



Comparison of Primary Care Received by New Hampshire Medicaid Members at Different Practice Settings, 2008

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New Hampshire Department of Health and Human Services
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About the New Hampshire Comprehensive Health Care Information System

The New Hampshire Comprehensive Health Care Information System (NH CHIS) is a joint project between the New Hampshire Department of Health and Human Services and the New Hampshire Insurance Department. The NH CHIS was created by state statute (RSA 420-G:11-a) to make health care data “available as a resource for insurers, employers, providers, purchasers of health care, and state agencies to continuously review health care utilization, expenditures, and performance in New Hampshire and to enhance the ability of New Hampshire consumers and employers to make informed and cost-effective health care choices.” For more information about the NH CHIS, please visit <http://www.nh.gov/nhchis>, or www.nhchis.org.

About the Study

This study was conducted under a sub-contract between the Maine Health Information Center (MHIC) and the Muskie School of Public Service at the University of Southern Maine. This subcontract is part of a larger contract between the MHIC and the State of New Hampshire Department of Health and Human Services, Office of Medicaid Business and Policy, titled New Hampshire Comprehensive Health Care Information System. The views expressed are those of the authors and do not necessarily represent the views of the MHIC, New Hampshire DHHS, or the University of Southern Maine. For more information on the study, contact Kimberley Fox, Senior Policy Analyst, Muskie School of Public Service at 207-780-4950 or kfox@usm.maine.edu.

Primary Author

- Kimberley Fox, Senior Policy Analyst, Muskie School of Public Service, University of Southern Maine

Contributors

New Hampshire Department of Health and Human Services

- Andrew Chalsma, Chief, Bureau of Data and Systems Management
- Christine Shannon, Chief, Bureau of Health Care Research
- Kathleen Dunn, MPH, Medicaid Director
- Doris Lotz, MD, MPH, Medicaid Medical Director

Muskie School of Public Service, University of Southern Maine

- Carolyn Gray, Research Analyst II
- Catherine McGuire, Director of Health Data Resources and Senior Policy Analyst

Maine Health Information Center

- Rebecca Symes, Senior Analyst
- Monica McClain
- Natasha Ranger, Programmer Analyst
- Karl Finison, Director of Research

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EXECUTIVE SUMMARY

In 2008, NH DHHS released an initial baseline report comparing primary care received by New Hampshire Medicaid members in calendar year 2006 by different practice settings.¹ This initial exploratory report helped define a framework and methodology for assigning providers into five primary care settings—hospital-based clinics fully or partially billing a facility cost to Medicaid, stand-alone office-based physician practices, FQHCs and FQHC Look-Alikes, RHCs, and physicians affiliated with Dartmouth Hitchcock clinics (DHC)—using claims data and assigning members to these settings based on where they received the majority of their care.

This study updates that report comparing primary care received by NH Medicaid members in different practice settings in calendar year 2008. Using New Hampshire Medicaid administrative eligibility and claims data, practices were compared on the following measures for New Hampshire non-dual eligible members:

- access to and use of primary care practitioners;
- well-child visits;
- effectiveness of care management including preventive screening*;
- prevalence of mental health and substance abuse disorders, and
- service utilization and payments.

NCQA (National Committee for Quality Assurance) HEDIS (Healthcare Effectiveness Data and Information Set)[†] quality and access to care measures were reported based on the administrative claims data provided by the NH Medicaid program to the NH CHIS (New Hampshire Comprehensive Health Information System) project. Service utilization and payment rates were adjusted for age, gender, and medical risk using 3M Health Systems Clinical Risk Grouper (CRG) Version 1.4.

In contrast to the previous report, primary care quality and costs were examined in four practice settings: FQHCs, RHCs, Office based settings (including hospital-based clinics), and Dartmouth Hitchcock clinics.[‡] The previous report separately examined performance of office-based and hospital-based clinics due to differences in NH Medicaid reimbursement at these settings at that time. For this report, primary care provided by office-based practices and hospital outpatient settings were combined to reflect more recent changes in NH Medicaid payment policies.[§] Due to these changes in practice groupings, comparison across years is limited to overall measures and practice settings that were consistent between years.

* In addition to measures reported for 2006, this update includes follow-up of ADHD medications for children, and appropriate treatment of acute bronchitis, COPD, cardiovascular disease, and low-back pain.

† HEDIS is a tool used by most health plans to measure performance with regards to effectiveness, access, use, satisfaction, and cost of care. NCQA is the independent non-profit organization that maintains the tool.

‡ The list of providers included under DHC has also been modified in this report to include Mary Hitchcock and Cheshire Medical Center clinics that had been included in the hospital-based practice setting category in the CY 2006 report. The inclusion of these two clinics increased the number of NH Medicaid members seen at DHC clinics (by 52%) from those reported as receiving care from DHC in 2006.

§ HB30 signed by Governor on Feb 20, 2009 modifying Medicaid reimbursement for outpatient hospital services.

As with the prior report, NH Medicaid members were assigned to a primary practice setting based on the setting at which they received the majority of their primary care or preventive care visits in 2008. Once assigned to a primary care setting, all of the members' visits were attributed to that setting.

