



Commonwealth of Pennsylvania
Department of Public Welfare
Office of Mental Health and Substance
Abuse Services

Readmission within 30 Days of Inpatient
Psychiatric Discharge
External Quality Review Project
Measurement Year 2010
FINAL REPORT

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GLOSSARY OF TERMS

Average (i.e., arithmetic mean or mean)	The sum of all items divided by the number of items in the list. All items have an equal contribution to the calculation; therefore this is un-weighted.
Confidence Interval	Confidence intervals (CIs) are ranges of values that can be used to illustrate the variability associated with a given calculation. For any rate, a 95% CI indicates that there is a 95% probability that the calculated rate, if it were measured repeatedly, would be within the range of values presented for that rate. All other things being equal, if any given rate were calculated 100 times, the calculated rate would fall within the CI 95 times, or 95% of the time.
HealthChoices Aggregate Rate	The sum of the total (i.e., all behavioral health (BH) managed care organization (MCO)) numerators divided by the total (i.e., sum of all BH MCOs) denominators.
HealthChoices BH MCO Average	The sum of the individual BH MCO rates divided by the total number of BH MCOs (five BH MCOs). Each BH MCO has an equal contribution to the HealthChoices BH MCO Average value.
HealthChoices County Average	The sum of the individual County rates divided by the total number of Counties (67 Counties). Each County has an equal contribution to the HealthChoices County Average value.
Rate	A proportion indicated as a percentage.
Percentage Point Difference	The arithmetic difference between two rates.
Weighted Average	Similar to an arithmetic mean (the most common type of average), where instead of each of the data points contributing equally to the final average, some data points contribute more than others.
Statistical Significance	In statistics, a result is described as statistically significant if it is unlikely to have occurred by chance. The use of the word significance in statistics is different from the standard one, which suggests that something is important or meaningful.
Z-ratio	The z-ratio expresses how far and in what direction the calculated rate diverged from the most probable result (i.e., the distribution's mean). Statistically significant differences (SSD) at the .05 level between groups are noted, as well as the percentage point difference (PPD) between the rates.

BACKGROUND

This performance measure assessed the percentage of enrollees who were discharged from inpatient acute psychiatric care and subsequently readmitted to inpatient acute psychiatric care within 30 days of the initial discharge. This study examines behavioral health services provided to members participating in the HealthChoices (HC) Behavioral Health Program, Pennsylvania's mandatory managed care program, which provides Medical Assistance recipients with behavioral health services in all 67 Counties of the Commonwealth. Five BH MCOs are subcontracted among the 67 Counties: Community Behavioral Health (CBH), Community Behavioral HealthCare Network of Pennsylvania (CBHNP), Community Care Behavioral Health (CCBH), Magellan Behavioral Health (MBH), and Value Behavioral Health of Pennsylvania (VBH). The participating Counties, grouped by BH MCO, are presented in Table 1.

Table 1: BH MCOs and Participating Counties

BH MCO	County				
CBH	Philadelphia				
CBHNP	Bedford	Cumberland	Fulton	Lycoming	
	Blair	Dauphin	Lancaster	Perry	
	Clinton	Franklin	Lebanon	Somerset	
CCBH	Adams	Clearfield	McKean	Sullivan	
	Allegheny	Columbia	Mifflin	Susquehanna	
	Berks	Elk	Monroe	Tioga	
	Bradford	Forest	Montour	Union	
	Cameron	Huntingdon	Northumberland	Warren	
	Carbon	Jefferson	Pike	Wayne	
	Centre	Juniata	Potter	Wyoming	
	Chester	Lackawanna	Schuylkill	York	
	Clarion	Luzerne	Snyder		
MBH	Bucks	Lehigh	Northampton		
	Delaware	Montgomery			
VBH	Armstrong	Crawford	Indiana	Washington	
	Beaver	Erie	Lawrence	Westmoreland	
	Butler	Fayette	Mercer		
	Cambria	Greene	Venango		

Indicator Development

As directed by OMHSAS, IPRO developed the Readmission within 30 Days of Inpatient Psychiatric Discharge performance measure for implementation in 2008. Although first initiated in 2008, OMHSAS requested that the initial IPRO study in this area be a retrospective review of data from Measurement Year (MY) 2006 (01/01/06 – 12/31/06). OMHSAS required the BH MCOs to perform another data collection and re-measurement of the performance measure soon thereafter in 2008 for MY 2007 data. This measure continues to be of interest to OMHSAS for the purposes of comparing current County and BH MCO rates to the OMHSAS performance goal and to prior years' rates.

The MY 2010 study is the fourth re-measurement of this indicator. In March 2011, the Counties and BH MCOs received draft indicator specifications, data file layouts, and flowcharts for the project. The MY 2010 re-measure included additional patient discharge status codes for exclusion from the study, and measure specifications were updated to reflect the current period of interest. Before the indicators were finalized, feedback was solicited from County and BH MCO staff. All comments and questions were taken into consideration. The final indicator specifications, data file layouts, and flowcharts were distributed on March 30, 2011.

METHODOLOGY

A cross-sectional quality improvement study design was employed. The source for all information was administrative data provided to IPRO by the BH MCOs for each County evaluated in the current study. The source for all administrative data was the BH MCOs' transactional claims systems. A summary of the indicator is provided in Table 2.

Table 2: Quality Indicator Summary

Eligible Population	<p><u>Inclusion:</u> All members with one (or more) hospital discharge from any inpatient acute psychiatric care facility with a discharge date occurring between January 1 and December 1, 2010.</p> <p><u>Exclusion:</u> Members with discharges from non-acute mental health facilities (e.g., Residential Treatment or Rehabilitation Stays); members discharged from an acute inpatient stay with a mental health diagnosis followed by a readmission or a direct transfer to a non-acute mental health facility.</p>
Denominator	All inpatient psychiatric discharges between January 1, 2010 and December 31, 2010. The denominator is based on the total number of discharges not enrollees. The claim must clearly indicate a qualifying discharge.
Numerator	Members who were readmitted to inpatient acute psychiatric care within 30 days of the previous inpatient psychiatric discharge.

Validation Process

IPRO received data files and source code from the BH MCOs for validation. Each of the five BH MCOs submitted data on behalf of their respective County contractors. During this process, IPRO provided technical assistance and other support, as necessary. Any comments/questions regarding the source code and/or data were provided via detailed validation tools prepared by IPRO. The BH MCOs were given the opportunity to revise and resubmit both source code and/or data until the validation was finalized. Final review results were provided to each of the BH MCOs in writing, along with final BH MCO and applicable County rates. The BH MCOs were required to "sign off" on the rates as part of the final validation process. The finalized data files and rates were used by IPRO in the analysis and reporting phase of the study.

Performance Goal

This is the fourth assessment of inpatient acute psychiatric readmission conducted by IPRO on the behalf of OMHSAS. OMHSAS designated the performance measure goal for the MY 2010 study as less than or equal to 10.0% for the participating BH MCOs and Counties.

FINDINGS

This section represents MY 2010 performance measure rates for the HealthChoices program. In this analysis, the demographics of the study population are presented, followed by a breakdown of rates by BH MCO, County, race, age, gender, and ethnicity.

**** This measure is an inverted rate, in that lower rates are preferable. ****

Year-to-year comparisons to MY 2009 and prior years' data are provided, where applicable. Additionally, as appropriate, disparate rates were calculated for various categories in the current study. The significance of the difference between two independent proportions was determined by calculating the z-ratio. Statistically significant differences (SSD) at the .05 level between groups are noted, as well as the percentage point difference (PPD) or absolute difference (AD) between rates.

Individual rates are also compared to the HealthChoices average for the applicable category. Rates statistically significantly greater than or less than the HealthChoices average are indicated. Each HealthChoices average takes the sum of the individual rates and divides the sum by the total number of sub-groups within the category. Therefore, all HealthChoices averages presented in this study are *not* weighted. Whether or not an individual rate performed statistically significantly below or above the HealthChoices average was determined by whether or not that rate's 95% confidence interval included the HealthChoices average for the category.

Lastly, aggregate readmission rates are compared to the OMHSAS-designated performance measure goal of 10.0%. Individual BH MCO and County rates are *not* required to be statistically significantly below 10.0% in order to meet the performance measure goal.

Overall Population Demographics

The demographic characteristics of the 48,884 discharges included in the MY 2010 study were examined. The overall number of discharges increased in MY 2010 from the 48,019 discharges included in the MY 2009 study, but the eligible study population maintained similar demographic characteristics as the MY 2009 data. The increase in discharges appears to be similar to the increase in HealthChoices members accessing behavioral health services in 2010 as compared to 2009. The distribution of discharges in the eligible population across the participating BH MCOs and Counties is presented in Table 3. The study population characteristics by race, age, gender, ethnic categories are displayed in Table 4.

