any procedure field) per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges age 40 years and older.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, age 40 years and older.</p>	13
<ul style="list-style-type: none"> Hysterectomy rate 	<p>Number of hysterectomies (any procedure field) per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of females age 18 years and older.</p> <p>Exclude discharges with genital cancer or pelvic or lower abdominal trauma (see below) in any diagnosis field.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Female population in MSA or county, age 18 years and older.</p>	14
<ul style="list-style-type: none"> Laminectomy and/or spinal fusion rate 	<p>Number of laminectomies and/or spinal fusions (any procedure field) per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of age 18 years and older.</p>	<p>Population in MSA or county, age 18 years and older.</p>	15

Indicator	Numerator	Denominator	#
	Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).		
<ul style="list-style-type: none"> PTCA rate 	<p>Number of PTCAs (any procedure field) per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of age 40 years and older.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	Population in MSA or county, age 40 years and older.	16
Ambulatory Care Sensitive Conditions			
<ul style="list-style-type: none"> Dehydration admission rate 	<p>Discharges with ICD-9 principal diagnosis code for hypovolemia per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of age less than 65*.</p> <p>Exclude transfer from other institution.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, age less than 65*.</p> <p>* Rate can also be calculated for age 65 and older</p>	17
<ul style="list-style-type: none"> Bacterial pneumonia admission rate 	<p>Discharges with ICD-9 principal diagnosis code for bacterial pneumonia per 100,000 population.</p> <p>All non-maternal/non-neonatal discharges of age less than 65*.</p> <p>Exclude discharges with diagnosis code for sickle cell anemia or HB-S disease (see below) in any field.</p> <p>Exclude patients <2 months (8 weeks) of age</p> <p>Exclude transfer from other institution.</p> <p>Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, age less than 65*.</p> <p>* Rate can also be calculated for age 65 and older.</p>	18
<ul style="list-style-type: none"> Urinary infection admission rate 	Discharges with ICD-9 principal diagnosis code of	Population in MSA or county, age less than 65*.	19

Indicator	Numerator	Denominator	#
	<p>urinary tract infection per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of age less than 65*.</p> <p>Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>* Rate can also be calculated for age 65 and older.</p>	
<ul style="list-style-type: none"> ▪ Perforated appendix admission rate 	<p>Discharges with ICD-9 diagnosis code for perforations or abscesses of appendix (see below) in any field per 100 discharges with diagnosis code for appendicitis (see below).</p> <p>Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Number of discharges with diagnosis code for appendicitis in any field in MSA or county.</p>	20
<ul style="list-style-type: none"> ▪ Angina admission rate 	<p>Discharges with ICD-9 principal diagnosis code for angina (see below) per 100,000 population.</p> <p>All non-maternal/non-neonatal discharges of age 18 to 64 years old*.</p> <p>Exclude discharges with a surgical procedure in any field (01.0-86.99). Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, age 18 to 64 years old*.</p> <p>* Rate can also be calculated for age 65 and older.</p>	21
<ul style="list-style-type: none"> ▪ Adult asthma admission rate 	<p>Discharges with ICD-9 principal diagnosis code of asthma per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of age 18 to 64 years old*.</p> <p>Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and</p>	<p>Population in MSA or county, age 18 to 64 years old*.</p> <p>* Rate can also be calculated for age 65 and older.</p>	22

Indicator	Numerator	Denominator	#
	puerperium) and MDC 15 (newborns and other neonates).		
<ul style="list-style-type: none"> ▪ Chronic Obstructive Pulmonary Disease admission rate 	<p>Discharges with ICD-9 principal diagnosis code for COPD (see below) per 100,000 population.</p> <p>All non-maternal/non-neonatal discharges of age 18 to 64 years old*.</p> <p>Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, age 18 to 64 years old*.</p> <p>* Rate can also be calculated for age 65 and older.</p>	23
<ul style="list-style-type: none"> ▪ Congestive Heart Failure admission rate 	<p>Discharges with ICD-9 principal diagnosis code for CHF (see below) per 100,000 population.</p> <p>All non-maternal/non-neonatal discharges of age 18 to 64 years old*.</p> <p>Exclude discharges with cardiac procedure codes (see below) in any field. Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, age 18 to 64 years old*.</p> <p>* Rate can also be calculated for age 65 and older.</p>	24
<ul style="list-style-type: none"> ▪ Diabetes – short-term complications admission rate 	<p>Discharges with ICD-9 principal diagnosis code for short-term complications (ketoacidosis, hyperosmolarity, coma) per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of age 18 to 64 years old*.</p> <p>Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, age 18 to 64 years old*.</p> <p>* Rate can also be calculated for age 65 and older.</p>	25
<ul style="list-style-type: none"> ▪ Diabetes – uncontrolled without complications admission rate 	<p>Discharges with ICD-9 principal diagnosis code for uncontrolled diabetes, without mention of a short-term or long-term complication, per 100,000</p>	<p>Population in MSA or county, age 18 to 64 years old*.</p>	26

Indicator	Numerator	Denominator	#
MAY BE COMBINED WITH DIABETES SHORT-TERM COMPLICATIONS AS A SINGLE INDICATOR.	<p>population (see below).</p> <p>All non-maternal/non-neonatal discharges of age 18 to 64 years old*.</p> <p>Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	* Rate can also be calculated for age 65 and older.	
<ul style="list-style-type: none"> ▪ Diabetes – long-term complications admission rate 	<p>Discharges with ICD-9 principal diagnosis code for long-term complications (renal, eye, neurological, circulatory, or complications not otherwise specified) per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of age 18 to 64 years old*.</p> <p>Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, age 18 to 64 years old*.</p> <p>* Rate can also be calculated for age 65 and older.</p>	27
<ul style="list-style-type: none"> ▪ Hypertension admission rate 	<p>Discharges with ICD-9 principal diagnosis code for hypertension per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of age 18 to 64 years old*.</p> <p>Exclude discharges with cardiac procedure codes (see below) in any field. Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, age 18 to 64 years old*.</p> <p>* Rate can also be calculated for age 65 and older.</p>	28
<ul style="list-style-type: none"> ▪ Lower extremity amputation in diabetics admission rate 	<p>Discharges with ICD-9 procedure code for lower extremity amputation (see below) in any field and diagnosis code of diabetes in any field per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of age 18</p>	<p>Population in MSA or county, age 18 to 64 years old*.</p> <p>* Rate can also be calculated for age 65 and older.</p>	29

Indicator	Numerator	Denominator	#
	<p>to 64 years old*.</p> <p>Exclude trauma (see below). Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>		
<ul style="list-style-type: none"> ▪ Low birthweight rate 	<p>Number of births with ICD-9 diagnosis code for less than 2500 grams per 100 births (see below) in any field.</p> <p>Exclude transfer from other institution.</p>	<p>All births (discharges in MDC 15 - newborns and other neonates) in MSA or county.</p>	30
<ul style="list-style-type: none"> ▪ Pediatric asthma admission rate 	<p>Discharges with ICD-9 principal diagnosis code of asthma per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of under age 18.</p> <p>Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, under age 18.</p>	31
<ul style="list-style-type: none"> ▪ Pediatric gastroenteritis admission rate 	<p>Discharges with ICD-9 principal diagnosis code for gastroenteritis per 100,000 population (see below).</p> <p>All non-maternal/non-neonatal discharges of under age 18.</p> <p>Exclude transfer from other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	<p>Population in MSA or county, under age 18.</p>	32
In-hospital Mortality			
<ul style="list-style-type: none"> ▪ Acute myocardial infarction mortality rate 	<p>Number of deaths per 100 discharges with diagnosis code for AMI in any field.</p>	<p>All non-maternal/non-neonatal discharges with diagnosis codes for AMI (see below) in any field, age 18 years and older.</p> <p>Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and</p>	33

Indicator	Numerator	Denominator	#
		puerperium) and MDC 15 (newborns and other neonates).	
<ul style="list-style-type: none"> ▪ Congestive Heart Failure mortality rate 	Number of deaths per 100 discharges with principal diagnosis code for CHF.	<p>All non-maternal/non-neonatal discharges with principal diagnostic code for CHF (see below) , age 18 years and older.</p> <p>Exclude discharges with cardiac procedure codes (see below) in any field Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	34
<ul style="list-style-type: none"> ▪ GI Hemorrhage mortality rate 	Number of deaths per 100 discharges with principal diagnosis code for GI hemorrhage.	<p>All non-maternal/non-neonatal discharges with principal diagnostic code for gastrointestinal hemorrhage (see below), age 18 years and older.</p> <p>Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates)</p>	35
<ul style="list-style-type: none"> ▪ Hip fracture mortality rate 	Number of deaths per 100 discharges with principal diagnosis code for hip fracture.	<p>All non-maternal/non-neonatal discharges with principal diagnostic code for hip fracture (see below) , age 18 years and older.</p> <p>Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	36
<ul style="list-style-type: none"> ▪ Pneumonia mortality rate 	Number of deaths per 100 discharges with principal diagnosis code for pneumonia.	<p>All non-maternal/non-neonatal discharges with principal diagnostic code for pneumonia (see below) , age 18 years and older.</p> <p>Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates)</p>	37
<ul style="list-style-type: none"> ▪ Stroke mortality rate 	Number of deaths per 100 discharges with principal diagnosis code for stroke.	All non-maternal/non-neonatal discharges with principal diagnostic code for stroke (see below) , age 18 years and older.	38

Indicator	Numerator	Denominator	#
		Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates)	
Post-procedural Mortality			
<ul style="list-style-type: none"> ▪ Abdominal aortic artery repair mortality rate 	Number of deaths per 100 discharges with procedure code for AAA repair and diagnosis of AAA in any field.	All non-maternal/non-neonatal discharges with procedure code for AAA repair and diagnosis of AAA (see below) in any field. Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).	39
<ul style="list-style-type: none"> ▪ Coronary Artery Bypass Graft mortality rate 	Number of deaths per 100 discharges with procedure code for CABG in any field. Age 40 years and older.	All non-maternal/non-neonatal discharges with procedure code for CABG (see below) in any field. Age 40 years and older. Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates)	40
<ul style="list-style-type: none"> ▪ Craniotomy mortality rate 	Number of deaths per 100 discharges with DRG code for craniotomy (DRG 001, Craniotomy Age > 17, Except for Trauma).	All non-maternal/non-neonatal discharges with DRG code for craniotomy (DRG 001 Craniotomy Age > 17, Except for Trauma). Exclude transfers to other institution.	41
<ul style="list-style-type: none"> ▪ Esophageal resection mortality rate 	Number of deaths per 100 esophageal cancer discharges with procedure code for esophageal resection for in any field.	All non-maternal/non-neonatal esophageal cancer discharges with procedure code for esophageal resection (see below) in any field. Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).	42
<ul style="list-style-type: none"> ▪ Hip replacement mortality rate 	Number of deaths per 100 discharges with procedure code for partial or full hip replacement in any field.	All non-maternal/non-neonatal discharges with procedure code for partial or full hip replacement. (see below) in any field.	43

