This document summarizes testing results for Version 4.3 of AHRQ's SAS and WinQl 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 WinQl 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 WinQl software calculate denominators differently for some area-level indicators under certain conditions. We believe that this difference between SAS and WinQl'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. WinQl 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 WinQl for any one provider (or county)	
Max_Diff_ObsRate	Maximum difference in the observed rate calculated by SAS and WinQl 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 WinQl for any one provider (or county)	
Max_%Diff_ExpRate	Maximum difference in the expected rate calculated by SAS and WinQl 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 WinQl 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	lare 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.

Max_Diff	f_Comp	Maximu	m differe	ence in the co	mposite rate o	calculated by	SAS and Wi	nQI for any or	ne provider (or	For composites only.										
Max_%Di	ff_Comp				mposite rate of	,		nQI for any or	ne provider (or	county)	For composites only.									
Max_Diff_	Comp_SE		m differe					by SAS and V	VinQI for any o	ne provider	For composites only.									
Max_%Diff_	_Comp_SE				mposite rate s centage of the				VinQI for any o	For composites only.										
%<2Percentile	e_Diff_Comp	Percentage of total providers where the SAS composite rate percentile and WinQI composite rate percentile are different by more than 2 percentiles										The SAS (or WinQI) composite rate percentile for a given provider is the percentage of total providers with a composite rate less than or equal to the composite rate for the given provider. For provider-level composites only.								
%Diff_Stats	Sig_Comp	Percentage of total providers where the SAS and WinQI significance determination based on the composite rate do not agree For provider-level composite										tes only.								
INDIVIDUAL QI																				
QI	ТҮРЕ	n_ WinQI	n_SAS	Max_ Diff_Num	Max_Diff _Denom	Max_Diff _ObsRate	Max_ %Diff_ ObsRate	Max_Diff_ ExpRate	Max_%Diff _ExpRate	Max_ Diff_ RARate	Max_%Diff_ RARate	Max_Diff_ Smooth Rate	Max_%Diff _Smooth Rate	%<2 Percentile_ Diff_RARate	%Diff_ StatSig_ RARate	%<2 Percentile_ Diff_ SmoothRate	%Diff_ StatSig_ SmoothRate			
Inpatient Quality In	dicators	<u> </u>																		
IQI01	Provider	407	407	0																
IQI02	Provider	436	436	0			·	<u> </u>		•			 			· ·	 			
IQI04	Provider	938	938	0			·				•			•		•	· ·			
IQI05	Provider	645	645	0	-	•	•		<u> </u>	•	•	· ·					<u> </u>			
IQI06	Provider	940	940	0								<u> </u>								
IQI07	Provider	1,188	1,188	0		_														
IQI08	Provider	364	364	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI09	Provider	380	380	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI11	Provider	934	934	0	0	0	0	0	0	0	0	0	0	0	0	0				
IQI12	Provider	643	643	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI13	Provider	752	752	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI14	Provider	1,727	1,727	0	0	0	0	0	0	0	0	0	0	0	0	0				
