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Resource Paper

The Relationship between Practice Size and Quality of Care in Medicaid

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Introduction

Little has been documented about the size of physician practices serving racially and ethnically diverse Medicaid populations, although small practice size has been negatively correlated with quality of care and quality improvement infrastructure.¹ Information on practice size and quality can help state purchasers and health plans drive efforts to improve quality and reduce disparities. Medicaid data in Arkansas, Michigan, New York and Pennsylvania, examined in a Center for Health Care Strategies (CHCS) study, showed that a large proportion of beneficiaries are served in small practices.² In terms of performance, in most states, smaller practices had access to care rates comparable to larger practices (and generally had higher *children's* access to care rates than larger practices); however, smaller practices often had lower performance rates for diabetes and asthma care. Racial/ethnic disparities persisted across many areas of access and quality of care. This paper discusses the findings of the study – the *Practice Size Exploratory Project* – and the distinct strategies for quality improvement support that they suggest for different practice settings. Medicaid leaders can use this information as they consider how to invest in practice transformation for their provider networks.

Background

Care provided in ambulatory settings constitutes a substantial component of overall health care utilization. Indeed, the majority of individuals with chronic conditions receive the bulk of their care in primary care offices.³ Yet while relatively little is known about the relationship between the quality of care and practice size, this link has potentially important implications for quality improvement efforts.

Approximately 60 percent of physicians not federally or institutionally employed practice in settings with only one to four providers. Another 16 percent work in practices with five to nine physicians, and 17 percent work in practices of 10 to 49 physicians.⁴ Furthermore, practices with one to nine providers account for over 40 percent of total Medicaid revenue.⁵

Understanding what barriers and benefits are associated with small or large practices can help guide practice-based quality improvement and practice transformation efforts within Medicaid.⁶ In particular, this information can drive health outcomes in practices serving high concentrations of racially and ethnically diverse populations, and people with complex, comorbid conditions. The pervasiveness of racial and ethnic disparities in quality of care, as described in the Institute of Medicine's report *Unequal Treatment*, underscores the need to support physicians who primarily serve Medicaid populations and who may experience barriers related to their practice settings.⁷

Heightened awareness of the importance of practice size has arisen, in part, from the increasing application of organizing chronic care frameworks such as the Chronic Care Model and the Patient-Centered Medical Home, both of which may be more challenging to implement in small and under-resourced practices. For example, small practices are less likely to introduce health information technologies, or to integrate care teams — two underlying elements of these models.⁸ Recent research also highlights the importance of creating greater administrative efficiencies in health plan and small-practice interactions given that a small

¹ H.H. Pham et al., "Delivery of Preventive Services to Older Adults by Primary Care Physicians," *JAMA*, (27 July 2005): 473-481; J.D. Ketcham et al., "Physician Practice Size and Variations in Treatments and Outcomes: Evidence From Medicare Patients With AMI," *Health Affairs* (January 2007): 195-205; A.M. Audet et al., "Measure, Learn, and Improve: Physicians' Involvement in Quality Improvement," *Health Affairs* (May 2005): 843-853.

² For the purposes of this report, "small" or "smaller" practices are defined as those with one to three physicians, and "large" or "larger" practices are defined as those with four or more physicians.

³ T. Bodenheimer et al., "Improving Primary Care for Patients With Chronic Illness: the Chronic Care Model, Part 2," *JAMA* (16 October 2002): 1909-1914.

⁴ C.K. Kane, "The Practice Arrangements of Patient Care Physicians, 2001," *American Medical Association Physician Marketplace Report*, No. 2004-02 (Chicago: AMA, 2004).

⁵ P. Cunningham and J. May, "Medicaid Patients Increasingly Concentrated Among Physicians," *Tracking Report* (August 2006): 1-5.

⁶ J.D. Ketcham et al., op cit.; H.H. Pham et al., op cit.; L.P. Casalino et al., "Benefits of and Barriers to Large Medical Group Practice in the United States," *Archives of Internal Medicine* (8 September 2003): 1958-1964.

⁷ B.D. Smedley et al., *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care* (Washington, D.C.: National Academies Press, 2003).

⁸ J. Lee et al., "The Adoption Gap: Health Information Technology in Small Physician Practices: Understanding Office Workflow Can Help Realize the Promise of Technology," *Health Affairs* 24, no.5 (September 2005): 1364-1366.

proportion of those interactions are related to quality improvement activities.⁹ These barriers and others facing small practices are likely to extend into other administrative and clinical processes embedded in these frameworks, as well. And yet until recently, few efforts have aimed to improve the quality of care in small practice settings or to sustain such efforts via administrative, clinical, and financial support of plans and purchasers.

Project Description

CHCS designed the *Practice Size Exploratory Project* to examine the quality of care that Medicaid managed care beneficiaries receive in different-sized practices in Arkansas; Michigan; Erie County, and Bronx, New York; and Southwest Pennsylvania. The goals were to: (1) gain a clearer picture of the distribution of the size of practices serving Medicaid managed care beneficiaries in these five regions; and (2) explore whether practice size may be related to variations in quality of care. The findings are intended to help states and other Medicaid stakeholders design more effective quality improvement and disparities-reduction efforts for practice settings that primarily serve Medicaid beneficiaries.

⁹ L.P. Casalino et al., "What Does It Cost Physician Practices To Interact With Health Insurance Plans?" *Health Affairs* (May 14, 2009) [Epub ahead of print].

Study Data and Methods

Data Sources

Member-level Healthcare Effectiveness Data and Information Set (HEDIS) data were provided by participating health plans in Michigan, New York and Pennsylvania, and by the state in Arkansas, which operates an enhanced primary care case management program.¹⁰ Arkansas and Michigan performed state-wide analyses; Pennsylvania focused on the Southwest region, using data from its three Medicaid plans; and New York analyzed Erie County and the Bronx, using data representing over 70 percent of Medicaid beneficiaries in each area. Race and ethnicity information was acquired primarily through the beneficiary enrollment process. Primary care provider (PCP) data were compiled from existing state and plan provider data files.

PCPs included in the analysis were practicing internists, family practitioners, obstetricians/gynecologists, and pediatricians who were located within the specified region and assigned to an eligible health plan member. Two states, Michigan and New York, also included nurse practitioners who serve as PCPs. Patients were included if they were: (1) found to have complete patient-level fields for Medicaid beneficiary number, race/ethnicity, and PCP identifier; (2) under 65 years old; (3) eligible for the denominator of one of the specified 2006 HEDIS measures;¹¹ and (4) assigned to one PCP.

Identification of Practices and Practice-Size Categories

States aggregated PCPs into practice groupings based on the availability and reliability of specific provider linkages in each state. Variations in data availability precluded all states from utilizing a uniform approach. Arkansas, Michigan, and Pennsylvania defined a “practice” as a single geographic location where a physician or group of physicians provides services. With less consistent data at the site level, New York grouped providers at a higher level of aggregation based on the tax identification number.

Practice-size categories were used to analyze and stratify HEDIS rates. In all states, these categories were determined based on a preliminary examination of how beneficiaries were spread across the distribution of providers. Federally qualified health centers (FQHCs) were designated as a separate category, but varied in size. In Arkansas, Michigan, and Pennsylvania, the volume of beneficiaries was significantly skewed toward small practices, making it reasonable to partition the provider count into several small-size categories. In these states, five practice categories were designated:

- Size 1= a solo practice;
- Size 2= 2-3 providers;
- Size 3= 4-10 providers;
- Size 4= 11+ providers; and
- FQHCs.

Since fewer beneficiaries in New York were linked to practices with three providers or fewer, it was appropriate to designate fewer categories of small practices. New York’s six practice categories were:

- Size 1= a solo practice;
- Size 2= 2-5 providers;
- Size 3= 6-20 providers;
- Size 4= 21-70 providers;
- Size 5= 71+ providers; and
- FQHCs.

¹⁰ The Healthcare Effectiveness Data and Information Set (HEDIS) is a tool developed by the National Committee for Quality Assurance (NCQA) and used by more than 90 percent of America’s health plans to measure performance on important dimensions of care and service.