Indicator	Numerator	Denominator	#
		<p>Include only discharges with uncomplicated cases: diagnosis or procedure codes for osteoarthritis of hip. (see below) in any field.</p> <p>Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	
<ul style="list-style-type: none"> ▪ Pancreatic resection mortality rate 	<p>Number of deaths per 100 pancreatic cancer discharges with procedure code for pancreatic resection in any field.</p>	<p>All non-maternal/non-neonatal pancreatic cancer discharges with procedure code for pancreatic resection (see below) in any field.</p> <p>Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium) and MDC 15 (newborns and other neonates).</p>	44
<ul style="list-style-type: none"> ▪ Pediatric heart surgery mortality rate 	<p>Number of deaths per 100 discharges with procedure code for pediatric heart surgery in any field.</p>	<p>All non-maternal/non-neonatal discharges less than 18 with procedure code for specified heart surgery (see below) in any field, or for any heart surgery and a diagnosis code for hypoplastic left heart syndrome (see below) in any field.</p> <p>See NOTE for additional exclusions Exclude transfers to other institution. Exclude MDC 14 (pregnancy, childbirth, and puerperium).</p>	45

NOTE (Exclusions for Pediatric Heart Surgery): 1) patients who underwent PDA ligation as a single cardiac procedure (diagnosis code 747.0 and procedure code 38.85); 2) patients with prosthetic closures of atrial septal defects (procedure codes 35.51-52, 35.71) or ventricular septal defects (codes 35.53, 35.72) or atrial septal enlargement (35.41) without concomitant use of cardiopulmonary bypass (code 39.61); 3) patients with PDA closure as single cardiac procedure (procedure code 38.85) with concomitant cardiac catheterization (codes 37.21, 37.22, 37.23, 88.42, 88.43); 4) patients with occlusion of thoracic vessel (procedure code 38.85) without congenital heart defect (diagnosis codes 745.0-747.9).

Indicator	Coding Source
▪ AAA repair volume and mortality rate	CCS Procedure Category #52 Manheim LM, J Vasc Surg 1998; 28:48-58.
▪ Acute myocardial infarction mortality rate	CCS Diagnosis Category #100
▪ Adult asthma admission rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 85)
▪ Angina admission rate	Billings et al, "Analysis of Variation in Hospital Admission Rates Associated with Area Income in New York City," (March, 1992)
▪ Bacterial pneumonia admission rate	Billings et al, "Analysis of Variation in Hospital Admission Rates Associated with Area Income in New York City," (March, 1992)
▪ Bi-lateral catheterization rate	Medicare Quality of Care Report of Surveillance Measures (http://www.hcfa.gov/quality/3d.htm#2).
▪ CABG volume, utilization rate, and mortality rate	CCS Procedure Category #44 (except 36.2, 36.3x)
▪ Carotid Endarterectomy volume and utilization rate	CCS Procedure Category #51
▪ Cesarean section delivery rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 82)
▪ Chronic Obstructive Pulmonary Disease admission rate	CCS Diagnosis Category #127
▪ Congestive Heart Failure admission rate and mortality rate	CCS Diagnosis Category #108
▪ Craniotomy mortality rate	DRG 001, "CRANIOTOMY AGE >17 EXCEPT FOR TRAUMA"
▪ Dehydration admission rate	Billings et al, "Analysis of Variation in Hospital Admission Rates Associated with Area Income in New York City," (March, 1992)
▪ Diabetes – long-term complications admission rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 86)
▪ Diabetes – short-term complications admission rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 86)
▪ Diabetes – uncontrolled without complications admission rate	Healthy People 2010
▪ Esophageal resection volume and mortality rate	Patti MG, Corvera CU, Glasgow RE, Way LW. A hospital's annual rate of esophagectomy influences the operative mortality rate. J Gastrointest Surg. 1998; 2:186-192. Begg CB, Cramer LD, Hoskins WJ, Brennan MF. Impact of hospital volume on operative mortality for major cancer surgery. JAMA. 1998; 280:1747-1751
▪ GI Hemorrhage mortality rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 75)
▪ Hip fracture mortality rate	CCS Diagnosis Category #226
▪ Hip replacement mortality rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 73)
▪ Hypertension admission rate	Billings et al, "Analysis of Variation in Hospital Admission Rates Associated with Area Income in New York City," (March, 1992)
▪ Hysterectomy rate	CCS Procedure Category #124 HCUP-3 QI (AHRQ Pub. No. 98-0035, page 83)
▪ Incidental appendectomy rate (Utilization #5)	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 82)

Indicator	Coding Source
▪ Laminectomy and/or spinal fusion rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 83)
▪ Laparoscopic cholecystectomy rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 84)
▪ Low birthweight rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 84)
▪ Lower extremity amputation in diabetics admission rate	Healthy People 2010
▪ Pancreatic resection volume and mortality rate	<p>Begg CB, Cramer LD, Hoskins WJ, Brennan MF. Impact of hospital volume on operative mortality for major cancer surgery. <i>JAMA</i>. 1998; 280:1747-1751.</p> <p>Glasgow RE, Mulvihill SJ. Hospital volume influences outcome in patients undergoing pancreatic resection for cancer. <i>West J Med</i>. 1996; 165:294-300.</p> <p>Gordon TA, Bowman HM, Tielsch JM, Bass EB, Burleyson GP, Cameron JL. Statewide regionalization of pancreaticoduodenectomy and its effect on in-hospital mortality. <i>Ann Surg</i>. 1998; 228:71-78.</p> <p>Imperato PJ, Nenner RP, Starr HA, Will TO, Rosenberg CR, Dearie MB. The effects of regionalization on clinical outcomes for a high-risk surgical procedure. <i>Am J Med Qual</i>. 1996; 11: 193-197.</p> <p>Lieberman MD, Kilburn H, Lindsey M, Brennan MF. Relation of perioperative deaths to hospital volume among patients undergoing pancreatic resection for malignancy. <i>Ann Surg</i>. 1995;222:638-645.</p>
▪ Pediatric asthma admission rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 85)
▪ Pediatric gastroenteritis admission rate	Billings et al, "Analysis of Variation in Hospital Admission Rates Associated with Area Income in New York City," (March, 1992)
▪ Pediatric heart surgery volume and mortality rate	Jenkins KJ, et al. <i>Pediatrics</i> 1995; 95: 323-330.
▪ Perforated appendix admission rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 87)
▪ Pneumonia mortality rate	CCS Diagnosis Category #122
▪ PTCA volume and utilization rate	CCS Procedure Category #45
▪ Stroke mortality rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 85)
▪ Urinary infection admission rate	Billings et al, "Analysis of Variation in Hospital Admission Rates Associated with Area Income in New York City," (March, 1992)
▪ Vaginal birth after cesarean section (VBAC) rate	HCUP-3 QI (AHRQ Pub. No. 98-0035, page 82)

Volume

AAA repair volume(QI #1)

AAA repair

ICD-9-CM procedure codes:

3834 AORTA RESECTION & ANAST
3844 RESECT ABDOM AORTA W REPL
3864 EXCISION OF AORTA

Include only: AAA

ICD-9-CM diagnosis codes:

4413 RUPT ABD AORTIC ANEURYSM
4414 ABDOM AORTIC ANEURYSM

Carotid endarterectomy volume(QI #2)

Carotid endarterectomy

ICD-9-CM procedure codes:

3812 HEAD & NECK ENDARTER NEC

CABG volume(QI #3)

CABG

ICD-9-CM procedure codes:

3610 AORTOCORONARY BYPASS NOS
3611 AORTOCOR BYPAS-1 COR ART
3612 AORTOCOR BYPAS-2 COR ART
3613 AORTOCOR BYPAS-3 COR ART
3614 AORTOCOR BYPAS-4+ COR ART
3615 INT MAM-COR ART BYPASS
3616 INT MAM-COR ART BYPASS
3617 ABD-CORON ART BYPASS OCT96-
3619 HRT REVAS BYPAS ANAS NEC

Esophageal resection volume(QI #4)

Esophageal resection

ICD-9-CM procedure codes:

4240 ESOPHAGECTOMY NOS
4241 PARTIAL ESOPHAGECTOMY
4242 TOTAL ESOPHAGECTOMY

Include only: Esophageal cancer:

ICD-9-CM diagnosis codes:

1500 MAL NEO CERVICAL ESOPHAG
1501 MAL NEO THORACIC ESOPHAG
1502 MAL NEO ABDOMIN ESOPHAG
1503 MAL NEO UPPER 3RD ESOPH
1504 MAL NEO MIDDLE 3RD ESOPH
1505 MAL NEO LOWER 3RD ESOPH
1508 MAL NEO ESOPHAGUS NEC
1509 MAL NEO ESOPHAGUS NOS

Pancreatic resection volume(QI #5)

Pancreatic resection

ICD-9-CM procedure codes:

526 TOTAL PANCREATECTOMY
527 RAD PANCREATICODUODENECT

Include only: Pancreatic cancer

ICD-9-CM diagnosis codes:

1520 MALIGNANT NEOPL DUODENUM
1561 MAL NEO EXTRAHEPAT DUCTS
1562 MAL NEO AMPULLA OF VATER
1570 MAL NEO PANCREAS HEAD
1571 MAL NEO PANCREAS BODY
1572 MAL NEO PANCREAS TAIL
1573 MAL NEO PANCREATIC DUCT
1574 MAL NEO ISLET LANGERHANS
1578 MALIG NEO PANCREAS NEC
1579 MALIG NEO PANCREAS NOS

Pediatric heart surgery volume(QI #6)

Pediatric heart surgery (#1)

ICD-9-CM procedure codes:

3500 CLOSED VALVOTOMY NOS
3501 CLOSED AORTIC VALVOTOMY
3502 CLOSED MITRAL VALVOTOMY
3503 CLOSED PULMON VALVOTOMY
3504 CLOSED TRICUSP VALVOTOMY
3510 OPEN VALVULOPLASTY NOS
3511 OPN AORTIC VALVULOPLASTY
3512 OPN MITRAL VALVULOPLASTY
3513 OPN PULMON VALVULOPLASTY
3514 OPN TRICUS VALVULOPLASTY
3520 REPLACE HEART VALVE NOS