Table 3: Study Population Characteristics – Discharge Distribution by BH MCO and County

Category	Frequency	% of Total Eligible Population	Category	Frequency	% of Total Eligible Population
BH MCO			County		
CBH	11,374	23.3%	Philadelphia	11,374	23.3%
			Bedford	112	0.2%
			Blair	690	1.4%
			Clinton	112	0.2%
			Cumberland	349	0.7%
			Dauphin	1,111	2.3%
CBHNP	5,236	10.7%	Franklin	338	0.7%
			Fulton	31	0.1%
			Lancaster	1,398	2.9%
			Lebanon	356	0.7%
			Lycoming	400	0.8%
			Perry	87	0.2%
			Somerset	252	0.5%

Category	Frequency	% of Total Eligible Population	Category	Frequency	% of Total Eligible Population
BH MCO			County		
			Adams	155	0.3%
			Allegheny	4,757	9.7%
			Berks	1,284	2.6%
			Bradford	222	0.5%
			Cameron	22	0.05%
			Carbon	213	0.4%
			Centre	286	0.6%
			Chester	896	1.8%
			Clarion	142	0.3%
			Clearfield	443	0.9%
			Columbia	258	0.5%
			Elk	156	0.3%
			Forest	15	0.03%
			Huntingdon	169	0.3%
			Jefferson	325	0.7%
			Juniata	63	0.1%
			Lackawanna	946	1.9%
			Luzerne	1,378	2.8%
			McKean	248	0.5%
			Mifflin	307	0.6%
			Monroe	349	0.7%
			Montour	62	0.1%
			Northumberland	342	0.7%
			Pike	90	0.2%
			Potter	63	0.1%
			Schuylkill	659	1.3%
			Snyder	92	0.2%
			Sullivan	10	0.02%
			Susquehanna	78	0.2%
			Tioga	142	0.3%
			Union	93	0.2%
			Warren	161	0.3%
			Wayne	127	0.3%
			Wyoming	60	0.1%
			York	981	2.0%
CCBH	15,594	31.9%	Bucks	1,374	2.8%
			Delaware	1,828	3.7%
			Lehigh	1,834	3.8%
			Montgomery	2,141	4.4%
			Northampton	1,161	2.4%
MBH	8,338	17.1%	Armstrong	272	0.6%
			Beaver	652	1.3%
			Butler	485	1.0%
			Cambria	638	1.3%
			Crawford	466	1.0%
			Erie	1,476	3.0%
			Fayette	671	1.4%
VBH	8,342	17.1%			

Category	Frequency	% of Total Eligible Population	Category	Frequency	% of Total Eligible Population
BH MCO			County		
			Greene	237	0.5%
			Indiana	252	0.5%
			Lawrence	398	0.8%
			Mercer	510	1.0%
			Venango	288	0.6%
			Washington	760	1.6%
			Westmoreland	1,237	2.5%

- n The largest proportions of discharges in the current study were from Philadelphia and Allegheny Counties, which accounted for 23.3% and 9.7% of the study population, respectively.
- n The smallest percentages of discharges in the study were from Cameron, Forest, and Sullivan Counties, which accounted for 0.05%, 0.03%, and 0.02% of the study population, respectively.
- n Among the five BH MCOs, CCBH had the largest population of discharges represented (31.9%), whereas CBHNP had the smallest proportion (10.7%).

Table 4: Study Population Characteristics – Distribution by Race, Age, Gender, and Ethnicity

Category	Frequency	% of Total Eligible Population
Race		
Black/African American	13,088	26.8%
American Indian/Alaskan Native	89	0.2%
Asian	327	0.7%
White	31,832	65.1%
Other/Chose Not to Respond	3,548	7.3%
Hawaiian/Pacific Islander	0	0.0%
Age		
Ages 0-20 years	13,494	27.6%
Ages 21-64 years	34,704	71.0%
Ages 65 years and Over	686	1.4%
Ages 21 and Over (Combined)	35,390	72.4%
Gender		
Female	24,781	50.7%
Male	24,103	49.3%
Ethnicity		
Hispanic	2,447	5.0%
Non-Hispanic	44,151	90.3%
Missing or Not Available	2,286	4.7%

- n There was a similar proportion of discharges for females as for males (50.7% and 49.3%).
- n For age, the largest percentage of discharges, 71.0%, was for enrollees between 21-64 years of age at the time of hospital discharge.
- n The majority of discharges, 65.1%, were for White enrollees, with Black/African Americans being the next largest racial group represented at 26.8%.
- n Approximately 90% of the study population discharges were for Non-Hispanic enrollees.

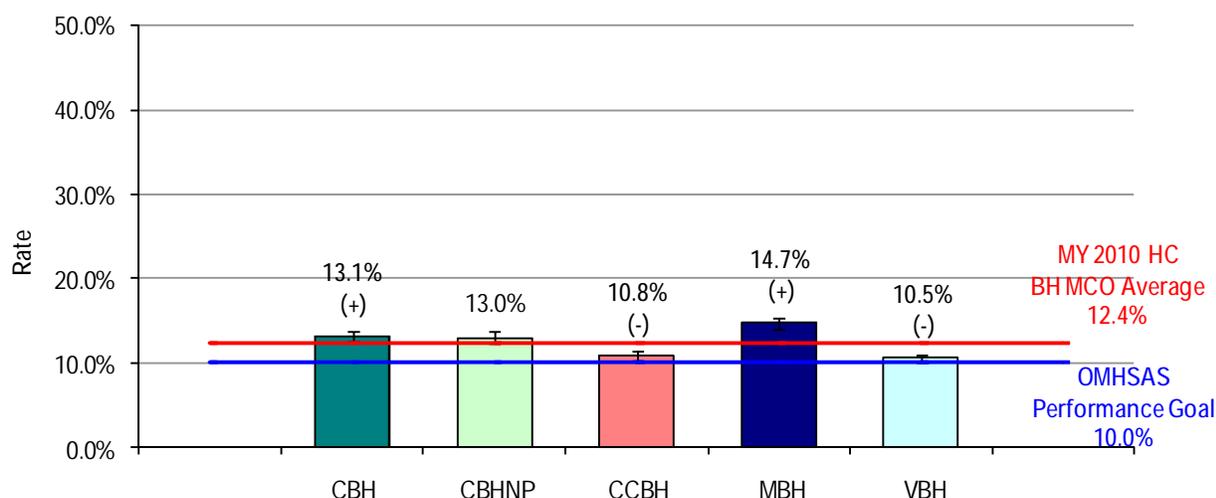
Overall Indicator Rate

In MY 2010, 5,957 of the 48,884 discharges had a qualifying readmission, indicating an inpatient acute psychiatric readmission rate of 12.2% (95% CI 11.9%, 12.5%) for the HealthChoices population. This is a 0.1 percentage point increase as compared to the MY 2009 rate of 12.1%, although the change was not statistically significant. The overall HealthChoices aggregate readmission rate of 12.2% for MY 2010 did not meet the OMHSAS performance goal of 10.0%. This measure is an inverted rate, in that lower rates are preferable.

Readmission Rates by BH MCO

Figure 1 displays the MY 2010 readmission rates by BH MCO. BH MCO rates statistically significantly greater than or less than the MY 2010 HealthChoices BH MCO average of 12.4% are indicated. Figure 2 displays the year-to-year comparison of readmission rates by BH MCO. The OMHSAS performance goal of a 10.0% rate of readmission is presented in both figures. BH MCO specific performance rates for MY 2010 with comparisons to MY 2009 data are presented in Table 5.

Figure 1: MY 2010 Readmission Rates by BH MCO



Note: Rates statistically significantly above and below the HC BH MCO Average are indicated in bold and (+) or (-), respectively. CBHNP is not statistically significant.