IQI15	Provider	2,188	2,188	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI16	Provider	2,623	2,623	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI17	Provider	2,416	2,416	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI18	Provider	2,440	2,440	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI19	Provider	1,973	1,973	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI20	Provider	2,697	2,697	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI21	Provider	1,801	1,801	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI22	Provider	1,757	1,757	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI23	Provider	2,162	2,162	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI24	Provider	2,196	2,196	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI25	Provider	1,215	1,215	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI26	Area	10,873	11,347	0	0	0	0	0.00002	0.83%	0.00116	3.70%	0	0	NA	NA	NA	NA			
IQI27	Area	10,893	11,367	0	0	0	0	0.00004	0.65%	0.00017	1.68%	0.00012	0.99%	NA	NA	NA	NA			
IQI28	Area	11,342	11,344	0	0	0	0	0.00002	0.47%	0.00011	1.08%	0	0	NA	NA	NA	NA			
IQI29	Area	11,352	11,354	0	0	0	0	0	0.09%	0.00071	3.03%	0	0	NA	NA	NA	NA			
IQI30	Provider	931	931	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI31	Provider	1,187	1,187	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI32	Provider	1,038	1,038	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI33	Provider	1,800	1,800	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
IQI34	Provider	1,759	1,759	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Neonatal Quality In		1.563	1,567	0		0	0			0			0							
NQI01	Provider	1,567	1,567	0	0	0	0	0	0	0	0	0	0	0	0	0				
NQI02	Provider	1,818						0									0			
NQI03	Provider	1,152	1,152	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Pediatric Quality In	dicators																
PDI01	Provider	2,582	2,582	0	1	0	0.02%	0.00002	0.18%	0.00001	0.31%	0	0.09%	0	0	0	0
PDI02	Provider	1,646	1,646	0	1	0	0.0270	0.00002	0.1070	0.00001	0.5170	0	0.0370	0	0	0	0
PDI03	Provider	2	2	0	-	Ü	-			Ü	- U	_ <u> </u>		Ü	Ü		
PDI05	Provider	2,577	2,577	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PDI06	Provider	125	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PDI07	Provider	187	187	0	, ,	Ü		, i		ű	- ŭ	<u> </u>	- ŭ	Ů	Ů	Ť	
PDI08	Provider	1,220	1,220	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PDI09	Provider	1,197	1,197	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PDI10	Provider	893	893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PDI11	Provider	1,268	1,268	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PDI12	Provider	2,507	2,507	0	0	0	0	0	0.01%	0	0	0	0	0	0	0	0
PDI13	Provider	1	1	0		_						<u> </u>					
PDI14	Area	6,552	6,548	0	0	0.00001	0.15%	0.00001	0.41%	0	0.23%	0	0	NA	NA	NA	NA NA
PDI15	Area	6,475	6,548	0	0	0	0.06%	0	0.58%	0	0.08%	0	0	NA	NA	NA NA	NA NA
PDI16	Area	6,551	6,547	0	0	0.00003	0.37%	0.00001	0.42%	0.00001	0.39%	0	0	NA	NA	NA	NA
PDI17	Area	2,259	2,259	0	0	0	0	0	0	0	0	0	0	NA	NA	NA	NA
PDI18	Area	6,551	6,547	0	0	0	0.11%	0	0.42%	0.00001	0.24%	0	0	NA	NA	NA	NA
PDI90	Area	6,477	6,550	0	0	0.00002	0.11%	0.00001	0.58%	0.00001	0.59%	0	0	NA NA	NA NA	NA	NA NA
PDI91	Area	6,474	6,547	0	0	0.00002	0.19%	0.00001	0.58%	0	0.41%	0	0	NA NA	NA NA	NA	NA NA
PDI92	Area	6,476	6,549	0	0	0.00001	0.19%	0.00001	0.58%	0.00001	0.26%	0	0	NA NA	NA NA	NA	NA NA
Prevention Quality		5,470	0,545			0.00001	0.1370	. 0.00001	2.3070	0.00001	0.20/0				.,,,		2.22.5
PQI01	Area	11,337	11,339	0	0	0	0	0	0.02%	0	0.18%	0	0	NA	NA	NA	NA
PDI02	Area	3,680	3,680	0	0	0	0	0	0	0	0	0	0	NA	NA	NA	NA
PQI03	Area			0	0	0	0	0	0.21%	0.00002	0.49%	0	0	NA	NA	NA	NA
PQI05	Area	10,882	11,356	0	0	0	0	0.00005	0.72%	0.00021	1.67%	0.00018	1.33%	NA	NA	NA	NA
PQI07	Area	11.334	11,336	0	0	0	0	0	0.27%	0	0.37%	0.00010	0	NA	NA	NA	NA
PQI08	Area	11,352	11,354	0	0	0	0	0.00011	2.18%	0.0002	2.69%	0.00017	2.59%	NA	NA	NA	NA