3521 REPLACE AORT VALV-TISSUE
3522 REPLACE AORTIC VALVE NEC
3523 REPLACE MITR VALV-TISSUE
3524 REPLACE MITRAL VALVE NEC
3525 REPLACE PULM VALV-TISSUE
3526 REPLACE PULMON VALVE NEC
3527 REPLACE TRIC VALV-TISSUE
3528 REPLACE TRICUSP VALV NEC
3531 PAPILLARY MUSCLE OPS
3532 CHORDAE TENDINEAE OPS
3533 ANNULOPLASTY
3534 INFUNDIBULECTOMY
3535 TRABECUL CARNEAE CORD OP
3539 TISS ADJ TO VALV OPS NEC
3542 CREATE SEPTAL DEFECT
3550 PROSTH REP HRT SEPTA NOS
3554 PROS REP ENDOCAR CUSHION
3560 GRFT REPAIR HRT SEPT NOS
3561 GRAFT REPAIR ATRIAL DEF
3562 GRAFT REPAIR VENTRIC DEF
3563 GRFT REP ENDOCAR CUSHION
3570 HEART SEPTA REPAIR NOS
3573 ENDOCAR CUSHION REP NEC
3581 TOT REPAIR TETRAL FALLOT
3582 TOTAL REPAIR OF TAPVC
3583 TOT REP TRUNCUS ARTERIOS
3584 TOT COR TRANSPOS GRT VES OCT88-
3591 INTERAT VEN RETRN TRANSP
3592 CONDUIT RT VENT-PUL ART
3593 CONDUIT LEFT VENTR-AORTA
3594 CONDUIT ARTIUM-PULM ART
3595 HEART REPAIR REVISION
3598 OTHER HEART SEPTA OPS
3599 OTHER OP ON HRT VALVES
3835 THOR VESSEL RESECT/ANAST
3845 RESECT THORAC VES W REPL
390 SYSTEMIC-PULM ART SHUNT
3921 CAVAL-PULMON ART ANASTOM
3959 REPAIR OF VESSEL NEC

Pediatric heart surgery (#1A)

ICD-9-CM procedure codes:

3541 ENLARGE EXISTING SEP DEF#
3551 PROS REP ATRIAL DEF-OPN#
3552 PROS REPAIR ATRIA DEF-CL#
3553 PROST REPAIR VENTRIC DEF#
3571 ATRIA SEPTA DEF REP NEC#
3572 VENTR SEPTA DEF REP NEC#

Include only: Cardiopulmonary Bypass

ICD-9-CM procedure code:
3961 EXTRACORPOREAL CIRCULAT

Pediatric heart surgery (#1B)

ICD-9-CM procedure code:
3885 OCCLUDE THORACIC VES NEC*

Include only: **Congenital heart defect**

ICD-9-CM diagnosis codes:
7450 COMMON TRUNCUS
74510 COMPL TRANSPOS GREAT VES
74511 DOUBLE OUTLET RT VENTRIC
74512 CORRECT TRANSPOS GRT VES
74519 TRANSPOS GREAT VESS NEC
7452 TETRALOGY OF FALLOT
7453 COMMON VENTRICLE
7454 VENTRICULAR SEPT DEFECT
7455 SECUNDUM ATRIAL SEPT DEF
74560 ENDOCARD CUSHION DEF NOS
74561 OSTIUM PRIMUM DEFECT
74569 ENDOCARD CUSHION DEF NEC
7457 COR BILOCULARE
7458 SEPTAL CLOSURE ANOM NEC
7459 SEPTAL CLOSURE ANOM NOS
74600 PULMONARY VALVE ANOM NOS
74601 CONG PULMON VALV ATRESIA
74602 CONG PULMON VALVE STENOS
74609 PULMONARY VALVE ANOM NEC
7461 CONG TRICUSP ATRES/STEN
7462 EBSTEIN'S ANOMALY
7463 CONG AORTA VALV STENOSIS
7464 CONG AORTA VALV INSUFFIC
7465 CONGEN MITRAL STENOSIS
7466 CONG MITRAL INSUFFICIENC
7467 HYOPLAS LEFT HEART SYND
74681 CONG SUBAORTIC STENOSIS
74682 COR TRIATRIATUM
74683 INFUNDIB PULMON STENOSIS
74684 OBSTRUCT HEART ANOM NEC
74685 CORONARY ARTERY ANOMALY
74686 CONGENITAL HEART BLOCK
74687 MALPOSITION OF HEART
74689 CONG HEART ANOMALY NEC
7469 CONG HEART ANOMALY NOS
7470 PATENT DUCTUS ARTERIOSUS

74710 COARCTATION OF AORTA
74711 INTERRUPT OF AORTIC ARCH
74720 CONG ANOM OF AORTA NOS
74721 ANOMALIES OF AORTIC ARCH
74722 AORTIC ATRESIA/STENOSIS
74729 CONG ANOM OF AORTA NEC
7473 PULMONARY ARTERY ANOM
74740 GREAT VEIN ANOMALY NOS
74741 TOT ANOM PULM VEN CONNEN
74742 PART ANOM PULM VEN CONN
74749 GREAT VEIN ANOMALY NEC
7475 UMBILICAL ARTERY ABSENCE
74760 UNSP PRPHERL VASC ANOMAL
74761 GSTRONTEST VESL ANOMALY
74762 RENAL VESSEL ANOMALY
74763 UPR LIMB VESSEL ANOMALY
74764 LWR LIMB VESSEL ANOMALY
74769 OTH SPCF PRPH VSCL ANOML
74781 CEREBROVASCULAR ANOMALY
74782 SPINAL VESSEL ANOMALY
74789 CIRCULATORY ANOMALY NEC
7479 CIRCULATORY ANOMALY NOS

Or

Exclude (if single procedure): **PDA ligation**

ICD-9-CM diagnosis code:
7470 PATENT DUCTUS ARTERIOSUS

Or

Exclude (if single procedure): **Cardiac Catheterization**

ICD-9-CM procedure codes:
3721 RT HEART CARDIAC CATH
3722 LEFT HEART CARDIAC CATH
3723 RT/LEFT HEART CARD CATH
8842 CONTRAST AORTOGRAM
8843 CONTR PULMON ARTERIOGRAM

Pediatric heart surgery (#2)

ICD-9-CM procedure codes:
3500 CLOSED VALVOTOMY NOS
3501 CLOSED AORTIC VALVOTOMY
3502 CLOSED MITRAL VALVOTOMY
3503 CLOSED PULMON VALVOTOMY
3504 CLOSED TRICUSP VALVOTOMY
3510 OPEN VALVULOPLASTY NOS

3511 OPN AORTIC VALVULOPLASTY
3512 OPN MITRAL VALVULOPLASTY
3513 OPN PULMON VALVULOPLASTY
3514 OPN TRICUS VALVULOPLASTY
3520 REPLACE HEART VALVE NOS
3521 REPLACE AORT VALV-TISSUE
3522 REPLACE AORTIC VALVE NEC
3523 REPLACE MITR VALV-TISSUE
3524 REPLACE MITRAL VALVE NEC
3525 REPLACE PULM VALV-TISSUE
3526 REPLACE PULMON VALVE NEC
3527 REPLACE TRIC VALV-TISSUE
3528 REPLACE TRICUSP VALV NEC
3531 PAPPILLARY MUSCLE OPS
3532 CHORDAE TENDINEAE OPS
3533 ANNULOPLASTY
3534 INFUNDIBULECTOMY
3535 TRABECUL CARNEAE CORD OP
3539 TISS ADJ TO VALV OPS NEC
3542 CREATE SEPTAL DEFECT
3550 PROSTH REP HRT SEPTA NOS
3554 PROS REP ENDOCAR CUSHION
3560 GRFT REPAIR HRT SEPT NOS
3561 GRAFT REPAIR ATRIAL DEF
3562 GRAFT REPAIR VENTRIC DEF
3563 GRFT REP ENDOCAR CUSHION
3570 HEART SEPTA REPAIR NOS
3573 ENDOCAR CUSHION REP NEC
3581 TOT REPAIR TETRAL FALLOT
3582 TOTAL REPAIR OF TAPVC
3583 TOT REP TRUNCUS ARTERIOS
3584 TOT COR TRANSPOS GRT VES
3591 INTERAT VEN RETRN TRANSP
3592 CONDUIT RT VENT-PUL ART
3593 CONDUIT LEFT VENTR-AORTA
3594 CONDUIT ARTIUM-PULM ART
3595 HEART REPAIR REVISION
3596 PERC HEART VALVULOPLASTY
3598 OTHER HEART SEPTA OPS
3599 OTHER HEART VALVE OPS
3601 PTCA-1 VES/ATH W/O AGENT
3602 PTCA-1 VES/ATH W AGENT
3603 OPEN CORONRY ANGIOPLASTY
3604 INTRCORONRY THROMB INFUS
3605 PTCA-MULTIPLE VESSEL/ATH
3606 INSERT OF COR ART STENT OCT95-
3609 REM OF COR ART OBSTR NEC
3610 AORTOCORONARY BYPASS NOS
3611 AORTOCOR BYPAS-1 COR ART
3612 AORTOCOR BYPAS-2 COR ART

3613 AORTOCOR BYPAS-3 COR ART
 3614 AORTCOR BYPAS-4+ COR ART
 3615 INT MAM-COR ART BYPASS
 3616 INT MAM-COR ART BYPASS
 3617 ABD-CORON ARTERY BYPASS OCT96-
 3619 HRT REVAS BYPS ANAS NEC
 362 ARTERIAL IMPLANT REVASC
 363 HEART REVASCULARIZAT NEC –OCT98
 3631 OPEN CHEST TRANS REVASC OCT98-
 3632 OTH TRANSMYO REVASCULAR OCT98-
 3639 OTH HEART REVASCULAR OCT98-
 3691 CORON VESS ANEURYSM REP
 3699 HEART VESSEL OP NEC
 370 PERICARDIOCENTESIS
 3710 INCISION OF HEART NOS
 3711 CARDIOTOMY
 3712 PERICARDIOTOMY
 3721 RT HEART CARDIAC CATH
 3722 LEFT HEART CARDIAC CATH
 3723 RT/LEFT HEART CARD CATH
 3724 PERICARDIAL BIOPSY
 3725 CARDIAC BIOPSY
 3726 CARDIAC ELECTROPHY STIM
 3727 CARDIAC MAPPING
 3729 HRT/PERICAR DX PROC NEC
 3731 PERICARDIECTOMY
 3732 HEART ANEURYSM EXCISION
 3733 EXC/DEST OTH HRT LESION
 3734 CATH ABLATION LES HEART
 3735 PARTIAL VENTRICULECTOMY OCT97-
 374 HEART & PERICARD REPAIR
 375 HEART TRANSPLANTATION
 3761 PULSATION BALLOON IMPLAN
 3762 IMPLANT HRT ASST SYS NEC
 3763 REPLACE HRT ASSIST SYST
 3764 REMOVE HEART ASSIST SYS
 3765 IMP EXT PUL HRT ASST SYS OCT95-
 3766 IMP IMP PUL HRT ASST SYS OCT95-
 3767 IMP CARDIOMYOSTIMUL SYS OCT98-
 3770 INT INSERT PACEMAK LEAD
 3771 INT INSERT LEAD IN VENT
 3772 INT INSER LEAD ATRI-VENT
 3773 INT INSER LEAD IN ATRIUM
 3774 INT OR REPL LEAD EPICAR
 3775 REVISION OF LEAD
 3776 REPL TV ATRI-VENT LEAD
 3777 REMOVAL OF LEAD W/O REPL
 3778 INSER TEMP PACEMAKER SYS
 3779 REVIS OR RELOCATE POCKET
 3780 INT OR REPL PERM PACEMKR