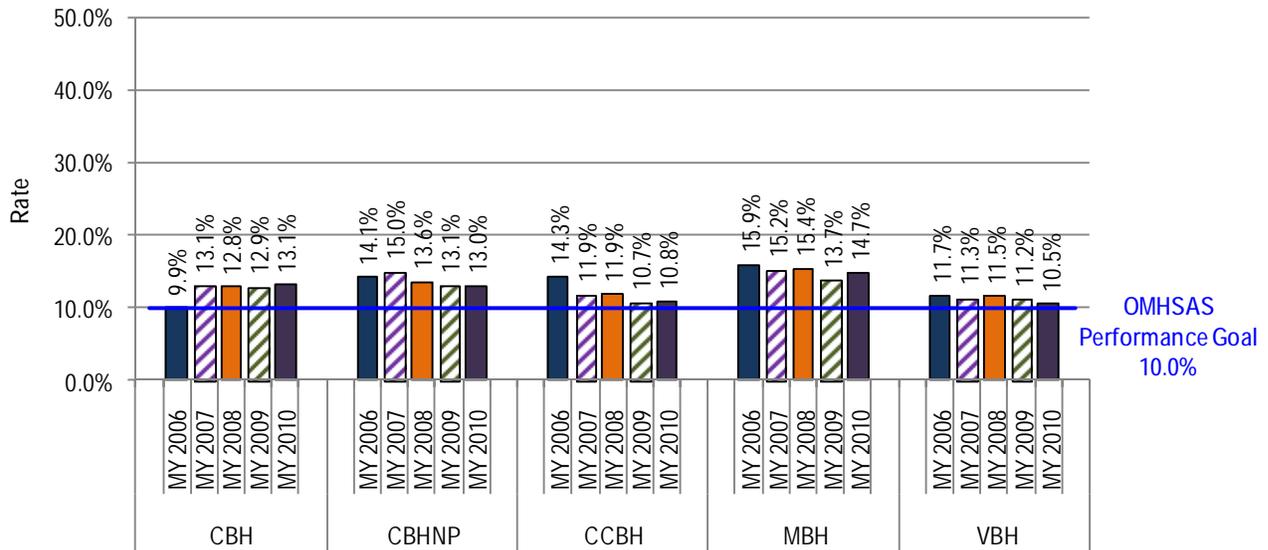
Table 5: MY 2010 Readmissions Rates and Year-to-Year Comparison by BH MCO

Category	MY 2009			MY 2010			Rate Comparison (MY 2009 to MY 2010)	
	N	D	%	N	D	%	PPD*	SSD**
BH MCO								
CBH	1,499	11,618	12.9%	1,493	11,374	13.1%	0.2	NO
CBHNP	629	4,801	13.1%	680	5,236	13.0%	-0.1	NO
CCBH	1,636	15,241	10.7%	1,681	15,594	10.8%	0.1	NO
MBH	1,098	7,996	13.7%	1,225	8,338	14.7%	1.0	NO
VBH	935	8,363	11.2%	878	8,342	10.5%	-0.7	NO

* Percentage point difference

** Statistically significant difference

Figure 2: Year-to-Year Readmission Rates by BH MCO



- n The MY 2010 HealthChoices BH MCO average was 12.4%. This is an increase of 0.1 percentage point from the MY 2009 HealthChoices BH MCO average of 12.3%.
- n The MY 2010 readmission rate for VBH was the lowest at 10.5%.
- n The MY 2010 readmission rates decreased for two (CBHNP and VBH), and increased for three (CBH, CCBH, and MBH) of the five BH MCOs. The changes were *not* statistically significant.
- n None of the BH MCOs met the performance measure goal of 10.0% in MY 2010.
- n The MY 2010 readmission rate for MBH was the highest at 14.7%. This is consistent with findings from prior studies, for which readmission rates for MBH were highest at 13.7% in MY 2009, 15.4% in MY 2008, 15.2% in MY 2007, and 15.9% in MY 2006.
- n The MY 2010 rate for CBH and MBH were statistically significantly higher than the HealthChoices BH MCO average, while the rates for CCBH and VBH were statistically significantly lower than the HealthChoices BH MCO average.

Readmission Rates by County

As indicated previously, all 67 Counties in Pennsylvania were evaluated in this study. Individual County rates are presented in Figure 3a, and the rates are grouped into four categories as follows:

- Readmission rate less than 10.0% (Below performance goal)
- Readmission rate between 15.0% and 19.9%
- Readmission rate between 10.0% and 14.9%
- Less than 100 eligible discharges

Participating Counties with fewer than 100 eligible discharges are indicated in white. Rates for these Counties have an increased chance of variability. County rates with the corresponding 95% confidence intervals are presented in Figure 3b. Caution should be exercised when interpreting results for small denominators, as they produce rates that are less stable. Rates produced from small denominators are subject to greater variability, or greater margin of error.