¹¹ Michigan’s and Pennsylvania’s baseline study populations only included beneficiaries who qualified for the HEDIS Access to Care measure.

Measures

All states reported on five common HEDIS measures:

1. Adults' access to care;
2. Children's access to care;
3. Hemoglobin A1c (HbA1c) test performed;
4. Use of appropriate medications for people with asthma; and
5. Breast cancer screening.

Rates for the 2006 HEDIS measures — reflecting 2004 and 2005 calendar-year data — were generated based on administrative data only. Results for the HbA1c test performed measure should be interpreted with knowledge that HEDIS specifies a hybrid methodology.¹²

States stratified data into four racial/ethnic categories:

- Caucasian;
- African-American;
- Non-Caucasian Hispanic (“Hispanic”); and
- Other.

This paper reports findings for only the first three categories, given both the small volume and heterogeneity of beneficiaries classified as “Other.”

Statistical Analysis

The HEDIS rates stratified by practice-size category reflect the aggregate rate of beneficiaries linked to practices of that size. To test differences by race/ethnicity and by practice size, two-sided tests of proportions ($\alpha < .05$) were performed.¹³ Caucasians were the reference group for comparisons by race/ethnicity, and solo practices were the reference group for comparisons by practice size.

¹² HEDIS measures specified for the hybrid data collection methodology are derived from a combination of administrative data and medical record review data.

¹³ This test, which assumes approximation to the normal distribution, was used only when there were at least five successes ($n \cdot p$) and five failures ($n \cdot (1-p)$) for each rate.

Study Results

Tables 1 and 2 present the overall data characteristics for the five regions, as well as the resulting distribution of beneficiaries across practice settings. A summary of state-/region-specific results and overall themes appears below. (For complete data tables, see appendices.)

Table 1. Data Overview

	AR	MI	NY		SW PA
			Bronx	Eric Co.	
Members*	384,730	473,416	206,681	51,161	210,991
PCPs	1,627	4,676	1,259	1,093	1,565
Practices[†]	853	1,963	247	313	987

*Members for MI and PA reflect individuals eligible for Access to Care measures.

[†] Practice identification for AR, MI and PA based on site address. Practice identification for NY based on tax identification number.

Table 2. Percentage of Members Linked to Practice Settings

	Solo	2-3 PCPs	4-10 PCPs	11+ PCPs	FQHCs	
AR[†]	32%	15%	26%	18%	9%	
MI[†]	24%	29%	25%	8%	14%	
PA[†]	29%	21%	22%	14%	13%	
NY[*]						
	Solo	2-5 PCPs	6-20 PCPs	21-70 PCPs	71+ PCPs	FQHCs
Bronx	16%	7%	6%	2%	25%	44%
Erie Co.	13%	22%	14%	35%	11%	5%

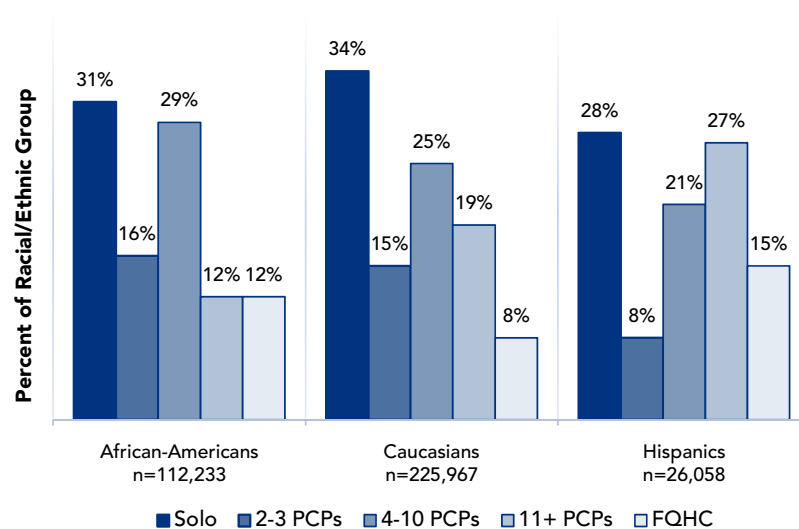
*Practice identification based on site address.

[†]Practice identification based on tax identification number.

Arkansas

Practice and Beneficiary Distribution: Fifty-nine percent of beneficiaries were Caucasian, 29 percent were African-American, and 7 percent were Hispanic. Seventy-one percent of practice sites in Arkansas were solo practices. Approximately 50 percent of beneficiaries were linked to practices with three providers or fewer. The distribution of Hispanic beneficiaries across practice size/settings differed from Caucasians and African-Americans, with the largest practices and FQHCs playing as significant a role as smaller practices in the care of the Hispanic community (Figure 1).

Figure 1: Arkansas – Distribution of Practice Setting by Race/Ethnic Group



Access to Care: African-Americans and Hispanics had lower rates than Caucasians. The greatest absolute difference was among 7 to 11 year olds, where rates for Caucasians and African-Americans were 84 percent and 70 percent, respectively. A pattern of lower access was observed for all age categories of children ages 25 months and older in larger practices and FQHCs compared to solo practices.

HbA1c Testing: African-Americans had lower rates than Caucasians overall (62 percent versus 67 percent) and in smaller practices (Sizes 1 and 2). Overall, beneficiaries linked to larger practices (Sizes 3 and 4) were more likely to receive HbA1c testing than those linked to solo practices.

Asthma: Use of Appropriate Medications rates were high overall (88 percent), slightly above the mean national Medicaid rate of 86 percent, and no racial disparities were observed. Larger practices (Sizes 3 and 4) generally had higher rates than solo settings.

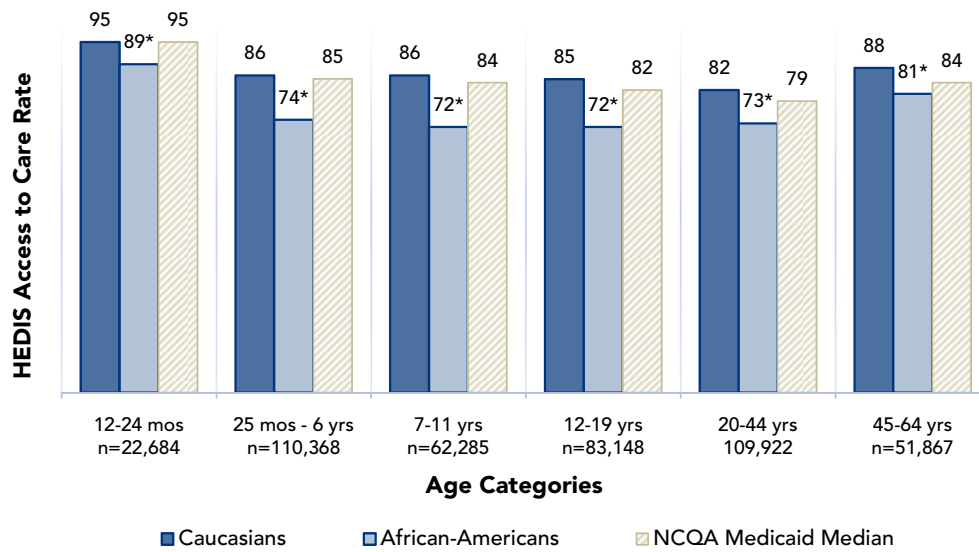
Breast Cancer Screening: African-Americans had significantly lower rates than Caucasians overall (34 percent versus 38 percent) and in Size 2 settings (28 percent versus 39 percent). Overall rates were higher in FQHCs than in solo settings (46 percent versus 37 percent).

Michigan

Practice and Beneficiary Distribution: Fifty percent of beneficiaries were Caucasian, 43 percent were African-American, and 5 percent were Hispanic. The majority of practices (54 percent) were solo sites; 28 percent had two or three providers. Half of beneficiaries were linked to practices with three or fewer providers.