3781 INT INSERT 1-CHAM, NON
 3782 INT INSERT 1-CHAM, RATE
 3783 INT INSERT DUAL-CHAM DEV
 3785 REPL PACEM W 1-CHAM, NON
 3786 REPL PACEM 1-CHAM, RATE
 3787 REPL PACEM W DUAL-CHAM
 3789 REVISE OR REMOVE PACEMAK
 3791 OPN CHEST CARDIAC MASSAG
 3792 INJECTION INTO HEART
 3793 INJECTION INTO PERICARD
 3794 IMPLT/REPL CARDDEFIB TOT
 3795 IMPLT CARDIODEFIB LEADS
 3796 IMPLT CARDIODEFIB GENATR
 3797 REPL CARDIODEFIB LEADS
 3798 REPL CARDIODEFIB GENRATR
 3799 OTHER HEART/PERICARD OPS

Include only: Hypoplastic left heart syndrome:

ICD-9-CM diagnosis code:
 7467 HYPOPLAS LEFT HEART SYND

PTCA Volume(QI #7)

PTCA

ICD-9-CM procedure codes:
 3601 PTCA-1 VESSEL W/O AGENT
 3602 PTCA-1 VESSEL WITH AGNT
 3605 PTCA-MULTIPLE VESSEL
 3606 INSERT OF COR ART STENT OCT95-

Utilization – Provider level

Cesarean section delivery(QI #8)

Cesarean section deliveries (Outcome of Interest):

DRGs:
 370 Cesarean section w/CC
 371 Cesarean section w/o CC

All deliveries (Population at Risk):

DRGs:
 370 CESAREAN SECTION W CC
 371 CESAREAN SECTION W/O CC
 372 VAGINAL DELIVERY W COMPL
 373 VAG DELIVERY W/O COMPL
 374 VAG DELIV W STERIL OR DC

375 VAG DELIV W OTH OR PROC

Incidental appendectomy among elderly(QI #9)

Incidental appendectomy (Outcome of Interest):

ICD-9-CM procedure codes:
 471 INCIDENTAL APPENDECTOMY -OCT96
 4711 LAP INCID APPENDECTOMY OCT96-
 4719 OTHER INCID APPENDECTOMY OCT96-

Intra-abdominal procedure (Population at Risk):

DRGs:
 146 RECTAL RESECTION W CC
 147 RECTAL RESECTION W/O CC
 148 MAJ BOWEL PROC W CC
 149 MAJ BOWEL PROC W/O CC
 150 PERITONEAL ADHES W CC
 151 PERITONEAL ADHES W/O CC
 152 MIN BOWEL PROC W CC
 153 MIN BOWEL PROC W/O CC
 154 UGI PROC AGE >17 W CC
 155 UGI PROC AGE >17 W/O CC
 170 OTH GI OR PROC W CC
 171 OTH GI OR PROC W/O CC
 191 PANC LVR SHNT PRC W CC
 192 PANC LVR SHNT PRC W/O CC
 193 BILIARY PROC W/ CC
 194 BILIARY PROC W/O CC
 195 CHOLE W/ CDE W/ CC
 196 CHOLE W/ CDE W/O CC
 197 CHOLE W/ CC
 198 CHOLE W/O CC
 201 OTH BILIARY/PANC PROC
 354 UTER PROC MALIG W/ CC
 355 UTER PROC MALIG W/O CC
 356 FEMALE REPROD RECONSTR
 357 UTER PROC OVARIAN MALIG
 358 UTER PROC NONMALIG W/ CC
 359 UTER PROC NONMALI W/O CC
 365 OTH FEMAL REPROD PROC

Bilateral cardiac catheterization(QI #10)

Bilateral catheterization (Outcome of interest)

ICD-9-CM procedure code:
 3723 RT/LEFT HEART CARD CATH

Catheterization (Population at risk)

ICD-9-CM procedure codes:

3722 LEFT HEART CARDIAC CATH
3723 RT/LEFT HEART CARD CATH*Include only: Coronary artery disease*

ICD-9-CM diagnosis codes:

41000 AMI ANTEROLATERAL, UNSPEC
41001 AMI ANTEROLATERAL, INIT
41002 AMI ANTEROLATERAL, SUBSEQ
41010 AMI ANTERIOR WALL, UNSPEC
41011 AMI ANTERIOR WALL, INIT
41012 AMI ANTERIOR WALL, SUBSEQ
41020 AMI INFEROLATERAL, UNSPEC
41021 AMI INFEROLATERAL, INIT
41022 AMI INFEROLATERAL, SUBSEQ
41030 AMI INFEROPOST, UNSPEC
41031 AMI INFEROPOST, INITIAL
41032 AMI INFEROPOST, SUBSEQ
41040 AMI INFERIOR WALL, UNSPEC
41041 AMI INFERIOR WALL, INIT
41042 AMI INFERIOR WALL, SUBSEQ
41050 AMI LATERAL NEC, UNSPEC
41051 AMI LATERAL NEC, INITIAL
41052 AMI LATERAL NEC, SUBSEQ
41060 TRUE POST INFARCT, UNSPEC
41061 TRUE POST INFARCT, INIT
41062 TRUE POST INFARCT, SUBSEQ
41070 SUBENDO INFARCT, UNSPEC
41071 SUBENDO INFARCT, INITIAL
41072 SUBENDO INFARCT, SUBSEQ
41080 AMI NEC, UNSPECIFIED
41081 AMI NEC, INITIAL
41082 AMI NEC, SUBSEQUENT
41090 AMI NOS, UNSPECIFIED
41091 AMI NOS, INITIAL
41092 AMI NOS, SUBSEQUENT
4110 POST MI SYNDROME
4111 INTERMED CORONARY SYND
41181 CORONARY OCCLSN W/O MI
41189 AC ISCHEMIC HRT DIS NEC
412 OLD MYOCARDIAL INFARCT
4130 ANGINA DECUBITUS
4131 PRINZMETAL ANGINA
4139 ANGINA PECTORIS NEC/NOS
4140 CORONARY ATHEROSCLEROSIS -OCT94
41400 COR ATH UNSP VSL NTV/GFT OCT94-
41401 CRNRY ATHRSCL NATVE VSSL OCT94-41402 CRN ATH ATLG VN BPS GRFT OCT94-
41403 CRN ATH NONATLG BLG GRFT OCT94-
41404 COR ATH ARTRY BYPAS GRFT OCT96-
41405 COR ATH BYPASS GRAFT NOS OCT96-
41410 ANEURYSM, HEART (WALL)
41411 CORONARY VESSEL ANEURYSM
41419 ANEURYSM OF HEART NEC
4148 CHR ISCHEMIC HRT DIS NEC
4149 CHR ISCHEMIC HRT DIS NOS**Excludes: Possible indications for right cath**

ICD-9-CM diagnosis codes:

3910 ACUTE RHEUMATIC PERICARD
3911 ACUTE RHEUMATIC ENDOCARD
3912 AC RHEUMATIC MYOCARDITIS
3918 AC RHEUMAT HRT DIS NEC
3919 AC RHEUMAT HRT DIS NOS
3920 RHEUM CHOREA W HRT INVOL
3929 RHEUMATIC CHOREA NOS
393 CHR RHEUMATIC PERICARD
3940 MITRAL STENOSIS
3941 RHEUMATIC MITRAL INSUFF
3942 MITRAL STENOSIS W INSUFF
3949 MITRAL VALVE DIS NEC/NOS
3960 MITRAL/AORTIC STENOSIS
3961 MITRAL STENOS/AORT INSUF
3962 MITRAL INSUF/AORT STENOS
3963 MITRAL/AORTIC VAL INSUFF
3968 MITR/AORTIC MULT INVOLV
3969 MITRAL/AORTIC V DIS NOS
3970 TRICUSPID VALVE DISEASE
3971 RHEUM PULMON VALVE DIS
3979 RHEUM ENDOCARDITIS NOS
3980 RHEUMATIC MYOCARDITIS
39890 RHEUMATIC HEART DIS NOS
39891 RHEUMATIC HEART FAILURE
39899 RHEUMATIC HEART DIS NEC
40200 MAL HYPERTEN HRT DIS NOS
40201 MAL HYPERT HRT DIS W CHF
40210 BEN HYPERTEN HRT DIS NOS
40211 BENIGN HYP HRT DIS W CHF
40290 HYPERTENSIVE HRT DIS NOS
40291 HYPERTEN HEART DIS W CHF
4150 ACUTE COR PULMONALE
4151 PULMON EMBOLISM/INFARCT -OCT95
41511 IATROGEN PULM EMB/INFARC OCT95-
41519 PULM EMBOL/INFARCT NEC OCT95-
4160 PRIM PULM HYPERTENSION
4161 KYPHOSCOLIOTIC HEART DIS4168 CHR PULMON HEART DIS NEC
4169 CHR PULMON HEART DIS NOS
4170 ARTERIOVEN FISTU PUL VES
4171 PULMON ARTERY ANEURYSM
4178 PULMON CIRCULAT DIS NEC
4179 PULMON CIRCULAT DIS NOS
4242 NONRHEUM TRICUSP VAL DIS
4243 PULMONARY VALVE DISORDER
7450 COMMON TRUNCUS
74510 COMPL TRANSPOS GREAT VES
74511 DOUBLE OUTLET RT VENTRIC
74512 CORRECT TRANSPOS GRT VES
74519 TRANSPOS GREAT VESS NEC
7452 TETRALOGY OF FALLOT
7453 COMMON VENTRICLE
7454 VENTRICULAR SEPT DEFECT
7455 SECUNDUM ATRIAL SEPT DEF
74560 ENDOCARD CUSHION DEF NOS
74561 OSTIUM PRIMUM DEFECT
74569 ENDOCARD CUSHION DEF NEC
7457 COR BILOCULARE
7458 SEPTAL CLOSURE ANOM NEC
7459 SEPTAL CLOSURE ANOM NOS
74600 PULMONARY VALVE ANOM NOS
74601 CONG PULMON VALV ATRESIA
74602 CONG PULMON VALVE STENOS
74609 PULMONARY VALVE ANOM NEC
7461 CONG TRICUSP ATRES/STEN
7462 EBSSTEIN'S ANOMALY
7463 CONG AORTA VALV STENOSIS
7464 CONG AORTA VALV INSUFFIC
7465 CONGEN MITRAL STENOSIS
7466 CONG MITRAL INSUFFICIENC
7467 HYPOPLAS LEFT HEART SYND
74681 CONG SUBAORTIC STENOSIS
74682 COR TRIATRIATUM
74683 INFUNDIB PULMON STENOSIS
74684 OBSTRUCT HEART ANOM NEC
74685 CORONARY ARTERY ANOMALY
74686 CONGENITAL HEART BLOCK
74687 MALPOSITION OF HEART
74689 CONG HEART ANOMALY NEC
7469 CONG HEART ANOMALY NOS
7470 PATENT DUCTUS ARTERIOSUS
74710 COARCTATION OF AORTA
74711 INTERRUPT OF AORTIC ARCH
74720 CONG ANOM OF AORTA NOS
74721 ANOMALIES OF AORTIC ARCH
74722 AORTIC ATRESIA/STENOSIS
74729 CONG ANOM OF AORTA NEC