Figure 3a: MY 2010 Readmission Rates by County

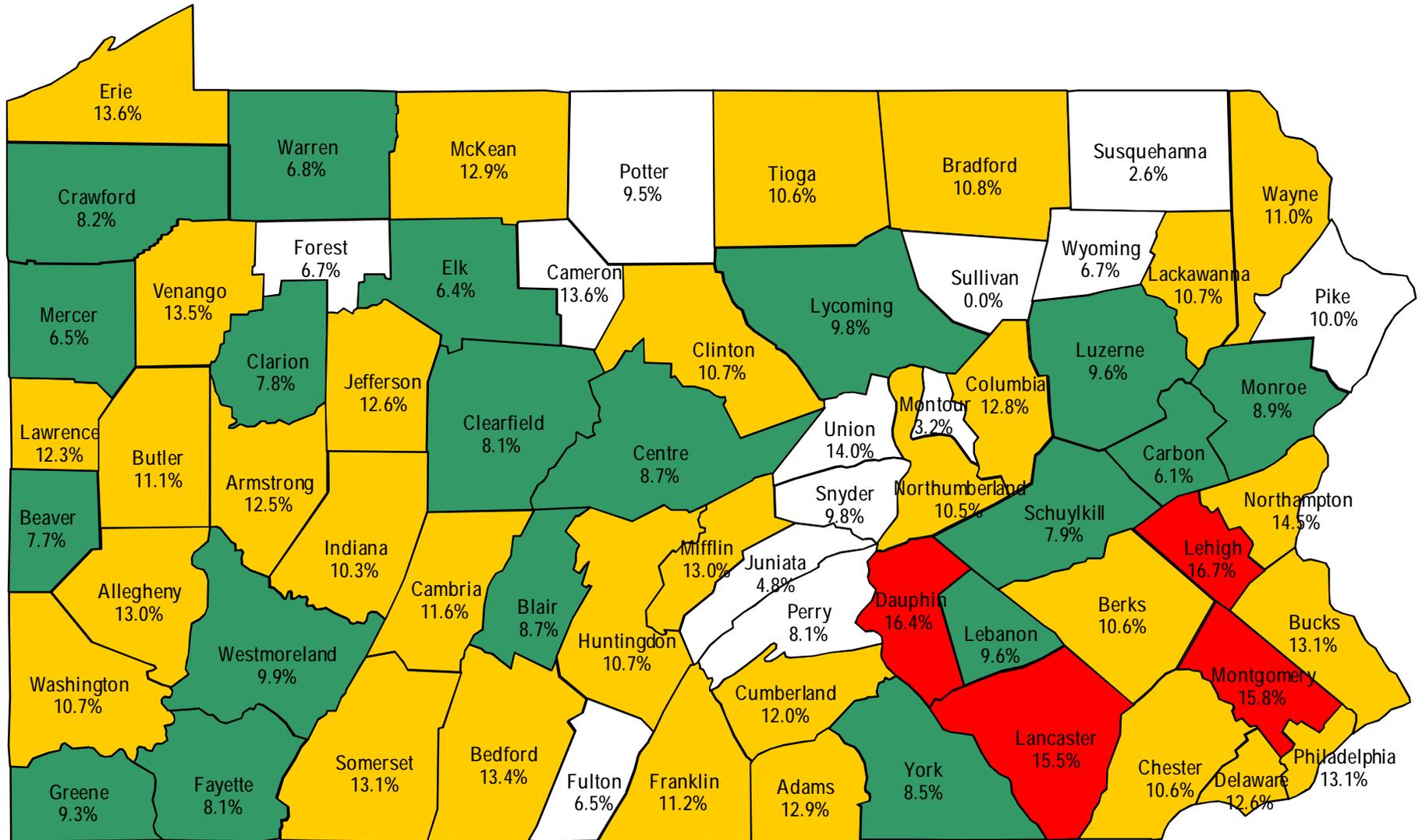
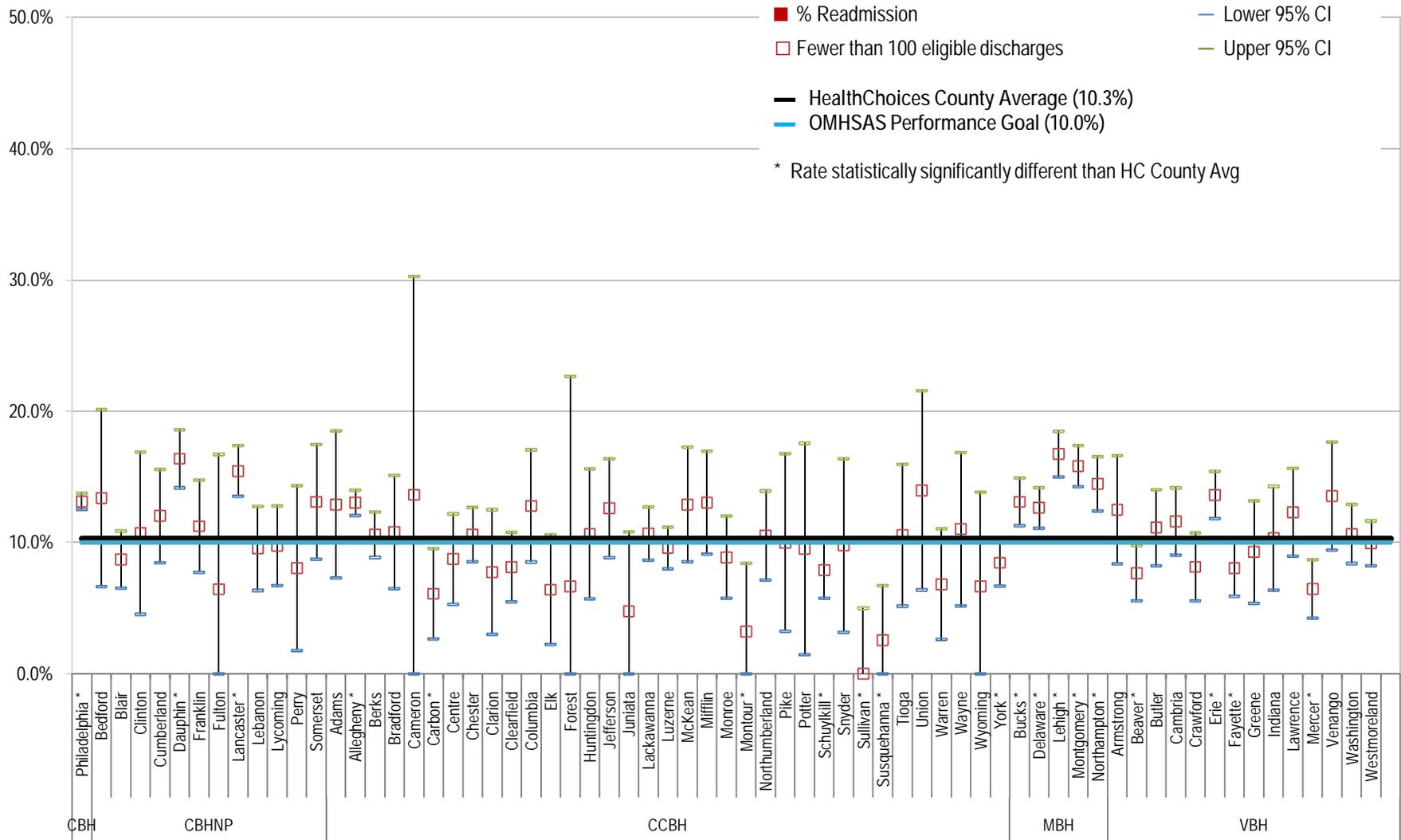
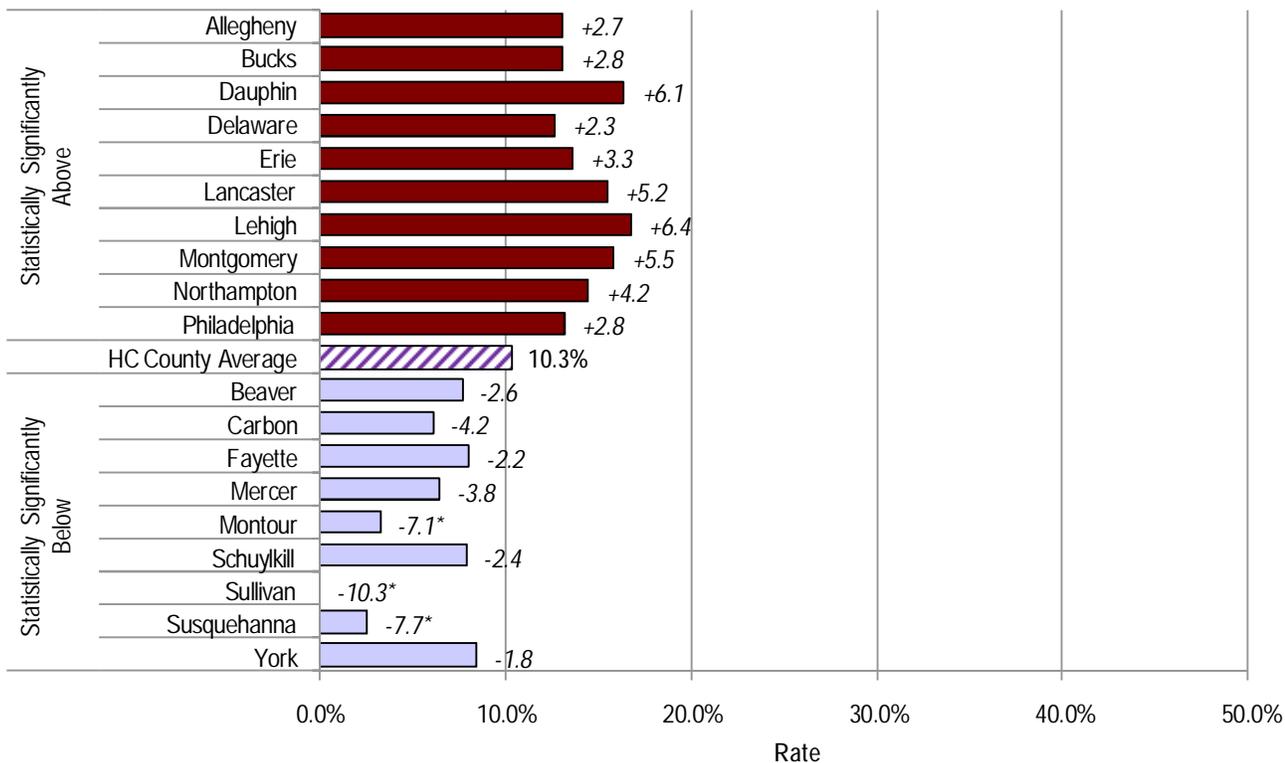


Figure 3b: MY 2010 Readmission Rates by County by BH MCO with 95% Confidence Intervals



Individual County rates were compared to the MY 2010 HealthChoices County average, and Counties that performed statistically significantly above or below the HealthChoices County average are presented in Figure 4, along with the percentage point difference between the individual County rate and the HealthChoices County average.

Figure 4: County Readmission Rates Compared to HealthChoices County Average



Note: County rates represented by an asterisk (*) are determined by less than 100 eligible discharges.

The individual County rates were also compared to MY 2009 rates to identify year-to-year differences when available. Those Counties with statistically significant differences noted from MY 2009 are presented in Table 6.

Table 6: Year-to-Year Comparison by County

Rate Statistically Significantly <i>Increased</i> Between MY 2009 and MY 2010		Rate Statistically Significantly <i>Decreased</i> Between MY 2009 and MY 2010
Bradford Jefferson	Lehigh Mifflin	Chester

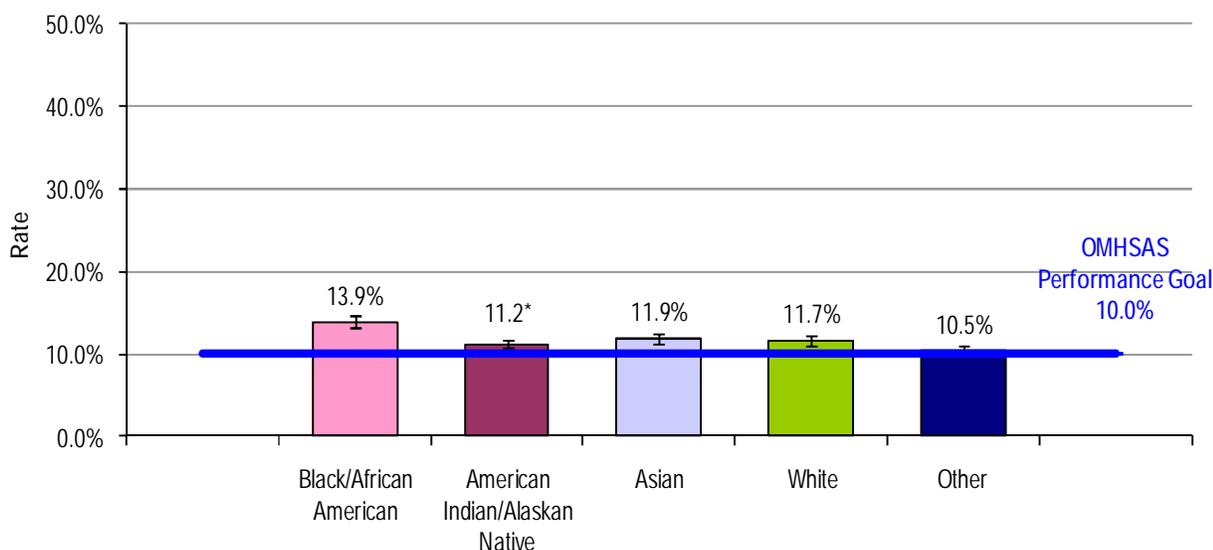
- n The MY 2010 HealthChoices County average was 10.3%. This is a 0.2 percentage point decrease from the MY 2009 HealthChoices County average of 10.5%.
- n In MY 2010, rates for 19 Counties met the 10.0% performance goal. These Counties are Beaver (7.7%), Blair (8.7%), Carbon (6.1%), Centre (8.7%), Clarion (7.8%), Clearfield (8.1%), Crawford (8.2%), Elk (6.4%), Fayette (8.1%), Greene (9.3%), Lebanon (9.6%), Luzerne (9.6%), Lycoming (9.8%), Mercer (6.5%), Monroe (8.9%), Schuylkill (7.9%), Warren (6.8%), Westmoreland (9.9%), and York (8.5%).

