



QUALITY INDICATORS™ SOFTWARE

Results of Comparison Testing

Between SAS v5.0 and WinQI v5.0

Software

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AHRQ Quality Indicators
Results of Comparison Testing between SAS v5.0 and WinQI v5.0

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicators™ (QI) were developed specifically to meet the short-term needs for information on healthcare quality using standardized, user-friendly methods and existing sources of data. The AHRQ QI program is unique in that it provides free, publicly-available software tools that calculate the AHRQ QI rates. The software allows users to calculate QI rates based on their own administrative data using a standard desktop computer. Each version of the QIs is released with software in two different platforms: a SAS®† application and a Windows application. The SAS software was first released in the late 1990s. It consists of several modules of SAS code and requires a SAS license to run. The Windows-based software, known as WinQI, was first released in 2005. It was created in order to provide an easy-to-use, low-cost option for calculating the QIs that was not dependent on licensed software. Developed on Microsoft® Visual Studio using C# and .NET, AHRQ WinQI runs on Windows operating systems and requires only freely available software components: AHRQ-produced software, Microsoft .NET (for runtime environment and core software libraries), and Microsoft SQL Server Express (for data storage and manipulation). Table

1 lists the differences between SAS QI v5.0 and WinQI v5.0. Both the SAS and WinQI software are available in Version 5.0 as either 32-bit or 64-bit applications. The 32-bit applications are targeted for Windows XP operating systems, and the 64-bit applications are targeted for Windows 7 and 8 operating systems.

Table 1. Differences between SAS QI v5.0 and WinQI v5.0

SAS QI v5.0	WinQI v5.0
Requires licensed SAS software	Requires free downloadable software
User can modify the software	User is unable to modify the software
Data load and error checking at the discretion of the user	Includes data load and error checking functions
User must run a set of programs for each module, and all indicators in a module are displayed in output	All four QI modules calculated in a single program, and user can select which indicators to output
Area-level indicator denominators are adjusted based on the combination of county, age, gender and race in the numerator (adjustments are generally small (<.01%) in absolute terms)	Area-level indicators denominators are not adjusted
	Suppresses expected rate, risk-adjusted rate, and smoothed rate of PDI #6 RACHS-1 Pediatric Heart Surgery Mortality Rate
Condition-specific denominators can be used in place of overall population denominators for diabetes-related PQIs using data from the CDC National Diabetes Surveillance System	Condition-specific denominators are not available for any of the PQIs
Observations with FIPS codes not present in the population file are excluded from Area level metrics.	Observations with FIPS codes not present in the population file are included in Area level measures with no FIPS assigned.

Both versions of the QI software are updated on an annual basis to reflect changes in the AHRQ QI technical specifications. New software versions and updated technical specifications are released simultaneously. Routine annual updates include yearly International Classification of Diseases, 9th revision, Clinical Modification (ICD-9-CM), Medicare severity-Diagnostic

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Related Groups (MS-DRG), Major Diagnostic Categories (MDC), updated version of the 3M™ APR-DRG grouper, new Census population files, and newly derived risk adjustment parameters.

The AHRQ QI software goes through rigorous testing prior to release, including the following:

- Comparison of rates produced through AHRQ QI SAS and AHRQ WinQI, aggregated and detailed provider/county-level
- Comparison of rates produced based on previous versions of the software, Version 5.0 compared to Version 4.5
- User testing on the installation.

AHRQ QI v5.0 software included applications that are compatible with 32-bit and 64-bit environments, and thus additional testing comparing rates across these environments was performed.

This document summarizes the testing results for AHRQ QI v5.0 software for SAS and WinQI released in May 2015. Testing was performed using AHRQ Healthcare Cost and Utilization Project (HCUP)[†] data: 3,571,315 discharges in the Florida 2013 and Maryland and Nevada 2012 HCUP State Inpatient Databases (SID). To ensure comparability of Area rates, the year of all observations was set to 2013 and observations with a FIPS code not in the 2013 population file were removed.

The table in this document compares the calculated rates using AHRQ QI SAS to AHRQ WinQI in a 64-bit environment. There should be zero to little variation in the rates (as evidenced by a SAS/WinQI rate ratio=1), with two exceptions. Small differences may occur due to rounding of the estimates and slight variation in the number of providers in area-level indicators due to area denominator adjustments. The table confirms that the results produced with AHRQ QI SAS are consistent with the results produced with AHRQ WinQI. More detailed tables showing aggregated estimates for SAS and WinQI (Appendix A) and comparisons at the provider or county level (Appendix B) are provided in the appendices.

Known considerations for v5.0 software:

- In Version 5.0 and previous versions, the SAS QI and WinQI software calculates area denominators differently for 8 indicators (PQI 05, PQI 15, IQI 26, IQI 27, PDI 15, PDI 90, PDI 91 and PDI 92). The difference is attributed to the way SAS QI and WinQI's calculates all denominators in area-level indicators seen in the comparison test results. In those cases, the denominator differences then lead to differences in many of the rates. For the area-level indicators mentioned above, the denominators are related to county populations, which are derived from official U.S. Census Bureau data. However, for the counties that are not included in the population file are treated and aggregated differently in the SAS QI and WinQI software.
- For specific indicators, variances in the risk-adjusted rates are observed due to how the SAS QI and WinQI software handles rounding of decimal numbers.

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[‡] HCUP Databases. Healthcare Cost and Utilization Project (HCUP). 2012 and 2013. Agency for Healthcare Research and Quality, Rockville, MD. www.hcup-us.ahrq.gov/databases.jsp. Additionally, the AHRQ QI Program would like to acknowledge the following HCUP Partners who allowed their SID data to be used for testing purposes in the development of the AHRQ QI software: **Florida** Agency for Health Care Administration, **Maryland** Health Services Cost Review Commission, and **Nevada** Department of Health and Human Service

Table 2: Comparison of Rates from AHRQ QI SAS software to AHRQ WinQI, Version 5.0

QI	Type	Ratio of SAS statistic over WinQI statistic					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
Prevention Quality Indicators (PQIs)							
PQI #1 Diabetes Short-Term Complications Admission Rate	AREA	1	1	1	1	1	1
PQI #2 Perforated Appendix Admission Rate	AREA	1	1	1	1	1	1
PQI #3 Diabetes Long-Term Complications Admission Rate	AREA	1	1	1	1	1	1
PQI #5 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	AREA	1	1.0050	0.9951	1.0002	0.9948	0.9948
PQI #7 Hypertension Admission Rate	AREA	1	1	1	1	1	1
PQI #8 Heart Failure Admission Rate	AREA	1	1	1	1	1	1
PQI #9 Low Birth Weight Rate	AREA						
PQI #10 Dehydration Admission Rate	AREA	1	1	1	1	1	1
PQI #11 Bacterial Pneumonia Admission Rate	AREA	1	1	1	1	1	1
PQI #12 Urinary Tract Infection Admission Rate	AREA	1	1	1	1	1	1
PQI #13 Angina Without Procedure Admission Rate	AREA	1	1	1	1	1	1
PQI #14 Uncontrolled Diabetes Admission Rate	AREA	1	1	1	1	1	1
PQI #15 Asthma in Younger Adults Admission Rate	AREA	1	1.0778	0.9278	0.9961	0.9315	0.9315
PQI #16 Lower-Extremity Amputation among Patients with Diabetes Rate	AREA	1	1	1	1	1	1
PQI #90 Prevention Quality Overall Composite	AREA	1	1	1	1	1	1
PQI #91 Prevention Quality Acute Composite	AREA	1	1	1	1	1	1
PQI #92 Prevention Quality Chronic Composite	AREA	1	1	1	1	1	1
Inpatient Quality Indicators (IQIs)							
IQI #1 Esophageal Resection Volume	PROVIDER	1					
IQI #2 Pancreatic Resection Volume	PROVIDER	1					
IQI #2A Stratum A	PROVIDER	1					
IQI #2B Stratum B	PROVIDER	1					
IQI #4 Abdominal Aortic Aneurysm (AAA) Repair Volume	PROVIDER	1					
IQI #4A Stratum A	PROVIDER	1					
IQI #4B Stratum B	PROVIDER	1					
IQI #4C Stratum C	PROVIDER	1					
IQI #4D Stratum D	PROVIDER	1					
IQI #5 Coronary Artery Bypass Graft (CABG) Volume	PROVIDER	1					
IQI #6 Percutaneous Coronary Intervention (PCI) Volume	PROVIDER	1					
IQI #7 Carotid Endarterectomy Volume	PROVIDER	1					
IQI #8 Esophageal Resection Mortality Rate	PROVIDER	1	1	1	1	1	1
IQI #9 Pancreatic Resection Mortality Rate	PROVIDER	1	1	1	1	1	1
IQI #9A Stratum A	PROVIDER	1	1	1	1.7013	0.5878	
IQI #9B Stratum B	PROVIDER	1	1	1	1	1	
IQI #11 Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate	PROVIDER	1	1	1	1	1	1

QI	Type	Ratio of SAS statistic over WinQI statistic					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
IQI #11A Stratum A	PROVIDER	1	1	1	1	1	
IQI #11B Stratum B	PROVIDER	1	1	1	1	1	
IQI #11C Stratum C	PROVIDER	1	1	1	1	1	
IQI #11D Stratum D	PROVIDER	1	1	1	1	1	
IQI #12 Coronary Artery Bypass Graft (CABG) Mortality Rate	PROVIDER	1	1	1	1.0002	0.9998	0.9998
IQI #13 Craniotomy Mortality Rate	PROVIDER	1	1	1	1.0003	0.9997	0.9998
IQI #14 Hip Replacement Mortality Rate	PROVIDER	1	1	1	1.0006	0.9994	0.9995
IQI #15 Acute Myocardial Infarction (AMI) Mortality Rate	PROVIDER	1	1	1	1.0008	0.9992	0.9992
IQI #16 Heart Failure Mortality Rate	PROVIDER	1	1	1	0.9991	1.0009	1.0009
IQI #17 Acute Stroke Mortality Rate	PROVIDER	1	1	1	0.9890	1.0111	1.0111
IQI #17A Stratum A	PROVIDER	1	1	1	0.9887	1.0114	
IQI #17B Stratum B	PROVIDER	1	1	1	0.9937	1.0064	
IQI #17C Stratum C	PROVIDER	1	1	1	0.9844	1.0158	
IQI #18 Gastrointestinal Hemorrhage Mortality Rate	PROVIDER	1	1	1	1.0002	0.9998	0.9998
IQI #19 Hip Fracture Mortality Rate	PROVIDER	1	1	1	1.0067	0.9933	0.9934
IQI #20 Pneumonia Mortality Rate	PROVIDER	1	1	1	1.0038	0.9962	0.9963
IQI #21 Cesarean Delivery Rate, Uncomplicated	PROVIDER	1	1	1			
IQI #22 Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated	PROVIDER	1	1	1			
IQI #23 Laparoscopic Cholecystectomy Rate	PROVIDER	1	1	1			
IQI #24 Incidental Appendectomy in the Elderly Rate	PROVIDER	1	1	1			
IQI #25 Bilateral Cardiac Catheterization Rate	PROVIDER	1	1	1			
IQI #26 Coronary Artery Bypass Graft (CABG) Rate	AREA	1	1.050	0.9943	0.5216	1.9080	1.9033
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	AREA	1	1.050	0.9952	0.6467	1.5385	1.5371
IQI #28 Hysterectomy Rate	AREA	1	1	1	1.4239	0.7025	0.7033
IQI #29 Laminectomy or Spinal Fusion Rate	AREA	1	1	1	0.4717	2.1205	2.1168
IQI #30 Percutaneous Coronary Intervention (PCI) Mortality Rate	PROVIDER	1	1	1	1.0333	0.9677	0.9682
IQI #31 Carotid Endarterectomy Mortality Rate	PROVIDER	1	1	1	1	1	1
IQI #32 Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases	PROVIDER	1.0111	1.0040	1.0071	1.0021	1.0050	1.0050
IQI #33 Primary Cesarean Delivery Rate, Uncomplicated	PROVIDER	1	1	1			
IQI #34 Vaginal Birth After Cesarean (VBAC) Rate, All	PROVIDER	1	1	1			
PSI #2 Death Rate in Low-Mortality Diagnosis Related Groups (DRGs)	PROVIDER	1	1	1	1.0013	0.9987	0.9987
PSI #3 Pressure Ulcer Rate	PROVIDER	1	1	1	0.9983	1.0017	1.0017
PSI #4 Death Rate among Surgical Inpatients with Serious Treatable Complications	PROVIDER	1	1	1	0.9983	1.0017	1.0017
PSI #4A Stratum A	PROVIDER	1	1	1	1.0017	0.9983	