7473 PULMONARY ARTERY ANOM
 74740 GREAT VEIN ANOMALY NOS
 74741 TOT ANOM PULM VEN CONNEC
 74742 PART ANOM PULM VEN CONN
 74749 GREAT VEIN ANOMALY NEC
 7475 UMBILICAL ARTERY ABSENCE
 74760 UNSP PRPHERL VASC ANOMAL
 74761 GSTRONTEST VESL ANOMALY
 74762 RENAL VESSEL ANOMALY
 74763 UPR LIMB VESSEL ANOMALY
 74764 LWR LIMB VESSEL ANOMALY
 74769 OTH SPCF PRPH VSCL ANOML
 74781 CEREBROVASCULAR ANOMALY
 74782 SPINAL VESSEL ANOMALY
 74789 CIRCULATORY ANOMALY NEC
 7479 CIRCULATORY ANOMALY NOS

**Successful vaginal birth after cesarean section (VBAC)
 (QI #11)**

Vaginal deliveries (Outcome of Interest):

DRGs:
 372 VAGINAL DELIVERY W/ CC
 373 VAGINAL DELIVERY W/O CC
 374 VAGINAL DELIVERY W/ STERILIZATION
 OR D&C
 375 VAGINAL DELIVERY W/ OTHER O.R.
 PROCEDURE

All deliveries (Population at Risk):

DRGs:
 370 CESAREAN SECTION W CC
 371 CESAREAN SECTION W/O CC
 372 VAGINAL DELIVERY W COMPL
 373 VAG DELIVERY W/O COMPL
 374 VAG DELIV W STERIL OR DC
 375 VAG DELIV W OTH OR PROC

Previous C-section (Population at Risk):

ICD-9-CM diagnosis codes:
 65420 PREV C-SECT NOS-UNSPEC
 65421 PREV C-SECT NOS-DELIVER
 65423 PREV C-SECT NOS-ANTEPART

Laparoscopic cholecystectomy rate(QI #12)

Laparoscopic cholecystectomy (Outcome of Interest):

ICD-9-CM Procedure Code:
 5123 LAPAROSCOPIC CHOLE

Cholecystectomy (Population at Risk):

ICD-9-CM Procedure Codes:
 5122 CHOLECYSTECTOMY
 5123 LAPAROSCOPIC CHOLE

**Include Only: Uncomplicated cholecystitis and/or
 cholelithiasis:**

ICD-9-CM diagnosis Codes:
 57400 CHOLELITH W/ AC CHOLECYS
 57401 CHOLELITH W/ AC CHOLECYS
 57410 CHOLELITH W CHOLECYS NEC
 57411 CHOLELITH W CHOLECYS NEC
 57420 CHOLELITH NOS W/O OBSTRUC
 57421 CHOLELITH NOS W/ OBSTRUC
 5750 ACUTE CHOLECYSTITIS
 5751 CHOLECYSTITIS NEC -OCT96
 57510 CHOLECYSTITIS NOS OCT96-
 57511 CHRONIC CHOLECYSTITIS OCT96-
 57512 ACUTE & CHR CHOLECYSTITIS OCT96-

Utilization – Area level

CABG rate(QI #13)

CABG

ICD-9-CM procedure codes:
 3610 AORTOCORONARY BYPASS NOS
 3611 AORTOCOR BYPAS-1 COR ART
 3612 AORTOCOR BYPAS-2 COR ART
 3613 AORTOCOR BYPAS-3 COR ART
 3614 AORTCOR BYPAS-4+ COR ART
 3615 1 INT MAM-COR ART BYPASS
 3616 2 INT MAM-COR ART BYPASS
 3617 ABD-CORON ART BYPASS OCT96-
 3619 HRT REVAS BYPS ANAS NEC

Hysterectomy rate(QI #14)

Hysterectomy

ICD-9-CM Procedure Codes:
 683 SUBTOT ABD HYSTERECTOMY
 684 TOTAL ABD HYSTERECTOMY
 685 VAGINAL HYSTERECTOMY -OCT96
 6851 LAP AST VAG HYSTERECTOMY OCT96-
 6859 OTHER VAG HYSTERECTOMY OCT96-
 686 RADICAL ABD HYSTERECTOMY
 687 RADICAL VAG HYSTERECTOMY
 689 OTHER/UNSP HYSTERECTOMY

Exclude: Female genital cancer:

ICD-9-CM Diagnosis Codes:
 179 MALIG NEOPL UTERUS NOS
 1800 MALIG NEO ENDOCERVIX
 1801 MALIG NEO EXOCERVIX
 1808 MALIG NEO CERVIX NEC
 1809 MAL NEO CERVIX UTERI NOS
 181 MALIGNANT NEOPL PLACENTA
 1820 MALIG NEO CORPUS UTERI
 1821 MAL NEO UTERINE ISTHMUS
 1828 MAL NEO BODY UTERUS NEC
 1830 MALIGN NEOPL OVARY
 1832 MAL NEO FALLOPIAN TUBE
 1833 MAL NEO BROAD LIGAMENT
 1834 MALIG NEO PARAMETRIUM
 1835 MAL NEO ROUND LIGAMENT
 1838 MAL NEO ADNEXA NEC
 1839 MAL NEO ADNEXA NOS
 1840 MALIGN NEOPL VAGINA
 1841 MAL NEO LABIA MAJORA
 1842 MAL NEO LABIA MINORA
 1843 MALIGN NEOPL CLITORIS
 1844 MALIGN NEOPL VULVA NOS
 1848 MAL NEO FEMALE GENIT NEC
 1849 MAL NEO FEMALE GENIT NOS
 2331 CA IN SITU CERVIX UTERI
 2332 CA IN SITU UTERUS NEC
 2333 CA IN SITU FEM GEN NEC
 2360 UNCERT BEHAV NEO UTERUS
 2361 UNC BEHAV NEO PLACENTA
 2362 UNC BEHAV NEO OVARY
 2363 UNC BEHAV NEO FEMALE NEC

Exclude: Pelvic or lower abdominal trauma:

ICD-9-CM Diagnosis Codes:

8674	UTERUS INJURY-CLOSED
8675	UTERUS INJURY-OPEN
8676	PELVIC ORGAN INJ NEC-CL
8677	PELVIC ORGAN INJ NEC-OPN
8678	PELVIC ORGAN INJ NOS-CL
8679	PELVIC ORGAN INJ NOS-OPN
86800	INTRA-ABDOM INJ NOS-CLOS
86803	PERITONEUM INJURY-CLOSED
86804	RETROPERITONEUM INJ-CL
86809	INTRA-ABDOM INJ NEC-CLOS
86810	INTRA-ABDOM INJ NOS-OPEN
86813	PERITONEUM INJURY-OPEN
86814	RETROPERITONEUM INJ-OPEN
86819	INTRA-ABDOM INJ NEC-OPEN
8690	INTERNAL INJ NOS-CLOSED
8691	INTERNAL INJURY NOS-OPEN
8796	OPEN WOUND OF TRUNK NEC
8797	OPEN WND TRUNK NEC-COMPL
8798	OPEN WOUND SITE NOS
8799	OPN WOUND SITE NOS-COMPL
9060	LT EFF OPN WND HEAD/TRNK
9081	LATE EFF INT INJ ABDOMEN
9082	LATE EFF INT INJURY NEC
9391	FOREIGN BODY UTERUS
9474	BURN OF VAGINA & UTERUS

Laminectomy and/or spinal fusion rate(QI #15)

Laminectomy and/or spinal fusion:

ICD-9-CM Procedure Codes:

0302	REOPEN LAMINECTOMY SITE
0309	SPINAL CANAL EXPLOR NEC
8050	EXC/DEST INTVRT DISC NOS
8051	EXCISION INTERVERT DISC
8059	OTH EXC/DEST INTVRT DISC
8100	SPINAL FUSION NOS
8101	ATLAS-AXIS FUSION
8102	OTH CERV FUSION, ANTER
8103	OTH CERV FUSION, POSTER
8104	DORSAL FUSION, ANTERIOR
8105	DORSAL FUSION, POSTERIOR
8106	LUMBAR FUSION, ANTERIOR
8107	LUMBAR FUSION, LATERAL
8108	LUMBAR FUSION, POSTERIOR
8109	REFUSION OF SPINE

PTCA rate(QI #16)

PTCA

ICD-9-CM procedure codes:

3601	PTCA-1 VESSEL W/O AGENT
3602	PTCA-1 VESSEL WITH AGENT
3605	PTCA-MULTIPLE VESSEL
3606	INSERT OF COR ART STENT

ACSC Area rates

Dehydration rate(QI #17)

Dehydration

ICD-9-CM diagnosis code:

2765	HYPOVOLEMIA
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Bacterial pneumonia rate(QI #18)

Bacterial pneumonia

ICD-9-CM diagnosis codes:

481	PNEUMOCOCCAL PNEUMONIA
4822	H.INFLUENZAE PNEUMONIA
48230	STREP PNEUMONIA UNSPEC
48231	GRP A STREP PNEUMONIA
48232	GRP B STREP PNEUMONIA
48239	OTH STREP PNEUMONIA
4829	BACTERIAL PNEUMONIA NOS
4830	MYCOPLASMA PNEUMONIA
4831	CHLAMYDIA PNEUMONIA OCT96-
4838	OTH SPEC ORG PNEUMONIA
485	BRONCOPNEUMONIA ORG NOS
486	PNEUMONIA, ORGANISM NOS

Exclude: Sickle cell anemia, HB disease

ICD-9-CM diagnosis codes:

28260	SICKLE-CELL ANEMIA NOS
28261	HB-S DISEASE W/O CRISIS
28262	HB-S DISEASE WITH CRISIS
28263	SICKLE-CELL/HB-C DISEASE
28269	SICKLE-CELL ANEMIA NEC

Urinary infection rate(QI #19)

Urinary infection

ICD-9-CM diagnosis codes:

59000	CHR PYELONEPHRITIS NOS
59001	CHR PYELONEPH W MED NECR
59010	AC PYELONEPHRITIS NOS
59011	AC PYELONEPHR W MED NECR
5902	RENAL/PERIRENAL ABSCESS
5903	PYELOURETERITIS CYSTICA
59080	PYELONEPHRITIS NOS
59081	PYELONEPHRIT IN OTH DIS
5909	INFECTION OF KIDNEY NOS
5950	AC CYSTITIS
5959	CYSTITIS NOS
5990	URIN TRACT INFECTION NOS

Perforated appendix rate(QI #20)

Perforated appendix (outcome of interest)

ICD-9-CM diagnosis codes:

5400	AC APPEND W PERITONITIS
5401	ABSCESS OF APPENDIX

Appendicitis (population at risk)