Key Findings

Where NH Members Receive Primary Care

- NH Medicaid enrollment increased between 2006 and 2008 by more than 5%.
- Nearly one quarter of NH Medicaid members (23%) were not assigned to a primary care provider in 2008 -- an increase from 2006 (21%) -- either because they had no visits or because they did not seek care at a provider identified as a primary care provider. These members also had shorter lengths of enrollment. The increase in non-assigned NH Medicaid members from 2006 may potentially be due to increased numbers of new enrollees to NH Medicaid. Because non-assigned members received no primary care, they are excluded from the remainder of the study. Future reports may focus on this group in more detail.
- For those receiving primary care, the largest group of NH Medicaid members received primary care from hospital and office-based practices (41%). DHC-affiliated physicians provided primary care to approximately 21 percent of NH Medicaid members, FQHCs or FQHC Look-Alikes provided primary care to 10% of Medicaid members, and 4% of Medicaid members received primary care from RHCs.
- Due to the addition of Mary Hitchcock and Cheshire Medical Center clients to DHC in 2008, the number of members receiving care at these settings increased by 52% from 2006 and their percentage of total Medicaid members seeking primary also increased.
- The average age of members served by FQHCs continued to be significantly higher than the average of all members receiving primary care (17.1 compared to 15.0 overall) because FQHCs serve a disproportionate number of adults (33%) compared to NH Medicaid members receiving primary care generally (24%).
- Compared to CY 2006, DHC practices in 2008 had significantly higher percentage of children with severe disabilities than other settings (1.7% versus 1.1%). In addition, RHC practices in 2008 had a significantly lower percentage of children with mental disabilities but along with hospital/office-based providers had significantly higher percentages of low-income children in general than other settings.

Clinical Risk of NH Medicaid Members Receiving Primary Care

- The average clinical risk score for NH Medicaid members seeking primary care declined between 2006 and 2008 from .931 to .879.
- NH Medicaid members seeking care at DHC primary care practices are sicker than members served at other settings. The burden of illness at DHC practices as measured by clinical risk groups (CRGs) is significantly higher (average risk score 0.942) than those receiving primary care in general (average risk score 0.879). Hospital/office-based practices had the next highest burden of illness and were significantly different from other practice settings (0.878) but not from the overall

risk rate across settings. RHCs and FQHCs had significantly lower risk scores than the average.

Access and Well-Child Visit Rates

- While rates improved from CY 2006, children enrolled in Medicaid receiving primary care at RHCs were still significantly less likely to have access to primary care.
- Compared to CY 2006, rates of well-child visits provided by NH Medicaid primary care providers increased in every age group studied in CY 2008 and exceeded the national Medicaid managed care average.
- Rates of well-child visits were significantly higher for children receiving primary care at hospital/office-based practice settings in three out of four age groups studied—3 to 6 years (79.4%), 7 to 11 years (70.6%), and 12 to 18 years (61.4%).
- While the percentage of children with well-child visits in RHCs increased in all age groups studied compared to 2006, children receiving primary care at RHCs continued to have significantly lower well-child visit rates compared to other settings in all age groups studied (16-35 months (81.7%), 3-6 years (67.2%), 7-11 years (54.6%), and 12-18 (53.2%)). Even so, in contrast to 2006, RHCs were above the national Medicaid Managed Care HEDIS average for all age groups.
- For children in their first fifteen months of life—when the Early Periodic Screening, Diagnosis, and Treatment (EPSDT) program schedule calls for 7 well-child visits—nearly two thirds (63%) had 6 or more visits across all NH Medicaid providers, an improvement from CY 2006 (57%). Hospital/office-based practices were significantly more likely to have 6 or more visits (67.1%) than those receiving primary care in general and compared to most other settings. RHCs also were significantly more likely to have children less than 15 months with 1 (5.3%) or no well-child visits (5.8%).

Effectiveness of Care Management

- All NH primary care providers were higher than the national Medicaid managed care HEDIS rates for appropriate use of medications for children age 5 to 9 with persistent asthma, strep testing for children with pharyngitis, non-use of antibiotics for upper respiratory infections (except RHCs), and HbA1c (except FQHCs), and nephropathy screening (except RHCs) for diabetics.
- Some NH primary care provider types were lower than the national average for eye exams for diabetics (all except DHC) and for appropriate medication use for adults with persistent asthma
- For breast cancer screenings, all practice types except RHCs were above national Medicaid HEDIS rates, while for cervical cancer screenings, RHCs, DHCs, and hospital/office-based practice settings had lower rates than the national Medicaid HEDIS average. FQHCs screened for cervical cancer at a rate similar to the national average and significantly higher percentage than the NH primary care providers overall.
- Among NH primary care settings, there was no significant difference in diabetes care or breast cancer screening rates. Other care effectiveness measures varied

across primary care setting. Women were significantly more likely to be screened for cervical cancer at FQHCs.

- On new care effectiveness measures added in this 2008 report, NH primary care providers overall and across settings were lower than the national average in rates of spirometry tests for COPD (except RHCs), not prescribing antibiotics for acute bronchitis, conducting cholesterol screens for persons with cardiovascular disease (except hospital/office-based) but there were no statistically significant differences between practice settings.
- With the exception of RHCs, all NH primary care practices had higher rates of follow-up with children with ADHD than the national average. RHCs rates of follow-up were lower than the national average and significantly lower than for NH primary care providers in general.
- NH primary care providers had higher rates of imaging for low-back pain than the national average, a procedure that is not recommended. RHCs were significantly less likely to use imaging for low back pain and FQHCs were significantly more likely to use them than other NH primary care practices.

