

This document summarizes testing results for Version 4.3 of AHRQ's SAS and WinQI software, released on August 24, 2011.

Testing that compared the QI results calculated by SAS and WinQI was performed using data from AHRQ's Healthcare Costs and Utilization Project (HCUP): the 2008 intramural Nationwide Inpatient Sample (NIS) database and the 4th quarter 2009 State Inpatient Databases (SID). These results are provided as information for QI software users.

We wish to highlight two known considerations for the 4.3 software:

Zero Variability in Smoothed Rates for IQI-11, IQI-14, NQI-01 and PSI-08

In Version 4.3 of the SAS and WinQI software, the smoothed rates for four provider-level indicators, IQI-11, IQI-14, NQI-01 and PSI-08, are constant for all providers and are equal to the reference population rate. In other words, no variation in hospital performance can be seen in these four measures using the smoothed rate.

This lack of variation in smoothed rates is due to the parameter estimation step performed during software development. As calculated from 2008 SID data, the estimated signal variance for these indicators is equal to zero. The constant smoothed rates for these indicators are not due to a software error; they represent a limitation in current parameter estimation procedures as applied to the most recent national data.

Differences in Area Denominator Adjustment

In Version 4.3 and previous versions, the SAS and WinQI software calculate denominators differently for some area-level indicators under certain conditions. We believe that this difference between SAS and WinQI's calculations accounts for most differences in area-level indicators observed in the comparison test results.

For most area-level indicators, the denominators are related to county populations, which are derived from official U.S. Census Bureau data. However, for some combinations of county and demographic category, the Census data is missing or zero. In these cases, SAS makes an adjustment to include in the denominator any patient cases from the discharge record data set that fall within that county and demographic category. WinQI does not make this adjustment.

KEY		
Field Name	Description	Notes
QI	Quality Indicator	
TYPE	Provider-level or area-level indicator	
n_WinQI	The number of providers (or counties) for which a QI calculation was reported by WinQI	
n_SAS	The number of providers (or counties) for which a QI calculation was reported by SAS	
Max_Diff_Num	Maximum difference in the numerator counts that were calculated by SAS and WinQI for any one provider (or county)	
Max_Diff_Denom	Maximum difference in the denominator counts that were calculated by SAS and WinQI for any one provider (or county)	
Max_Diff_ObsRate	Maximum difference in the observed rate calculated by SAS and WinQI for any one provider (or county)	
Max_%Diff_ObsRate	Maximum difference in the observed rate calculated by SAS and WinQI for any one provider (or county) expressed as a percentage of the observed rate calculated by SAS	
Max_Diff_ExpRate	Maximum difference in the expected rate calculated by SAS and WinQI for any one provider (or county)	
Max_%Diff_ExpRate	Maximum difference in the expected rate calculated by SAS and WinQI for any one provider (or county) expressed as a percentage of the expected rate calculated by SAS	
Max_Diff_RARate	Maximum difference in the risk-adjusted rate calculated by SAS and WinQI for any one provider (or county)	
Max_%Diff_RARate	Maximum difference in the risk-adjusted rate calculated by SAS and WinQI for any one provider (or county) expressed as a percentage of the risk-adjusted rate calculated by SAS	
Max_Diff_SmoothRate	Maximum difference in the smoothed rate calculated by SAS and WinQI for any one provider (or county)	
Max_%Diff_SmoothRate	Maximum difference in the smoothed rate calculated by SAS and WinQI for any one provider (or county) expressed as a percentage of the smoothed rate calculated by SAS	
%<2Percentile_Diff_RARate	Percentage of total providers where the SAS risk-adjusted rate percentile and WinQI risk-adjusted rate percentile are different by more than 2 percentiles	The SAS (or WinQI) risk-adjusted rate percentile for a given provider is the percentage of total providers with a risk-adjusted rate less than or equal to the risk-adjusted rate for the given provider. For provider-level QI only.
%Diff_StatSig_RARate	Percentage of total providers where the SAS and WinQI significance determination based on the risk-adjusted rate do not agree	For provider-level QI only.
%<2Percentile_Diff_SmoothRate	Percentage of total providers where the SAS smoothed rate percentile and WinQI smoothed rate percentile are different by more than 2 percentiles	The SAS (or WinQI) smoothed rate percentile for a given provider is the percentage of total providers with a smoothed rate less than or equal to the smoothed rate for the given provider. For provider-level QI only.
%Diff_StatSig_SmoothRate	Percentage of total providers where the SAS and WinQI significance determination based on the smoothed rate do not agree	For provider-level QI only.

PSI19	Provider	1,799	1,799	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI21	Area	11,328	11,330	0	0	0	0	.	.	.	.	.	.	NA	NA	NA	NA
PSI22	Area	11,328	11,330	0	0	0	0	.	.	.	.	.	.	NA	NA	NA	NA
PSI23	Area	11,331	11,333	0	0	0	0	.	.	.	.	.	.	NA	NA	NA	NA
PSI24	Area	11,329	11,331	0	0	0	0	.	.	.	.	.	.	NA	NA	NA	NA
PSI25	Area	11,338	11,340	0	0	0	0	.	.	.	.	.	.	NA	NA	NA	NA
PSI26	Area	11,328	11,330	0	0	0	0	.	.	.	.	.	.	NA	NA	NA	NA
PSI27	Area	11,331	11,333	0	0	0	0	.	.	.	.	.	.	NA	NA	NA	NA
QI COMPOSITES																	
QI	TYPE	n_WinQI	n_SAS	Max_Diff_Comp	Max_%Diff_Comp	Max_Diff_Comp_SE	Max_%Diff_Comp_SE	%<2_Percentile_Diff_Comp	%Diff_StatSig_Comp								
IQI90	Provider	2,961	2,953	0.00328	0.33%	0	0	0	0	IQI90	IQI provider-level composite measure for mortality for selected procedures						
IQI91	Provider	2,961	2,953	0.010584	0.99%	0	0	0.10%	0	IQI91	IQI provider-level composite measure for mortality for selected conditions						
PDI19	Provider	2,961	2,587	0.000208	0.03	0.00002	0.01%	0	0	PDI19	PDI provider-level composite measure for pediatric patient safety for selected indicators						
PDI90	Area	2,408	2,408	0.00004	0.59%	0.00001	0.35%	NA	NA	PDI90	PDI area-level overall composite measure						
PDI91	Area	1,758	1,758	0.00002	0.41%	0	0.20%	NA	NA	PDI91	PDI area-level acute composite measure						
PDI92	Area	1,942	1,942	0.000012	0.26%	0	0.17%	NA	NA	PDI92	PDI area-level chronic composite measure						
PQI90	Area	7,024	7,024	0.002565	8.40%	0.00046	4.28%	NA	NA	PQI90	PQI area-level overall composite measure						
PQI91	Area	5,795	5,795	0.001217	6.50%	0.00004	3.26%	NA	NA	PQI91	PQI area-level acute composite measure						
PQI92	Area	6,025	6,025	0.000835	3.85%	0.00031	1.94%	NA	NA	PQI92	PQI area-level chronic composite measure						
PSI90	Provider	2,961	2,953	0.003324	0.38%	0	0	0	0	PSI90	PSI provider-level composite measure for patient safety for selected indicators						
Please note that n differs between SAS and WinQI for some area-level indicators and some composites																	
NA - not applicable																	
" ." - insufficient data to calculate a result																	