Access to Care: African-Americans had significantly lower rates than Caucasians in all age groups (Figure 2) and all practice settings by as much as 14 percentage points. Rates for Hispanics were also lower than for Caucasians in several age and practice-size categories. Adults ages 20 to 44 seen in larger practices (Sizes 3 and 4) and in FQHCs had rates significantly above those linked to solo practices. In contrast, rates among children of all ages were lower for the larger practices than for solo practices.

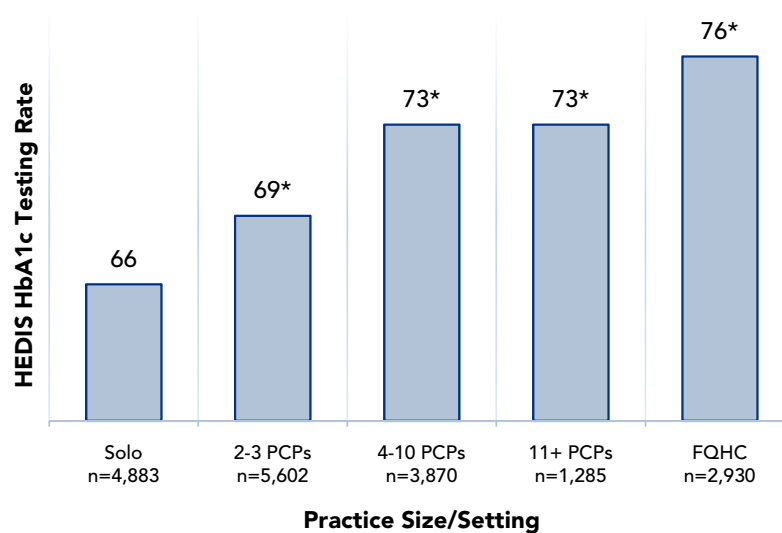
Figure 2: Michigan – HEDIS Access to Care by Age and Race



*Statistically significant difference between racial groups at .05 level across all age categories.

HbA1c Testing: African-Americans had significantly lower rates than Caucasians overall (64 percent versus 76 percent) and within each practice size group. Rates were lowest for beneficiaries linked to solo practices compared to all other settings (Figure 3).

Figure 3: Michigan – HbA1c Testing by Practice Size/Setting



Based on administrative data only.

*Statistically significant difference from solo group at .05 level.

Asthma: Use of Appropriate Medications rates were generally high, although African-Americans had significantly lower rates than Caucasians overall and in Sizes 1 and 2. Rates were above 88 percent for Caucasians in all practice settings. Larger practices had higher rates compared to solo settings (90 percent versus 86 percent).

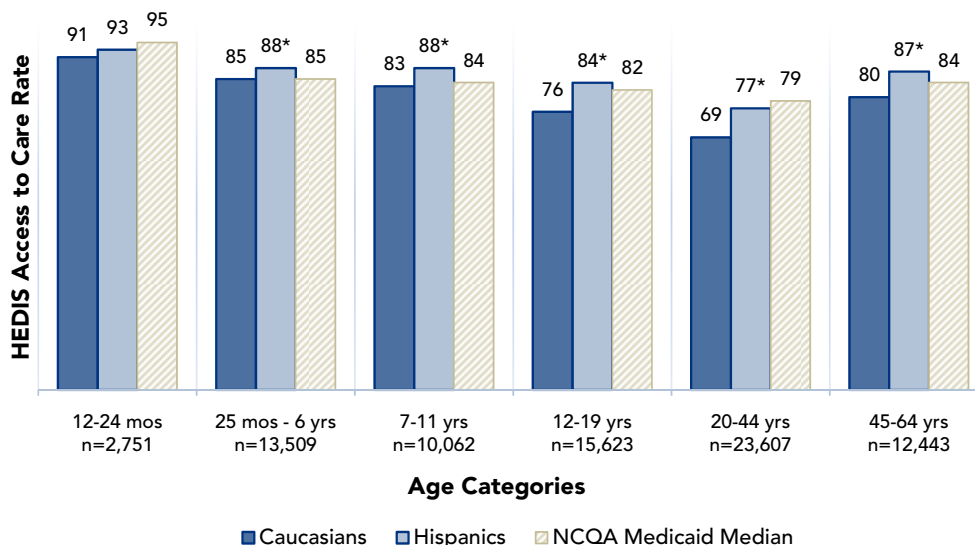
Breast Cancer Screening: African-Americans had significantly lower rates than Caucasians overall and in practices of Size 1 to 3. Caucasians linked to solo practices had higher rates than those linked to the largest practices or to FQHCs, but rates for African-Americans did not vary significantly by practice size.

Bronx, New York

Practice and Beneficiary Distribution: Fifty-nine percent of beneficiaries were Hispanic, 25 percent were African-American, and 6 percent were Caucasian.¹⁴ While 75 percent of practices were solo practices, only 16 percent of beneficiaries were linked to solo practice settings. Twenty-five percent were linked to the largest practices (with more than 70 providers) and 44 percent were linked to FQHCs (for which size practice size is unknown but, based on knowledge of the region, likely to be predominantly larger practices).

Access to Care: Across all age groups, Hispanics had comparable and/or significantly higher rates than Caucasians (Figure 4). For adults and for the youngest children, those linked to FQHCs generally had higher rates than those in solo practices. In contrast, older children linked to FQHCs and to larger practices had lower rates than those linked to solo practices.

Figure 4: Bronx, New York – Access to Care by Age Group and Race/Ethnicity



*Statistically significant difference between racial/ethnic groups at .05 level across all age categories.

HbA1c Testing: Beneficiaries linked to the largest practices and to FQHCs generally had higher rates than those linked to solo practices.

Asthma: Use of Appropriate Medication rates were generally high, at 89 percent. No significant racial/ethnic disparities were observed.

Breast Cancer Screening: Hispanics had significantly higher screening rates than African-Americans and Caucasians overall (72 percent versus 65 percent for African-Americans and Caucasians). Beneficiaries linked to solo practices generally had lower rates than members in most other settings, although rates were high compared to the national Medicaid mean of 54 percent.¹⁵

¹⁴ In some instances, when data were stratified by race/ethnicity and by practice size, low numbers of Caucasians limited the power to detect racial/ethnic differences.

¹⁵ National Committee for Quality Assurance, The State of Health Care Quality 2006 (Washington, D.C.: NCQA, 2006). Available at http://www.ncqa.org/Communications/SOHC2006/SOHC_2006.pdf.

Erie County, New York

Practice and Beneficiary Distribution: Forty-five percent of the beneficiaries in Erie County, New York, were Caucasian, 39 percent were African-American, and 11 percent were Hispanic. Overall, 13 percent of beneficiaries were linked to solo practices, and 22 percent were linked to practices with three to five providers. The distribution varied by race/ethnicity: 48 percent of Caucasians and 23 percent of African-Americans were linked to practices with five or fewer providers. Approximately 60 percent of African-Americans were linked to practices with 21 or more providers.

Access to Care: Differences by race or practice size were not observed for the youngest children or for adults ages 44 to 65. However, among children ages 7 to 11, and 12 to 19, those linked to larger practices and to FQHCs had lower Access to Care rates than beneficiaries in solo practices. African-Americans had lower rates than Caucasians for adults ages 20 to 44 (80 percent versus 85 percent) and children ages 25 months and older (25 months to 6 years: 88 percent versus 94 percent; 7 to 11 years: 81 percent versus 91 percent; and 12 to 19 years: 82 percent versus 88 percent).

HbA1c Testing: A consistent pattern by practice size was not apparent. Hispanics (66 percent) had significantly better overall rates than both Caucasians (44 percent) and African-Americans (40 percent).

Asthma: Use of Appropriate Medication rates were generally high (at least 88 percent), but low beneficiary volume limited the detection of patterns by race and practice size.

Breast Cancer Screening: Hispanics (73 percent) had significantly better overall rates than both Caucasians (53 percent) and African-Americans (64 percent). A consistent pattern was not observed across practice sizes.