Prevalence and Utilization for Mental Health Disorders

- Among 71,515 monthly average members enrolled in Medicaid and receiving primary care, 45,983 (32.7%) had a diagnosed mental health disorder during CY 2008.
- Adjusting for age and gender, members receiving primary care at FQHCs had significantly higher mental health prevalence rates than those receiving primary care generally.
- Members with a mental health disorder receiving care at hospital/office-based practices had significantly higher use rates of outpatient Emergency Department (ED) mental health-related visits than members with mental health disorders seen generally. Members with a mental health disorder receiving care at FQHCs were significantly less likely to have mental health-related ED use or inpatient use. RHC practices had a significantly lower rate of patients with mental health-related outpatient ED visits than other settings in 2008, while DHC practices had a significantly higher rate of mental health-related inpatient stays than the total.
- Members with mental health disorders receiving care at DHC practices were significantly more likely to have mental health specialist visits, while those receiving care at FQHCs and RHCs were significantly less likely to have mental health specialist visits.

Utilization and Payments

- Total service utilization and utilization for specific services by NH Medicaid members receiving primary care varied significantly across settings even after adjusting for age, gender, and CRG risk group. NH Medicaid members receiving primary care at FQHCs and hospital/office-based practices used significantly fewer overall services than those receiving primary care at other settings, while those receiving services at DHC and RHC practices used significantly more services.

- After excluding pregnancy-related admissions, FQHCs had significantly lower adjusted inpatient hospital utilization rates than other settings and DHC practices had significantly higher rates than NH Medicaid members receiving primary care overall.
- NH Medicaid hospitalization costs for five selected Ambulatory Care Sensitive conditions* (asthma, dehydration, bacterial pneumonia, urinary tract infections, and gastroenteritis) for members receiving primary care were \$2 million. There were no significant differences across settings in ACS hospitalization rates.
- FQHCs, RHCs, and hospital/office-based practices had significantly higher rates of outpatient ED use, while members receiving care at DHC practices were significantly less likely to use the ED.
- Medicaid members receiving primary care incurred \$4.9 million for outpatient emergency department visits for conditions more appropriately treated in a primary care setting. As with overall ED use, members receiving primary care at FQHCs, RHCs and hospital/office-based practices were significantly more likely to use the outpatient ED for these selected conditions, while members receiving care at DHC were significantly less likely to use the outpatient ED for these conditions.
- Despite higher cost-based reimbursement of FQHCs, PMPMs were among the lowest in these settings after adjusting for age, gender, and CRG risk, and DHC practices had the highest PMPM rates both overall and excluding long-term care services. However, once pregnancy-related admissions and high-cost cases (greater than \$50,000) were excluded, differences in PMPMs were not found to be statistically significant.

Limitations

This study is based primarily on administrative claims data, which is collected primarily for the purpose of making financial payments. Specific provider, diagnosis, and procedure coding are typically required as part of the financial payment processes. The use of claims data is an efficient and less costly method to report on health care utilization and payments than other methods such as surveys or patient chart audits. Administrative claims data may under-report some diagnostic conditions or services; however, some studies indicate that administrative claims data may provide a more accurate rate than medical chart review.^{2,3,4,5,6,7}

NH Medicaid members were assigned to a primary care setting if they visited any Medicaid primary care provider (defined by billing revenue codes, procedure codes, specialty type, and category of service in 2008). They were assigned to a practice setting if all or the majority of their total visits were in one practice setting. When members made an equal number of visits to two or more settings, the member was assigned to the practice setting of the last provider seen. Members assigned to a practice setting may have seen multiple providers within that category, thus outcomes reflect the care provided across all providers the patient may have seen in that setting. Members without services reported in the Medicaid administrative claims data are all included in the non-assigned group. Thus, the non-assigned group includes members who may have a primary care physician but may not

* Conditions where inpatient hospitalization rates are influenced by rates of appropriate ambulatory care.

have required treatment for illness by the primary care physician during the year, members who received primary care during the year but not from an identified primary care provider, and members who just received specialty care.

Medicaid enrollee actions were not measured in this study. Differences in rates reported here may be influenced by the actions of Medicaid enrollees (such as missing appointments due to lack of transportation or an inability to take time off from work) and are not necessarily a reflection of NH Medicaid or the specific primary care practices.

While this analysis does adjust for medical risk using 3M Health Systems Clinical Risk Grouper (CRG), risk grouping methodologies are highly dependent on coding accuracy and specificity. Where coding is inaccurate or lacks specificity, risk assignment will be affected.

Conclusion and Next Steps

Compared to 2006, primary care providers showed improvement in most measures studied. However, there continue to be disparities between care received by NH Medicaid members in different primary care settings in New Hampshire. The continued measurement and reporting of quality measures can help identify areas for future quality improvement efforts in the state.

While rates improved from CY 2006, children enrolled in Medicaid receiving primary care at RHCs were still the least likely to have access to primary care and to get well-child visits. This may be because RHCs are not required to provide preventive care.⁸ Since RHCs are not required to provide preventive care, lower rates for preventive screens and well-child visits may reflect a difference in mission.