- n Rates for six Counties – Beaver (7.7%), Carbon (6.1%), Fayette (8.1%), Mercer (6.5%), Schuylkill (7.9%), and York (8.5%) – were statistically significantly less than the HealthChoices County average.
- n Rates for 10 Counties – Allegheny (13.0%), Bucks (13.1%), Dauphin (16.4%), Delaware (12.6%), Erie (13.6%), Lancaster (15.5%), Lehigh (16.7%), Montgomery (15.8%), Northampton (14.5%), and Philadelphia (13.1%) – were statistically significantly greater than the HealthChoices County average.
- n The rate for Chester County statistically significantly decreased, while the rate for Bradford, Jefferson, Lehigh, and Mifflin Counties statistically significantly increased in MY 2010 as compared to MY 2009.

Readmission Rates by Race

Figure 5 shows the MY 2010 readmission rates for the HealthChoices population by race. The races include the following: Black/African American, American Indian/Alaskan Native, Asian, White, and Other or Chose Not to Respond. None of the discharges were indicated as Hawaiian/Pacific Islander for race. Year-to-year comparisons are provided in Table 7.

Figure 5: MY 2010 Readmission Rates by Race



Note: Rates determine by fewer than 100 eligible discharges are indicated with an asterisk (*).

Table 7: MY 2010 Readmissions Rates and Year-to-Year Comparison by Race

Category	MY 2009			MY 2010			Rate Comparison (MY 2009 to MY 2010)	
	N	D	%	N	D	%	PPD	SSD
Race								
Black/African American	1,722	12,938	13.3%	1,821	13,088	13.9%	0.6	NO
American Indian/Alaskan Native	6	93	6.5%*	10	89	11.2%*	4.7	NO*
Asian	41	304	13.5%	39	327	11.9%	-1.6	NO
White	3,640	31,070	11.7%	3,715	31,832	11.7%	0.0	NO
Other/Chose Not to Respond	388	3,614	10.7%	372	3,548	10.5%	-0.2	NO
Hawaiian/Pacific Islander	0	0	N/A	0	0	N/A	N/A	N/A

**Rate or comparison determined by less than 100 eligible discharges*

- n The Black/African American population had the highest readmission rate of 13.9%, followed by the Asian population with a rate of 11.9%.
- n The lowest readmission rate was for the Other/Chose Not to Respond category (10.5%).
- n None of the race categories demonstrated statistically significant rate changes as compared to MY 2009.

Table 8 shows a comparison of readmission rates between the Black/African American and White populations by BH MCO.

Table 8: MY 2010 Readmissions Rates Race Comparison by BH MCO

Category	Black	White	Rate Comparison	
	%	%	AD*	SSD
Overall	13.9%	11.7%	2.2	YES
BH MCO				
CBH	14.1%	12.1%	2.0	YES
CBHNP	14.5%	13.0%	1.5	NO
CCBH	13.0%	10.4%	2.6	YES
MBH	15.6%	14.8%	0.8	NO
VBH	11.7%	10.2%	1.5	NO

*Absolute difference

- n In MY 2010, the readmission rate for the overall Black/African American population was statistically significantly higher than that for the White population.
- n The highest readmission rates for both the Black/African American and White population were noted for MBH at 15.6% and 14.8%, respectively.
- n The lowest Black/African American and White readmission rates were both noted for VBH, at 11.7% and 10.2%, respectively.
- n The readmission rate for the Black/African American population was statistically significantly higher than that of the White population for CBH and CCBH. Statistically significant differences were not indicated between these race categories for CBHNP, MBH, and VBH.

Readmission Rates by Age

Figure 6 represents the MY 2010 readmission rates for the participating HealthChoices population by age groups. Enrollee discharges were grouped into the following age cohorts: Ages 0-20 years, Ages 21-64 years, Ages 65 years and over, and a combined population of Ages 21 years and over. Year-to-year findings and a comparison of rates between the Ages 0-20 years and combined Ages 21 years and over groups are provided in Tables 9 and 10, respectively.

Figure 6: MY 2010 Readmission Rates by Age

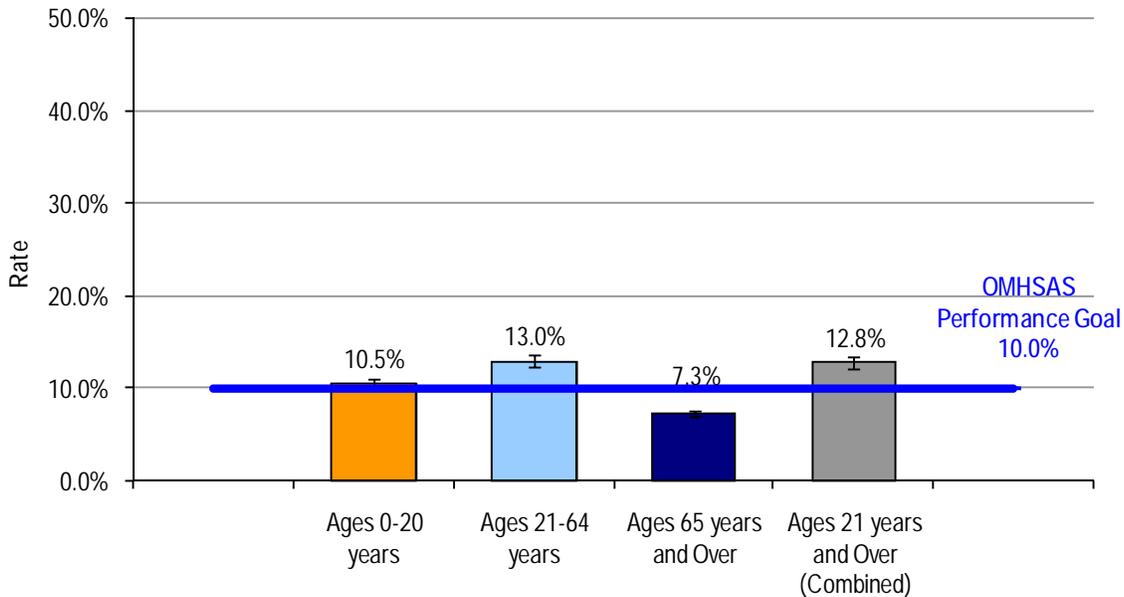


Table 9: MY 2010 Readmissions Rates and Year-to-Year Comparison by Age

Category	MY 2009			MY 2010			Rate Comparison (MY 2009 to MY 2010)	
	N	D	%	N	D	%	PPD	SSD
Age								
Ages 0-20	1,406	12,957	10.9%	1,414	13,494	10.5%	-0.4	NO
Ages 21-64	4,333	34,390	12.6%	4,493	34,704	13.0%	0.4	NO
Ages 65 and over	58	672	8.6%	50	686	7.3%	-1.3	NO
Ages 21 and over (Combined)	4,391	35,062	12.5%	4,543	35,390	12.8%	0.3	NO

Table 10: MY 2010 Readmissions Rates Age Comparison by BH MCO

Category	Ages 0-20 years	Ages 21 years & Over	Rate Comparison	
	%	%	AD	SSD
Overall	10.5%	12.8%	2.3	YES
BH MCO				
CBH	11.7%	13.6%	1.9	YES
CBHNP	12.6%	13.1%	0.5	NO
CCBH	9.0%	11.6%	2.6	YES
MBH	11.8%	15.8%	4.0	YES
VBH	9.5%	11.0%	1.5	NO

- n In MY 2010, Adults ages 21-64 years had the highest readmission rate at 13.0%, where as Adults ages 65 years and over had the lowest readmission rate at 7.3%.
- n The readmission rate for the Ages 0-20 years population (10.5%) was statistically significantly lower than that for the combined Ages 21 years and over group (12.8%) by 2.3 percentage points. This disparity was consistent with findings from prior studies.
- n The rate for the Ages 0-20 years cohort was statistically significantly lower than that for the Ages 21 years and over combined group for three of the five BH MCOs (CBH, CCBH, and MBH).