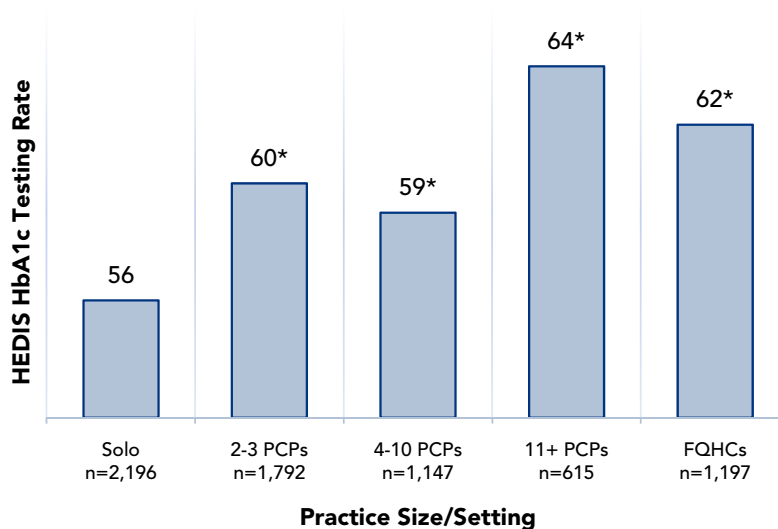
Southwest Pennsylvania

Practice and Beneficiary Distribution: Seventy-one percent of beneficiaries in Southwest Pennsylvania were Caucasian and 27 percent were African-American. Over 80 percent of practice sites had three or fewer providers. Fifty percent of all beneficiaries, 58 percent of Caucasians, and 30 percent of African-Americans were linked to these practices.

Access to Care: African-Americans had lower Access to Care rates than Caucasians in all age groups, and across most practice size categories. Racial disparities were largest (nine percentage points) among children ages 7 to 11. The largest practices and FQHCs had Access to Care rates significantly below solo practices across all child age categories.

HbA1c Testing: African-Americans had lower rates than Caucasians overall. Beneficiaries linked to all practices with more than one physician and to FQHCs had higher rates than solo practices (Figure 5).

Figure 5: Southwest Pennsylvania – HbA1c Testing by Practice Size/Setting



Based on administrative data only.
 *Statistically significant difference from solo group at .05.

Asthma: African-Americans had lower rates of medication use than Caucasians overall and in larger practices. Generally, rates for beneficiaries linked to FQHCs and those linked to practices with more than one physician were higher than those linked to solo practices.

Breast Cancer Screening: Caucasians had lower rates than did African-Americans overall (58 percent versus 63 percent) and in larger practices. Overall and for African-Americans, rates for beneficiaries in the largest practices were higher (72 percent) than in solo practices (60 percent).

Key Themes

The intersection of data on performance, practice size/setting, and race and ethnicity in Arkansas, Michigan, New York and Pennsylvania analyzed in this study provides preliminary insights worthy of further examination and consideration for the development of quality improvement strategies. While regional and geographic variations were evident in the findings, several key themes emerged:

1. Small practices serve a large share of Medicaid patients.

Small practices make up a significant proportion of the Medicaid delivery system, even though in some regions, like the Bronx, the majority of beneficiaries receive care in a concentrated number of larger practices or clinics.¹⁶ In Arkansas, Michigan, and Southwest Pennsylvania, approximately half of all Medicaid managed care beneficiaries were linked to practices with three or fewer providers.

2. Disparities in care for racially and ethnically diverse populations are pervasive, but the reasons for these gaps are unclear.

Most states observed disparities across the majority of measures, with African-Americans and Hispanics often experiencing lower HEDIS rates. Gaps were most often the smallest for Access to Care measures for the

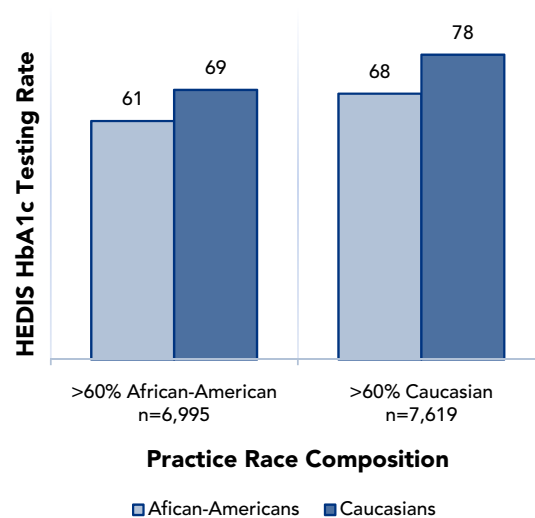
¹⁶ Based on the practice identification methods used by New York, some of the larger practices may include affiliations of small, medium, and large practices under an umbrella entity.

youngest children, which likely is due to more aggressive care provided by physicians and/or sought by caregivers.

One notable twist to the disparities picture was in the Bronx, where Caucasians — only 6 percent of the Medicaid population — often experienced significantly lower rates compared to the area’s predominant Hispanic population. As the New York team noted, being a “minority” in the literal sense may be a more important consideration than belonging to specific racial/ethnic group, whereby a group’s prominence may heighten the awareness and sensitivity of providers and the delivery system to the type of care that best serves it.

While the causes of disparities remain complex, evidence from Michigan suggests that care may be compromised in practices serving large concentrations of racially and ethnically diverse beneficiaries. A growing body of literature reveals that Caucasians and African-Americans are often treated by different subsets of physicians, with African-Americans concentrated among physicians who are less clinically trained and have lower reported access to clinical resources.¹⁷ In the current study, Michigan analyzed data by grouping practices into those with a patient population greater than 60 percent African-American, and those with a patient population greater than 60 percent Caucasian. Their analysis included running HEDIS rates for African-Americans linked to predominantly African-American practices; Caucasians linked to predominantly African-American practices; African-Americans linked to predominantly Caucasian practices; and Caucasians linked to predominantly Caucasian practices. Michigan found that Access to Care rates for African-Americans and Caucasians in predominantly Caucasian practices were significantly higher than for African-Americans in predominantly African-American practices. In addition, Caucasians in predominantly African-American practices had significantly lower rates than those in predominantly Caucasian practices. These data underscore that a high volume of racial and ethnic minorities in a practice may represent additional challenges to improving chronic care (Figure 6).

Figure 6: Michigan – HbA1c Testing by Practice Race Composition



Recent work by Reschovsky and O’Malley bears analogous results, suggesting that racial and ethnic disparities in primary health care likely reflect not only differences in individual patients’ characteristics, but the

¹⁷ P.B. Bach et al., “Primary Care Physicians Who Treat Blacks and Whites,” *New England Journal of Medicine* (5 August 2004): 575-584.

aggregate composition of a physician's patient panel, including factors such as the amount of Medicaid revenue, or the volume of patients whose primary language is not English.¹⁸

3. High access to care and quality of care do not necessarily go hand in hand, and each may be more or less achievable in different-size settings.

Findings from select states highlight variations in access to care versus quality of care that may be found in different practice settings. In Arkansas, Michigan, and the Bronx, for example, access to care for children was often higher in smaller practices than in larger practices and FQHCs. In contrast, chronic care measures, including rates of HbA1c Test Performed, were higher in larger practices than in smaller practices. Similarly, in Arkansas, Michigan, and Southwest Pennsylvania, higher rates of appropriate asthma medication use were found in larger practices compared to solo practices. While these patterns were not universal, they suggest further attention to the processes and resources that might influence access to care versus chronic care quality differentially by practice size/setting.

Challenges/Limitations

Generating data on the distribution of practice sizes has methodological challenges. In this study, the assignment of a physician to a practice was limited by the extent to which provider information allowed the appropriate aggregation of physicians at a practice site. The process of organizing physicians into a higher-level unit of analysis, be it practice site or group, is often a time-intensive task. Additionally, physicians who were not serving as a PCP to anyone within the study's eligible Medicaid managed care population were excluded from the analysis. Given various study assumptions, it seems reasonable to believe that a minimal number of physicians were excluded.¹⁹

Rates of HEDIS hybrid measures derived from administrative data only (like the HbA1c Test Performed measure in this study) are prone to being underestimated compared to rates based on administrative data supplemented by medical chart reviews.²⁰ The relative efficiency of using administrative data makes it unsurprising that many quality performance initiatives have placed an initial focus on these measures. As performance measurement related activities continue to increase and evolve, it will be important to identify ways of improving both the reliability and completeness of administrative data sources.²¹ In this case, the inability to examine outcome measures in conjunction with processes of care provides a partial picture of how practices may compare on performance.