Members receiving primary care at other practice settings appear to have HEDIS rates for many measures that are higher than the national Medicaid HEDIS average (e.g., well-child, strep test for pharyngitis, no antibiotic for upper respiratory infection, ADHD follow-up). However, for most of the new measures studied in this 2008 update, NH primary care providers overall and across most settings were below the national average (no antibiotic treatment for bronchitis, testing for COPD, conducting cholesterol screening cardiovascular disease, and using imaging for back pain) suggesting room for improvement in the future. In addition, among settings there is also some variability in several care measures (e.g., significantly lower appropriate medications for children with URI, follow-up for children with ADHD at RHCs) suggesting further opportunities for targeted quality improvement.

Higher outpatient emergency department use rates for members receiving primary care from FQHCs, RHCs, and hospital/office-based practices may be an indicator of capacity constraints. RHCs are not required to provide 24/7 care and are located in limited service capacity areas. Delays in scheduling an appointment with a primary care practitioner could result in higher ED use.

Finally, as was true in 2006, while PMPMs in hospital/office-based settings and DHC are higher than other settings, these differences may be tied to their patients having a higher burden of illness. After excluding pregnancy-related admissions and high cost cases, payment differences are not statistically significant.

INTRODUCTION

An increasing number of private practice physicians in New Hampshire and Maine are converting from solo and two-physician practices to other practice arrangements, including Rural Health Clinics (RHCs)*, Federally Qualified Health Centers (FQHCs) and FQHC Look-Alikes†, hospital-owned practices and hospital outpatient departments.^{9 10} This trend, which has also been seen in other states and at the national level, has been driven in part by enhanced reimbursement under Medicaid and Medicare in FQHCs and RHCs and a federal initiative to spur FQHC growth, as well as changes in physician career choices.^{11 12}

This shift in physician practice patterns toward hospital-based clinics, RHCs and FQHCs has financial ramifications for NH's Medicaid program given the higher payment rates to some of these facilities. At the time of this study, FQHCs were reimbursed by Medicaid based on cost. Similarly, the RHC designation allows primary care practices located in rural areas with provider shortages to receive cost-based reimbursement by Medicare.‡ Since the 2006 report, NH Medicaid's reimbursement policies related to hospital-based reimbursement have changed. While previously hospital-based physicians could either bill under the physician fee schedule with the hospital billing a separate facility cost or submit a facility bill for the total outpatient service cost, under the new rules hospital-based physicians are paid the same as office-based physicians. However, the difference in per visit claims payment across some primary care settings is still significant. In 2006, NH Medicaid per visit claims payments for physicians was \$53.62 in 2006, and \$104.33 for RHC and FQHCs combined.¹³

Less is known about the impact of these shifts in practice patterns on quality of care. While studies of commercial health plans have found a positive association between quality scores and physician participation in staff model health maintenance organizations (HMOs) that use a closed panel of employed physicians,^{14,15} and higher quality primary care in integrated medical groups than in independent practice associations,¹⁶ they are no more likely to use quality improvement strategies related to chronic disease management. In addition, larger physician groups or those affiliated with facilities are more likely to have electronic medical record (EMR) decision support¹⁷ and to use quality improvement

* RHCs must be located in a non-urbanized area by US census definition and in a current medically underserved area (MUA), Health Professional Shortage Area (HPSA), or Governor's designated shortage area. The RHC status requires care to be delivered by nurse practitioners, physician assistants, and certified nurse midwives at least 50 percent of the time that the clinic is open. Most RHCs are smaller and offer fewer services than FQHCs, although some RHCs are affiliated with hospitals (HRSA. 2006). As of 2006, New Hampshire had 11 RHCs providing a total of 17 physical sites of care (Lenardson, 2008).

† FQHCs were created by the federal government in 1989 to provide uninsured persons access to care in medically underserved areas. FQHCs include community health centers (CHCs), migrant health centers, health care for the homeless programs, and public housing primary care programs. Most FQHCs receive federal grant funding to care for the uninsured. Some FQHCs operate in compliance with FQHC program requirements but do not receive grant funding (HRSA 2006). These are called "FQHC Look-Alikes". In New Hampshire, 8 FQHCs and one look-a-like served over 56,000 residents in 2005 (Lenardson, 2008).

‡ Both RHCs and FQHCs are paid an all inclusive visit rate based on costs up to an annually determined upper payment limit per visit. The upper payment limit per visit in 2007 was \$74.29 for RHCs, \$115.33 for urban FQHCs, and \$99.17 for rural FQHCs. CMS Manual System; Pub. 100-04 Medicare Claims Processing, Feb 2008.