QI	Type	Ratio of SAS statistic over WinQI statistic					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
PSI #4B Stratum B	PROVIDER	1	1	1	0.9959	1.0041	
PSI #4C Stratum C	PROVIDER	1	1	1	0.9984	1.0016	
PSI #4D Stratum D	PROVIDER	1	1	1	1.0005	0.9995	
PSI #4E Stratum E	PROVIDER	1	1	1	1.0008	0.9992	
PSI #5 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	1					
PSI #6 Iatrogenic Pneumothorax Rate	PROVIDER	1	1	1	0.9955	1.0045	1.0045
PSI #7 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	1	1	1	1.0470	0.9551	0.9552
PSI #8 Postoperative Hip Fracture Rate	PROVIDER	1	1	1	1	1	1
PSI #9 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	1	1	1	0.9946	1.0055	1.0054
PSI #10 Postoperative Physiologic and Metabolic Derangement Rate	PROVIDER	1	1	1	1.0091	0.9910	0.9911
PSI #11 Postoperative Respiratory Failure Rate	PROVIDER	1	1	1	1.0152	0.9850	0.9850
PSI #12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	PROVIDER	1.0009	1	1.0009	0.9994	1.0014	1.0014
PSI #13 Postoperative Sepsis Rate	PROVIDER	1	1	1	1.0050	0.9950	0.9951
PSI #14 Postoperative Wound Dehiscence Rate	PROVIDER	1	1	1	1.0047	0.9953	0.9954
PSI #15 Accidental Puncture or Laceration Rate	PROVIDER	1	1	1	0.9991	1.0009	1.0009
PSI #16 Transfusion Reaction Count	PROVIDER	1					
PSI #17 Birth Trauma Rate – Injury to Neonate	PROVIDER	1.0278	1.0226	1.0051			
PSI #18 Obstetric Trauma Rate – Vaginal Delivery With Instrument	PROVIDER	1	1	1			
PSI #19 Obstetric Trauma Rate – Vaginal Delivery Without Instrument	PROVIDER	1	1	1			
PSI #21 Retained Surgical Item or Unretrieved Device Fragment Rate	AREA	1	1	1			
PSI #22 Iatrogenic Pneumothorax Rate	AREA	1	1	1			
PSI #23 Central Venous Catheter-Related Blood Stream Infection Rate	AREA	1	1	1			
PSI #24 Postoperative Wound Dehiscence Rate	AREA	1	1	1			
PSI #25 Accidental Puncture or Laceration Rate	AREA	1	1	1			
PSI #26 Transfusion Reaction Rate	AREA	1	1	1			
PSI #27 Perioperative Hemorrhage or Hematoma Rate	AREA	1	1	1			
Pediatric Quality Indicators (PDIs)							
NQI #1 Neonatal Iatrogenic Pneumothorax Rate	PROVIDER	1	1	1	1.0030	0.9415	0.8846
NQI #2 Neonatal Mortality Rate	PROVIDER	1	1	1	1.0162	1.0708	1.0712
NQI #3 Neonatal Blood Stream Infection Rate	PROVIDER	1	1	1	1.0035	1.0873	1.0872
PDI #1 Accidental Puncture or Laceration Rate	PROVIDER	1	1	1	1	1	1
PDI #2 Pressure Ulcer Rate	PROVIDER	1	1	1	0.9974	1.0026	1.0026
PDI #3 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	1					
PDI #5 Iatrogenic Pneumothorax Rate	PROVIDER	1	1	1	1.0003	0.9997	0.9997
PDI #6 RACHS-1 Pediatric Heart Surgery Mortality Rate	PROVIDER	1	1	1			
PDI #7 RACHS-1 Pediatric Heart Surgery Volume	PROVIDER	1					

QI	Type	Ratio of SAS statistic over WinQI statistic					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
PDI #8 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	1	1	1	0.9999	1.0001	1.0001
PDI #9 Postoperative Respiratory Failure Rate	PROVIDER	1	1	1	1.1672	0.8567	0.8583
PDI #10 Postoperative Sepsis Rate	PROVIDER	1	1	1	1.1535	0.8669	0.8704
PDI #11 Postoperative Wound Dehiscence Rate	PROVIDER	1	0.9997	1.0003	0.9985	1.0018	1.0014
PDI #12 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	1	1	1	1.5366	0.6508	0.6533
PDI #13 Transfusion Reaction Count	PROVIDER						
PDI #14 Asthma Admission Rate	AREA	1	1	1	1	1	1
PDI #15 Diabetes Short-Term Complications Admission Rate	AREA	1	1.0009	1	1	1	1
PDI #16 Gastroenteritis Admission Rate	AREA	1	1	1	1	1	1
PDI #17 Perforated Appendix Admission Rate	AREA	1	1	1	1	1	1
PDI #18 Urinary Tract Infection Admission Rate	AREA	1	1	1	1	1	1
PDI #90 Pediatric Quality Overall Composite	AREA	1	1.0009	0.9991	1	1	1
PDI #91 Pediatric Quality Acute Composite	AREA	1	1.0009	0.9991	1	1	1
PDI #92 Pediatric Quality Chronic Composite	AREA	1	1.0009	0.9991	1	1	1

SOURCE: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2010 Nationwide Inpatient Sample (unweighted) and AHRQ Quality Indicator SAS and WinQI Version 5.0 Software.

NOTE: Blank cell = N/A.

Appendix Table A.1 Key to Appendix Table A

Column Heading	Description
OBS num	Number of discharges in the numerator
OBS den	Number of discharges in the denominator
OBS rate	Observed rate
EXP rate	Expected rate
ADJ rate	Risk adjusted rate
Smoothed rate	Smoothed rate

Appendix Table A.2 AHRQ QI SAS Version 5.0 Aggregate Estimates

QI	Type	SAS Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
Prevention Quality Indicators (PQIs)							
PQI #1 Diabetes Short-Term Complications Admission Rate	AREA	15575	235852300	0.000066	0.000665	0.000066	0.000066
PQI #2 Perforated Appendix Admission Rate	AREA	5655	18311	0.308831	0.332291	0.299836	0.299895
PQI #3 Diabetes Long-Term Complications Admission Rate	AREA	29113	235852301	0.000123	0.001077	0.000122	0.000122
PQI #5 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	AREA	93698	146268109	0.000641	0.005234	0.000635	0.000635
PQI #7 Hypertension Admission Rate	AREA	18297	235852301	0.000078	0.000557	0.000077	0.000077
PQI #8 Heart Failure Admission Rate	AREA	86517	235852324	0.000367	0.003362	0.000362	0.000362
PQI #9 Low Birth Weight Rate	AREA						
PQ #10 Dehydration Admission Rate	AREA	34475	235852309	0.000146	0.001435	0.000145	0.000145
PQI #11 Bacterial Pneumonia Admission Rate	AREA	60182	235852317	0.000255	0.002710	0.000252	0.000252
PQI #12 Urinary Tract Infection Admission Rate	AREA	48120	235852311	0.000204	0.001756	0.000202	0.000202
PQI #13 Angina Without Procedure Admission Rate	AREA	3208	235852300	0.000014	0.000140	0.000013	0.000013
PQI #14 Uncontrolled Diabetes Admission Rate	AREA	5164	235852300	0.000022	0.000160	0.000022	0.000022
PQI #15 Asthma in Younger Adults Admission Rate	AREA	4543	89584208	0.000051	0.000483	0.000051	0.000051

Appendix Table A.2 AHRQ QI SAS Version 5.0 Aggregate Estimates

QI	Type	SAS Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
PQI #16 Lower-Extremity Amputation among Patients with Diabetes Rate	AREA	3674	235852301	0.000016	0.000159	0.000015	0.000015
PQI #90 Prevention Quality Overall Composite	AREA	401018	235852501	0.001700	0.015379	0.001683	0.001683
PQI #91 Prevention Quality Acute Composite	AREA	142777	235852358	0.000605	0.005901	0.000599	0.000599
PQI #92 Prevention Quality Chronic Composite	AREA	258249	235852372	0.001095	0.009478	0.001084	0.001084
Inpatient Quality Indicators (IQIs)							
IQI #1 Esophageal Resection Volume	PROVIDER	422					
IQI #2 Pancreatic Resection Volume	PROVIDER	1445					
IQI #2A Stratum A	PROVIDER	769					
IQI #2B Stratum B	PROVIDER	676					
IQI #4 Abdominal Aortic Aneurysm (AAA) Repair Volume	PROVIDER	4130					
IQI #4A Stratum A	PROVIDER	151					
IQI #4B Stratum B	PROVIDER	416					
IQI #4C Stratum C	PROVIDER	174					
IQI #4D Stratum D	PROVIDER	3389					
IQI #5 Coronary Artery Bypass Graft (CABG) Volume	PROVIDER	18266					
IQI #6 Percutaneous Coronary Intervention (PCI) Volume	PROVIDER	49785					
IQI #7 Carotid Endarterectomy Volume	PROVIDER	9774					
IQI #8 Esophageal Resection Mortality Rate	PROVIDER	25	345	0.072464	0.034441	0.084399	0.067205
IQI #9 Pancreatic Resection Mortality Rate	PROVIDER	47	1441	0.032616	0.021233	0.043411	0.043077
IQI #9A Stratum A	PROVIDER	31	768	0.040365	0.028309	0.036718	
IQI #9B Stratum B	PROVIDER	16	673	0.023774	0.026564	0.023047	
IQI #11 Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate	PROVIDER	150	4112	0.036479	0.029034	0.046284	0.044900
IQI #11A Stratum A	PROVIDER	53	149	0.355705	0.364628	0.356279	
IQI #11B Stratum B	PROVIDER	28	415	0.067470	0.025475	0.119990	
IQI #11C Stratum C	PROVIDER	41	169	0.242604	0.222655	0.251385	
IQI #11D Stratum D	PROVIDER	28	3379	0.008286	0.005124	0.012611	

Appendix Table A.2 AHRQ QI SAS Version 5.0 Aggregate Estimates

QI	Type	SAS Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
IQI #12 Coronary Artery Bypass Graft (CABG) Mortality Rate	PROVIDER	515	17993	0.028622	0.021997	0.033070	0.032975
IQI #13 Craniotomy Mortality Rate	PROVIDER	725	12540	0.057815	0.043245	0.076963	0.076747
IQI #14 Hip Replacement Mortality Rate	PROVIDER	17	26822	0.000634	0.000378	0.001129	0.001046
IQI #15 Acute Myocardial Infarction (AMI) Mortality Rate	PROVIDER	2882	52532	0.054862	0.052120	0.059334	0.059330
IQI #16 Heart Failure Mortality Rate	PROVIDER	2533	93465	0.027101	0.028863	0.028878	0.028879
IQI #17 Acute Stroke Mortality Rate	PROVIDER	3928	54707	0.071801	0.076242	0.078381	0.078383
IQI #17A Stratum A	PROVIDER	427	2155	0.198144	0.195871	0.215075	
IQI #17B Stratum B	PROVIDER	1803	9137	0.197330	0.211580	0.204349	
IQI #17C Stratum C	PROVIDER	1698	43415	0.039111	0.041843	0.044586	
IQI #18 Gastrointestinal Hemorrhage Mortality Rate	PROVIDER	1004	51946	0.019328	0.019966	0.021643	0.021646
IQI #19 Hip Fracture Mortality Rate	PROVIDER	541	25502	0.021214	0.013903	0.038587	0.038404
IQI #20 Pneumonia Mortality Rate	PROVIDER	2293	77113	0.029736	0.031224	0.033348	0.033350
IQI #21 Cesarean Delivery Rate, Uncomplicated	PROVIDER	91954	265342	0.346549			
IQI #22 Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated	PROVIDER	3315	49610	0.066821			
IQI #23 Laparoscopic Cholecystectomy Rate	PROVIDER	29985	33781	0.887629			
IQI #24 Incidental Appendectomy in the Elderly Rate	PROVIDER	395	42100	0.009382			
IQI #25 Bilateral Cardiac Catheterization Rate	PROVIDER	1321	99749	0.013243			
IQI #26 Coronary Artery Bypass Graft (CABG) Rate	AREA	18143	146268099	0.000124	0.001301	0.000122	0.000126
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	AREA	48993	146268108	0.000335	0.003389	0.000332	0.000341
IQI #28 Hysterectomy Rate	AREA	20019	121226457	0.000165	0.002018	0.000166	0.000172
IQI #29 Laminectomy or Spinal Fusion Rate	AREA	58977	235852306	0.000250	0.002487	0.000248	0.000256
IQI #30 Percutaneous Coronary Intervention (PCI) Mortality Rate	PROVIDER	1144	49679	0.023593	0.018940	0.026508	0.026423
IQI #31 Carotid Endarterectomy Mortality Rate	PROVIDER	43	9952	0.004412	0.004357	0.004463	0.004423
IQI #32 Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases	PROVIDER	2636	47049	0.056027	0.053244	0.061607	0.061602
IQI #33 Primary Cesarean Delivery Rate, Uncomplicated	PROVIDER	45659	215732	0.211647			
IQI #34 Vaginal Birth After Cesarean (VBAC) Rate, All	PROVIDER	3792	56043	0.067662			

Appendix Table A.2 AHRQ QI SAS Version 5.0 Aggregate Estimates

QI	Type	SAS Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
Patient Safety Indicators (PSIs)							
PSI #2 Death Rate in Low-Mortality Diagnosis Related Groups (DRGs)	PROVIDER	240	700809	0.000342	0.000401	0.000278	0.000278
PSI #3 Pressure Ulcer Rate	PROVIDER	484	774267	0.000625	0.000501	0.000635	0.000635
PSI #4 Death Rate among Surgical Inpatients with Serious Treatable Complications	PROVIDER	2997	24542	0.122117	0.121100	0.120514	0.120510
PSI #4A Stratum A	PROVIDER	177	3341	0.052978	0.052231	0.048799	0.048761
PSI #4B Stratum B	PROVIDER	744	10857	0.068527	0.075546	0.069015	0.069115
PSI #4C Stratum C	PROVIDER	744	3843	0.193599	0.202498	0.193136	0.193254
PSI #4D Stratum D	PROVIDER	1141	3072	0.371419	0.356724	0.359173	0.359051
PSI #4E Stratum E	PROVIDER	191	3429	0.055701	0.051605	0.052452	0.052280
PSI #5 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	95					
PSI #6 Iatrogenic Pneumothorax Rate	PROVIDER	823	2591094	0.000318	0.000314	0.000342	0.000342
PSI #7 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	620	2008081	0.000309	0.000211	0.000307	0.000307
PSI #8 Postoperative Hip Fracture Rate	PROVIDER	22	422378	0.000052	0.000045	0.000052	0.000051
PSI #9 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	3135	646859	0.004846	0.005016	0.004973	0.004973
PSI #10 Postoperative Physiologic and Metabolic Derangement Rate	PROVIDER	273	266912	0.001023	0.000777	0.000941	0.000939
PSI #11 Postoperative Respiratory Failure Rate	PROVIDER	2635	222660	0.011834	0.010922	0.010930	0.010929
PSI #12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	PROVIDER	3480	699358	0.004976	0.005114	0.004915	0.004915
PSI #13 Postoperative Sepsis Rate	PROVIDER	546	52751	0.010351	0.009577	0.010342	0.010335
PSI #14 Postoperative Wound Dehiscence Rate	PROVIDER	206	97496	0.002113	0.002019	0.001942	0.001941
PSI #15 Accidental Puncture or Laceration Rate	PROVIDER	3942	2699497	0.001460	0.001656	0.001919	0.001919
PSI #16 Transfusion Reaction Count	PROVIDER	8					
PSI #17 Birth Trauma Rate – Injury to Neonate	PROVIDER	702	300606	0.002335			
PSI #18 Obstetric Trauma Rate – Vaginal Delivery With Instrument	PROVIDER	1247	11152	0.111819			
PSI #19 Obstetric Trauma Rate – Vaginal Delivery Without Instrument	PROVIDER	3457	175475	0.019701			
PSI #21 Retained Surgical Item or Unretrieved Device Fragment Rate	AREA	236	235852300	0.000001			
PSI #22 Iatrogenic Pneumothorax Rate	AREA	1536	235852301	0.000007			