ICD-9-CM diagnosis codes:

5400	AC APPEND W PERITONITIS
5401	ABSCESS OF APPENDIX
5409	ACUTE APPENDICITIS NOS
541	APPENDICITIS NOS

Angina (w/o procedure) rate(QI #21)

Angina

ICD-9-CM diagnosis codes:

4111	INTERMED CORONARY SYND
41181	CORONARY OCCLSN W/O MI
41189	AC ISCHEMIC HRT DIS NEC
4130	ANGINA DECUBITUS
4131	PRINZMETAL ANGINA
4139	ANGINA PECTORIS NEC/NOS

Exclude: All procedures:

(01.0-86.99)

Adult asthma rate(QI #22)

Adult asthma

ICD-9-CM diagnosis codes:

49300 EXT ASTHMA W/O STAT ASTH
 49301 EXT ASTHMA W STATUS ASTH
 49302 EXT ASTHMA W STATUS ACEX OCT00-
 49310 INT ASTHMA W/O STAT ASTH
 49311 INT ASTHMA W STATUS ASTH
 49312 INT ASTHMA W STATUS ACEX OCT00-
 49320 CH OB ASTH W/O STAT ASTH
 49321 CH OB ASTHMA W STAT ASTH
 49322 CH OB ASTHMA W STAT ACEX OCT00-
 49390 ASTHMA W/O STATUS ASTHM
 49391 ASTHMA W STATUS ASTHMAT
 49392 ASTHMA W STATUS AC EXAC OCT00-

COPD rate(QI #23)

COPD

ICD-9-CM diagnosis codes:

4660 AC BRONCHITIS*
 490 BRONCHITIS NOS*
 4910 SIMPLE CHR BRONCHITIS
 4911 MUCOPURUL CHR BRONCHITIS
 49120 OBS CHR BRNC W/O ACT EXA
 49121 OBS CHR BRNC W ACT EXA
 4918 CHRONIC BRONCHITIS NEC
 4919 CHRONIC BRONCHITIS NOS
 4920 EMPHYSEMATOUS BLEB
 4928 EMPHYSEMA NEC
 494 BRONCHIECTASIS -OCT00
 4940 BRONCHIECTAS W/O AC EXAC OCT00-
 4941 BRONCHIECTASIS W AC EXAC OCT00-
 496 CHR AIRWAY OBSTRUCT NEC

* Qualifies only if accompanied by secondary diagnosis of 491.xx, 492.x, 494, or 496 (i.e., any other code on this list).

Congestive heart failure rate(QI #24)

CHF

ICD-9-CM diagnosis codes:

39891 RHEUMATIC HEART FAILURE
 40201 MAL HYPERT HRT DIS W CHF
 40211 BENIGN HYP HRT DIS W CHF
 40291 HYPERTEN HEART DIS W CHF
 40401 MAL HYPER HRT/REN W CHF
 40403 MAL HYP HRT/REN W CHF&RF
 40411 BEN HYPER HRT/REN W CHF
 40413 BEN HYP HRT/REN W CHF&RF

40491 HYPER HRT/REN NOS W CHF
 40493 HYP HT/REN NOS W CHF&RF
 4280 CONGESTIVE HEART FAILURE
 4281 LEFT HEART FAILURE
 4289 HEART FAILURE NOS

Exclude: Cardiac procedures:

ICD-9-CM procedure codes:

3601 PTCA-1 VESSEL W/O AGENT
 3602 PTCA-1 VESSEL WITH AGENT
 3605 PTCA-MULTIPLE VESSEL
 3606 INSERT CORONARY ART STENT OCT95-
 3610 AORTOCORONARY BYPASS NOS
 3611 AORTOCOR BYPAS-1 COR ART
 3612 AORTOCOR BYPAS-2 COR ART
 3613 AORTOCOR BYPAS-3 COR ART
 3614 AORTCOR BYPAS-4+ COR ART
 3615 1 INT MAM-COR ART BYPASS
 3616 2 INT MAM-COR ART BYPASS
 3617 ABD-CORON ART BYPASS OCT96-
 3619 HRT REVAS BYPS ANAS NEC
 375 HEART TRANSPLANTATION
 3770 INT INSERT PACEMAK LEAD
 3771 INT INSERT LEAD IN VENT
 3772 INT INSER LEAD ATRI-VENT
 3773 INT INSER LEAD IN ATRIUM
 3774 INT OR REPL LEAD EPICAR
 3775 REVISION OF LEAD
 3776 REPL TV ATRI-VENT LEAD
 3777 REMOVAL OF LEAD W/O REPL
 3778 INSER TEMP PACEMAKER SYS
 3779 REVIS OR RELOCATE POCKET

Diabetes – short-term complications rate(QI #25)

Diabetes with short-term complications

ICD-9-CM Diagnosis Codes:

25010 DM KETO T2, DM CONT
 25011 DM KETO T1, DM CONT
 25012 DM KETO T2, DM UNCONT
 25013 DM KETO T1, DM UNCONT
 25020 DM W/ HYPROSM T2, DM CONT
 25021 DM W/ HYPROSM T1, DM CONT
 25022 DM W/ HYPROSM T2, DM UNCNT
 25023 DM W/ HYPROSM T1, DM UNCNT
 25030 DM COMA NEC TYP II, DM CNT
 25031 DM COMA NEC T1, DM CONT
 25032 DM COMA NEC T2, DM UNCONT

25033 DM COMA NEC T1, DM UNCONT

Diabetes – uncontrolled (without short-term or long-term complications) admission rate (QI #26)

Uncontrolled diabetes

ICD-9-CM Diagnosis Codes:

25002 DM, T2, UNCONT
 25003 DM, T1, UNCONT

Diabetes – long-term complications rate(QI #27)

Diabetes with long term-complications

ICD-9-CM Diagnosis Codes:

25040 DM RENAL COMP T2 CONT
 25041 DM RENAL COMP T1 CONT
 25042 DM RENAL COMP T2 UNCNT
 25043 DM RENAL COMP T1 UNCNT
 25050 DM EYE COMP T2 CONT
 25051 DM EYE COMP T1 CONT
 25052 DM EYE COMP T2 UNCNT
 25053 DM EYE COMP T1 UNCNT
 25060 DM NEURO COMP T2 CONT
 25061 DM NEURO COMP T1 CONT
 25062 DM NEURO COMP T2 UNCNT
 25063 DM NEURO COMP T1 UNCNT
 25070 DM CIRCUS DIS T2 CONT
 25071 DM CIRCUS DIS T1 CONT
 25072 DM CIRCUS DIS T2 UNCNT
 25073 DM CIRCUS DIS T1 UNCNT
 25080 DM W COMP NEC T2 CONT
 25081 DM W COMP NEC T1 CONT
 25082 DM W COMP NEC T2 UNCNT
 25083 DM W COMP NEC T1 UNCNT
 25090 DM W COMPL NOS T2 CONT
 25091 DM W COMPL NOS T1 CONT
 25092 DM W COMPL NOS T2 UNCNT
 25093 DM W COMPL NOS T1 UNCNT

Hypertension rate(QI #28)

Hypertension

ICD-9-CM diagnosis codes:

4010 MALIGNANT HYPERTENSION
 4019 HYPERTENSION NOS
 40200 MAL HYPERTEN HRT DIS W/OUT CHF
 40210 BEN HYPERTEN HRT DIS W/OUT CHF

40290 HYPERTENSIVE HRT DIS W/OUT CHF
 40300 MAL HYPERT HRT DIS W/OUT RF
 40310 BENIGN HYP HRT DIS W/OUT RF
 40390 HYPERTEN HEART DIS W/OUT RF
 40400 MAL HYPER HRT/REN W/OUT CHF/RF
 40410 BEN HYPER HRT/REN W/OUT CHF/RF
 40490 HYPER HRT/REN NOS W/OUT CHF/RF

Exclude: Cardiac procedures:

ICD-9-CM procedure codes:

3601 PTCA-1 VESSEL W/O AGENT
 3602 PTCA-1 VESSEL WITH AGENT
 3605 PTCA-MULTIPLE VESSEL-
 3606 INSERT CORONARY ART STENT OCT95-
 3610 AORTOCORONARY BYPASS NOS
 3611 AORTOCOR BYPAS-1 COR ART
 3612 AORTOCOR BYPAS-2 COR ART
 3613 AORTOCOR BYPAS-3 COR ART
 3614 AORTCOR BYPAS-4+ COR ART
 3615 1 INT MAM-COR ART BYPASS
 3616 2 INT MAM-COR ART BYPASS
 3617 ABD-CORON ART BYPASS OCT96-
 3619 HRT REVAS BYPS ANAS NEC
 375 HEART TRANSPLANTATION
 3770 INT INSERT PACEMAK LEAD
 3771 INT INSERT LEAD IN VENT
 3772 INT INSER LEAD ATRI-VENT
 3773 INT INSER LEAD IN ATRIUM
 3774 INT OR REPL LEAD EPICAR
 3775 REVISION OF LEAD
 3776 REPL TV ATRI-VENT LEAD
 3777 REMOVAL OF LEAD W/O REPL
 3778 INSER TEMP PACEMAKER SYS
 3779 REVIS OR RELOCATE POCKET

Lower extremity amputation rate(QI #29)

Lower extremity amputation

ICD-9-CM procedure codes:

8410 LOWER LIMB AMPUTAT NOS
 8411 TOE AMPUTATION
 8412 AMPUTATION THROUGH FOOT
 8413 DISARTICULATION OF ANKLE
 8414 AMPUTAT THROUGH MALLEOLI
 8415 BELOW KNEE AMPUTAT NEC
 8416 DISARTICULATION OF KNEE
 8417 ABOVE KNEE AMPUTATION
 8418 DISARTICULATION OF HIP

8419 HINDQUARTER AMPUTATION

Include only: Diabetes

ICD-9-CM diagnosis codes:

25000 DMII WO CMP NT ST UNCINTR
 25001 DMI WO CMP NT ST UNCINTRL
 25002 DMII WO CMP UNCINTRLD
 25003 DMI WO CMP UNCINTRLD
 25010 DMII KETO NT ST UNCINTRLD
 25011 DMI KETO NT ST UNCINTRLD
 25012 DMII KETOACD UNCONTROLD
 25013 DMI KETOACD UNCONTROLD
 25020 DMII HPRSM NT ST UNCINTRL
 25021 DMI HPRSM NT ST UNCINTRLD
 25022 DMII HPROSMR UNCONTROLD
 25023 DMI HPROSMR UNCONTROLD
 25030 DMII O CM NT ST UNCINTRLD
 25031 DMI O CM NT ST UNCINTRLD
 25032 DMII OTH COMA UNCONTROLD
 25033 DMI OTH COMA UNCONTROLD
 25040 DMII RENL NT ST UNCINTRLD
 25041 DMI RENL NT ST UNCINTRLD
 25042 DMII RENAL UNCINTRLD
 25043 DMI RENAL UNCINTRLD
 25050 DMII OPHTH NT ST UNCINTRL
 25051 DMI OPHTH NT ST UNCINTRLD
 25052 DMII OPHTH UNCINTRLD
 25053 DMI OPHTH UNCINTRLD
 25060 DMII NEURO NT ST UNCINTRL
 25061 DMI NEURO NT ST UNCINTRLD
 25062 DMII NEURO UNCINTRLD
 25063 DMI NEURO UNCINTRLD
 25070 DMII CIRC NT ST UNCINTRLD
 25071 DMI CIRC NT ST UNCINTRLD
 25072 DMII CIRC UNCINTRLD
 25073 DMI CIRC UNCINTRLD
 25080 DMII OTH NT ST UNCINTRLD
 25081 DMI OTH NT ST UNCINTRLD
 25082 DMII OTH UNCINTRLD
 25083 DMI OTH UNCINTRLD
 25090 DMII UNSPF NT ST UNCINTRL
 25091 DMI UNSPF NT ST UNCINTRLD
 25092 DMII UNSPF UNCINTRLD
 25093 DMI UNSPF UNCINTRLD