Readmission Rates by Gender

Figure 7 displays the MY 2010 rates for the readmission indicator by gender. Additionally, Table 11 identifies year-to-year differences and Table 12 identifies comparison results between the two genders by BH MCO.

Figure 7: MY 2010 Readmission Rates by Gender

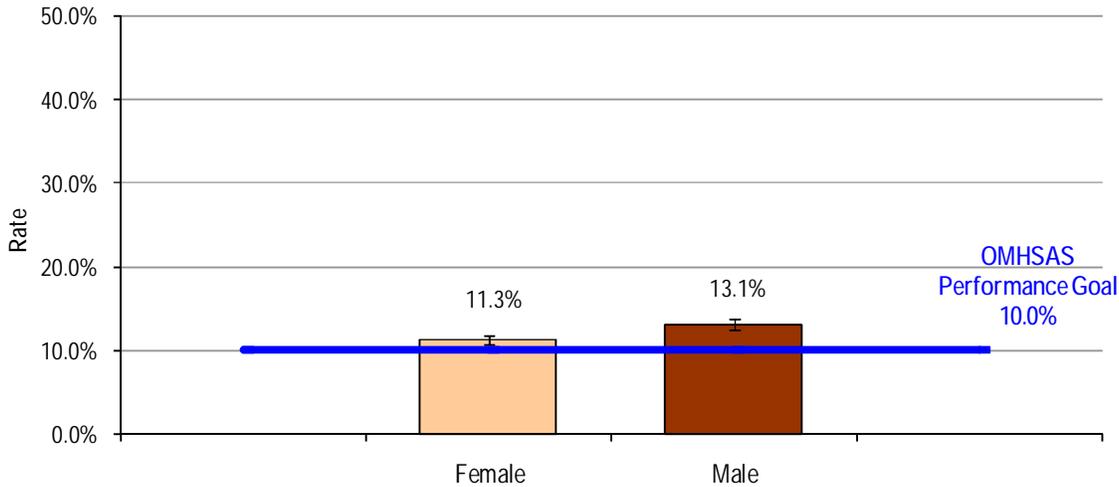


Table 11: MY 2010 Readmissions Rates and Year-to-Year Comparison by Gender

Category	MY 2009			MY 2010			Rate Comparison (MY 2009 to MY 2010)	
	N	D	%	N	D	%	PPD	SSD
Gender								
Female	2,766	24,236	11.4%	2,798	24,781	11.3%	0.1	NO
Male	3,031	23,783	12.7%	3,159	24,103	13.1%	0.4	NO

Table 12: MY 2010 Readmissions Rates Gender Comparison by BH MCO

Category	Female	Male	Rate Comparison	
	%	%	AD	SSD
Overall	11.3%	13.1%	1.8	YES
BH MCO				
CBH	11.9%	14.4%	2.5	YES
CBHNP	12.6%	13.4%	0.8	NO
CCBH	10.3%	11.3%	1.0	YES
MBH	13.7%	15.7%	2.0	YES
VBH	9.2%	11.9%	2.7	YES

- n The overall readmission rate for the female population was statistically significantly lower than that for the male population by 1.8 percentage points. This is consistent with findings from prior studies.
- n Among the five BH MCOs, VBH had the lowest rates for females (9.2%) and CCBH for males (11.3%). MBH had the highest rates for both females (13.7%) and males (15.7%).
- n The readmission rate for the female population was statistically significantly lower than that of the male population for four of the five BH MCOs, the exception being CBHNP.

Readmission Rates by Ethnicity

Rates were assessed to determine if differences were noted between Hispanics and Non-Hispanics. These rates are shown in Figure 8. Year-to-year rate comparisons and rates by ethnicity for each BH MCO are provided in Tables 13 and 14, respectively, along with a comparison of rates denoting statistically significant differences.

Figure 8: MY 2010 Readmission Rates by Ethnicity

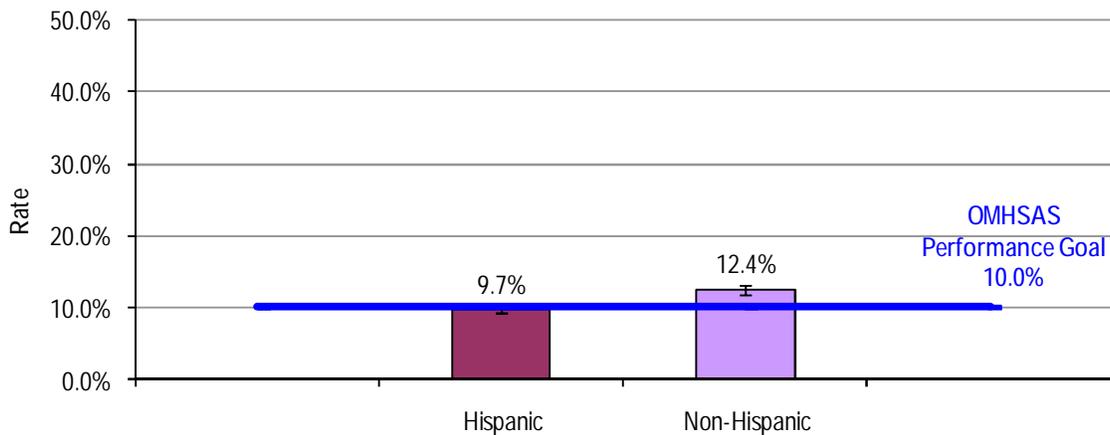


Table 13: MY 2010 Readmissions Rates and Year-to-Year Comparison by Ethnicity

Category	MY 2009			MY 2010			Rate Comparison (MY 2009 to MY 2010)	
	N	D	%	N	D	%	PPD	SSD
Ethnicity								
Hispanic	234	2,500	9.4%	237	2,447	9.7%	0.3	NO
Non-Hispanic	5,551	45,468	12.2%	5,486	44,151	12.4%	0.2	NO

Table 14: MY 2010 Readmissions Rates Ethnicity Comparison by BH MCO

Category	Hispanic	Non-Hispanic	Rate Comparison	
	%	%	AD	SSD
Overall	9.7%	12.4%	2.7	YES
BH MCO				
CBH	9.0%	14.6%	5.6	YES
CBHNP	10.6%	13.3%	2.7	NO
CCBH	7.7%	10.9%	3.2	YES
MBH	17.6%	14.6%	3.0	NO
VBH	10.9%	10.5%	0.4	NO