Appendix Table A.2 AHRQ QI SAS Version 5.0 Aggregate Estimates

QI	Type	SAS Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
PSI #23 Central Venous Catheter-Related Blood Stream Infection Rate	AREA	2068	235852300	0.000009			
PSI #24 Postoperative Wound Dehiscence Rate	AREA	387	235852300	0.000002			
PSI #25 Accidental Puncture or Laceration Rate	AREA	5325	235852300	0.000023			
PSI #26 Transfusion Reaction Rate	AREA	20	235852300	0			
PSI #27 Perioperative Hemorrhage or Hematoma Rate	AREA	7533	235852301	0.000032			
Pediatric Quality Indicators (PDIs)							
NQI #1 Neonatal Iatrogenic Pneumothorax Rate	PROVIDER	4	19002	0.000211	0.000182	0.000211	0.000195
NQI #2 Neonatal Mortality Rate	PROVIDER	638	299272	0.002132	0.002395	0.002074	0.002076
NQI #3 Neonatal Blood Stream Infection Rate	PROVIDER	136	6240	0.021795	0.025867	0.021292	0.021329
PDI #1 Accidental Puncture or Laceration Rate	PROVIDER	74	280073	0.000264	0.000463	0.000286	0.000287
PDI #2 Pressure Ulcer Rate	PROVIDER	6	29180	0.000206	0.000271	0.000217	0.000217
PDI #3 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	2					
PDI #5 Iatrogenic Pneumothorax Rate	PROVIDER	23	257184	0.000089	0.000131	0.000086	0.000087
PDI #6 RACHS-1 Pediatric Heart Surgery Mortality Rate	PROVIDER	40	1434	0.027894	0.034731	0.025781	0.026463
PDI #7 RACHS-1 Pediatric Heart Surgery Volume	PROVIDER	1694					
PDI #8 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	34	7974	0.004264	0.005533	0.004264	0.004295
PDI #9 Postoperative Respiratory Failure Rate	PROVIDER	55	6083	0.009042	0.017729	0.007305	0.007390
PDI #10 Postoperative Sepsis Rate	PROVIDER	92	7375	0.012475	0.015776	0.011655	0.011737
PDI #11 Postoperative Wound Dehiscence Rate	PROVIDER	3	3958	0.000758	0.001112	0.000760	0.000834
PDI #12 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	107	225001	0.000476	0.000743	0.000516	0.000518
PDI #13 Transfusion Reaction Count	PROVIDER						
PDI #14 Asthma Admission Rate	AREA	8007	53554398.4	0.000150	0.000778	0.000051	0.000052
PDI #15 Diabetes Short-Term Complications Admission Rate	AREA	1087	40393322.8	0.000027	0.000261	0.000005	0.000005
PDI #16 Gastroenteritis Admission Rate	AREA	4491	59272284	0.000076	0.000208	0.000043	0.000044
PDI #17 Perforated Appendix Admission Rate	AREA	1400	3949	0.354520	0.341608	0.358825	0.357371
PDI #18 Urinary Tract Infection Admission Rate	AREA	2742	59272284	0.000046	0.000158	0.000022	0.000022

Appendix Table A.2 AHRQ QI SAS Version 5.0 Aggregate Estimates

QI	Type	SAS Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
PDI #90 Pediatric Quality Overall Composite	AREA	7453	40393323	0.000185	0.001500	0.000032	0.000033
PDI #91 Pediatric Quality Acute Composite	AREA	2179	40393323	0.000054	0.000413	0.000009	0.000010
PDI #92 Pediatric Quality Chronic Composite	AREA	5274	40393323	0.000131	0.001087	0.000023	0.000023

SOURCE: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2010 Nationwide Inpatient Sample (unweighted) and AHRQ Quality Indicator SAS and WinQI Version 5.0 Software.

NOTE: Rates are reported as output from the software and not multiplied by any factor; Blank cell = N/A.

Appendix A.3 AHRQ WinQI Version 5.0 Aggregate Estimates

QI	Type	WinQI Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
Prevention Quality Indicators (PQIs)							
PQI #1 Diabetes Short-Term Complications Admission Rate	AREA	15575	235852300	0.000066	0.000665	0.000066	0.000066
PQI #2 Perforated Appendix Admission Rate	AREA	5655	18311	0.308831	0.332291	0.299836	0.299895
PQI #3 Diabetes Long-Term Complications Admission Rate	AREA	29113	235852301	0.000123	0.001077	0.000122	0.000122
PQI #5 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	AREA	93698	145546900	0.000644	0.005233	0.000638	0.000638
PQI #7 Hypertension Admission Rate	AREA	18297	235852301	0.000078	0.000557	0.000077	0.000077
PQI #8 Heart Failure Admission Rate	AREA	86517	235852316	0.000367	0.003362	0.000362	0.000362
PQI #9 Low Birth Weight Rate	AREA	20089	302594	0.066389	0.062741	0.066390	0.066205
PQ #10 Dehydration Admission Rate	AREA	34475	235852306	0.000146	0.001435	0.000145	0.000145
PQI #11 Bacterial Pneumonia Admission Rate	AREA	60182	235852310	0.000255	0.002710	0.000252	0.000252
PQI #12 Urinary Tract Infection Admission Rate	AREA	48120	235852307	0.000204	0.001756	0.000202	0.000202
PQI #13 Angina Without Procedure Admission Rate	AREA	3208	235852300	0.000014	0.000140	0.000013	0.000013
PQI #14 Uncontrolled Diabetes Admission Rate	AREA	5164	235852300	0.000022	0.000160	0.000022	0.000022
PQI #15 Asthma in Younger Adults Admission Rate	AREA	4543	83118444	0.000055	0.000485	0.000054	0.000054
PQI #16 Lower-Extremity Amputation among Patients with Diabetes Rate	AREA	3674	235852300	0.000016	0.000159	0.000015	0.000015
PQI #90 Prevention Quality Overall Composite	AREA	401018	235852439	0.001700	0.015379	0.001683	0.001683
PQI #91 Prevention Quality Acute Composite	AREA	142777	235852341	0.000605	0.005901	0.000599	0.000599
PQI #92 Prevention Quality Chronic Composite	AREA	258249	235852350	0.001095	0.009478	0.001084	0.001084
Inpatient Quality Indicators (IQIs)							
IQI #1 Esophageal Resection Volume	PROVIDER	422					
IQI #2 Pancreatic Resection Volume	PROVIDER	1445					
IQI #2A Stratum A	PROVIDER	769					
IQI #2B Stratum B	PROVIDER	676					
IQI #4 Abdominal Aortic Aneurysm (AAA) Repair Volume	PROVIDER	4130					
IQI #4A Stratum A	PROVIDER	151					
IQI #4B Stratum B	PROVIDER	416					

Appendix A.3 AHRQ WinQI Version 5.0 Aggregate Estimates

QI	Type	WinQI Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
IQI #4C Stratum C	PROVIDER	174					
IQI #4D Stratum D	PROVIDER	3389					
IQI #5 Coronary Artery Bypass Graft (CABG) Volume	PROVIDER	18266					
IQI #6 Percutaneous Coronary Intervention (PCI) Volume	PROVIDER	49785					
IQI #7 Carotid Endarterectomy Volume	PROVIDER	9774					
IQI #8 Esophageal Resection Mortality Rate	PROVIDER	25	345	0.072464	0.034441	0.084399	0.067205
IQI #9 Pancreatic Resection Mortality Rate	PROVIDER	47	1441	0.032616	0.021233	0.043411	0.043077
IQI #9A Stratum A	PROVIDER	31	768	0.040365	0.016639	0.062470	
IQI #9B Stratum B	PROVIDER	16	673	0.023774	0.026564	0.023047	
IQI #11 Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate	PROVIDER	150	4112	0.036479	0.029034	0.046284	0.044900
IQI #11A Stratum A	PROVIDER	53	149	0.355705	0.364628	0.356279	
IQI #11B Stratum B	PROVIDER	28	415	0.067470	0.025475	0.119990	
IQI #11C Stratum C	PROVIDER	41	169	0.242604	0.222655	0.251385	
IQI #11D Stratum D	PROVIDER	28	3379	0.008286	0.005124	0.012611	
IQI #12 Coronary Artery Bypass Graft (CABG) Mortality Rate	PROVIDER	515	17993	0.028622	0.021993	0.033076	0.032982
IQI #13 Craniotomy Mortality Rate	PROVIDER	725	12540	0.057815	0.043234	0.076982	0.076766
IQI #14 Hip Replacement Mortality Rate	PROVIDER	17	26822	0.000634	0.000378	0.001130	0.001047
IQI #15 Acute Myocardial Infarction (AMI) Mortality Rate	PROVIDER	2882	52532	0.054862	0.052078	0.059382	0.059378
IQI #16 Heart Failure Mortality Rate	PROVIDER	2533	93465	0.027101	0.028889	0.028853	0.028854
IQI #17 Acute Stroke Mortality Rate	PROVIDER	3928	54707	0.071801	0.077089	0.077521	0.077523
IQI #17A Stratum A	PROVIDER	427	2155	0.198144	0.198100	0.212654	
IQI #17B Stratum B	PROVIDER	1803	9137	0.197330	0.212925	0.203058	
IQI #17C Stratum C	PROVIDER	1698	43415	0.039111	0.042505	0.043892	
IQI #18 Gastrointestinal Hemorrhage Mortality Rate	PROVIDER	1004	51946	0.019328	0.019961	0.021648	0.021651
IQI #19 Hip Fracture Mortality Rate	PROVIDER	541	25502	0.021214	0.013810	0.038847	0.038659
IQI #20 Pneumonia Mortality Rate	PROVIDER	2293	77113	0.029736	0.031107	0.033473	0.033475

Appendix A.3 AHRQ WinQI Version 5.0 Aggregate Estimates

QI	Type	WinQI Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
IQI #21 Cesarean Delivery Rate, Uncomplicated	PROVIDER	91954	265342	0.346549	1.000000	0.346549	
IQI #22 Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated	PROVIDER	3315	49610	0.066821	1.000000	0.066821	
IQI #23 Laparoscopic Cholecystectomy Rate	PROVIDER	29985	33781	0.887629	1.000000	0.887629	
IQI #24 Incidental Appendectomy in the Elderly Rate	PROVIDER	395	42100	0.009382	1.000000	0.009382	
IQI #25 Bilateral Cardiac Catheterization Rate	PROVIDER	1321	99749	0.013243	1.000000	0.013243	
IQI #26 Coronary Artery Bypass Graft (CABG) Rate	AREA	18143	145546894	0.000125	0.002494	0.000064	0.000066
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	AREA	48993	145546897	0.000337	0.005241	0.000216	0.000222
IQI #28 Hysterectomy Rate	AREA	20019	121226457	0.000165	0.001417	0.000236	0.000245
IQI #29 Laminectomy or Spinal Fusion Rate	AREA	58977	235852303	0.000250	0.005273	0.000117	0.000121
IQI #30 Percutaneous Coronary Intervention (PCI) Mortality Rate	PROVIDER	1144	48489	0.023593	0.018329	0.027392	0.027290
IQI #31 Carotid Endarterectomy Mortality Rate	PROVIDER	43	9746	0.004412	0.004357	0.004463	0.004423
IQI #32 Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases	PROVIDER	2607	46861	0.055633	0.053134	0.061300	0.061296
IQI #33 Primary Cesarean Delivery Rate, Uncomplicated	PROVIDER	45659	215732	0.211647	1.000000	0.211647	
IQI #34 Vaginal Birth After Cesarean (VBAC) Rate, All	PROVIDER	3792	56043	0.067662	1.000000	0.067662	
Patient Safety Indicators (PSIs)							
PSI #2 Death Rate in Low-Mortality Diagnosis Related Groups (DRGs)	PROVIDER	240	700809	0.000342	0.000400	0.000278	0.000278
PSI #3 Pressure Ulcer Rate	PROVIDER	484	774266	0.000625	0.000502	0.000634	0.000634
PSI #4 Death Rate among Surgical Inpatients with Serious Treatable Complications	PROVIDER	2997	24542	0.122117	0.121304	0.120311	0.120308
PSI #4A Stratum A	PROVIDER	177	3341	0.052978	0.052145	0.048880	
PSI #4B Stratum B	PROVIDER	744	10857	0.068527	0.075855	0.068734	
PSI #4C Stratum C	PROVIDER	744	3843	0.193599	0.202813	0.192836	
PSI #4D Stratum D	PROVIDER	1141	3072	0.371419	0.356562	0.359335	
PSI #4E Stratum E	PROVIDER	191	3429	0.055701	0.051564	0.052494	
PSI #5 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	95					
PSI #6 Iatrogenic Pneumothorax Rate	PROVIDER	823	2591094	0.000318	0.000316	0.000341	0.000341