Finally, the study data provide a cross-sectional view of how practices performed in access and quality of care measures. Arkansas and Pennsylvania have rerun some of their most current data and found that while many of the observations remained constant, there were some measures for which significant increases or decreases in racial/ethnic disparities were observed. For example, in comparing two years of data in Arkansas, FQHCs continued to demonstrate lower access to care rates; however, disparities in HbA1c testing between races decreased significantly. Additional analyses may be warranted to determine whether these observed patterns reflect general trends.

¹⁸ J.D. Reschovsky and A.S. O'Malley, "Do Primary Care Physicians Treating Minority Patients Report Problems Delivering High-Quality Care?" *Health Affairs* (May 2008): w222-w231.

¹⁹ Assumption is that the practices serving Medicaid managed care beneficiaries tend not to be heterogeneous (either with respect to comprising a mix of PCPs and specialists or a mix of PCPs who do and do not accept Medicaid beneficiaries).

²⁰ L.G. Pawlson et al., "Comparison of Administrative-Only Versus Administrative Plus Chart Review Data for Reporting HEDIS Hybrid Measures," *American Journal of Managed Care* (October 2007): 553-558.

²¹ *Ibid.*

Implications

State Medicaid agencies are becoming increasingly sophisticated purchasers of health care services, seeking new leverage points for improving quality. The high prevalence of small practices across the country challenges Medicaid decision-makers to consider the potential implications of practice size on chronic care quality and the burgeoning number of provider-level quality improvement efforts. As philanthropic, professional, federal, and accrediting agencies recognize small practices as an important constituency, tailoring quality improvement strategies for these settings — as suggested by the study data — is a great opportunity.

The results from this study complement growing evidence that quality of care and quality improvement infrastructure correlate with characteristics of providers and practices.²² This includes research showing that barriers to providing high-quality care in smaller practices may reflect a wide range of factors, which likely include practice infrastructure and capacity.²³ An interesting finding in the current study data was that smaller practices had access to care rates comparable to larger practices (and generally had higher children's access to care rates than larger practices), but often had lower performance rates for diabetes and asthma care. This distinction can help to target quality improvement resources. Even in larger practice settings, precarious financial situations, low reimbursement, and inadequate information technology are often serious impediments to chronic care improvement.²⁴ These same challenges can be magnified in small practices serving a high volume of racially and ethnically diverse patients, as they not only rely on Medicaid as their primary revenue source, but also tend to serve economically disadvantaged populations in under-resourced areas.²⁵ Small, non-affiliated practices may indeed require the greatest investments for transforming chronic care.²⁶

Growing evidence suggests, however, that with the proper support, providers in these settings are able to incorporate elements of the Chronic Care Model and produce improvements.²⁷ Furthermore, the fact that the majority of racially/ethnically diverse populations receive care from a small concentration of providers presents an opportunity to target quality improvement and disparities-reduction efforts.²⁸

The facilitation of sustainable practice transformation requires the leveraged resources of a broad range of health care stakeholders including Medicaid agencies, managed care partners, quality improvement organizations, and community partners. The success of endeavors like the New York City Primary Care Information Project, which has leveraged \$28 million from state, federal, and private sources to support the implementation of health information technology and practice transformation efforts, demonstrates the ability to drive major, region-wide quality improvement efforts among practices serving disadvantaged populations.²⁹ Identifying and addressing disparities in practices serving large volumes of racially and ethnically diverse patients must begin with access to data. With its history of collecting race and ethnicity data, Medicaid is an ideal launching point. State agencies can also play a critical role as a convener of collaborative efforts that focus on creating alignment (particularly in markets with multiple health plans) around practice improvement supports such as data aggregation, health information technology, common measurement, common financial incentives, and shared practice staffing.

The current study findings have informed, for example, CHCS' *Reducing Disparities at the Practice Site* initiative, launched in October 2008 to support quality improvement in small practices serving a high volume

²² H.H. Pham et al., op cit.; J.D. Ketcham et al., op cit.

²³ A.M. Audet et al., op cit.

²⁴ L.P. Casalino et al., op cit.

²⁵ P.B. Bach et al., op cit.; J. Blustein, "Who Is Accountable for Racial Equity in Health Care?," *JAMA* (20 February 2008): 814-816.

²⁶ M. W. Friedberg, D. G. Safran, K. L. Coltin et al., "Readiness for the Patient-Centered Medical Home: Structural Capabilities of Massachusetts Primary Care Practices," *Journal of General Internal Medicine*, December 3, 2008 (published online).

²⁷ P.A. Nutting et al., "Use of Chronic Care Model Elements Is Associated With Higher-Quality Care for Diabetes," *Annals of Family Medicine* (January 2007): 14-20.

²⁸ M. Peek et al. "Diabetes Health Disparities: A Systematic Review of Health Care Interventions," *Medical Care Research and Review*, (2007): 64: 101S-156S

²⁹ F. Mostashari, et. al., "A Tale of Two Large Community Electronic Health Record Extension Projects," *Health Affairs* (28):345-356.

of racially and ethnically diverse patients.³⁰ The three-year project is helping Medicaid agencies and health plans in Michigan, North Carolina, Oklahoma and Pennsylvania to build the quality infrastructure and care management capacity of these “high-opportunity” primary care practices.

In examining the features of solo, small, medium, large and FQHC practices in Medicaid, this study contributes to the research on physician organization and performance measurement.³¹ At the same time, the findings herein call for further study into the characteristics of different practice sizes, the quality of care they provide, and the prevalence of different settings in states beyond the four examined in this project. Such information will be critical for Medicaid stakeholders in designing and testing quality improvement models for reducing racial and ethnic disparities and improving the overall quality of care in practices where high opportunity exists.

³⁰ For more information about *Reducing Disparities at the Practice Site*, visit www.chcs.org.

³¹ B.E. Landon and S.L. Normand, "Performance Measurement in the Small Office Practice: Challenges and Potential Solutions," *Annals of Internal Medicine* (4 March 2008): 353-357.