strategies,¹⁸ —both of which have been demonstrated to improve quality of care^{19,20} —but are also no more likely to use quality improvement strategies related to chronic disease management. Fewer studies have described where Medicaid patients receive their primary care or compared the sites in terms of quality. One focusing on safety net primary care providers, found that patients who receive primary care at hospital clinics tend to be more ill and tended to receive more specialty referrals, imaging studies, blood pressure checks and have greater service intensity and poorer continuity of care than patients receiving care at community health centers and physician offices.²¹ Consistent with these findings, another study looking at primary care for low-income people using results from a national patient survey, found that hospital clinic patients were more likely to receive certain preventive care (vaccinations for influenza and pneumococcus), but also more likely to experience delays in receipt of care due to administrative office difficulties and to use the emergency room. This same study largely found no significant differences in quality between physician offices and community health centers.²² A more recent study looking at whether RHCs and CHCs increase access to primary care found that, while presence of a CHC in a county was associated with lower ACS admission rates for working age and older adults compared to counties that had no CHC or RHC present, presence of an RHC was not and that, for children, presence of a CHC or RHC was associated with higher ACS admission rates.²³ The 2006 primary care report conducted for NH Medicaid was one of the first studies to date to examine quality differences by specific organizational affiliation in NH using Medicaid claims data and, like other studies, found some notable differences across primary care settings that warrant continued monitoring and research.²⁴

Although New Hampshire cannot reverse the tide of changes in practice arrangements, they can work with practices to promote access to high quality, efficient care for Medicaid beneficiaries. This study follows up on the 2006 study and examines the performance of different primary care practice settings in delivering primary care to Medicaid beneficiaries throughout the state on key utilization, cost and quality indicators. The study aims to provide the NH Medicaid program a framework for assessing the degree to which different physician practice arrangements may provide higher quality and more effective and efficient primary care to help inform state decisions regarding care coordination and reimbursement models. The study also establishes a baseline for potential future efforts to improve care in these settings. Where possible, this report references changes that have occurred between 2006 and 2008 to assess how care has improved since the last report.

Overview and Purpose of Report

The purpose of this study was to describe variations in health care access, preventive services, care management, service utilization, and payments for New Hampshire Medicaid members in four primary care practice settings:

- Hospital-based clinics and outpatient departments (billing in part or in full as facilities)* combined with stand-alone office-based physician practices
- Federally Qualified Health Centers (FQHC)
- Rural Health Centers (RHCs)
- Dartmouth Hitchcock clinics (DHC)*

* For this 2008 update study, all hospital-owned physician practices except those affiliated with Dartmouth Hitchcock are included in the office-based physician practice category.

The scope of the study is to:

- describe where NH Medicaid members receive primary care;
- compare the characteristics (age, gender, eligibility group, health analysis area, and clinical risk) of NH Medicaid members seeking primary care by primary care practice setting;
- compare rates of access to primary care practitioners and preventive services for children and adults;
- compare HEDIS effectiveness of care management measures for selected childhood conditions (asthma, upper respiratory infection and pharyngitis, ADHD) and adult conditions (bronchitis, diabetes, cardiovascular disease, lower back pain, and cancer screening);
- describe and compare prevalence of mental health disorders and mental health service utilization across primary care settings adjusting for age and gender;
- compare rates of service utilization across settings, including inpatient hospitalization for selected ambulatory sensitive conditions and preventable emergency department visits adjusting for age, gender, and clinical risk; and
- compare rates of per member per month payments adjusting for age, gender, and clinical risk.

Data Sources and Methods

This study was based on administrative eligibility and claims data from New Hampshire Medicaid for CY 2008 using 2009 HEDIS specifications. For some HEDIS measures, a two-year window was required (2006-2007). For certain measures 2008 HEDIS specifications were used, as 2009 were not available at the time of this report.

NH Medicaid primary care providers were identified based on procedure codes, revenue codes, specialty type, and category of service identified on claims. All primary care providers were then assigned to one of four practice setting categories – hospital/office-based, FQHC/LAL, RHC, and DHC – based on category of services billed and provider billing identification numbers. Providers that billed for a procedure or service that could be classified as primary care but that had a specialty type or category of service that was not a traditional primary care setting (e.g., inpatient hospitals, mental health clinics, optometrists) were not assigned to a primary care setting. A complete list of NH Medicaid providers by practice setting is available upon request.

Once primary care providers were assigned to a setting, NH Medicaid members were then assigned to these four primary care practice setting categories based on the provider from whom they received the majority of their primary care visits in 2008. If a Medicaid enrollee made an equal number of visits to primary care providers in more than one practice setting,

* Due to the breadth and reach of services provided by Dartmouth Hitchcock Clinic (DHC) and its related health system affiliates in northwestern New Hampshire, the primary care services provided to Medicaid members at DHC were studied separately to assess the relative proportion of Medicaid members served and the quality of service provided at DHC sites. For this 2008 update, in contrast to the previous 2006 report, Dartmouth Hitchcock clinics affiliated with Cheshire Medical Center and Mary Hitchcock Memorial Hospital are included in the Dartmouth Hitchcock Clinic setting. The inclusion of these two clinics increased the number of NH Medicaid members seen at DHC clinics (by 52%) from those reported as receiving care from DHC in 2006

they were assigned to the last primary care provider they visited. Once assigned to a setting, all of the member's visits were attributed to that setting.

Utilization and payment rates were adjusted for age, gender, and diagnosis-based risk group using the 3M Health Systems Clinical Risk Grouper (CRG). CRGs are a categorical risk, clinical adjustment model which uses a hierarchical model to assign each member to a single mutually exclusive risk category based on standard demographic, diagnostic, procedure, and pharmacy data from encounters and claims.