Exclude: Trauma

ICD-9-CM diagnosis codes:

8950 AMPUTATION TOE

8951 AMPUTATION TOE-COMPLICAT
 8960 AMPUTATION FOOT, UNILAT
 8961 AMPUT FOOT, UNILAT-COMPL
 8962 AMPUTATION FOOT, BILAT
 8963 AMPUTAT FOOT, BILAT-COMPL
 8970 AMPUT BELOW KNEE, UNILAT
 8971 AMPUTAT BK, UNILAT-COMPL
 8972 AMPUT ABOVE KNEE, UNILAT
 8973 AMPUT ABV KN, UNIL-COMPL
 8974 AMPUTAT LEG, UNILAT NOS
 8975 AMPUT LEG, UNIL NOS-COMPL
 8976 AMPUTATION LEG, BILAT
 8977 AMPUTAT LEG, BILAT-COMPL

Low birthweight rate(QI #30)

Low birthweight (Outcome of interest)

ICD-9-CM diagnosis codes:

76400 LIGHT-FOR-DATES WTNOS
 76401 LIGHT-FOR-DATES <500G
 76402 LT-FOR-DATES 500-749G
 76403 LT-FOR-DATES 750-999G
 76404 LT-FOR-DATES 1000-1249G
 76405 LT-FOR-DATES 1250-1499G
 76406 LT-FOR-DATES 1500-1749G
 76407 LT-FOR-DATES 1750-1999G
 76408 LT-FOR-DATES 2000-2499G
 76410 LT-FOR-DATE W/MAL WTNOS
 76411 LT-FOR-DATE W/MAL <500G
 76412 LT-DATE W/MAL 500-749G
 76413 LT-DATE W/MAL 750-999G
 76414 LT-DATE W/MAL 1000-1249G
 76415 LT-DATE W/MAL 1250-1499G
 76416 LT-DATE W/MAL 1500-1749G
 76417 LT-DATE W/MAL 1750-1999G
 76418 LT-DATE W/MAL 2000-2499G
 76420 FETAL MALNUTRITION WTNOS
 76421 FETAL MALNUTRITION <500G
 76422 FETAL MALNUTR 500-749G
 76423 FETAL MAL 750-999G
 76424 FETAL MAL 1000-1249G
 76425 FETAL MAL 1250-1499G
 76426 FETAL MAL 1500-1749G
 76427 FETAL MALNUTR 1750-1999G
 76428 FETAL MALNUTR 2000-2499G
 76490 FET GROWTH RETARD WTNOS
 76491 FET GROWTH RETARD <500G
 76492 FET GROWTH RET 500-749G

76493 FET GROWTH RET 750-999G
 76494 FET GRWTH RET 1000-1249G
 76495 FET GRWTH RET 1250-1499G
 76496 FET GRWTH RET 1500-1749G
 76497 FET GRWTH RET 1750-1999G
 76498 FET GRWTH RET 2000-2499G
 76500 EXTREME IMMATUR WTNOS
 76501 EXTREME IMMATUR <500G
 76502 EXTREME IMMATUR 500-749G
 76503 EXTREME IMMATUR 750-999G
 76504 EXTREME IMMAT 1000-1249G
 76505 EXTREME IMMAT 1250-1499G
 76506 EXTREME IMMAT 1500-1749G
 76507 EXTREME IMMAT 1750-1999G
 76508 EXTREME IMMAT 2000-2499G
 76510 PRETERM INFANT NEC WTNOS
 76511 PRETERM NEC <500G
 76512 PRETERM NEC 500-749G
 76513 PRETERM NEC 750-999G
 76514 PRETERM NEC 1000-1249G
 76515 PRETERM NEC 1250-1499G
 76516 PRETERM NEC 1500-1749G
 76517 PRETERM NEC 1750-1999G
 76518 PRETERM NEC 2000-2499G

All births (poulation at risk)

DRG Codes:

DRGs:

370 CESAREAN SECTION W CC
 371 CESAREAN SECTION W/O CC
 372 VAGINAL DELIVERY W COMPL
 373 VAG DELIVERY W/O COMPL
 374 VAG DELIV W STERIL OR DC
 375 VAG DELIV W OTH OR PROC

Pediatric asthma rate(QI #31)

Pediatric asthma

ICD-9-CM diagnosis codes:

49300 EXT ASTHMA W/O STAT ASTH
 49301 EXT ASTHMA W STATUS ASTH
 49302 EXT ASTHMA W STATUS ACEX OCT00-
 49310 INT ASTHMA W/O STAT ASTH
 49311 INT ASTHMA W STATUS ASTH
 49312 INT ASTHMA W STATUS ACEX OCT00-
 49320 CH OB ASTH W/O STAT ASTH
 49321 CH OB ASTHMA W STAT ASTH
 49322 CH OB ASTHMA W STAT ACEX OCT00-

49390 ASTHMA W/O STATUS ASTHM
 49391 ASTHMA W STATUS ASTHMAT
 49392 ASTHMA W STATUS AC EXAC OCT00-

Pediatric Gastroenteritis rate(QI #32)

Pediatric gastroenteritis

ICD-9-CM diagnosis codes:

00861 ROTAVIRUS ENTERITIS
 00862 ADENOVIRUS ENTERITIS
 00863 NORWALK ENTERITIS
 00864 OTHER SRV ENTERITIS
 00865 CALCIVIRUS ENTERITIS
 00866 ASTROVIRUS ENTERITIS
 00867 ENTEROVIRUS ENTERITIS NEC
 00869 ENTERITIS NOS
 0088 VIRAL ENTERITIS NOS
 0090 INFECTIOUS ENTERITIS NOS
 0091 ENTERITIS OF INFECT ORIG
 0092 INFECTIOUS DIARRHEA
 0093 DIARRHEA, PRESUM INFECTIOUS
 5589 NONINF GASTROENTERIT NEC

Mortality

AMI mortality (QI #33)

AMI

ICD-9-CM diagnosis codes:

41001 AMI ANTEROLATERAL, INIT
 41011 AMI ANTERIOR WALL, INIT
 41021 AMI INFEROLATERAL, INIT
 41031 AMI INFEROPOST, INITIAL
 41041 AMI INFERIOR WALL, INIT
 41051 AMI LATERAL NEC, INITIAL
 41061 TRUE POST INFARCT, INIT
 41071 SUBENDO INFARCT, INITIAL
 41081 AMI NEC, INITIAL
 41091 AMI NOS, INITIAL

Congestive heart failure mortality (QI #34)

CHF

ICD-9-CM diagnosis codes:

39891 RHEUMATIC HEART FAILURE
 40201 MAL HYPERT HRT DIS W CHF
 40211 BENIGN HYP HRT DIS W CHF

40291 HYPERTEN HEART DIS W CHF
 40401 MAL HYPERT HRT/REN W CHF
 40403 MAL HYP HRT/REN W CHF&RF
 40411 BEN HYPERT HRT/REN W CHF
 40413 BEN HYP HRT/REN W CHF&RF
 40491 HYPERT HRT/REN NOS W CHF
 40493 HYP HT/REN NOS W CHF&RF
 4280 CONGESTIVE HEART FAILURE
 4281 LEFT HEART FAILURE
 4289 HEART FAILURE NOS

Exclude: Cardiac procedures:

ICD-9-CM procedure codes:

3601 PTCA-1 VESSEL W/O AGENT
 3602 PTCA-1 VESSEL WITH AGENT
 3607 PTCA-MULTIPLE VESSEL
 3608 INSERT CORONARY ART STENT OCT95-
 3610 AORTOCORONARY BYPASS NOS
 3611 AORTOCOR BYPAS-1 COR ART
 3612 AORTOCOR BYPAS-2 COR ART
 3613 AORTOCOR BYPAS-3 COR ART
 3614 AORTCOR BYPAS-4+ COR ART
 3615 1 INT MAM-COR ART BYPASS
 3616 2 INT MAM-COR ART BYPASS
 3617 ABD-CORON ART BYPASS OCT96-
 3619 HRT REVAS BYPS ANAS NEC
 375 HEART TRANSPLANTATION
 3770 INT INSERT PACEMAK LEAD
 3771 INT INSERT LEAD IN VENT
 3772 INT INSER LEAD ATRI-VENT
 3773 INT INSER LEAD IN ATRIUM
 3774 INT OR REPL LEAD EPICAR
 3775 REVISION OF LEAD
 3776 REPL TV ATRI-VENT LEAD
 3777 REMOVAL OF LEAD W/O REPL
 3778 INSER TEMP PACEMAKER SYS
 3779 REVIS OR RELOCATE POCKET

GI Hemorrhage mortality(QI #35)

GI Hemorrhage

ICD-9-CM diagnosis codes:

4560 ESOPH VARICES W HEM
 5307 GASTROESOPH LACER W HEM
 53082 ESOPHAGEAL HEM
 53100 AC STOMACH ULCER W HEM
 53101 AC STOMAC ULC W HEM-OBST
 53120 AC STOMAC ULC W HEM/PERF