Appendix A: Arkansas: HEDIS Rates Stratified by Practice Size and Race/Ethnicity

ARKANSAS	OVERALL		SIZE 1 (solo)		SIZE 2 (2-3)		SIZE 3 (4-10)		SIZE 4 (11+)		FQHCs					
		n		n		n		n		n		n				
ADULT ACCESS TO CARE																
20-44 years (NCQA Median: 78.8)																
Overall	81	20,681	81	10,482	83	▲	4,065	80		3,442	79	▼	2,617	63	▼	3,637
Caucasian	83	12,024	85	5,769	83		1,909	81	▼	2,249	82	▼	2,035	68	▼	1,460
African-American	77	7,798	75	4,305	82	▲	2,010	78	▼	1,051	67	▼	421	60	▼	2,023
Hispanic	76	1,558	83	71	80		20	67		30	68	▼	37	65	▼	31
45-64 years (NCQA Median: 84.3)																
Overall	90	12,866	91	6,337	90		2,200	90		2,056	91		1,552	72	▼	2,244
Caucasian	91	7,061	92	3,480	90		1,104	91		1,306	91		1,139	76	▼	977
African-American	89	3,472	88	2,014	90		833	88	▼	488	89		134	69	▼	993
Hispanic	84	77	91	33	100		12	80		10	71	▼	21	82		11
CHILDREN'S ACCESS TO CARE																
12-24 months (NCQA Median: 94.6)																
Overall	96	31,876	97	8,846	96	▼	4,461	97		10,496	96	▼	5,838	89	▼	2,180
Caucasian	97	17,893	98	5,372	97		2,674	98	▲	5,429	97		3,470	92	▼	933
African-American	95	7,838	97	1,892	96		1,239	97	▼	3,297	93	▼	928	83	▼	478
Hispanic	95	4,230	97	1,183	92	▼	293	95	▼	1,047	96	▼	1,030	92	▼	646
25 months- 6 years (NCQA Median: 84.7)																
Overall	90	68,319	93	19,956	91	▼	9,240	92	▼	20,637	87	▼	13,355	79	▼	4,997
Caucasian	92	38,628	93	12,009	92	▼	5,372	93		10,797	91	▼	8,076	81	▼	2,306
African-American	87	18,532	92	4,880	91		2,760	90	▼	6,981	74	▼	2,450	73	▼	1,441
Hispanic	87	6,665	93	1,854	85	▼	521	85	▼	1,382	86	▼	1,929	84	▲	937
7-11 years (NCQA Median: 83.9)																
Overall	80	63,086	85	19,237	80	▼	9,019	82	▼	17,453	76	▼	12,728	60	▼	4,497
Caucasian	84	37,102	87	11,899	83	▼	5,310	87		9,638	85	▼	7,880	63	▼	2,274
African-American	70	18,723	79	5,246	73	▼	2,922	76	▼	6,079	48	▼	2,906	49	▼	1,545
Hispanic	78	3,753	84	1,105	75	▼	292	73	▼	690	79	▼	1,215	72	▲	431
12-19 years (NCQA Median: 82.1)																
Overall	79	74,497	82	24,701	80	▼	11,169	84	▲	17,444	73	▼	14,519	60	▼	6,460
Caucasian	82	44,779	84	15,431	81	▼	6,645	87	▲	10,454	82	▼	8,759	64	▼	3,333
African-American	72	24,027	79	7,538	78	▼	3,848	78	▼	5,741	56	▼	4,261	55	▼	2,608
Hispanic	74	2,424	80	743	65	▼	199	76	▼	450	73	▼	781	62	▼	244
HBA1C TESTING*																
18-64 years																
Overall	66	4,636	64	2,428	64		832	69	▲	749	70	▲	619	63		886
Caucasian	67	2,446	67	1,187	68		378	65		443	70		431	57	▼	354
African-American	62	1,615	61	958	58	▼	372	75	▲	210	68		74	68	▲	421
ASTHMA MEDICATIONS																
5-56 years (NCQA Mean: 85.7)																
Overall	88	6,275	86	2,156	87		1,006	91	▲	1,709	90	▲	1,395	83		503
Caucasian	88	3,671	86	1,307	87		556	90	▲	962	88		840	80	▼	254
African-American	89	1,846	86	622	88		308	90	▲	560	95	▲	354	83		196
BREAST CANCER SCREENING																
21-64 years (NCQA Mean: 53.9)																
Overall	37	4,634	36	2,444	34		806	38		774	41		596	46	▲	799
Caucasian	38	2,492	37	1,233	39		385	38		456	39		408	43	▲	321
African-American	34	1,286	35	776	28	▼	286	41		180	42		43	46	▲	345

▲▼ Denotes a statistically significant difference between practice size settings. Referent group= solo practices.

↑↓ Denotes a statistically significant difference between racial/ethnic groups. Referent group= Caucasians.

*Based on administrative data only.

Appendix B: Michigan: HEDIS Rates Stratified by Practice Size and Race/Ethnicity

MICHIGAN	OVERALL		SIZE 1 (solo)		SIZE 2 (2-3)		SIZE 3 (4-10)		SIZE 4 (11+)		FOHCs	
		n		n		n		n		n		n
ADULT ACCESS TO CARE												
20-44 years (NCQA Median: 78.8)												
Overall	78	15,158	78	26,955	76 ▼	34,559	80 ▲	26,942	81 ▲	8,884	78 ▲	17,409
Caucasian	82	58,617	82	15,085	82	16,123	84 ▲	14,804	83 ▲	4,482	81	7,811
African-American	73 ↓	5,130	71 ↓	10,598	70 ↓	17,136	75 ↓ ▲	11,134	78 ↓ ▲	3,894	77 ↓ ▲	8,466
Hispanic	80 ↓	3,855	80	827	80	885	81	738	82	381	77 ↓	1,005
45-64 years (NCQA Median: 84.3)												
Overall	85	54,205	85	14,389	83 ▼	16,921	85	11,563	86	3,515	86	7,728
Caucasian	88	27,699	88	8,159	88	8,025	89	6,246	89	1,800	85 ▼	3,411
African-American	81 ↓	24,168	80 ↓	5,510	78 ↓ ▼	8,224	81 ↓	4,906	83 ↓ ▲	1,532	86 ▲	3,966
Hispanic	87	1,319	87	347	86	316	87	274	89	15	89	266
CHILDREN'S ACCESS TO CARE												
12-24 months (NCQA Median: 94.6)												
Overall	93	24,692	94	5,577	91 ▼	6,116	93	7,568	95	2,311	92 ▼	3,103
Caucasian	95	13,620	96	3,474	95 ▼	3,385	96	4,506	96	972	93 ▼	1,267
African-American	89 ↓	9,064	88 ↓	1,579	86 ↓	2,363	89 ↓	2,533	94 ▲	1,194	90 ↓	1,395
Hispanic	95	1,696	98	442	96	268	94 ▼	465	93 ▼	114	94 ▼	406
25 months- 6 years (NCQA Median: 84.7)												
Overall	81	12,195	83	28,571	80 ▼	32,084	83	34,811	80 ▼	10,652	78 ▼	15,745
Caucasian	86	6,164	87	16,511	86 ▼	16,137	87	19,104	86	4,112	80 ▼	5,688
African-American	74 ↓	48,728	75 ↓	8,934	71 ↓	13,560	76 ↓	12,941	75 ↓	5,788	74 ↓ ▼	7,503
Hispanic	85 ↓	9,675	88	2,509	85 ▼	1,749	85 ↓ ▼	2,393	85	596	83 ↑ ▼	2,427
7-11 years (NCQA Median: 83.9)												
Overall	80	68,192	82	16,778	78 ▼	19,832	83	16,319	78 ▼	6,004	76 ▼	9,192
Caucasian	86	34,098	87	9,359	86 ▼	9,651	87	9,742	84 ▼	1,978	81 ▼	3,302
African-American	72 ↓	28,187	74 ↓	5,843	69 ↓ ▼	8,696	75 ↓	5,337	74 ↓	3,613	71 ↓ ▼	4,698
Hispanic	85	4,705	87	1,221	84 ▼	1,040	87	1,031	79 ↓ ▼	310	82 ▼	1,103
12-19 years (NCQA Median: 82.1)												
Overall	78	89,215	80	22,416	77 ▼	28,040	81 ▲	19,138	78 ▼	7,608	75 ▼	11,935
Caucasian	85	42,017	85	11,957	85	12,018	86	11,243	84	2,454	81 ▼	4,269
African-American	72 ↓	41,131	72 ↓	8,811	69 ↓ ▼	14,360	74 ↓ ▲	6,777	75 ↓ ▲	4,647	71 ↓	6,534
Hispanic	80 ↓	4,363	83 ↓	1,080	81 ↓	1,055	83 ↓	832	77 ↓ ▼	383	74 ↓ ▼	1,013
HBA1C TESTING*												
18-64 years												
Overall	71	18,570	66	4,883	69 ▲	5,602	73 ▲	3,870	73 ▲	1,285	76 ▲	2,930
Caucasian	76	9,170	71	2,722	76 ▲	2,678	80 ▲	1,955	79 ▲	611	79 ▲	1,204
African-American	64 ↓	8,257	56 ↓	1,816	62 ↓ ▲	2,620	64 ↓ ▲	1,726	68 ↓ ▲	594	73 ↓ ▲	1,501
Hispanic	76	759	73	191	77	176	79	143	65 ↓	60	80	189
ASTHMA MEDICATIONS												
5-56 years (NCQA Mean: 85.7)												
Overall	87	10,704	86	2,553	84	3,172	90 ▲	2,231	90 ▲	1,100	89 ▲	1,648
Caucasian	89	5,883	89	1,552	89	1,708	90	1,407	90	455	89	761
African-American	84 ↓	4,345	81 ↓	881	78 ↓	1,340	88 ▲	731	89 ▲	592	88 ▲	801
Hispanic	88	354	86	91	83	82	91	68	95	37	92	76
BREAST CANCER SCREENING												
21-64 years (NCQA Mean: 53.9)												
Overall	55	12,636	57	3,545	55 ▼	4,069	58	2,325	50 ▼	865	50 ▼	1,832
Caucasian	58	7,066	60	2,211	58	2,129	60	1,552	52 ▼	455	52 ▼	809
African-American	51 ↓	4,935	51 ↓	1,233	51 ↓	1,755	54 ↓	655	47	367	50	925
Hispanic	56	360	61	101	57	84	52	75	63	30	47	70

▲ ▼ Denotes a statistically significant difference between practice size settings. Referent group= solo practices.