PQI09	Area	5,026	5,026	0	0	0	0	0	0	0	0	0	0	NA	NA	NA	NA
PQI10	Area	11,338	11,340	0	0	0	0	0.00002	0.90%	0.00009	1.38%	0	0	NA	NA	NA	NA
PQI11	Area	11,354		0	0	0	0	0.00014	2.98%	0.0004	3.81%	0.00029	3.35%	NA	NA	NA	NA
PQI12	Area	11,345	11,347	0	0	0	0	0.00004	1.13%	0.00006	1.37%	0	0	NA	NA	NA	NA
PQI13	Area	11,332		0	0	0	0	0	0.10%	0	0.22%	0	0	NA	NA	NA	NA
PQI14	Area	11,332		0	0	0	0	0	0.02%	0	0.09%	0	0	NA	NA	NA	NA
PQI15	Area	8,370	11,335	0	0	0	0	0	0.16%	0.00001	0.30%	0	0	NA	NA	NA	NA
PQI16	Area	11,332		0	0	0	0	0	0.07%	0.00066	3.03%	0	0	NA	NA	NA	NA
PQI90	Area	11,422	11,424	0	0	0	0	0.00147	5.59%	0.00257	8.40%	0.00252	8.26%	NA	NA	NA	NA
PQI91	Area	11,374	11,376	0	0	0	0	0.00052	4.61%	0.00122	6.50%	0.00112	6.16%	NA	NA	NA	NA
PQI92	Area		11,397	0	0	0	0	0.00029	2.38%	0.00084	3.85%	0.00069	3.77%	NA	NA	NA	NA
Patient Safety India		1 .							•								
PSI02	Provider	2,728	2,728	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI03	Provider	2,847	2,847	0	1	0	0.06%	0	0.01%	0	0.07%	0	0.06%	0	0	0	0
PSI04	Provider	1,978	1,978	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI05	Provider	177	177	0												<u>.</u>	
PSI06	Provider	2,950	2,950	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI07	Provider	2,949	2,949	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI08	Provider	2,541	2,541	0	0	0	0	0	0	0	0	0	0	0	0	0	
PSI09	Provider	2,564	2,564	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI10	Provider	2,259	2,259	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI11	Provider	2,242	2,242	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI12	Provider	2,567	2,567	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI13	Provider	2,081	2,081	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI14	Provider	2,332	2,332	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI15	Provider	2,950	2,950	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI16	Provider	22	22	0													
PSI17	Provider	1,800	1,800	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PSI18	Provider	1,651	1,651	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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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	ТҮРЕ	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-le	evel composit	e measure for r	nortality for sele	cted procedure	!S		
IQI91	Provider	2,961	2,953	0.010584	0.99%	0	0	0.10%	0	IQI91	IQI provider-le	evel composit	e measure for r	nortality for sele	cted conditions	3		
PDI19	Provider	2,961	2,587	0.000208	0.03	0.00002	0.01%	0	0	PDI19	PDI provider-l	evel composit	e measure for	pediatric patient	safety for selec	ted indicators		
PDI90	Area	2,408	2,408	0.00004	0.59%	0.00001	0.35%	NA	NA	PDI90	PDI area-level	overall comp	osite measure					
PDI91	Area	1,758	1,758	0.00002	0.41%	0	0.20%	NA	NA	PDI91	PDI area-level	acute compo	site measure					
PDI92	Area	1,942	1,942	0.000012	0.26%	0	0.17%	NA	NA	PDI92	PDI area-level	chronic comp	osite measure					
PQI90	Area	7,024	7,024	0.002565	8.40%	0.00046	4.28%	NA	NA	PQI90	PQI area-level	overall comp	osite measure					
PQI91	Area	5,795	5,795	0.001217	6.50%	0.00004	3.26%	NA	NA	PQI91	PQI area-level	acute compo	site measure					
PQI92	Area	6,025	6,025	0.000835	3.85%	0.00031	1.94%	NA	NA	PQI92	PQI area-level	chronic comp	osite measure					
PSI90	Provider	2,961	2,953	0.003324	0.38%	0	0	0	0	PSI90	PSI provider-le	evel composit	e measure for p	patient safety for	selected indica	ators		
NA - not applicable	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																	