Appendix A.3 AHRQ WinQI Version 5.0 Aggregate Estimates

QI	Type	WinQI Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
PSI #7 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	620	2008081	0.000309	0.000201	0.000322	0.000321
PSI #8 Postoperative Hip Fracture Rate	PROVIDER	22	422378	0.000052	0.000045	0.000052	0.000051
PSI #9 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	3135	646859	0.004846	0.005043	0.004946	0.004946
PSI #10 Postoperative Physiologic and Metabolic Derangement Rate	PROVIDER	273	266912	0.001023	0.000770	0.000950	0.000947
PSI #11 Postoperative Respiratory Failure Rate	PROVIDER	2635	222660	0.011834	0.010758	0.011097	0.011095
PSI #12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	PROVIDER	3477	699355	0.004972	0.005117	0.004908	0.004908
PSI #13 Postoperative Sepsis Rate	PROVIDER	546	52751	0.010351	0.009530	0.010394	0.010386
PSI #14 Postoperative Wound Dehiscence Rate	PROVIDER	206	97496	0.002113	0.002010	0.001951	0.001950
PSI #15 Accidental Puncture or Laceration Rate	PROVIDER	3942	2699497	0.001460	0.001657	0.001917	0.001917
PSI #16 Transfusion Reaction Count	PROVIDER	8					
PSI #17 Birth Trauma Rate – Injury to Neonate	PROVIDER	683	293954	0.002323	0.002107	0.002323	0.002323
PSI #18 Obstetric Trauma Rate – Vaginal Delivery With Instrument	PROVIDER	1247	11152	0.111819	0.139922	0.111819	0.111819
PSI #19 Obstetric Trauma Rate – Vaginal Delivery Without Instrument	PROVIDER	3457	175475	0.019701	0.022542	0.019701	0.019701
PSI #21 Retained Surgical Item or Unretrieved Device Fragment Rate	AREA	236	235852300	0.000001			
PSI #22 Iatrogenic Pneumothorax Rate	AREA	1536	235852300	0.000007	2068.000000		
PSI #23 Central Venous Catheter-Related Blood Stream Infection Rate	AREA	2068	235852300	0.000009	387.000000		
PSI #24 Postoperative Wound Dehiscence Rate	AREA	387	235852300	0.000002	5325.000000		
PSI #25 Accidental Puncture or Laceration Rate	AREA	5325	235852300	0.000023	20		
PSI #26 Transfusion Reaction Rate	AREA	20	235852300	0			
PSI #27 Perioperative Hemorrhage or Hematoma Rate	AREA	7533	235852300	0.000032			
Pediatric Quality Indicators (PDIs)							
NQI #1 Neonatal Iatrogenic Pneumothorax Rate	PROVIDER	4	19002	0.000211	0.000181	0.000224	0.000221
NQI #2 Neonatal Mortality Rate	PROVIDER	638	299272	0.002132	0.002356	0.001937	0.001938
NQI #3 Neonatal Blood Stream Infection Rate	PROVIDER	136	6240	0.021795	0.025778	0.019582	0.019617
PDI #1 Accidental Puncture or Laceration Rate	PROVIDER	74	280073	0.000264	0.000463	0.000286	0.000287
PDI #2 Pressure Ulcer Rate	PROVIDER	6	29180	0.000206	0.000272	0.000216	0.000216

Appendix A.3 AHRQ WinQI Version 5.0 Aggregate Estimates

QI	Type	WinQI Version 5.0					
		OBS num	OBS den	OBS rate	EXP rate	ADJ rate	Smoothed rate
PDI #3 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	2					
PDI #5 Iatrogenic Pneumothorax Rate	PROVIDER	23	257184	0.000089	0.000131	0.000086	0.000087
PDI #6 RACHS-1 Pediatric Heart Surgery Mortality Rate	PROVIDER	40	1434	0.027894	0	0	0
PDI #7 RACHS-1 Pediatric Heart Surgery Volume	PROVIDER	1694					
PDI #8 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	34	7974	0.004264	0.005534	0.004263	0.004295
PDI #9 Postoperative Respiratory Failure Rate	PROVIDER	55	6083	0.009042	0.015189	0.008527	0.008610
PDI #10 Postoperative Sepsis Rate	PROVIDER	92	7375	0.012475	0.013676	0.013445	0.013485
PDI #11 Postoperative Wound Dehiscence Rate	PROVIDER	3	3959	0.000758	0.001114	0.000759	0.000833
PDI #12 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	107	225001	0.000476	0.000483	0.000794	0.000794
PDI #13 Transfusion Reaction Count	PROVIDER						
PDI #14 Asthma Admission Rate	AREA	8007	53554377	0.000150	0.000778	0.000051	0.000052
PDI #15 Diabetes Short-Term Complications Admission Rate	AREA	1087	40356069	0.000027	0.000261	0.000005	0.000005
PDI #16 Gastroenteritis Admission Rate	AREA	4491	59272266	0.000076	0.000208	0.000043	0.000044
PDI #17 Perforated Appendix Admission Rate	AREA	1400	3949	0.354520	0.341608	0.358825	0.357371
PDI #18 Urinary Tract Infection Admission Rate	AREA	2742	59272266	0.000046	0.000158	0.000022	0.000022
PDI #90 Pediatric Quality Overall Composite	AREA	7453	40356069	0.000185	0.001500	0.000032	0.000033
PDI #91 Pediatric Quality Acute Composite	AREA	2179	40356069	0.000054	0.000413	0.000009	0.000010
PDI #92 Pediatric Quality Chronic Composite	AREA	5274	40356069	0.000131	0.001087	0.000023	0.000023

SOURCE: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2010 Nationwide Inpatient Sample (unweighted) and AHRQ Quality Indicator SAS and WinQI Version 5.0 Software.

NOTE: Rates are reported as output from the software and not multiplied by any factor; Blank cell = N/A.

Appendix Table B.1 Key to Appendix Table B

Column Heading	Description
QI	Quality Indicator
TYPE	Provider-level or Area-level indicator
N_SAS	Number of providers (or counties) for which the QI calculation was reported by SAS
N_WINQI	Number of providers (or counties) for which the QI calculation was reported by WinQI
N_NUM	Number of providers (or counties) with a numerator difference between SAS and WinQI
MAX DIFF NUM	Maximum difference in the numerator for any one provider (or county) as calculated by SAS and WinQI
N_DEN	Number of providers (or counties) with a denominator difference between SAS and WinQI
MAX DIFF DEN	Maximum difference in the denominator for any one provider (or county) as calculated by SAS and WinQI
N_OBS	Number of providers (or counties) with a difference between SAS and WinQI in the observed rates
MAX DIFF OBS	Maximum difference in the observed rate for any one provider (or county) as calculated by SAS and WinQI
MAX %DIFF OBS	Maximum difference (expressed as a percentage of the SAS estimate) in the observed rate for any one provider (or county) as calculated by SAS and WinQI
N_EXP	Number of providers (or counties) with a difference between SAS and WinQI in the expected rates
MAX DIFF EXP	Maximum difference in the expected rate for any one provider (or county) as calculated by SAS and WinQI
MAX %DIFF EXP	Maximum difference (expressed as a percentage of the SAS estimate) in the expected rate for any one provider (or county) as calculated by SAS and WinQI
N_RAR	Number of providers (or counties) with a difference between SAS and WinQI in the risk-adjusted rates
MAX DIFF RAR	Maximum difference in the risk-adjusted rate for any one provider (or county) as calculated by SAS and WinQI
MAX %DIFF RAR	Maximum difference (expressed as a percentage of the SAS estimate) in the risk-adjusted rate for any one provider (or county) as calculated by SAS and WinQI
N_SR	Number of providers (or counties) with a difference between SAS and WinQI in the smoothed rates
MAX DIFF SR	Maximum difference in the smoothed rate for any one provider (or county) as calculated by SAS and WinQI
MAX %DIFF SR	Maximum difference (expressed as a percentage of the SAS estimate) in the smoothed rate for any one provider (or county) as calculated by SAS and WinQI

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI															
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])		
N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR		
Prevention Quality Indicators (PQIs)																			
PQI #1 Diabetes Short-Term Complications Admission Rate	AREA	2582	2582	0	0	0	0	4	0.000001	3.23	1	0.000001	0.14	3	0.000001	2.27	20	0.000001	0.53
PQI #2 Perforated Appendix Admission Rate	AREA	502	502	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PQI #3 Diabetes Long-Term Complications Admission Rate	AREA	2582	2582	0	0	0	0	6	0.000001	1.47	3	0.000001	0.08	4	0.000001	2.86	21	0.000001	1.03
PQI #5 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	AREA	2582	2502	0	0	4	4	24	0.000001	0.01	3	0.000002	0.04	40	0.000001	0.01	15	0.000001	0.01
PQI #7 Hypertension Admission Rate	AREA	2582	2582	0	0	0	0	2	0.000001	3.33	1	0.000001	0.16	4	0.000001	1.03	34	0.000001	1.02
PQI #8 Heart Failure Admission Rate	AREA	2582	2582	0	0	4	4	29	0.000001	1.20	2	0.000001	0.02	26	0.000001	0.02	23	0.000002	0.04
PQI #9 Low Birth Weight Rate	AREA		489																
PQ #10 Dehydration Admission Rate	AREA	2582	2582	0	0	3	1	16	0.000001	0.04	2	0.000001	0.09	16	0.000001	0.04	19	0.000001	0.05
PQI #11 Bacterial Pneumonia Admission Rate	AREA	2582	2582	0	0	6	2	23	0.000001	0.01	3	0.000005	0.17	27	0.000001	0.01	14	0.000001	0.01
PQI #12 Urinary Tract Infection Admission Rate	AREA	2582	2582	0	0	2	3	17	0.000001	0.02	1	0.000003	0.19	15	0.000001	0.02	16	0.000001	0.02
PQI #13 Angina Without Procedure Admission Rate	AREA	2582	2582	0	0	0	0	0	0	0	4	0.000001	1.01	5	0.000001	2.33	93	0.000001	1.01

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI															
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])		
N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR		
PQI #14 Uncontrolled Diabetes Admission Rate	AREA	2582	2582	0	0	0	0	2	0.000001	1.35	0	0	0	1	0.000001	1.30	88	0.000001	0.62
PQI #15 Asthma in Younger Adults Admission Rate	AREA	2582	1664	0	0	0	0	1	0.000001	7.69	0	0	0	0	0	0	35	0.000001	1.02
PQI #16 Lower-Extremity Amputation among Patients with Diabetes Rate	AREA	2582	2582	0	0	1	1	1	0.000001	8.33	3	0.000001	0.59	0	0	0	54	0.000001	1.01
PQI #90 Prevention Quality Overall Composite	AREA	2582	2582	0	0	24	7	71	0.000001	0.00	23	0.000026	0.11	96	0.000001	0.00	30	0.000002	0.00
PQI #91 Prevention Quality Acute Composite	AREA	2582	2582	0	0	11	5	49	0.000001	0.01	10	0.000012	0.16	36	0.000001	0.01	16	0.000001	0.01
PQI #92 Prevention Quality Chronic Composite	AREA	2582	2582	0	0	10	5	42	0.000001	0.01	8	0.000004	0.04	46	0.000001	0.01	31	0.000001	0.01
Inpatient Quality Indicators (IQIs)																			
IQI #1 Esophageal Resection Volume	PROVIDER	76	76	0	0														
IQI #2 Pancreatic Resection Volume	PROVIDER	130	130	0	0														
IQI #2A Stratum A	PROVIDER	84	84	0	0														
IQI #2B Stratum B	PROVIDER	112	112	0	0														
IQI #4 Abdominal Aortic Aneurysm (AAA) Repair Volume	PROVIDER	181	181	0	0														
IQI #4A Stratum A	PROVIDER	74	74	0	0														
IQI #4B Stratum B	PROVIDER	100	100	0	0														

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI																	
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])				
N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR				
IQI #4C Stratum C	PROVIDER	83	83	0	0																
IQI #4D Stratum D	PROVIDER	172	172	0	0																
IQI #5 Coronary Artery Bypass Graft (CABG) Volume	PROVIDER	102	102	0	0																
IQI #6 Percutaneous Coronary Intervention (PCI) Volume	PROVIDER	177	177	0	0																
IQI #7 Carotid Endarterectomy Volume	PROVIDER	209	209	0	0																
IQI #8 Esophageal Resection Mortality Rate	PROVIDER	71	71	0	0																
IQI #9 Pancreatic Resection Mortality Rate	PROVIDER	130	130	0	0																
IQI #9A Stratum A	PROVIDER	84	84	0	0	0	0	0	0	40	0.040007	44.12	16	0.008754	2.48	0	0				
IQI #9B Stratum B	PROVIDER	112	112	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
IQI #11 Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate	PROVIDER	180	180	0	0	0	0	0	0	0	0	0	2	1.535730	60.56	0	0				
IQI #11A Stratum A	PROVIDER	73	73	0	0	0	0	0	0	1	0.000001	0.00	1	0.159208	13.73	0	0				
IQI #11B Stratum B	PROVIDER	100	100	0	0	0	0	0	0	0	0	0	1	0.100658	9.15	0	0				
IQI #11C Stratum C	PROVIDER	83	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
IQI #11D Stratum D	PROVIDER	172	172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
IQI #12 Coronary Artery Bypass Graft (CABG) Mortality Rate	PROVIDER	102	102	0	0	0	0	0	0	1	0.000559	1.02	1	0.000328	1.03	1	0.000195	0.66			

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI														
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])	
N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR	
IQI #13 Craniotomy Mortality Rate	PROVIDER	155	155	0	0	0	0	0	1	0.000764	1.67	2	1.793760	64.21	1	0.001178	1.07	
IQI #14 Hip Replacement Mortality Rate	PROVIDER	251	251	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
IQI #15 Acute Myocardial Infarction (AMI) Mortality Rate	PROVIDER	289	289	0	0	0	0	0	4	0.100759	99.20	3	0.000134	0.08	4	0.000122	0.14	
IQI #16 Heart Failure Mortality Rate	PROVIDER	321	321	0	0	0	0	0	53	0.062938	94.70	45	0.001410	0.33	53	0.000732	1.27	
IQI #17 Acute Stroke Mortality Rate	PROVIDER	289	289	0	0	0	0	0	50	0.092253	47.66	44	0.021431	8.02	51	0.008019	5.72	
IQI #17A Stratum A	PROVIDER	166	166	0	0	0	0	0	16	0.009096	1.77	14	0.107768	9.93	0	0		
IQI #17B Stratum B	PROVIDER	245	245	0	0	0	0	0	39	0.004826	0.92	35	0.202198	16.82	0	0		
IQI #17C Stratum C	PROVIDER	287	287	0	0	0	0	0	49	0.077167	92.04	41	0.005920	6.85	0	0		
IQI #18 Gastrointestinal Hemorrhage Mortality Rate	PROVIDER	302	302	0	0	0	0	0	1	0.034200	95.15	0	0		2	0.000001	0.00	
IQI #19 Hip Fracture Mortality Rate	PROVIDER	261	261	0	0	0	0	0	47	0.108621	99.20	33	0.000217	0.22	46	0.000023	0.06	
IQI #20 Pneumonia Mortality Rate	PROVIDER	329	329	0	0	0	0	0	7	0.080928	98.21	4	0.000094	0.04	7	0.000083	0.16	
IQI #21 Cesarean Delivery Rate, Uncomplicated	PROVIDER	176	176	0	0	0	0	0										
IQI #22 Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated	PROVIDER	169	169	0	0	0	0	0										