↑ ↓ Denotes a statistically significant difference between racial/ethnic groups. Referent group= Caucasians.

*Based on administrative data only.

Appendix C: Bronx, NY: HEDIS Rates Stratified by Practice Size and Race/Ethnicity

BRONX, NY	OVERALL		SIZE 1 (solo)		SIZE 2 (2-5)		SIZE 3 (6-20)		SIZE 4 (21-70)		SIZE 5 (71+)		FQHCs	
		n		n		n		n		n		n		n
ADULT ACCESS TO CARE														
20-44 years (NCQA Median: 78.8)														
Overall	76	36,108	73	3,458	74	1,893	76 ▲	2,127	72	660	73	9,881	78 ▲	8,089
Caucasian	69	2,339	69	245	67	132	71	10	86	21	67	772	70	1,059
African-American	75 ↑	9,157	71	801	73	489	74	555	70	164	72 ↑	2,166	77 ↑ ▲	4,982
Hispanic	77 ↑	21,268	75	2,107	75	1,063	77	1,291	72	426	74 ↑	5,803	79 ↑ ▲	10,578
45-64 years (NCQA Median: 84.3)														
Overall	85	18,262	80	1,482	83 ▲	941	85 ▲	855	87 ▲	362	86 ▲	6,384	86 ▲	8,238
Caucasian	80	1,302	69	130	77	65	75	48	85	13	81 ▲	479	82 ▲	567
African-American	84 ↑	3,882	77	305	85 ▲	222	84	192	85	65	83 ▲	1,145	85 ↑ ▲	1,953
Hispanic	87 ↑	11,141	83 ↑	890	84	539	88 ↑ ▲	534	88	265	87 ↑ ▲	3,970	88 ↑ ▲	4,943
CHILDREN'S ACCESS TO CARE														
12-24 months (NCQA Median: 94.6)														
Overall	92	4,700	90	761	89	344	92	273	92	145	92	1,346	93 ▲	1,831
Caucasian	91	318	79	34	97	33	92	25	83	6	93 ▲	97	92 ▲	123
African-American	90	1,171	85	150	88	66	93	67	86	50	87	316	93 ▲	522
Hispanic	93	2,433	93 ↑	465	89	188	93	147	96	76	93	629	94	928
25 months- 6 years (NCQA Median: 84.7)														
Overall	86	21,563	90	4,187	89	1,595	89	1,244	83 ▼	561	83 ▼	5,556	87 ▼	8,420
Caucasian	85	1,288	86	213	93	122	97	76	90	20	81	400	84	457
African-American	83	5,447	84	785	88 ▲	328	86	317	82	220	80	1,293	84	2,504
Hispanic	88 ↑	12,221	92 ↑	2,777	89 ▼	945	89 ▼	734	83 ▼	248	84 ▼	3,033	88 ↑ ▼	4,484
7-11 years (NCQA Median: 83.9)														
Overall	86	15,644	89	3,040	87	1,145	85 ▼	808	83 ▼	283	83 ▼	3,810	87 ▼	6,558
Caucasian	83	564	85	95	77	52	80	30	100	2	77	164	91	201
African-American	83	3,842	81	535	84	191	85	210	82	113	78	827	85 ↓ ▲	1,966
Hispanic	88 ↑	9,498	92 ↑	2,217	88 ↑ ▼	766	85 ▼	478	81 ▼	133	86 ↑ ▼	2,287	87 ▼	3,707
12-19 years (NCQA Median: 82.1)														
Overall	82	22,808	86	4,426	83 ▼	1,545	84 ▼	1,091	80 ▼	299	74 ▼	4,939	83 ▼	10,508
Caucasian	76	807	79	115	80	79	80	35	43	7	66 ▼	216	81	355
African-American	79 ↑	5,323	82	795	78	282	85	247	84	94	68 ▼	940	82	2,965
Hispanic	84 ↑	14,816	87 ↑	3,241	86	1,059	85	713	80 ▼	158	77 ↑ ▼	3,320	85 ▼	6,325
HBA1C TESTING*														
18-64 years														
Overall	46	6,899	34	606	39	423	44 ▲	331	38	130	52 ▲	2,361	45 ▲	3,048
Caucasian	45	445	29	45	38	37	42	24	67	3	51 ▲	143	47 ▲	193
African-American	40	1,534	32	133	36	100	39	66	37	41	47 ▲	435	39 ↓	759
Hispanic	47	4,078	33	368	38	227	43 ▲	197	38	77	54 ▲	1,439	47 ▲	1,770
ASTHMA MEDICATIONS														
5-56 years (NCQA Mean: 85.7)														
Overall	89	5,099	87	598	91	274	89	188	86	91	90	1,339	89	2,599
Caucasian	88	151	100	9	80	5	75	8	100	1	91	54	86	74
African-American	87	1,211	84	103	90	60	94	36	88	25	86	277	86	710
Hispanic	89	3,259	86	442	90	180	90	133	89	53	90	845	90 ▲	1,606
BREAST CANCER SCREENING														
21-64 years (NCQA Mean: 53.9)														
Overall	70	4,102	60	242	69 ▲	197	63	139	76 ▲	68	71 ▲	1,600	70 ▲	1,856
Caucasian	65	240	64	22	83	12	67	6	0	1	67	90	63	109
African-American	65	826	57	37	71	42	54	28	63	16	67	267	64	436
Hispanic	72 ↑	2,618	61	160	68	123	64	86	84 ▲	45	74 ▲	1,084	73 ↑ ▲	1,120

▲ ▼ Denotes a statistically significant difference between practice size settings. Referent group= solo practices.

↑ ↓ Denotes a statistically significant difference between racial/ethnic groups. Referent group= Caucasians.

*Based on administrative data only.

Appendix D: Erie Co., NY: HEDIS Rates Stratified by Practice Size and Race/Ethnicity