To assess whether differences across primary care practice settings were statistically significant, confidence intervals for each estimate were calculated.* When confidence intervals overlap, differences are not statistically significant. As there is currently no accepted standard method for calculating confidence intervals for per member per month payment (PMPM) rates, we conducted regression analyses to determine the degree to which setting type predicts higher costs. The regression model used an individual-level PMPM as the dependent variable and setting, age, gender, income, medical risk, and diagnosis related group (DRG) as independent variables. We also excluded pregnancy-related admissions and/or high-cost cases (>\$50,000 per year); see Appendix 1 at the end of the report for the specific list of CPT and revenue codes used for primary care assignment and a more detailed description of CRG risk adjustment and statistical methods.

Population Studied in the Report

The experience of NH Medicaid-only members was studied during calendar year (CY) 2008. Eligibility groups studied include low-income adults, low-income children, severely disabled children, mentally disabled, and physically disabled. Medicaid members who were dually-eligible for Medicare and Medicaid, including enrollees in the Medicare Savings Programs (i.e., Qualified Medicare Beneficiaries (QMB), Specified Low-Income Medicare Beneficiaries (SLMB), and Qualified Individuals (QI-1)) were excluded.

Interpretation of Results and Limitations

Studies directly comparing care in different primary practice settings appear to be lacking nationally and this may be one of the first studies of its kind comparing care at different primary care practice setting using administrative claims data. The large number of covered members studied lends credibility to the findings. However, a number of cautions about the data used, the method of assigning members to primary care practices, and results of this study should be noted.

Primary care assignment for this study was based on the setting at which patients most commonly sought preventive or primary care services, not actual patient assignment to a primary care provider (PCP) by the NH Medicaid program. New Hampshire Medicaid pays providers on a fee-for-service basis, and does not require primary care providers to manage the care of specific patients nor hold them accountable for certain levels of performance for the care of these patients, as may be the case in a managed care environment. Medicaid

* We were not able to test statistical significance relative to national Medicaid HEDIS benchmarks because confidence intervals for these estimates were not available.

enrollees are free to seek primary care at multiple sites and providers are not specifically accountable for care provided by other providers. In fact, within a specific practice setting, enrollees may have visited more than one individual provider. Thus, these data should not be interpreted as monitoring individual primary care provider performance but rather as a means to assess variations in care across primary care practice settings.

This study was based on administrative eligibility and claims data. Differences in provider claims coding or reimbursement arrangements may contribute to the variances shown in this report. For example, FQHCs and RHCs are required to provide a set of “core services” for cost-based reimbursement. Diagnostic tests provided as part of these core services may not be billed separately and thus would not be counted in NH CHIS HEDIS measures. Similarly, revenue center codes for facility-based physicians may include services that would be reported separately for non-facility based services.

Medicaid members’ actions were not measured in this study; for example, missed appointments due to lack of transportation or inability to take time off from work could be a factor in the access to care and preventive measures reported in this study. Therefore, the differences in rates reported here are not necessarily reflections on NH Medicaid or the primary care practices.

The members not receiving primary care services include both members who received no services in the course of the year, those who received some primary care but from a non-primary care provider, and those who just received specialty care and no primary care. Since the assignment process was based on primary care service use, patients who received no care could not be assigned to a specific primary care practice setting. These individuals may have a primary care provider but since they did not seek primary care services in 2008, we were unable to assign them to a specific group.

RESULTS

Where NH Members Receive Primary Care

In 2008, an average of 92,983 non-dual NH Medicaid members per month received medical or social services through the NH Medicaid program, representing a 5.4% increase in average enrollment per month from 2006. More than three quarters (77%) of these members received services at one of the four primary care practice settings as identified on claims.

Figure 1 and Table 1 show the number and distribution of NH Medicaid members in calendar year 2008 by the practice setting where they received the majority of their primary care. The largest group received care from hospital and office-based clinics (41%). DHC affiliated physicians* provided primary care to approximately 21 percent of NH Medicaid members, FQHCs or FQHC Look-Alikes provided primary care to 10% of Medicaid members, and 4% of Medicaid members received primary care from RHCs (see Appendix 4 for list of FQHCs and RHCs). Due to the addition of Mary Hitchcock and Cheshire Medical Center clients to DHC in 2008, the number of members receiving care at these settings increased by 52% from 2006 and their percentage of total Medicaid members seeking primary also increased.

Nearly one quarter of Medicaid members (23%) were not assigned to a primary care setting in 2008. Non-assigned Medicaid members include both those who did not use any medical care in 2008, and those who just received specialty care or those who received primary care from non-primary care providers. Non-assigned Medicaid members have shorter lengths of enrollment than Medicaid members assigned to primary care settings (7.0 months versus 9.2). See Appendix 1 for more details on definitions of a primary care provider and member assignment to those providers. A more detailed analysis of this non-assigned group may be the subject of future reports. Since they received no primary care, they were excluded from the remainder of this study.

* For this 2008 update, Mary Hitchcock and Cheshire Medical Center clinics that had been included in the hospital-based practice setting category in the CY 2006 report are now included under DHC.