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI															
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])		
		N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR
IQI #23 Laparoscopic Cholecystectomy Rate	PROVIDER	274	274	0	0	0	0	0	0										
IQI #24 Incidental Appendectomy in the Elderly Rate	PROVIDER	290	290	0	0	0	0	1	0.880369	97.98									
IQI #25 Bilateral Cardiac Catheterization Rate	PROVIDER	224	224	0	0	0	0	1	0.002871	15.79									
IQI #26 Coronary Artery Bypass Graft (CABC) Rate	AREA	2582	2502	0	0	3	1	12	0.000001	1.16	2251	0.000349	15.97	414	0.001682	51.28	2251	0.000488	30.37
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	AREA	2582	2502	0	0	5	5	33	0.000001	0.01	2251	0.000318	6.38	804	0.002743	38.51	2251	0.001001	25.49
IQI #28 Hysterectomy Rate	AREA	2582	2582	0	0	0	0	1	0.000001	1.72	2323	0.001119	44.12	171	0.001048	27.26	2294	0.000033	1.46
IQI #29 Laminectomy or Spinal Fusion Rate	AREA	2582	2582	0	0	3	1	9	0.000001	0.02	2323	0.001321	33.38	583	0.004333	72.14	2323	0.001087	36.82
IQI #30 Percutaneous Coronary Intervention (PCI) Mortality Rate	PROVIDER	174	174	0	0	0	0	0	0		98	0.004307	9.64	98	0.004733	5.27	99	0.000331	0.97
IQI #31 Carotid Endarterectomy Mortality Rate	PROVIDER	209	209	0	0	0	0	0	0		0	0		0	0		0	0	
IQI #32 Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases	PROVIDER	280	280	20	3	47	41	47	0.033846	9.31	50	0.117532	81.27	49	0.056881	26.10	50	0.024402	22.67

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI															
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])		
		N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIF F	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR
IQI #33 Primary Cesarean Delivery Rate, Uncomplicated	PROVIDER	176	176	0	0	0	0	0	0										
IQI #34 Vaginal Birth After Cesarean (VBAC) Rate, All	PROVIDER	170	170	0	0	0	0	0	0										
IQI #90 Mortality for Selected Procedures	PROVIDER	395	399					(119)	(0.005963)	(0.44)	(103)	(0.000106)	(0.28)	(103)	(0.000291)	(0.15)	(248)	(0.000049)	0.00
IQI #91 Mortality for Selected Conditions	PROVIDER	395	399					(327)	(0.315026)	(18.78)	(395)	(0.039049)	(62.56)	(395)	(0.097889)	(39.18)	(313)	(0.000049)	(0.00)
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PSI #2 Death Rate in Low-Mortality Diagnosis Related Groups (DRGs)	PROVIDER	376	376	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #3 Pressure Ulcer Rate	PROVIDER	381	381	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #4 Death Rate among Surgical Inpatients with Serious Treatable Complications	PROVIDER	305	305	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #4A Stratum A	PROVIDER	266	266	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #4B Stratum B	PROVIDER	294	294	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #4C Stratum C	PROVIDER	273	273	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #4D Stratum D	PROVIDER	256	256	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #4E Stratum E	PROVIDER	261	261	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #5 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	62	62	0	0														

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI															
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])		
		N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR
PSI #6 Iatrogenic Pneumothorax Rate	PROVIDER	395	395	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #7 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	395	395	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #8 Postoperative Hip Fracture Rate	PROVIDER	329	329	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #9 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	331	331	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #10 Postoperative Physiologic and Metabolic Derangement Rate	PROVIDER	273	273	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #11 Postoperative Respiratory Failure Rate	PROVIDER	269	269	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	PROVIDER	331	331	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #13 Postoperative Sepsis Rate	PROVIDER	262	262	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #14 Postoperative Wound Dehiscence Rate	PROVIDER	290	290	0	0	0	0	0	0		0	0		0	0		0	0	
PSI #15 Accidental Puncture or Laceration Rate	PROVIDER	395	395	0	0	0	0	0	0		0	0		0	0		0	0	

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI															
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])		
		N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR
PSI #16 Transfusion Reaction Count	PROVIDER	4	4	0	0														
PSI #17 Birth Trauma Rate – Injury to Neonate	PROVIDER	169	169	0	0	0	0	0	0										
PSI #18 Obstetric Trauma Rate – Vaginal Delivery With Instrument	PROVIDER	167	167	0	0	0	0	0	0										
PSI #19 Obstetric Trauma Rate – Vaginal Delivery Without Instrument	PROVIDER	175	175	0	0	0	0	0	0										
PSI #21 Retained Surgical Item or Unretrieved Device Fragment Rate	AREA	2582	2582	0	0	0	0	4	0.000001	4.00									
PSI #22 Iatrogenic Pneumothorax Rate	AREA	2582	2582	0	0	1	1	3	0.000001	3.13									
PSI #23 Central Venous Catheter-Related Blood Stream Infection Rate	AREA	2582	2582	0	0	0	0	6	0.000001	1.14									
PSI #24 Postoperative Wound Dehiscence Rate	AREA	2582	2582	0	0	0	0	5	0.000001	2.17									
PSI #25 Accidental Puncture or Laceration Rate	AREA	2582	2582	0	0	0	0	3	0.000001	1.30									
PSI #26 Transfusion Reaction Rate	AREA	2582	2582	0	0	0	0	0	0										
PSI #27 Perioperative Hemorrhage or Hematoma Rate	AREA	2582	2582	0	0	1	1	3	0.000001	7.14									

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI															
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])		
		N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR
PSI #90 Patient Safety for Selected Indicators	PROVIDER	395	399					(364)	(0.019305)	(1.00)	(339)	(0.001294)	(1.53)	(344)	(0.002247)	(0.77)	(383)	(0.675820)	(0.00)
Pediatric Quality Indicators (PDIs)																			
NQI #1 Neonatal Iatrogenic Pneumothorax Rate	PROVIDER	172	172	0	0	0	0	0	0		133	0.000023	11.27	4	0.000147	0.06	164	0.000049	21.40
NQI #2 Neonatal Mortality Rate	PROVIDER	170	170	0	0	0	0	0	0		117	0.001051	9.38	97	0.001374	8.09	168	0.000678	18.70
NQI #3 Neonatal Blood Stream Infection Rate	PROVIDER	101	101	0	0	0	0	0	0		87	0.004356	12.21	34	0.021582	8.33	94	0.007456	10.12
PDI #1 Accidental Puncture or Laceration Rate	PROVIDER	299	299	0	0	0	0	0	0		50	0.000096	1.96	7	0.000021	0.00	8	0.000010	1.13
PDI #2 Pressure Ulcer Rate	PROVIDER	204	204	0	0	0	0	0	0		91	0.000019	1.41	5	0.000091	0.82	5	0.000091	0.82
PDI #3 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	1	1	0	0														
PDI #5 Iatrogenic Pneumothorax Rate	PROVIDER	299	299	0	0	0	0	0	0		68	0.000075	28.74	4	0.000001	0.04	7	0.000001	0.80
PDI #6 RACHS-1 Pediatric Heart Surgery Mortality Rate	PROVIDER	27	27	0	0	0	0	0	0		14	0.118156	100.00	12	0.060670	100.00	14	0.041992	100.00
PDI #7 RACHS-1 Pediatric Heart Surgery Volume	PROVIDER	37	37	0	0														
PDI #8 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	119	119	0	0	0	0	0	0		1	0.000008	0.14	1	0.000019	0.15	1	0.000013	0.11

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI															
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])		
		N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR
PDI #9 Postoperative Respiratory Failure Rate	PROVIDER	117	117	0	0	0	0	0	0		39	0.003997	12.03	15	0.000257	0.92	39	0.002201	10.15
PDI #10 Postoperative Sepsis Rate	PROVIDER	127	127	0	0	0	0	0	0		32	0.005514	23.85	22	0.000082	0.11	32	0.000014	0.05
PDI #11 Postoperative Wound Dehiscence Rate	PROVIDER	134	134	0	0	1	1	0	0		72	0.000316	22.67	3	0.000219	0.26	48	0.000011	0.54
PDI #12 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	287	287	0	0	0	0	0	0		251	0.001780	32.40	25	0.001277	8.95	195	0.000680	35.03
PDI #13 Transfusion Reaction Count	PROVIDER																		
PDI #14 Asthma Admission Rate	AREA	1000	994	0	0	653	0.4	3	0.000001	0.15	10	0.000001	0.38	4	0.000001	1.52	46	0.000001	2.17
PDI #15 Diabetes Short-Term Complications Admission Rate	AREA	1000	1000	0	0	830	0.5	2	0.000001	0.18	6	0.000001	0.47	2	0.000001	1.10	5	0.000001	1.01
PDI #16 Gastroenteritis Admission Rate	AREA	181	181	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PDI #17 Perforated Appendix Admission Rate	AREA	1000	1000	0	0	830	0.5	4	0.000001	0.09	7	0.000001	0.59	1	0.000001	3.45	56	0.000001	1.09
PDI #18 Urinary Tract Infection Admission Rate	AREA	1000	1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PDI #19 Pediatric Patient Safety for Selected Indicators	PROVIDER	299	399					(264)	(0.305661)	(19.82)	(258)	(0.027013)	(0.16)	(247)	(0.007385)	(0.18)	(263)	(0.000048)	(0.00)

Appendix Table B.2 Comparison of SAS Version 5.0 to WinQI Version 5.0, Detailed Provider/County Level

QI	Type	Number of Providers or Counties		Difference between SAS and WinQI															
				Numerator		Denominator		Observed Rate (Ratio [†])			Expected Rate (Variance [†])			Risk Adjusted Rate (Standard Error [†])			Smoothed Rate (Weight [†])		
N_SAS	N_WinQI	N_NUM	MAX DIFF NUM	N_DEN	MAX DIFF DEN	N_OBS	MAX DIFF OBS	MAX % DIFF OBS	N_EXP	MAX DIFF EXP	MAX % DIFF EXP	N_RAR	MAX DIFF RAR	MAX % DIFF RAR	N_SR	MAX DIFF SR	MAX % DIFF SR		
PDI #90 Pediatric Quality Overall Composite	AREA	1000	994	0	0	653	0.4	11	0.000001	0.03	47	0.000002	0.13	1	0.000001	2.50	1	0.000001	2.17
PDI #91 Pediatric Quality Acute Composite	AREA	1000	994	0	0	653	0.4	2	0.000001	0.06	9	0.000001	0.23	1	0.000001	1.02	56	0.000001	1.20
PDI #92 Pediatric Quality Chronic Composite	AREA	1000	994	0	0	653	0.4	5	0.000001	0.06	31	0.000001	0.09	1	0.000001	1.92	1	0.000001	0.57

SOURCE: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2010 Nationwide Inpatient Sample (unweighted) and AHRQ Quality Indicator SAS and WinQI Version 5.0 Software.

NOTE: Only observed and adjusted ratios are reported for area-level indicators and composites; Smoothed rates are not calculated for stratified indicators; [†]Ratios, Variance, Standard Errors and Weights are reported for 4 composites IQI 90, IQI 91, PSI 90 and PDI 90; Blank cell = N/A.