ERIE CO, NY	OVERALL		SIZE 1 (solo)		SIZE 2 (2-5)		SIZE 3 (6-20)		SIZE 4 (21-70)		SIZE 5 (71+)		FQHCs	
		n		n		n		n		n		n		n
ADULT ACCESS TO CARE														
20-44 years (NCOA Median: 78.8)														
Overall	83	9,221	83	1,525	84	1,785	85	1,246	83	3,378	82	937	85	350
Caucasian	85	4,600	85	865	86	1,330	88 ▲	845	83	1,150	84	239	91 ▲	171
African-American	80 ↓	3,333	76 ↓	388	79 ↓	290	77 ↓	307	83 ▲	1,909	74 ↓	294	77 ↓	145
Hispanic	86	936	91 ↑	219	76 ↓ ▼	88	79 ▼	43	84 ▼	204	88	362	83	23
45-64 years (NCOA Median: 84.3)														
Overall	89	3,902	90	845	90	727	89	466	88	1,377	87	374	93	183
Caucasian	89	2,044	89	441	90	547	90	306	87	568	90	128	96	54
African-American	88	1,281	89	250	90	12	87	15	87	659	84	95	90	50
Hispanic	92	343	94	119	82	22	100	15	92	66	90	117	100	4
CHILDREN'S ACCESS TO CARE														
12-24 months (NCOA Median: 94.6)														
Overall	98	1,368	96	106	98	321	98	240	97	495	100	141	98	65
Caucasian	97	590	96	67	98	187	97	156	99	137	100	19	96	24
African-American	98	560	96	27	99	102	98	64	96	281	100	63	100	23
Hispanic	99	163	100	7	100	18	100	12	98	59	100	54	100	13
25 months- 6 years (NCOA Median: 84.7)														
Overall	91	6,288	94	508	94	1,382	93	1,075	89 ▼	2,388	91	641	89 ▼	294
Caucasian	94	2,592	94	309	95	818	95	656	94	602	93	88	92	119
African-American	88 ↓	2,614	90	108	92 ↓	414	88 ↓	302	86 ↓	1,366	90	311	83 ↓	113
Hispanic	91 ↓	757	95	55	92	76	93	46	91	318	91	220	90	42
7-11 years (NCOA Median: 83.9)														
Overall	86	4,296	91	400	90	894	90	632	83 ▼	1,621	82 ▼	520	79 ▼	229
Caucasian	91	1,546	94	217	92	508	92	324	89	348	83 ▼	69	89	80
African-American	81 ↓	1,895	85 ↓	86	88	276	86 ↓	224	79 ↓	940	79	265	71 ↓ ▼	104
Hispanic	85 ↓	594	87	55	84	51	88	40	85	249	86	165	82	34
12-19 years (NCOA Median: 82.1)														
Overall	85	5,794	88	648	87	1,092	87	726	84 ▼	2,140	84 ▼	853	83 ▼	335
Caucasian	88	2,078	91	351	89	627	89	376	87	487	82 ▼	130	84	107
African-American	82 ↓	2,557	79 ↓	152	83 ↓	345	83	255	81 ↓	1,217	84	394	81	194
Hispanic	89	782	94	87	91	65	84	31	89	318	87	263	89	18
HBA1C TESTING*														
18-64 years														
Overall	46	1,577	45	376	44	282	48	183	44	561	55 ▲	175	32	41
Caucasian	44	698	38	169	42	187	54 ▲	104	47	183	47	45	42	19
African-American	40	582	37	120	51	61	33 ↓	55	40	304	50	42	18	17
Hispanic	66 ↑	214	72 ↑	74	38 ▼	18	57	14	63	40	68 ↑	73	25	4
ASTHMA MEDICATIONS														
5-56 years (NCOA Mean: 85.7)														
Overall	93	861	96	207	89 ▼	156	95	106	91 ▼	254	93	106	100	32
Caucasian	93	342	93	57	89	106	98	57	94	81	93	27	100	14
African-American	92	260	90	40	90	31	88	32	91	12	97	30	100	15
Hispanic	96	207	100	10	90	10	100	5	89	46	93	44	100	1
BREAST CANCER SCREENING														
21-64 years (NCOA Mean: 53.9)														
Overall	60	814	63	174	49 ▼	138	65	79	60	321	65	102	64	28
Caucasian	53	389	54	82	47	92	66	50	51	131	56	34	67	15
African-American	64 ↑	283	71	51	55	31	63	24	63 ↑	150	63	27	78	9
Hispanic	73 ↑	79	73	30	50	4	50	2	86	14	72	29		2

▲ ▼ Denotes a statistically significant difference between practice size settings. Referent group= solo practices.

↑ ↓ Denotes a statistically significant difference between racial/ethnic groups. Referent group= Caucasians.

*Based on administrative data only.

Appendix E: Southwest Pennsylvania: HEDIS Rates Stratified by Practice Size and Race

SOUTHWEST PENNSYLVANIA	OVERALL		SIZE 1 (solo)		SIZE 2 (2-3)		SIZE 3 (4-10)		SIZE 4 (11+)		FQHCs	
		n		n		n		n		n		n
ADULT ACCESS TO CARE												
20-44 years (NCQA Median: 78.8)												
Overall	81	62,382	81	19,142	82 ▲	15,677	82 ▲	10,993	79 ▼	7,005	81	9,565
Caucasian	82	46,156	81	15,719	83 ▲	13,010	83 ▲	8,268	80	2,998	82	6,161
African-American	79 ↓	15,155	79 ↓	3,117	79 ↓	2,397	79 ↓	2,499	78 ↓	3,874	78 ↓	3,268
45-64 years (NCQA Median: 84.3)												
Overall	85	35,683	85	12,223	85	9,315	86	5,925	84 ▼	3,110	84	5,110
Caucasian	86	27,491	86	10,155	86	7,756	86	4,532	84	1,586	86	3,462
African-American	83 ↓	7,563	82 ↓	1,842	83 ↓	1,397	86 ▲	1,257	83	1,476	81 ↓	1,591
CHILDREN'S ACCESS TO CARE												
12-24 months (NCQA Median: 94.6)												
Overall	96	8,922	97	2,255	97	1,683	98	2,650	94 ▼	1,552	94 ▼	782
Caucasian	97	6,226	97	1,877	97	1,383	98 ▲	2,046	97	574	94 ▼	346
African-American	94 ↓	2,434	96	321	95	253	96 ↓	503	93 ↓	943	94	414
25 months- 6 years (NCQA Median: 84.7)												
Overall	88	35,573	88	9,247	91 ▲	6,370	91 ▲	10,283	84 ▼	6,224	84 ▼	3,449
Caucasian	91	24,225	89	7,698	91 ▲	5,088	92 ▲	7,737	90	2,199	88 ▼	1,503
African-American	82 ↓	10,204	83 ↓	1,317	87 ↓ ▲	1,055	85 ↓	2,131	80 ↓	3,834	81 ↓	1,867
7-11 years (NCQA Median: 83.9)												
Overall	89	27,183	90	7,242	91	4,615	92 ▲	6,925	84 ▼	5,140	87 ▼	3,261
Caucasian	92	18,212	91	5,945	93 ▲	3,664	94 ▲	5,254	91	1,835	91	1,514
African-American	83 ↓	8,376	85 ↓	1,158	85 ↓	840	86 ↓	1,471	80 ↓ ▼	3,208	84 ↓	1,699
12-19 years (NCQA Median: 82.1)												
Overall	88	38,104	89	10,490	89	6,541	90	8,792	82 ▼	6,918	87 ▼	5,363
Caucasian	90	25,590	90	8,642	90	5,187	92 ▲	6,638	90	2,359	90	2,764
African-American	82 ↓	11,902	84 ↓	1,696	85 ↓	1,262	82 ↓ ▼	1,967	78 ↓ ▼	4,446	84 ↓	2,531
HBA1C TESTING*												
18-64 years												
Overall	59	6,947	56	2,196	60 ▲	1,792	59 ▲	1,147	64 ▲	615	62 ▲	1,197
Caucasian	60	5,250	57	1,744	62 ▲	1,494	59	828	65 ▲	297	63 ▲	887
African-American	57 ↓	1,593	51 ↓	415	53 ↓	276	59 ▲	297	61 ▲	308	60 ▲	297
ASTHMA MEDICATIONS												
5-56 years (NCQA Mean: 85.7)												
Overall	87	6,120	84	1,872	88 ▲	1,356	88 ▲	1,268	86	803	88 ▲	821
Caucasian	88	4,550	85	1,590	88 ▲	1,134	90 ▲	965	89	360	89 ▲	501
African-American	84 ↓	1,469	80	255	87	201	83 ↓	274	83 ↓	430	87 ▲	309
BREAST CANCER SCREENING												
21-64 years (NCQA Mean: 53.9)												
Overall	59	10,164	58	3,559	57	2,672	59	1,725	65 ▲	876	57	1,332
Caucasian	58	7,873	58	2,962	57	2,226	58	1,299	60	445	57	941
African-American	63 ↑	2,104	60	530	59	396	64 ↑	382	72 ↑ ▲	419	58	377
▲ ▼ Denotes a statistically significant difference between practice size settings. Referent group= solo practices.												
↑ ↓ Denotes a statistically significant difference between racial/ethnic groups. Referent group= Caucasians.												
*Based on administrative data only.												