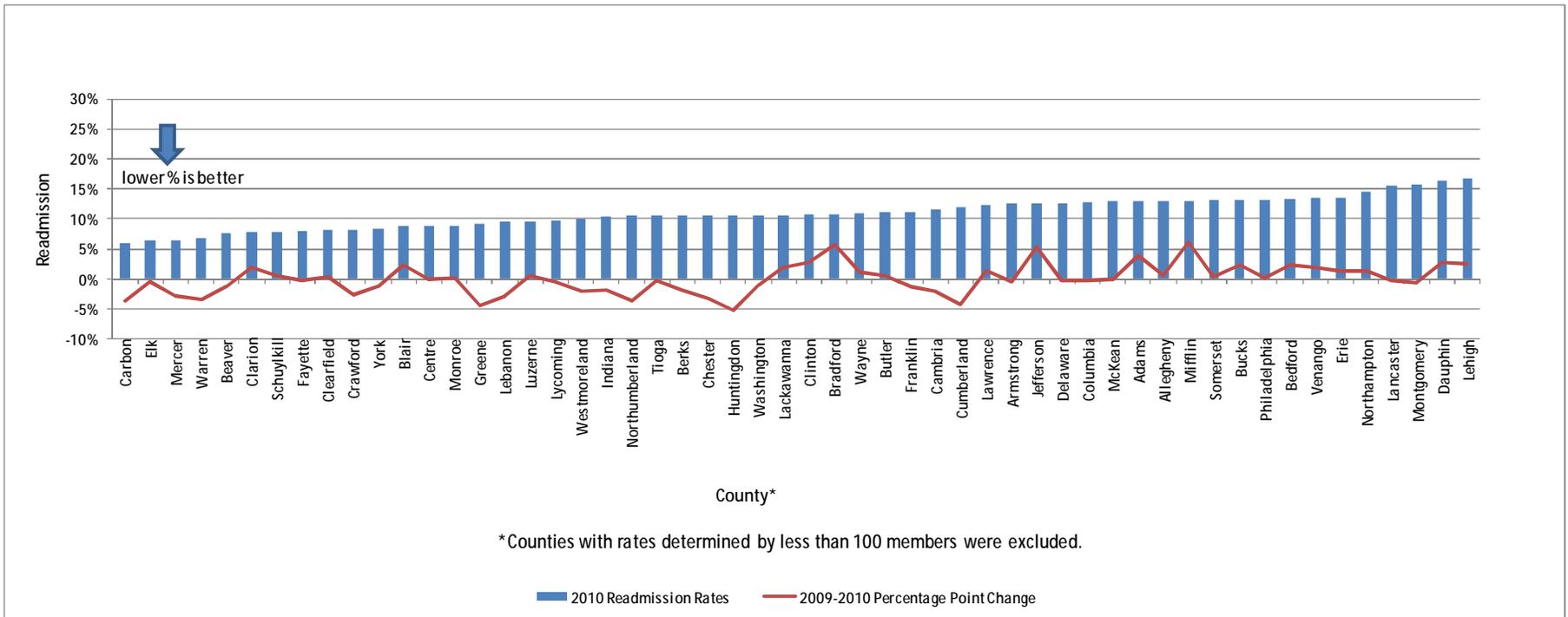
- n The overall readmission rate for the Hispanic population was statistically significantly lower than that for the Non-Hispanic group by 2.7 percentage points.
- n The highest rate for Hispanic enrollees was noted for MBH (17.6%) and the lowest for CBH (9.0%).
- n CBH and MBH had the highest rates for Non-Hispanics (14.6%), and VBH had the lowest (10.5%).
- n The MY 2010 rates for Non-Hispanics were statistically significantly higher than those for Hispanics for CBH and CCBH.

Additional Analyses of Readmission Rates

Considerable variation by county was observed for all of the BH MCOs. To begin examining trends, additional exploratory analyses are presented in this section for Counties with more than 100 eligible discharges. For these Counties, MY 2010 rates were compared to MY 2009 rates by evaluating the percentage point change. Figure 9a shows, in ascending order, the MY 2010 rates with the corresponding percentage point change from MY 2009. Figure 9b indicates the sorted percentage point changes and the corresponding MY 2010 rates.

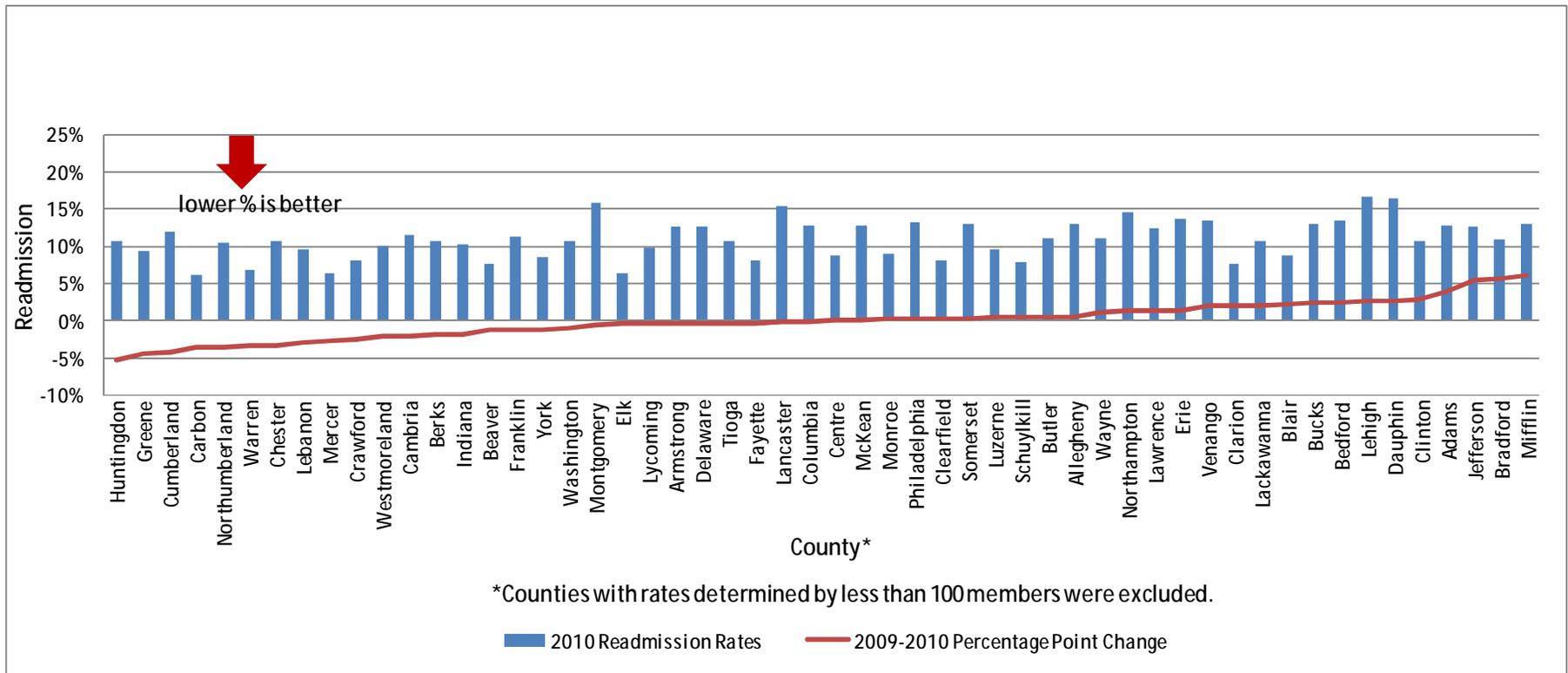
Additionally, given the County variation and in light of the statistically significant differences between African Americans and Whites, County rates for these populations were examined. Figure 10 shows MY 2010 rates for African American and for White enrollees for Counties with greater than 100 eligible discharges overall and greater than 30 discharges for African Americans.

**Figure 9a: MY 2010 Readmission Rates by County - MY 2009 to MY 2010 Percentage Point Change
Sorted by Readmission Rate Performance**



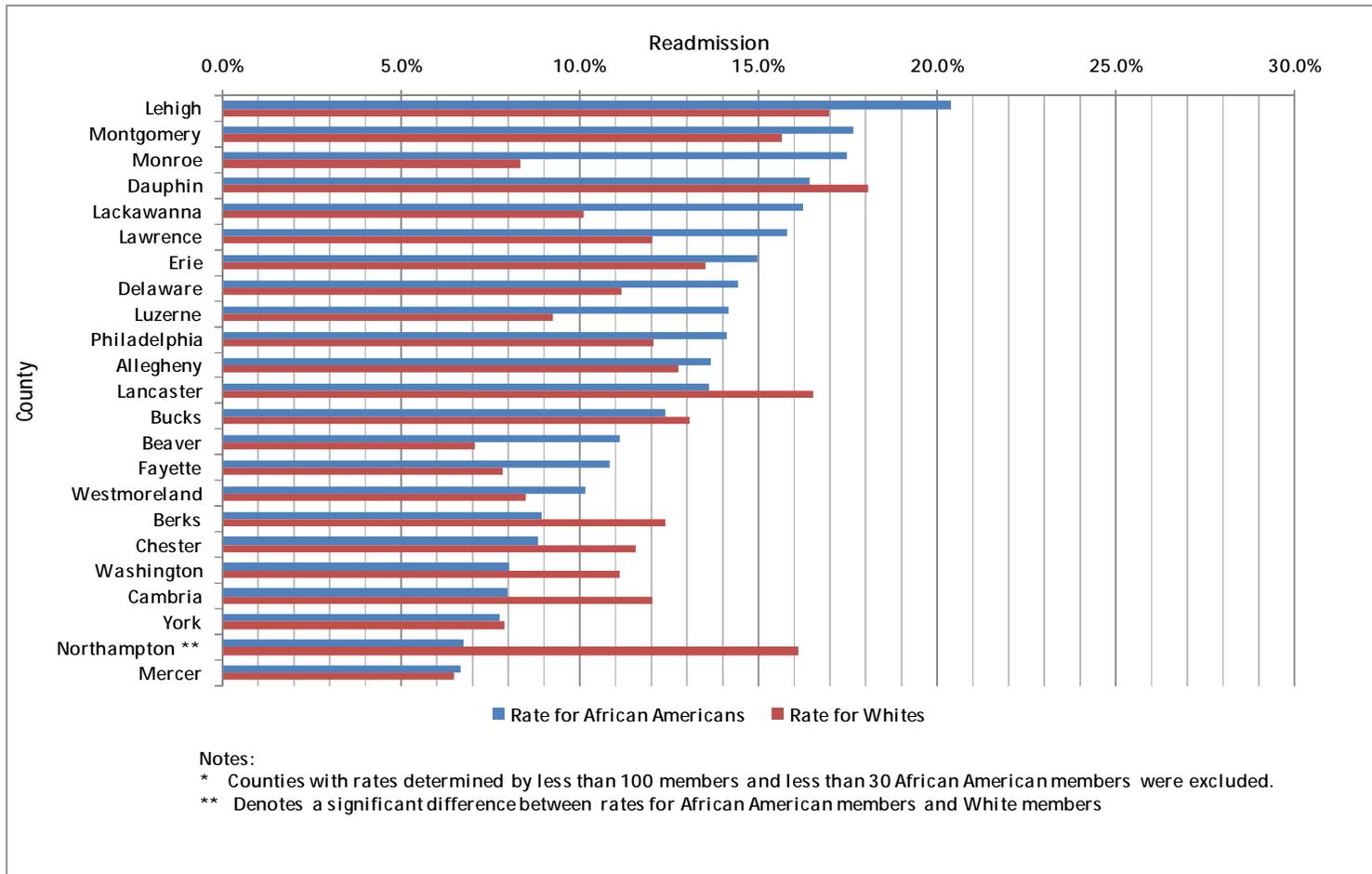
- The MY 2010 rate for Carbon was the lowest among the included counties, and was also among the most improved rates.
- The MY 2010 rate for Lehigh was the highest among the included counties, and indicated an increase for the MY.
- MY 2010 rates for Chester and Bradford Counties are each approximately 11%. However, Chester experienced a notable decrease (improvement) from MY 2009, while Bradford's rate increased considerably from MY 2009.