Table B.3 AHRQ QI SAS software Version 5.0, Detailed Provider/County Level

QI	Type	SAS Version 5.0						
		Nbr of Provider or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
Prevention Quality Indicators (PQIs)								
PQI #1 Diabetes Short-Term Complications Admission Rate	AREA	2582	0.0-1095.0	881.0-7410685.0	0-0.0015	0.0005-0.001	0-0.0014	0-0.0014
PQI #2 Perforated Appendix Admission Rate	AREA	502	0.0-473.0	1.0-2018.0	0-1	0.1757-0.5442	0-1	0.2133-0.4295
PQI #3 Diabetes Long-Term Complications Admission Rate	AREA	2582	0.0-3075.0	881.0-7410685.0	0-0.003	0.0003-0.0017	0-0.003	0-0.003
PQI #5 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	AREA	2582	0.0-7847.0	351.0-4389833.0	0-0.0258	0.0033-0.0078	0-0.0239	0-0.0228
PQI #7 Hypertension Admission Rate	AREA	2582	0.0-2223.0	881.0-7410685.0	0-0.0023	0.0001-0.0009	0-0.0024	0-0.0018
PQI #8 Heart Failure Admission Rate	AREA	2582	0.0-8666.0	881.0-7410685.0	0-0.0081	0.0008-0.0072	0-0.0087	0-0.0086
PQI #9 Low Birth Weight Rate	AREA							
PQ #10 Dehydration Admission Rate	AREA	2582	0.0-2510.0	881.0-7410685.0	0-0.0032	0.0005-0.0028	0-0.003	0-0.0029
PQI #11 Bacterial Pneumonia Admission Rate	AREA	2582	0.0-5402.0	881.0-7410685.0	0-0.0112	0.0009-0.0054	0-0.0104	0-0.0071
PQI #12 Urinary Tract Infection Admission Rate	AREA	2582	0.0-6237.0	881.0-7410685.0	0-0.0056	0.0007-0.0033	0-0.0053	0-0.0043
PQI #13 Angina Without Procedure Admission Rate	AREA	2582	0.0-276.0	881.0-7410685.0	0-0.0027	0-0.0002	0-0.0027	0-0.0012
PQI #14 Uncontrolled Diabetes Admission Rate	AREA	2582	0.0-736.0	881.0-7410685.0	0-0.0006	0.0001-0.0002	0-0.0006	0-0.0005
PQI #15 Asthma in Younger Adults Admission Rate	AREA	2582	0.0-370.0	305.0-3020852.0	0-0.0015	0.0004-0.0005	0-0.0016	0-0.0015
PQI #16 Lower-Extremity Amputation among Patients with Diabetes Rate	AREA	2582	0.0-393.0	881.0-7410685.0	0-0.0007	0-0.0003	0-0.0008	0-0.0003
PQI #90 Prevention Quality Overall Composite	AREA	2582	0.0-38607.0	881.0-7410685.0	0-0.0465	0.0056-0.0291	0-0.0417	0-0.0411
PQI #91 Prevention Quality Acute Composite	AREA	2582	0.0-14149.0	881.0-7410685.0	0-0.0189	0.0022-0.0114	0-0.0176	0-0.0139
PQI #92 Prevention Quality Chronic Composite	AREA	2582	0.0-24460.0	881.0-7410685.0	0-0.0341	0.0034-0.0177	0-0.0306	0-0.03
Inpatient Quality Indicators (IQIs)								
IQI #1 Esophageal Resection Volume	PROVIDER	76	1.0-41.0	76	1.0-41.0			
IQI #2 Pancreatic Resection Volume	PROVIDER	130	1.0-107.0	130	1.0-107.0			
IQI #2A Stratum A	PROVIDER	84	1.0-57.0	84	1.0-57.0			
IQI #2B Stratum B	PROVIDER	112	1.0-57.0	112	1.0-57.0			
IQI #4 Abdominal Aortic Aneurysm (AAA) Repair Volume	PROVIDER	181	1.0-136.0	181	1.0-136.0			

Table B.3 AHRQ QI SAS software Version 5.0, Detailed Provider/County Level

QI	Type	SAS Version 5.0						
		Nbr of Provider or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
IQI #4A Stratum A	PROVIDER	74	1.0-13.0					
IQI #4B Stratum B	PROVIDER	100	1.0-44.0					
IQI #4C Stratum C	PROVIDER	83	1.0-8.0					
IQI #4D Stratum D	PROVIDER	172	1.0-88.0					
IQI #5 Coronary Artery Bypass Graft (CABG) Volume	PROVIDER	102	1.0-723.0					
IQI #6 Percutaneous Coronary Intervention (PCI) Volume	PROVIDER	177	1.0-1720.0					
IQI #7 Carotid Endarterectomy Volume	PROVIDER	209	1.0-257.0					
IQI #8 Esophageal Resection Mortality Rate	PROVIDER	71	0.0-4.0	1.0-31.0	0-1	0.0011-0.2319	0-7.3913	0.0362-0.0577
IQI #9 Pancreatic Resection Mortality Rate	PROVIDER	130	0.0-7.0	1.0-107.0	0-1	0.0007-0.051	0-2.8025	0.0101-0.1155
IQI #9A Stratum A	PROVIDER	84	0.0-6.0	1.0-57.0	0-1	0.0046-0.0907	0-0.3535	
IQI #9B Stratum B	PROVIDER	112	0.0-2.0	1.0-57.0	0-1	0.0007-0.0463	0-0.5947	
IQI #11 Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate	PROVIDER	180	0.0-7.0	1.0-134.0	0-1	0.0005-0.2132	0-2.5357	0.0335-0.0424
IQI #11A Stratum A	PROVIDER	73	0.0-4.0	1.0-13.0	0-1	0.2681-0.5311	0-1.1592	
IQI #11B Stratum B	PROVIDER	100	0.0-3.0	1.0-44.0	0-1	0.0043-0.0654	0-1.1007	
IQI #11C Stratum C	PROVIDER	83	0.0-2.0	1.0-8.0	0-1	0.1357-0.454	0-0.6733	
IQI #11D Stratum D	PROVIDER	172	0.0-2.0	1.0-88.0	0-1	0.0004-0.0473	0-0.1119	
IQI #12 Coronary Artery Bypass Graft (CABG) Mortality Rate	PROVIDER	102	0.0-24.0	1.0-710.0	0-0.2727	0.0037-0.0547	0-0.451	0.0122-0.0555
IQI #13 Craniotomy Mortality Rate	PROVIDER	155	0.0-54.0	1.0-813.0	0-0.5	0.0007-0.1663	0-2.7938	0.0313-0.1102
IQI #14 Hip Replacement Mortality Rate	PROVIDER	251	0.0-2.0	1.0-593.0	0-0.0769	0.0001-0.0073	0-0.3495	0.0006-0.0013
IQI #15 Acute Myocardial Infarction (AMI) Mortality Rate	PROVIDER	289	0.0-62.0	1.0-950.0	0-1	0.0183-0.2565	0-0.4672	0.0292-0.1405
IQI #16 Heart Failure Mortality Rate	PROVIDER	321	0.0-54.0	1.0-1359.0	0-1	0.0054-0.1656	0-0.4225	0.0032-0.1007
IQI #17 Acute Stroke Mortality Rate	PROVIDER	289	0.0-136.0	1.0-1273.0	0-1	0.0034-0.4927	0-0.7628	0.0158-0.1645
IQI #17A Stratum A	PROVIDER	166	0.0-37.0	1.0-164.0	0-1	0.0458-0.5528	0-1.0858	
IQI #17B Stratum B	PROVIDER	245	0.0-66.0	1.0-315.0	0-1	0.0463-0.6345	0-1.2022	

Table B.3 AHRQ QI SAS software Version 5.0, Detailed Provider/County Level

QI	Type	SAS Version 5.0						
		Nbr of Provider or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
IQI #17C Stratum C	PROVIDER	287	0.0-52.0	1.0-834.0	0-1	0.0034-0.0838	0-0.8546	
IQI #18 Gastrointestinal Hemorrhage Mortality Rate	PROVIDER	302	0.0-19.0	1.0-741.0	0-1	0.0052-0.0496	0-0.2437	0.0083-0.0446
IQI #19 Hip Fracture Mortality Rate	PROVIDER	261	0.0-11.0	1.0-378.0	0-0.5	0.0027-0.1095	0-0.5129	0.0155-0.0549
IQI #20 Pneumonia Mortality Rate	PROVIDER	329	0.0-42.0	1.0-1008.0	0-0.5	0.003-0.1799	0-0.462	0.0105-0.0683
IQI #21 Cesarean Delivery Rate, Uncomplicated	PROVIDER	176	0.0-4150.0					
IQI #22 Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated	PROVIDER	169	0.0-253.0					
IQI #23 Laparoscopic Cholecystectomy Rate	PROVIDER	274	1.0-520.0					
IQI #24 Incidental Appendectomy in the Elderly Rate	PROVIDER	290	0.0-20.0					
IQI #25 Bilateral Cardiac Catheterization Rate	PROVIDER	224	0.0-57.0					
IQI #26 Coronary Artery Bypass Graft (CABG) Rate	AREA	2582	0.0-1145.0	351.0-4389833.0	0-0.0039	0.001-0.0022	0-0.0033	0.0001-0.0016
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	AREA	2582	0.0-4372.0	351.0-4389833.0	0-0.0091	0.0027-0.005	0-0.0071	0.0003-0.0039
IQI #28 Hysterectomy Rate	AREA	2582	0.0-2144.0	419.0-3800171.0	0-0.0037	0.0003-0.0025	0-0.0038	0.0002-0.0023
IQI #29 Laminectomy or Spinal Fusion Rate	AREA	2582	0.0-1145.0	351.0-4389833.0	0-0.0039	0.001-0.0022	0-0.0033	0.0001-0.0016
IQI #30 Percutaneous Coronary Intervention (PCI) Mortality Rate	PROVIDER	174	0.0-31.0	1.0-1673.0	0-0.1429	0.0029-0.0447	0-0.0898	0.0166-0.034
IQI #31 Carotid Endarterectomy Mortality Rate	PROVIDER	209	0.0-2.0	1.0-257.0	0-0.2857	0.0001-0.0169	0-0.1975	0.0044-0.0045
IQI #32 Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases	PROVIDER	280	0.0-58.0	1.0-928.0	0-1	0.0191-0.2499	0-0.4809	0.031-0.1409
IQI #33 Primary Cesarean Delivery Rate, Uncomplicated	PROVIDER	176	0.0-1955.0					
IQI #34 Vaginal Birth After Cesarean (VBAC) Rate, All	PROVIDER	170	0.0-277.0					
IQI #90 Mortality for Selected Procedures	PROVIDER	395			(0.866663329 - 1.3681451462)	(0.0284820249-0.0374053369)	(0.1687661842-0.1934045937)	(0 - 885.73490443)
IQI #91 Mortality for Selected Conditions	PROVIDER	395			(0.5406302617 - 1.6777113119)	(0.004407423 - 0.004407423)	(0.066388425-0.2498274588)	(0- 939.560972)
Patient Safety Indicators (PSIs)								
PSI #2 Death Rate in Low-Mortality Diagnosis Related Groups (DRGs)	PROVIDER	376	0.0-9.0	1.0-15172.0	0-0.5	0-0.0128	0-0.0175	0-0.0014
PSI #3 Pressure Ulcer Rate	PROVIDER	381	0.0-48.0	1.0-16147.0	0-0.0323	0-0.0025	0-0.0183	0.0001-0.0078

Table B.3 AHRQ QI SAS software Version 5.0, Detailed Provider/County Level

QI	Type	SAS Version 5.0						
		Nbr of Provider or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
PSI #4 Death Rate among Surgical Inpatients with Serious Treatable Complications	PROVIDER	305	0.0-90.0	1.0-556.0	0-1	0.0349-0.3209	0-0.4918	0.0706-0.1872
PSI #4A Stratum A	PROVIDER	266	0.0-9.0	1.0-134.0	0-1	0.0095-0.26	0-0.5827	0.0377-0.0653
PSI #4B Stratum B	PROVIDER	294	0.0-21.0	1.0-238.0	0-1	0.0051-0.2064	0-0.5154	0.0501-0.1107
PSI #4C Stratum C	PROVIDER	273	0.0-26.0	1.0-118.0	0-1	0.0672-0.5279	0-1.0556	0.1366-0.3125
PSI #4D Stratum D	PROVIDER	256	0.0-34.0	1.0-78.0	0-1	0.1293-0.6401	0-0.9918	0.2079-0.503
PSI #4E Stratum E	PROVIDER	261	0.0-11.0	1.0-103.0	0-1	0.0031-0.2456	0-0.3424	0.0383-0.068
PSI #5 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	62	1.0-4.0					
PSI #6 Iatrogenic Pneumothorax Rate	PROVIDER	395	0.0-22.0	1.0-41477.0	0-0.0123	0-0.002	0-0.0345	0.0001-0.0007
PSI #7 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	395	0.0-17.0	1.0-30212.0	0-0.0651	0-0.0035	0-0.0131	0.0001-0.0019
PSI #8 Postoperative Hip Fracture Rate	PROVIDER	329	0.0-2.0	1.0-10676.0	0-0.0182	0-0	0-0.019	0-0.0001
PSI #9 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	331	0.0-143.0	1.0-14869.0	0-0.05	0.0011-0.0113	0-0.0475	0.0013-0.0112
PSI #10 Postoperative Physiologic and Metabolic Derangement Rate	PROVIDER	273	0.0-22.0	1.0-6273.0	0-0.0769	0.0002-0.0053	0-0.0389	0.0003-0.0022
PSI #11 Postoperative Respiratory Failure Rate	PROVIDER	269	0.0-88.0	1.0-5211.0	0-0.25	0.0024-0.2811	0-0.0954	0.003-0.0242
PSI #12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	PROVIDER	331	0.0-143.0	1.0-16485.0	0-0.1429	0.0011-0.0592	0-0.1142	0.0005-0.0122
PSI #13 Postoperative Sepsis Rate	PROVIDER	262	0.0-24.0	1.0-1518.0	0-0.4	0.0038-0.0949	0-0.1148	0.004-0.0222
PSI #14 Postoperative Wound Dehiscence Rate	PROVIDER	290	0.0-8.0	1.0-1956.0	0-1	0.0004-0.0078	0-0.0207	0.0009-0.0048
PSI #15 Accidental Puncture or Laceration Rate	PROVIDER	395	0.0-172.0	1.0-43685.0	0-0.0263	0-0.019	0-0.0664	0.0002-0.0049
PSI #16 Transfusion Reaction Count	PROVIDER	4	1.0-5.0					
PSI #17 Birth Trauma Rate – Injury to Neonate	PROVIDER	169	0.0-80.0	1.0-13020.0	0-0.0333			
PSI #18 Obstetric Trauma Rate – Vaginal Delivery With Instrument	PROVIDER	167	0.0-45.0	1.0-415.0	0-0.5			
PSI #19 Obstetric Trauma Rate – Vaginal Delivery Without Instrument	PROVIDER	175	0.0-155.0	1.0-7743.0	0-0.067			
PSI #21 Retained Surgical Item or Unretrieved Device Fragment Rate	AREA	2582	0.0-22.0	881.0-7410685.0	0-0.0001			
PSI #22 Iatrogenic Pneumothorax Rate	AREA	2582	0.0-90.0	881.0-7410685.0	0-0.0005			