Figure 1: NH Medicaid Members by Primary Care Practice Setting, CY 2008 N=92,983

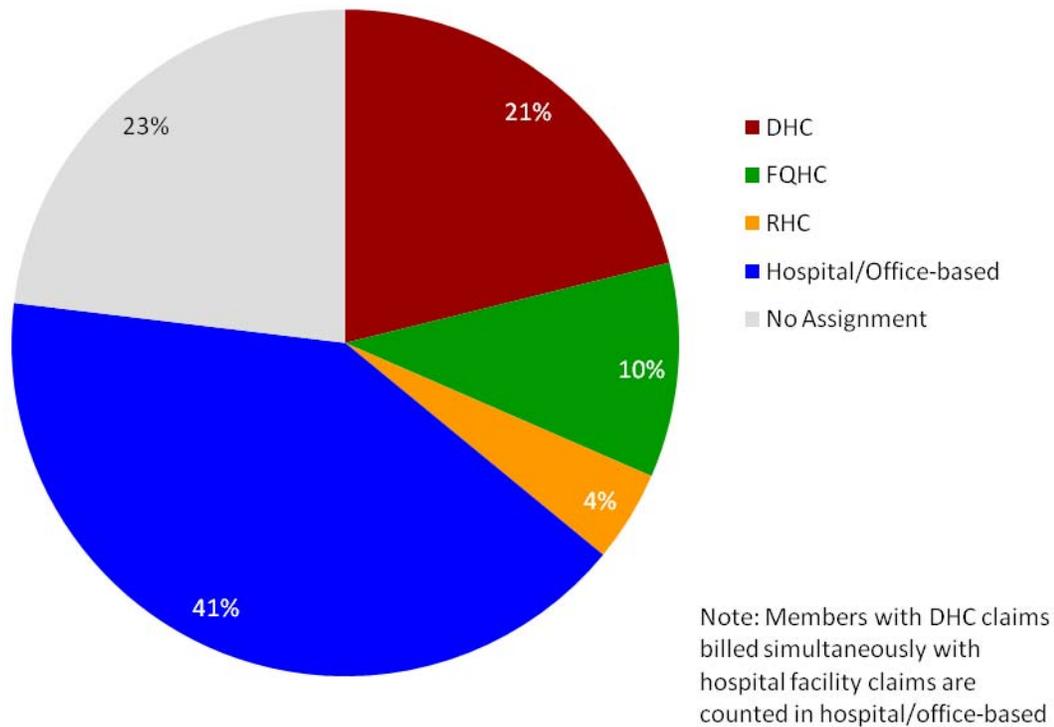


Table 1. NH Members by Primary Care Practice Setting, CY 2008

	Hospital/ Office- based	DHC	FQHC/LAL	RHC	No Assignment	Total NH Medicaid Members
Unique Members Covered	44,845	22,814	11,822	4,769	36,882	121,132
Member Months	457,141	235,857	115,903	49,282	257,608	1,115,791
Average Monthly Members	38,095	19,655	9,659	4,107	21,467	92,983
Average Months Enrolled	10.2	10.3	9.8	10.3	7.0	9.2

Member Month: total full or partial months members were enrolled, whether or not the member actually received services during the period. A member enrolled for an entire year would account for 12 member months.

Average Members per Month: member months divided by 12 and represents a month in time average number of members enrolled for the year.

For those receiving primary care, the age and eligibility of Medicaid members receiving primary care varied across practice settings. Table 2 and Figure 2 show the distribution of

NH Medicaid members receiving primary care by age and eligibility at different primary care practice settings.

FQHCs continued to provide primary care to a higher percentage of Medicaid adults than other primary care provider groups. Thirty-three percent of Medicaid primary care recipients at FQHCs were adults compared to 16 percent in RHCs, 24 percent in DHC practices, and 22 percent at physician offices and hospital-based practices. Similarly, the average age of FQHC Medicaid primary care clients (17.1 years of age) was significantly higher than Medicaid clients receiving primary care overall (15.0 years) and in every other practice setting (ranging from 13.1 years at RHCs to 14.7 years at hospital and office-based practices).