**Figure 9b: MY 2010 Readmission Rates by County - MY 2009 to MY 2010 Percentage Point Change
Sorted by Percentage Point Change Improvement**



- The most improved rate was for Huntingdon, which decreased by more than five percentage points, and at 10.65%, approximated the goal.
- The largest increase was for Mifflin, which increased by approximately six percentage points and remained well above the goal.
- Several Counties (Lycoming, Fayette, Centre, Monroe, Clearfield, Schuylkill) observed percentage point changes of less than one, but still remained at or under the goal of 10%.

Figure 10: MY 2010 Readmission Rates by County - Rate Comparisons for African American and White Populations Sorted by African American Readmission Rate (Descending)



- Among the Counties included, the only statistically significant difference (i.e., non-overlapping confidence intervals) between rates for African American members and White members was observed for Northampton.
- In Philadelphia County, the Upper Confidence Limit (UCL) for Whites is 13.3; the Lower Confidence Limit (LCL) for African Americans is also 13.3. Going out one decimal place shows an overlap between these limits.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Overall, there was no significant change in readmission rates from MY 2009 to MY 2010. The MY 2010 aggregate rate of 12.2% did not differ significantly from the MY 2009 rate of 12.1%. None of the BH MCOs met the OMHSAS designated performance goal of 10.0% for MY 2010. Of the 67 Counties that participated in the study, 19 Counties (28%) with greater than or equal to 100 eligible discharges met the performance goal. Readmission rates for Black/African Americans, who made up about 27% of the overall study population, were the highest (i.e., poorest) of all racial groups. Their rate in MY 2010 was 13.9%. The prior year rate for this subpopulation was 13.3%, which did not differ statistically significantly from MY 2010.

By BH MCO

- n No significant year-to-year changes were noted at the BH MCO level. VBH showed the greatest improvement of 0.7 percentage points, while MBH showed the greatest increase in readmission rates of 1.0 percentage point. However, neither change was statistically significant.
- n Among the five BH MCOs evaluated, the lowest (i.e., best) readmission rate was observed for VBH. The MY 2010 rates for CCBH and VBH were statistically significantly below the HealthChoices BH MCO average. Note that this measure is inverted, in that lower rates are preferable.
- n The readmission rate for MBH was the highest (i.e., least desirable) among the five BH MCOs. The rate was also statistically significantly above the HealthChoices BH MCO average, along with that for CBH.
- n Considerable variance in readmission rates by County was observed for each of the BH MCOs.

By County

- n Six Counties with greater than or equal to 100 eligible discharges – Beaver, Carbon, Fayette, Mercer, Schuylkill, and York – had statistically significantly lower (i.e., better) readmission rates than the HealthChoices County average.
- n Readmission rates for 19 Counties with greater than or equal to 100 eligible discharges met the 10.0% performance goal. These Counties are Beaver, Blair, Carbon, Centre, Clarion, Clearfield, Crawford, Elk, Fayette, Greene, Lebanon, Luzerne, Lycoming, Mercer, Monroe, Schuylkill, Warren, Westmoreland, and York.
- n The readmission rate for Chester County statistically significantly decreased (i.e., improved), while the readmission rates for Bradford, Jefferson, Lehigh, and Mifflin Counties statistically significantly increased (i.e., worsened) in MY 2010 as compared to MY 2009.
- n Readmission rates for 10 Counties – Allegheny, Bucks, Dauphin, Delaware, Erie, Lancaster, Lehigh, Montgomery, Northampton, and Philadelphia – were statistically significantly greater than the HealthChoices County average.

By Race

- n The readmission rate for the Black/African American population was statistically significantly higher than that for the White population in MY 2010. The readmission rates for Black/African Americans for MY 2010, was 13.9%, while that for Whites was 11.7%.
- n Readmission rates for the Black/African American population varied by BH MCO from a low of 11.7% for VBH to a high of 15.6% for MBH.
- n BH MCO readmission rates were not dictated by the overall composition of the member population. There was no consistent correlation between overall or categorical performance rates and the degree of disparity observed for the Black/African American and White populations that each BH MCO serves. However, for CBH, which serves Philadelphia County, the UCL for Whites is 13.3 while the LCL for African Americans is also 13.3. Going out one decimal place shows an overlap between these limits.
- n Twenty-three counties had sufficient African American discharges for inclusion in an analysis of readmission rates by race. Of these counties, only 1 showed a significant difference in readmission rates. However, as noted above for CBH, the overlap between the UCL for Whites and LCL for African Americans was miniscule in Philadelphia County.

- n Excluding Philadelphia County from the overall comparison of readmission rates by Race, no significant difference is noted at the State level.

By Age

- n The readmission rate for the Age 65 years and over population is the lowest (i.e., best) among the three age cohorts studied.
- n The readmission rate for the Ages 0-20 years population was statistically significantly lower (i.e., better) than that of the combined Ages 21 years and over group.
- n The rate for the Age 21-64 years cohort was the highest (i.e., poorest).

By Gender

- n A statistically significantly lower (i.e., better) readmission rate was indicated for females as compared to males.

By Ethnicity

- n The readmission rate for Hispanics was statistically significantly lower (i.e., better) than that for the Non-Hispanics.

Recommendations

- n Given that no significant improvement was noted for any of the BH MCOs, IPRO recommends that the Counties and BH MCOs participating in this study conduct root cause analyses to help determine what factors are negatively impacting readmission rates, and develop interventions that target specific barriers to improving the readmission rates.
- n Each BH MCO should conduct additional analyses of the data in order to determine if any other trends are noted. For example, higher readmission rates may be associated with those individuals with particular diagnoses or co-occurring conditions such as substance abuse and/or addiction. Targeted analyses such as these should be evaluated as part of any root cause analysis. In addition, BH MCOs and Counties are encouraged to review the findings of the readmission study in conjunction with follow-up after hospitalization rates.
- n Given the statistically different readmission rates observed for Black/African American and the White populations, which is driven by the Philadelphia County population, IPRO recommends that a performance improvement project that focuses on Disparities in Healthcare, with a focus on Philadelphia County, be undertaken. Fifty-six percent of all African American discharges occur in Philadelphia County.
- n IPRO recommends continued annual evaluation of Inpatient Readmission after Psychiatric Discharge rates for OMHSAS contracted Counties and their subcontracted BH MCOs.
- n Case management consideration should be given to those individuals who appear to be the highest utilizers of inpatient acute psychiatric care and have shown to be at risk for frequent readmission.
- n Considerable variation by county was observed for all of the BH MCOs. BH MCOs should evaluate individual County rates, explore the underlying causes of variance by County, and identify those County practices or systems that may contribute to lower readmission rates.