Table B.3 AHRQ QI SAS software Version 5.0, Detailed Provider/County Level

QI	Type	SAS Version 5.0						
		Nbr of Provider or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
PSI #23 Central Venous Catheter-Related Blood Stream Infection Rate	AREA	2582	0.0-156.0	881.0-7410685.0	0-0.0004			
PSI #24 Postoperative Wound Dehiscence Rate	AREA	2582	0.0-33.0	881.0-7410685.0	0-0.0002			
PSI #25 Accidental Puncture or Laceration Rate	AREA	2582	0.0-418.0	881.0-7410685.0	0-0.0006			
PSI #26 Transfusion Reaction Rate	AREA	20	0.0-2.0	881.0-7410685.0	0-0			
PSI #27 Perioperative Hemorrhage or Hematoma Rate	AREA	2582	0.0-614.0	881.0-7410685.0	0-0.0007			
PSI #90 Patient Safety for Selected Indicators	PROVIDER	395			(0.163381519-1.923556907)	(0.00009490 - 0.084611869)	(0.009741953-0.290881194)	(0-1722768.642)
Pediatric Quality Indicators (PDIs)								
NQI #1 Neonatal Iatrogenic Pneumothorax Rate	PROVIDER	172	0.0-1.0	1.0-1059.0	0-0.25	0.0002-0.0002	0-0.2462	0.0002-0.0002
NQI #2 Neonatal Mortality Rate	PROVIDER	170	0.0-52.0	1.0-13574.0	0-0.015	0.0005-0.0112	0-0.017	0.0011-0.0036
NQI #3 Neonatal Blood Stream Infection Rate	PROVIDER	101	0.0-17.0	1.0-447.0	0-0.1538	0.0129-0.0357	0-0.2592	0.0064-0.0737
PDI #1 Accidental Puncture or Laceration Rate	PROVIDER	299	0.0-8.0	1.0-11426.0	0-0.0097	0-0.0093	0-0.5577	0.0001-0.001
PDI #2 Pressure Ulcer Rate	PROVIDER	204	0.0-1.0	1.0-2482.0	0-0.0105	0.0001-0.0014	0-0.0111	0-0.0111
PDI #3 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	1	2.0-2.0	881.0-235852301.0	0-0.003	0.0003-0.0017	0-0.003	0-0.003
PDI #5 Iatrogenic Pneumothorax Rate	PROVIDER	299	0.0-3.0	1.0-10142.0	0-0.0038	0.0001-0.0003	0-0.0027	0-0.0003
PDI #6 RACHS-1 Pediatric Heart Surgery Mortality Rate	PROVIDER	27	0.0-7.0	1.0-199.0	0-1	0.0201-0.1182	0-0.0607	0.0219-0.042
PDI #7 RACHS-1 Pediatric Heart Surgery Volume	PROVIDER	37	1.0-224.0	881.0-235852301.0	0-0.0023	0.0001-0.0009	0-0.0024	0-0.0018
PDI #8 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	119	0.0-9.0	1.0-1024.0	0-0.0192	0.0055-0.0055	0-0.0192	0.0012-0.0125
PDI #9 Postoperative Respiratory Failure Rate	PROVIDER	117	0.0-9.0	1.0-787.0	0-0.0338	0.0045-0.0332	0-0.0279	0.0014-0.0217
PDI #10 Postoperative Sepsis Rate	PROVIDER	127	0.0-13.0	1.0-724.0	0-1	0.0027-0.0363	0-0.5503	0.0057-0.0264
PDI #11 Postoperative Wound Dehiscence Rate	PROVIDER	134	0.0-1.0	1.0-358.0	0-0.0833	0.0009-0.0014	0-0.0834	0.0008-0.0021
PDI #12 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	287	0.0-12.0	1.0-9170.0	0-0.01	0-0.0055	0-0.0143	0.0002-0.0019
PDI #13 Transfusion Reaction Count	PROVIDER	0						
PDI #14 Asthma Admission Rate	AREA	1000	0.0-685.0	124.2.0-2068849.2	0-0.0052	0.0007-0.0009	0-0.0018	0-0.0006
PDI #15 Diabetes Short-Term Complications Admission Rate	AREA	1000	0.0-115.0	99.2.0-1558014.8	0-0.0012	0.0002-0.0003	0-0.0002	0-0.0001

Table B.3 AHRQ QI SAS software Version 5.0, Detailed Provider/County Level

QI	Type	SAS Version 5.0						
		Nbr of Provider or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
PDI #16 Gastroenteritis Admission Rate	AREA	1000	0.0-595.0	133.65.0-2292900.65	0-0.0022	0.0002-0.0002	0-0.0012	0-0.0004
PDI #17 Perforated Appendix Admission Rate	AREA	181	0.0-183.0	1.0-427.0	0-1	0.2464-0.4644	0-1	0.3223-0.4071
PDI #18 Urinary Tract Infection Admission Rate	AREA	1000	0.0-465.0	133.65.0-2292900.65	0-0.0014	0.0001-0.0002	0-0.0007	0-0.0002
PDI #19 Pediatric Patient Safety for Selected Indicators	PROVIDER	298			(0.3933373582-1.5424872852)	(0.0227775241-16.51786076)	(0.150922245 - 4.064217116)	(0 - 7395.635368)
PDI #90 Pediatric Quality Overall Composite	AREA	1000	0.0-754.0	99.2.0-1558014.8	0-0.0049	0.0014-0.0016	0-0.0008	0-0.0005
PDI #91 Pediatric Quality Acute Composite	AREA	1000	0.0-301.0	99.2.0-1558014.8	0-0.0021	0.0004-0.0005	0-0.0004	0-0.0001
PDI #92 Pediatric Quality Chronic Composite	AREA	1000	0.0-453.0	99.2.0-1558014.8	0-0.0042	0.001-0.0011	0-0.0007	0-0.0004

SOURCE: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2010 Nationwide Inpatient Sample (unweighted) and AHRQ Quality Indicator SAS and WinQI Version 5.0 Software.

NOTE: Only observed and adjusted ratios are reported for area-level indicators and composites; Smoothed rates are not calculated for stratified indicators;

[†]Ratios, Variance, Standard Errors and Weights are reported for 4 composites IQI 90, IQI 91, PSI 90 and PDI 90; Blank cell = N/A.

Table B.4 AHRQ WinQI software Version 5.0, Detailed Provider/County Level

QI	Type	WinQI Version 5.0						
		Nbr of Provider / Facilities or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
Prevention Quality Indicators (PQIs)								
PQI #1 Diabetes Short-Term Complications Admission Rate	AREA	2582	0.0-1095.0	881.0-7410685.0	0-0.0015	0.0005-0.001	0-0.0014	0-0.0014
PQI #2 Perforated Appendix Admission Rate	AREA	502	0.0-473.0	1.0-2018.0	0-1	0.1557-0.5738	0-1	0.2133-0.4295
PQI #3 Diabetes Long-Term Complications Admission Rate	AREA	2582	0.0-3075.0	881.0-7410685.0	0-0.003	0.0003-0.0017	0-0.003	0-0.003
PQI #5 Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate	AREA	2502	0.0-7847.0	499.0-4389833.0	0-0.0258	0.0033-0.0078	0-0.0239	0-0.0228
PQI #7 Hypertension Admission Rate	AREA	2582	0.0-2223.0	881.0-7410685.0	0-0.0023	0.0001-0.0009	0-0.0023	0-0.0018
PQI #8 Heart Failure Admission Rate	AREA	2582	0.0-8666.0	881.0-7410685.0	0-0.0081	0.0008-0.0072	0-0.0087	0-0.0086
PQI #9 Low Birth Weight Rate	AREA	491	0.0-1978.0	1.0-30398.0	0-0.1.0	0.0600-0.0656	0-1.0	0.0588-0.0471
PQ #10 Dehydration Admission Rate	AREA	2582	0.0-2510.0	881.0-7410685.0	0-0.0031	0.0005-0.0027	0-0.0030	0-0.0029
PQI #11 Bacterial Pneumonia Admission Rate	AREA	2582	0.0-5402.0	881.0-7410685.0	0-0.0011	0.0008-0.0054	0-0.0104	0-0.0071
PQI #12 Urinary Tract Infection Admission Rate	AREA	2582	0.0-2737.0	881.0-7410685.0	0-0.0056	0.0006-0.0032	0-0.0052	0-0.0043
PQI #13 Angina Without Procedure Admission Rate	AREA	2582	0.0-276.0	881.0-7410685.0	0-0.0027	0.0001-0.0002	0-0.0027	0-0.0012
PQI #14 Uncontrolled Diabetes Admission Rate	AREA	2582	0.0-736.0	305.0-3020852.0	0-0.0006	0.0004-0.0002	0-0.0005	0-0.0004
PQI #15 Asthma in Younger Adults Admission Rate	AREA	1664	0.0-370.0	547.0-3020852.0	0-0.0015	0.0003-0.0005	0-0.0016	0-0.0014
PQI #16 Lower-Extremity Amputation among Patients with Diabetes Rate	AREA	2582	0.0-393.0	881.0-7410685.0	0-0.0007	0.0-0.0003	0-0.0007	0-0.0003
PQI #90 Prevention Quality Overall Composite	AREA	2582	0.0-38607.0	881.0-7410685.0	0-0.0046	0.0055-0.0291	0-0.0417	0-0.0411
PQI #91 Prevention Quality Acute Composite	AREA	2582	0.0-14149.0	881.0-7410685.0	0-0.0189	0.0022-0.0114	0-0.0176	0-0.0138
PQI #92 Prevention Quality Chronic Composite	AREA	2582	0.0-24460.0	881.0-7410685.0	0-0.0341	0.0063-0.0177	0-0.0305	0-0.0299
Inpatient Quality Indicators (IQIs)								
IQI #1 Esophageal Resection Volume	PROVIDER	76	1.0-41.0					
IQI #2 Pancreatic Resection Volume	PROVIDER	130	1.0-107.0					
IQI #2A Stratum A	PROVIDER	84	1.0-57.0					
IQI #2B Stratum B	PROVIDER	112	1.0-57.0					

Table B.4 AHRQ WinQI software Version 5.0, Detailed Provider/County Level

QI	Type	WinQI Version 5.0						
		Nbr of Provider / Facilities or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
IQI #4 Abdominal Aortic Aneurysm (AAA) Repair Volume	PROVIDER	181	1.0-136.0					
IQI #4A Stratum A	PROVIDER	74	1.0-13.0					
IQI #4B Stratum B	PROVIDER	100	1.0-44.0					
IQI #4C Stratum C	PROVIDER	83	1.0-8.0					
IQI #4D Stratum D	PROVIDER	172	1.0-88.0					
IQI #5 Coronary Artery Bypass Graft (CABG) Volume	PROVIDER	102	1.0-723.0					
IQI #6 Percutaneous Coronary Intervention (PCI) Volume	PROVIDER	177	1.0-1720.0					
IQI #7 Carotid Endarterectomy Volume	PROVIDER	209	1.0-257.0					
IQI #8 Esophageal Resection Mortality Rate	PROVIDER	71	0.0-4.0	1.0-31.0	0-1	0.0011-0.2744	0-1	0.0362-0.0577
IQI #9 Pancreatic Resection Mortality Rate	PROVIDER	130	0.0-7.0	1.0-107.0	0-1	0.0006-0.3946	0-1	0.0101-0.1155
IQI #9A Stratum A	PROVIDER	84	0.0-6.0	1.0-57.0	0-1	0.0004-0.4583	0-1	
IQI #9B Stratum B	PROVIDER	112	0.0-2.0	1.0-57.0	0-1	0.0007-0.0714	0-1	
IQI #11 Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate	PROVIDER	180	0.0-7.0	1.0-134.0	0-1	0.0003-0.3962	0-1	0.0335-0.0424
IQI #11A Stratum A	PROVIDER	73	0.0-4.0	1.0-13.0	0-1	0.2681-0.5971	0-1	
IQI #11B Stratum B	PROVIDER	100	0.0-3.0	1.0-44.0	0-1	0.0038-0.1062	0-1	
IQI #11C Stratum C	PROVIDER	83	0.0-2.0	1.0-8.0	0-1	0.0121-0.4571	0-1	
IQI #11D Stratum D	PROVIDER	172	0.0-2.0	1.0-88.0	0-1	0.0004-0.0483	0-1	
IQI #12 Coronary Artery Bypass Graft (CABG) Mortality Rate	PROVIDER	102	0.0-24.0	1.0-710.0	0-0.2727	0.0011-0.1028	0-0.451	0.0122-0.0555
IQI #13 Craniotomy Mortality Rate	PROVIDER	155	0.0-54.0	1.0-813.0	0-0.5	0.0007-0.3571	0-1	0.0313-0.1114
IQI #14 Hip Replacement Mortality Rate	PROVIDER	251	0.0-2.0	1.0-593.0	0-0.0769	0.0001-0.0073	0-0.3495	0.0006-0.0013
IQI #15 Acute Myocardial Infarction (AMI) Mortality Rate	PROVIDER	289	0.0-62.0	1.0-950.0	0-1	0.0008-0.2565	0-1	0.0292-0.1405
IQI #16 Heart Failure Mortality Rate	PROVIDER	321	0.0-54.0	1.0-1359.0	0-1	0.0009-0.1656	0-1	0.0032-0.1007
IQI #17 Acute Stroke Mortality Rate	PROVIDER	289	0.0-136.0	1.0-1273.0	0-1	0.0022-0.6486	0-1	0.0148-0.1645
IQI #17A Stratum A	PROVIDER	166	0.0-37.0	1.0-164.0	0-1	0.0184-0.8187	0-1	