53121 AC STOM ULC HEM/PERF-OBS
53140 CHR STOMACH ULC W HEM
53141 CHR STOM ULC W HEM-OBSTR
53160 CHR STOMACH ULC HEM/PERF
53161 CHR STOM ULC HEM/PERF-OB
53200 AC DUODENAL ULCER W HEM
53201 AC DUODEN ULC W HEM-OBST
53220 AC DUODEN ULC W HEM/PERF
53221 AC DUOD ULC HEM/PERF-OBS
53240 CHR DUODEN ULCER W HEM
53241 CHR DUODEN ULC HEM-OBSTR
53260 CHR DUODEN ULC HEM/PERF
53261 CHR DUOD ULC HEM/PERF-OB
53300 AC PEPTIC ULCER W HEMORR
53301 AC PEPTIC ULC W HEM-OBST
53320 AC PEPTIC ULC W HEM/PERF
53321 AC PEPT ULC HEM/PERF-OBS
53340 CHR PEPTIC ULCER W HEM
53341 CHR PEPTIC ULC W HEM-OBS
53360 CHR PEPT ULC W HEM/PERF
53361 CHR PEPT ULC HEM/PERF-OB
53400 AC MARGINAL ULCER W HEM
53401 AC MARGIN ULC W HEM-OBST
53420 AC MARGIN ULC W HEM/PERF
53421 AC MARG ULC HEM/PERF-OBS
53440 CHR MARGINAL ULCER W HEM
53441 CHR MARGIN ULC W HEM-OBS
53460 CHR MARGIN ULC HEM/PERF
53461 CHR MARG ULC HEM/PERF-OB
53501 ACUTE GASTRITIS W HMRHG
53511 ATRPH GASTRITIS W HMRHG
53521 GSTR MCSL HYPRT W HMRG
53531 ALCHL GSTRITIS W HMRHG
53541 OTH SPF GASTRT W HMRHG
53551 GSTRDDNTS NOS W HMRHG
53561 DUODENITIS W HMRHG
53783 ANGIODYS STOM DUOD W HEM
56202 DIVERTICULOS SM INT W HEM
56203 DIVERTICULIT SM INT W HEM
56212 DIVERTICULOS COLON W HEM
56213 DIVERTICULIT COLON W HEM
5693 HEMORRHAGE RECT/ANUS
56985 ANGIODYS INTEST W HEM
5780 HEMATHEMESIS
5781 BLOOD IN STOOL
5789 GASTROINTEST HEMORR NOS

Hip fracture mortality(QI #36)

Hip fracture

ICD-9-CM diagnosis codes:

82000 FX FEMUR INTRCAPS NOS-CL
82001 FX UP FEMUR EPIPHY-CLOS
82002 FX FEMUR, MIDCERVIC-CLOS
82003 FX BASE FEMORAL NCK-CLOS
82009 FX FEMUR INTRCAPS NEC-CL
82010 FX FEMUR INTRCAP NOS-OPN
82011 FX UP FEMUR EPIPHY-OPEN
82012 FX FEMUR, MIDCERVIC-OPEN
82013 FX BASE FEMORAL NCK-OPEN
82019 FX FEMUR INTRCAP NEC-OPN
82020 TROCHANTERIC FX NOS-CLOS
82021 INTERTROCHANTERIC FX-CL
82022 SUBTROCHANTERIC FX-CLOSE
82030 TROCHANTERIC FX NOS-OPEN
82031 INTERTROCHANTERIC FX-OPN
82032 SUBTROCHANTERIC FX-OPEN
8208 FX NECK OF FEMUR NOS-CL
8209 FX NECK OF FEMUR NOS-OPN

Pneumonia mortality(QI #37)

Pneumonia

ICD-9-CM diagnosis codes:

00322 SALMONELLA PNEUMONIA
0212 PULMONARY TULAREMIA
0391 PULMONARY ACTINOMYCOSIS
0521 VARICELLA PNEUMONITIS
0551 POSTMEASLES PNEUMONIA
0730 ORNITHOSIS PNEUMONIA
1124 CANDIDIASIS OF LUNG
1140 PRIMARY COCCIDIOIDOMYCOS
1144 CHRONIC PULMON
COCCIDIOIDOMYCOSIS
1145 UNSPEC PULMON
COCCIDIOIDOMYCOSIS
11505 HISTOPLASM CAPS PNEUMON
11515 HISTOPLASM DUB PNEUMONIA
11595 HISTOPLASMOSIS PNEUMONIA
1304 TOXOPLASMA PNEUMONITIS
1363 PNEUMOCYSTOSIS
4800 ADENOVIRAL PNEUMONIA
4801 RESP SYNCYT VIRAL PNEUM
4802 PARINFLUENZA VIRAL PNEUM
4808 VIRAL PNEUMONIA NEC
4809 VIRAL PNEUMONIA NOS
481 PNEUMOCOCCAL PNEUMONIA
4820 K. PNEUMONIAE PNEUMONIA

4821 PSEUDOMONAL PNEUMONIA
4822 H.INFLUENZAE PNEUMONIA
48230 STREP PNEUMONIA UNSPEC
48231 GRP A STREP PNEUMONIA
48232 GRP B STREP PNEUMONIA
48239 OTH STREP PNEUMONIA
4824 STAPHYLOCOCCAL PNEUMONIA
48240 STAPH PNEUMONIA UNSP OCT98-
48241 STAPH AUREUS PNEUMON OCT98-
48249 STAPH PNEUMON OTH OCT98-
48281 ANAEROBIC PNEUMONIA
48282 E COLI PNEUMONIA
48283 OTH GRAM NEG PNEUMONIA
48284 LEGIONNAIRES DX OCT97-
48289 BACT PNEUMONIA NEC
4829 BACTERIAL PNEUMONIA NOS
4830 MYCOPLASMA PNEUMONIA
4831 CHLAMYDIA PNEUMONIA OCT96-
4838 OTH SPEC ORG PNEUMONIA
4841 PNEUM W CYTOMEG INCL DIS
4843 PNEUMONIA IN WHOOP COUGH
4845 PNEUMONIA IN ANTHRAX
4846 PNEUM IN ASPERGILLOSIS
4847 PNEUM IN OTH SYS MYCOSES
4848 PNEUM IN INFECT DIS NEC
485 BRONCOPNEUMONIA ORG NOS
486 PNEUMONIA, ORGANISM NOS
5070 PNEUMONITIS, ASP FOOD VOMIT
5100 EMPYEMA W FISTULA
5109 EMPYEMA W/O FISTULA
5110 PLEURISY W EFF, BACT NOT TB
5130 ABSCESS OF LUNG

Stroke mortality(QI #38)

Stroke

ICD-9-CM diagnosis codes:

430 SUBARACHNOID HEMORRHAGE
431 INTRACEREBRAL HEMORRHAGE
4320 NONTRAUM EXTRADURAL HEM
4321 SUBDURAL HEMORRHAGE
4329 INTRACRANIAL HEMORR NOS
43301 BASI ART OCCL W/ INFARCT
43311 CAROTD OCCL W/ INFRCT
43321 VERTB ART OCCL W/ INFRCT
43331 MULT PRECER OCCL W/ INFRCT
43381 PRECER OCCL NEC W/ INFRCT
43391 PRECER OCCL NOS W/ INFRCT
43401 CERE THROMBOSIS W/ INFRCT

43411 CERE EMBOLISM W/ INFRCT
43491 CEREB OCCL NOS W/ INFRCT
436 CVA

AAA repair mortality(QI #39)

AAA repair

ICD-9-CM procedure codes:
3834 AORTA RESECTION & ANAST
3844 RESECT ABDM AORTA W REPL
3864 EXCISION OF AORTA

Include only: AAA

ICD-9-CM diagnosis codes:
4413 RUPT ABD AORTIC ANEURYSM
4414 ABDOM AORTIC ANEURYSM

CABG Mortality(QI #40)

CABG

ICD-9-CM procedure codes:
3610 AORTOCORONARY BYPASS NOS
3611 AORTOCOR BYPAS-1 COR ART
3612 AORTOCOR BYPAS-2 COR ART
3613 AORTOCOR BYPAS-3 COR ART
3614 AORTCOR BYPAS-4+ COR ART
3615 INT MAM-COR ART BYPASS
3616 INT MAM-COR ART BYPASS
3617 ABD-CORON ART BYPASS OCT96-
3619 HRT REVAS BYPS ANAS NEC

Esophageal resection Mortality (QI #42)

Esophageal resection

ICD-9-CM procedure code:
4240 ESOPHAGECTOMY NOS
4241 PARTIAL ESOPHAGECTOMY
4242 TOTAL ESOPHAGECTOMY

Include only: Esophageal cancer:

ICD-9-CM diagnosis codes:
1500 MAL NEO CERVICAL ESOPHAG
1501 MAL NEO THORACIC ESOPHAG
1502 MAL NEO ABDOMIN ESOPHAG
1503 MAL NEO UPPER 3RD ESOPH

1504 MAL NEO MIDDLE 3RD ESOPH
1505 MAL NEO LOWER 3RD ESOPH
1508 MAL NEO ESOPHAGUS NEC
1509 MAL NEO ESOPHAGUS NOS

Hip Replacement Mortality(QI #43)

Hip Replacement

ICD-9-CM procedure Codes:
8151 TOTAL HIP REPLACEMENT
8152 PARTIAL HIP REPLACEMENT
8153 REVISION HIP REPLACEMENT

Include only: Osteoarthritis:

ICD-9-CM diagnosis Codes:
71500 GENL OSTEOARTHRIS NOS
71509 GENL OSTEOARTHRIS MULT
71510 LOC PRIM OSTEOART_UNSPEC
71515 LOC PRIM OSTEOART_PELVIS
71518 LOC PRIM OSTEOARTH NEC
71520 LOC 2ND OSTEOARTH_UNSPEC
71525 LOC 2ND OSTEOARTH_PELVIS
71528 LOC 2ND OSTEOARTHROS NEC
71530 LOC OSTEOARTH NOS_UNSPEC
71535 LOC OSTEOARTH NOS_PELVIS
71538 LOC OSTEOAR NOS_SITE NEC
71580 OSTEOARTHROSIS_MULT SITE
71589 OSTEOARTHROSIS_MULT SITE
71590 OSTEOARTHROS NOS_UNSPEC
71595 OSTEOARTHROS NOS_PELVIS
71598 OSTEOARTHRO NOS_OTH SITE
71650 POLYARTHRITIS NOS UNSPEC
71655 POLYARTHRITIS NOS PELVIS
71658 POLYARTHRITIS NOS NEC
71659 POLYARTHRITIS NOS MULT SITE
71660 MONOARTHRITIS NOS UNSPEC
71665 MONOARTHRITIS NOS PELVIS
71668 MONOARTHRITIS NOS NEC
71669 MONOARTHRITIS NOS MULT SITE
71690 ARTHROPATHY NOS UNSPEC
71695 ARTHROPATHY NOS PELVIS
71698 ARTHROPATHY NOS NEC
71699 ARTHROPATHY NOS MULT SITE

Pancreatic resection mortality(QI #44)

Pancreatic resection

ICD-9-CM procedure codes:
526 TOTAL PANCREATECTOMY
527 RAD PANCREATICODUODENECT

Include only: Pancreatic cancer

ICD-9-CM diagnosis codes:
1520 MALIGNANT NEOPL DUODENUM
1561 MAL NEO EXTRAHEPAT DUCTS
1562 MAL NEO AMPULLA OF VATER
1570 MAL NEO PANCREAS HEAD
1571 MAL NEO PANCREAS BODY
1572 MAL NEO PANCREAS TAIL
1573 MAL NEO PANCREATIC DUCT
1574 MAL NEO ISLET LANGERHANS
1578 MALIG NEO PANCREAS NEC
1579 MALIG NEO PANCREAS NOS

Pediatric heart surgery mortality(QI #45)

See pediatric heart surgery volume