Table B.4 AHRQ WinQI software Version 5.0, Detailed Provider/County Level

QI	Type	WinQI Version 5.0						
		Nbr of Provider / Facilities or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
IQI #17B Stratum B	PROVIDER	245	0.0-66.0	1.0-315.0	0-1	0.0428-0.7504	0-1	
IQI #17C Stratum C	PROVIDER	287	0.0-52.0	1.0-834.0	0-1	0.0021-0.3507	0-1	
IQI #18 Gastrointestinal Hemorrhage Mortality Rate	PROVIDER	302	0.0-19.0	1.0-741.0	0-1	0.0009-0.3274	0-1	0.0083-0.0446
IQI #19 Hip Fracture Mortality Rate	PROVIDER	261	0.0-11.0	1.0-378.0	0-0.5	0.0008-0.0992	0-0.5129	0.0156-0.0549
IQI #20 Pneumonia Mortality Rate	PROVIDER	329	0.0-42.0	1.0-1008.0	0-0.5	0.003-0.1799	0-0.9466	0.0117-0.0755
IQI #21 Cesarean Delivery Rate, Uncomplicated	PROVIDER	176	0.0-4150.0	1.0-11403.0	0-1	1	0-1	
IQI #22 Vaginal Birth After Cesarean (VBAC) Delivery Rate, Uncomplicated	PROVIDER	169	0.0-253.0	1.0-2348.0	0-0.2971	1	0-0.2971	
IQI #23 Laparoscopic Cholecystectomy Rate	PROVIDER	274	1.0-520.0	1.0-536.0	0.0294-1	1	0.0294-1	
IQI #24 Incidental Appendectomy in the Elderly Rate	PROVIDER	290	0.0-20.0	1.0-771.0	0-0.5	1	0-0.5	
IQI #25 Bilateral Cardiac Catheterization Rate	PROVIDER	224	0.0-57.0	1.0-2659.0	0-0.3333	1	0-0.3333	
IQI #26 Coronary Artery Bypass Graft (CABG) Rate	AREA	2502	0.0-1145.0	499.0-4389833.0	0-0.0039	0.0023-0.0030	0-0.0018	0.0001-0.0013
IQI #27 Percutaneous Coronary Intervention (PCI) Rate	AREA	2502	0.0-4372.0	499.0-4389833.0	0-0.0091	0.0050-0.0061	0-0.0058	0.0002-0.0037
IQI #28 Hysterectomy Rate	AREA	2582	0.0-2144.0	458.0-3800171.0	0-0.0037	0.0-0.0014	0-0.0052	0.0002-0.0027
IQI #29 Laminectomy or Spinal Fusion Rate	AREA	2582	0.0-3964.0	928.0-7410685.0	0-0.0069	0.0052-0.0053	0-0.0032	0.0001-0.0026
IQI #30 Percutaneous Coronary Intervention (PCI) Mortality Rate	PROVIDER	174	0.0-31.0	1.0-1673.0	0-0.1066	0.0003-0.1184	0-0.0631	0.0169-0.0342
IQI #31 Carotid Endarterectomy Mortality Rate	PROVIDER	209	0.0-43.0	1.0-257.0	0-0.2857	0.0001-0.0169	0-0.1975	0.0044-0.0045
IQI #32 Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases	PROVIDER	280	0.0-58.0	1.0-926.0	0-0.22	0.0272-0.2165	0-0.1741	0.031-0.1409
IQI #33 Primary Cesarean Delivery Rate, Uncomplicated	PROVIDER	176	0.0-1350.0	1.0-5876.0	0-1	1	0-1	
IQI #34 Vaginal Birth After Cesarean (VBAC) Rate, All	PROVIDER	170	0.0-277.0	1.0-1506.0	0-0.2718	1	0-0.2718	
IQI #90 Mortality for Selected Procedures	PROVIDER	399			(0.8609895-1.3681444)	(0.0285979-0.0374053)	(0.169709-0.1934046)	(0-885.7349)
IQI #91 Mortality for Selected Conditions	PROVIDER	399			(0.6011751 - 1.5628959)	(0.0041071-0.0267257)	(0.0640865-0.16348)	(0-939.561)
Patient Safety Indicators (PSIs)								
PSI #2 Death Rate in Low-Mortality Diagnosis Related Groups (DRGs)	PROVIDER	376	0.0-5.0	140.0-10183.0	0-0.0060	0.0001-0.0017	0-0.0027	0-0.0014

Table B.4 AHRQ WinQI software Version 5.0, Detailed Provider/County Level

QI	Type	WinQI Version 5.0						
		Nbr of Provider / Facilities or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
PSI #3 Pressure Ulcer Rate	PROVIDER	382	0.0-48.0	1.0-16147.0	0-0.0322	0-0002-0.0050	0-0.0183	0.0001-0.0074
PSI #4 Death Rate among Surgical Inpatients with Serious Treatable Complications	PROVIDER	305	0.0-90.0	1.0-556.0	0-1	0.0255-0.3206	0-0.9023	0.0706-0.1870
PSI #4A Stratum A	PROVIDER	266	0.0-9.0	1.0-134.0	0-1	0.0021-0.5048	0-1	
PSI #4B Stratum B	PROVIDER	294	0.0-21.0	1.0-238.0	0-1	0.0021-0.2115	0-1	
PSI #4C Stratum C	PROVIDER	273	0.0-26.0	1.0-118.0	0-1	0.0327-0.5279	0-1	
PSI #4D Stratum D	PROVIDER	256	0.0-34.0	1.0-78.0	0-1	0.0496-0.7733	0-1	
PSI #4E Stratum E	PROVIDER	261	0.0-11.0	1.0-103.0	0-0.6666	0.0014-0.2454	0-1	
PSI #5 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	62	1.0-4.0					
PSI #6 Iatrogenic Pneumothorax Rate	PROVIDER	395	0.0-22.0	1.0-41477.0	0-0.1226	0.0001-0.0021	0-0.0344	0.0001-0.0007
PSI #7 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	395	0.0-17.0	1.0-30212.0	0-0.0650	0-0.0030	0-0.0154	0.0001-0.0019
PSI #8 Postoperative Hip Fracture Rate	PROVIDER	329	0.0-2.0	1.0-10676.0	0-0.0181	0.00004	0-0.0189	0-0.0001
PSI #9 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	331	0.0-143.0	1.0-14869.0	0-0.05	0.0004-0.0113	0-0.0475	0.0013-0.0112
PSI #10 Postoperative Physiologic and Metabolic Derangement Rate	PROVIDER	273	0.0-22.0	1.0-6273.0	0-0.0769	0.0001-0.0073	0.000-0.0713	0.0003-0.0022
PSI #11 Postoperative Respiratory Failure Rate	PROVIDER	269	0.0-88.0	1.0-5211.0	0-0.25	0.0017-0.0298	0-0.1023	0.0032-0.0242
PSI #12 Perioperative Pulmonary Embolism or Deep Vein Thrombosis Rate	PROVIDER	331	0.0-141.0	1.0-16485.0	0-0.0142	0.001-0.0532	0-0.0123	0.0005-0.0122
PSI #13 Postoperative Sepsis Rate	PROVIDER	262	0.0-24.0	1.0-1518.0	0-0.04	0.0031-0.0948	0-0.1148	0.004-0.0222
PSI #14 Postoperative Wound Dehiscence Rate	PROVIDER	290	0.0-8.0	1.0-1956.0	0-1	0.0003-0.0077	0-0.5702	0.0009-0.0048
PSI #15 Accidental Puncture or Laceration Rate	PROVIDER	395	0.0-172.0	1.0-43685.0	0-0.2631	0.0005-0.0189	0-0.0663	0.0001-0.0049
PSI #16 Transfusion Reaction Count	PROVIDER	4	1.0-5.0					
PSI #17 Birth Trauma Rate – Injury to Neonate	PROVIDER	169	0.0-80.0	1.0-13020.0	0-0.0333	0.0021	0-0.0333	0-0.0332
PSI #18 Obstetric Trauma Rate – Vaginal Delivery With Instrument	PROVIDER	167	0.0-45.0	1.0-415.0	0-0.5	0.1399	0-0.5	0-0.4788
PSI #19 Obstetric Trauma Rate – Vaginal Delivery Without Instrument	PROVIDER	175	0.0-155.0	1.0-7743.0	0-0.0670	0.2254	0-0.0670	0-0.0670
PSI #21 Retained Surgical Item or Unretrieved Device Fragment Rate	AREA	2582	0.0-22.0	881.0-7410685.0	0-0.0001	0		

Table B.4 AHRQ WinQI software Version 5.0, Detailed Provider/County Level

QI	Type	WinQI Version 5.0						
		Nbr of Provider / Facilities or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
PSI #22 Iatrogenic Pneumothorax Rate	AREA	2582	0.0-90.0	881.0-7410685.0	0-0.0045	0		
PSI #23 Central Venous Catheter-Related Blood Stream Infection Rate	AREA	2582	0.0-156.0	881.0-7410685.0	0-0.0004	0		
PSI #24 Postoperative Wound Dehiscence Rate	AREA	2582	0.0-33.0	881.0-7410685.0	0-0.0006	0		
PSI #25 Accidental Puncture or Laceration Rate	AREA	2582	0.0-418.0	881.0-7410685.0	0-0.0006	0		
PSI #26 Transfusion Reaction Rate	AREA	2582	0.0-2.0	881.0-7410685.0	0-0	0		
PSI #27 Perioperative Hemorrhage or Hematoma Rate	AREA	2582	0.0-614.0	881.0-7410685.0	0-0.0007	0		
PSI #90 Patient Safety for Selected Indicators	PROVIDER	399			(0.1618898 - 1.9139504)	(0.0044089 - 0.0846119)	(0.0663996 - 0.290881)	(0 - 29592.6805)
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NQI #1 Neonatal Iatrogenic Pneumothorax Rate	PROVIDER	172	0.0-1.0	1.0-1059.0	0-0.25	0.0002-0.0002	0-0.2458	0.0002-0.0007
NQI #2 Neonatal Mortality Rate	PROVIDER	170	0.0-52.0	1.0-13574.0	0-0.015	0.0005-0.0102	0-0.0156	0.0009-0.0037
NQI #3 Neonatal Blood Stream Infection Rate	PROVIDER	101	0.0-17.0	1.0-447.0	0-0.1538	0.0121-0.0363	0-0.2376	0.0059-0.0669
PDI #1 Accidental Puncture or Laceration Rate	PROVIDER	299	0.0-8.0	1.0-11426.0	0-0.0097	0-0.0344	0-0.5577	0.0001-0.001
PDI #2 Pressure Ulcer Rate	PROVIDER	204	0.0-1.0	1.0-2482.0	0-0.0105	0.0001-0.0058	0-0.0110	0-0.0110
PDI #3 Retained Surgical Item or Unretrieved Device Fragment Count	PROVIDER	1	2.0-2.0					
PDI #5 Iatrogenic Pneumothorax Rate	PROVIDER	299	0.0-3.0	1.0-10142.0	0-0.0038	0.0001-0.0003	0-0.0027	0-0.0003
PDI #6 RACHS-1 Pediatric Heart Surgery Mortality Rate	PROVIDER	27	0.0-7.0	1.0-199.0	0-1			
PDI #7 RACHS-1 Pediatric Heart Surgery Volume	PROVIDER	37	1.0-224.0					
PDI #8 Perioperative Hemorrhage or Hematoma Rate	PROVIDER	119	0.0-9.0	1.0-1024.0	0-0.0192	0.0055-0.0055	0-0.0192	0.0012-0.0125
PDI #9 Postoperative Respiratory Failure Rate	PROVIDER	117	0.0-9.0	1.0-787.0	0-0.0338	0.0045-0.0411	0-0.0287	0.0015-0.0220
PDI #10 Postoperative Sepsis Rate	PROVIDER	127	0.0-13.0	1.0-724.0	0-1	0.0027-0.0363	0-1	0.0073-0.0269
PDI #11 Postoperative Wound Dehiscence Rate	PROVIDER	134	0.0-1.0	1.0-358.0	0-0.0833	0.0007-0.0014	0-0.0873	0.0008-0.0021
PDI #12 Central Venous Catheter-Related Blood Stream Infection Rate	PROVIDER	287	0.0-12.0	1.0-9170.0	0-0.01	0-0.0052	0-0.0179	0.0002-0.0019
PDI #13 Transfusion Reaction Count	PROVIDER	0						
PDI #14 Asthma Admission Rate	AREA	1000	0.0-685.0	124.2.0-2068849.0	0-0.0052	0.0007-0.0009	0-0.0018	0-0.0006

Table B.4 AHRQ WinQI software Version 5.0, Detailed Provider/County Level

QI	Type	WinQI Version 5.0						
		Nbr of Provider / Facilities or Counties	Range Num	Range Den	Range ObsRate (Ratio [†])	Range ExpRate (Variance [†])	Range RiskAdjRate (Standard Error [†])	Range SmoothRate (Weight [†])
PDI #15 Diabetes Short-Term Complications Admission Rate	AREA	994	0.0-115.0	99.0-1558015.0	0-0.0012	0.0002-0.0003	0-0.0002	0-0.0001
PDI #16 Gastroenteritis Admission Rate	AREA	1000	0.0-595.0	134.0-2292901.0	0-0.0014	0.0002-0.0002	0-0.0012	0-0.0004
PDI #17 Perforated Appendix Admission Rate	AREA	181	0.0-183.0	1.0-427.0	0-1	0.2087-0.6688	0-1	0.3223-0.4071
PDI #18 Urinary Tract Infection Admission Rate	AREA	1000	0.0-465.0	134.0-2292901.0	0-0.0014	0.0001-0.0002	0-0.0007	0-0.0002
PDI #19 Pediatric Patient Safety for Selected Indicators	PROVIDER	399			(0.4323312-1.548182)	(0.0289635-16.5178608)	(0.1701867-4.0642171)	(0-7395.6354)
PDI #90 Pediatric Quality Overall Composite	AREA	994	0.0-754.0	99.0-1558015.0	0-0.0049	0.0014-0.0016	0-0.0008	0-0.0005
PDI #91 Pediatric Quality Acute Composite	AREA	994	0.0-301.0	99.0-1558015.0	0-0.0020	0.0004-0.0005	0-0.0004	0-0.0001
PDI #92 Pediatric Quality Chronic Composite	AREA	994	0.0-453.0	99.0-1558015.0	0-0.0042	0.0001-0.0011	0-0.0007	0-0.0004

SOURCE: Agency for Healthcare Research and Quality, Healthcare Cost and Utilization Project. 2010 Nationwide Inpatient Sample (unweighted) and AHRQ Quality Indicator SAS and WinQI Version 5.0 Software.

NOTE: Only observed and adjusted ratios are reported for area-level indicators and composites; Smoothed rates are not calculated for stratified indicators;

[†]Ratios, Variance, Standard Errors and Weights are reported for 4 composites IQI 90, IQI 91, PSI 90 and PDI 90; Blank cell = N/A.