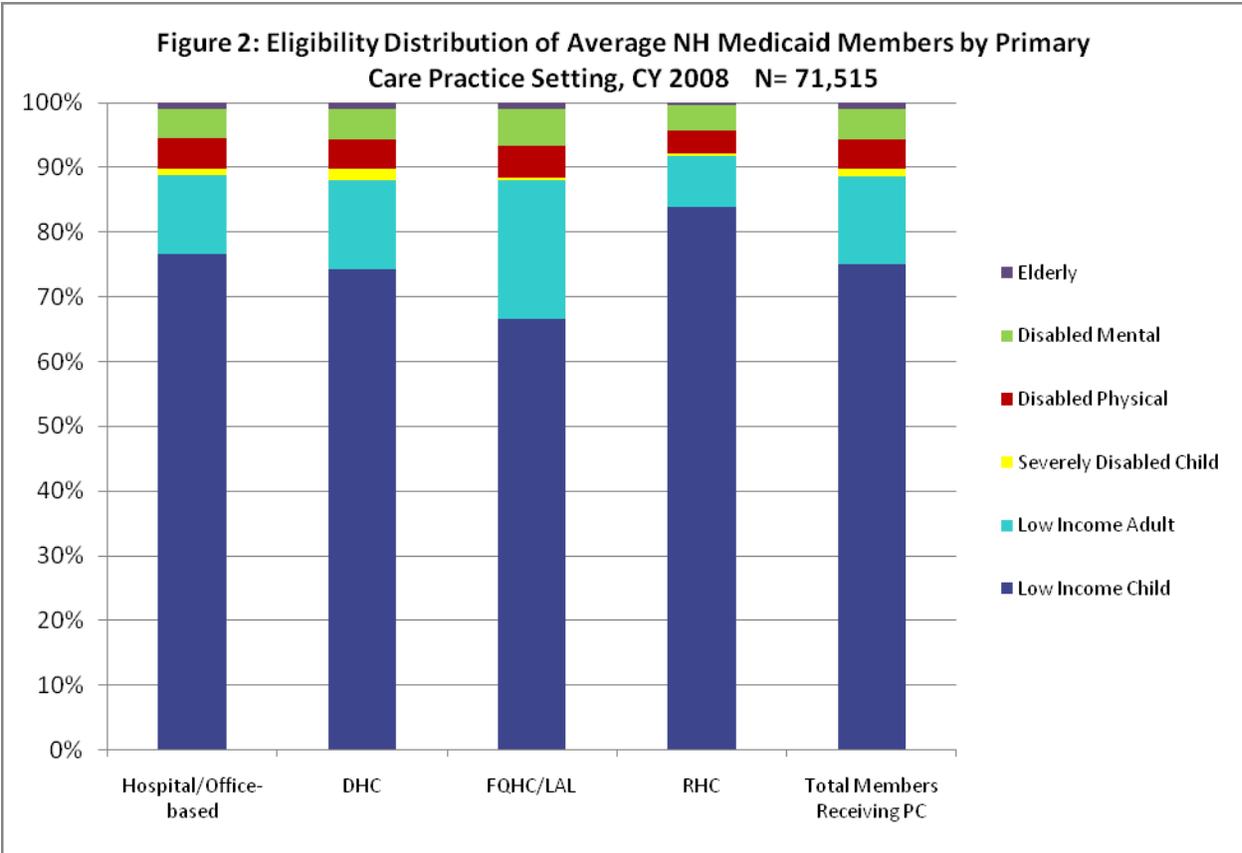
Table 2. Percent of Medicaid Members Receiving Primary Care by Age Group and Practice Setting, CY 2008

	Hospital/ Office-based	DHC	FQHC/ LAL	RHC	Total NH Medicaid Members with PC
Total	100% (38,095)	100% (19,655)	100% (9,659)	100% (4,107)	100% (71,515)
0-4	25.6% (9,754)	25.3% (4,963)	24.3% (2,349)	26.2% (1,075)	25.4% (18,140)
5-18	52.4% (19,975)	51.0% (10,033)	42.6% (4,114)	58.3% (2,393)	51.1% (36,515)
19-34	10.4% (3,957)	12.4% (2,434)	18.8% (1,814)	6.9% (284)	11.9% (8,488)
35-49	6.6% (2,530)	6.9% (1,357)	8.6% (834)	4.7% (192)	6.9% (4,913)
50-64	4.0% (1,535)	3.5% (686)	4.7% (458)	3.7% (150)	4.0% (2,829)
65+	0.9% (345)	0.9% (182)	0.9% (90)	0.3% (13)	0.9% (631)
Average Age	14.7	15	17.1*	13.1*	15
95% CI [^]	14.6-14.9	14.8-15.2	16.8-17.4	12.7-13.4	14.9-15.1

[^]95% confidence intervals (CI)

*Statistically significant difference from total NH Medicaid members receiving primary care. Statistical significance was only tested for average age.

By eligibility, FQHCs were significantly more likely to provide primary care to low-income adults (21.5%) overall and than at any other setting (ranging from 7.9% in RHCs to 13.8% in DHC practices) but significantly less likely to serve severely disabled children. RHC practices were significantly more likely to serve low-income children than other settings. DHC practices were significantly more likely to serve severely disabled children.



Statistically significant differences between groups not shown, see Table 3 for significant differences between groups.

Table 3. Percent of NH Medicaid Members Receiving Primary Care by Practice Setting by Eligibility Group, CY 2008

Note: 95% confidence intervals (CI) in parentheses

	Hospital/ Office-based	DHC	FQHC/ LAL	RHC	Total NH Medicaid Members with PC
Low Income Child	76.7%* (76.3-77.1)	74.3% (73.7-74.9)	66.6%* (65.6-67.5)	83.8%* (82.7-85.0)	75.1% (74.8-75.4)
Low Income Adult	12.0%* (11.7-12.4)	13.8% (13.3-14.3)	21.5%* (20.7-22.3)	7.9%* (7.1-8.7)	13.6% (13.3-13.8)
Severely Disabled Child	1.2% (1.1-1.3)	1.7%* (1.5-1.9)	0.3%* (0.2-0.4)	0.4%* (0.2-0.6)	1.1% (1.1-1.2)
Disabled Physical	4.7% (4.5-5.0)	4.6% (4.3-4.9)	4.9% (4.4-5.3)	3.6%* (3.1-4.2)	4.7% (4.5-4.8)
Disabled Mental	4.5% (4.2-4.7)	4.7% (4.4-5.0)	5.8%* (5.3-6.2)	3.8%* (3.2-4.4)	4.7% (4.5-4.8)
Elderly	0.9% (0.8-1.0)	1.0% (0.8-1.1)	1.0% (0.8-1.2)	0.4%* (0.2-0.6)	0.9% (0.8-1.0)

*Statistically significant difference from total NH Medicaid members receiving primary care.

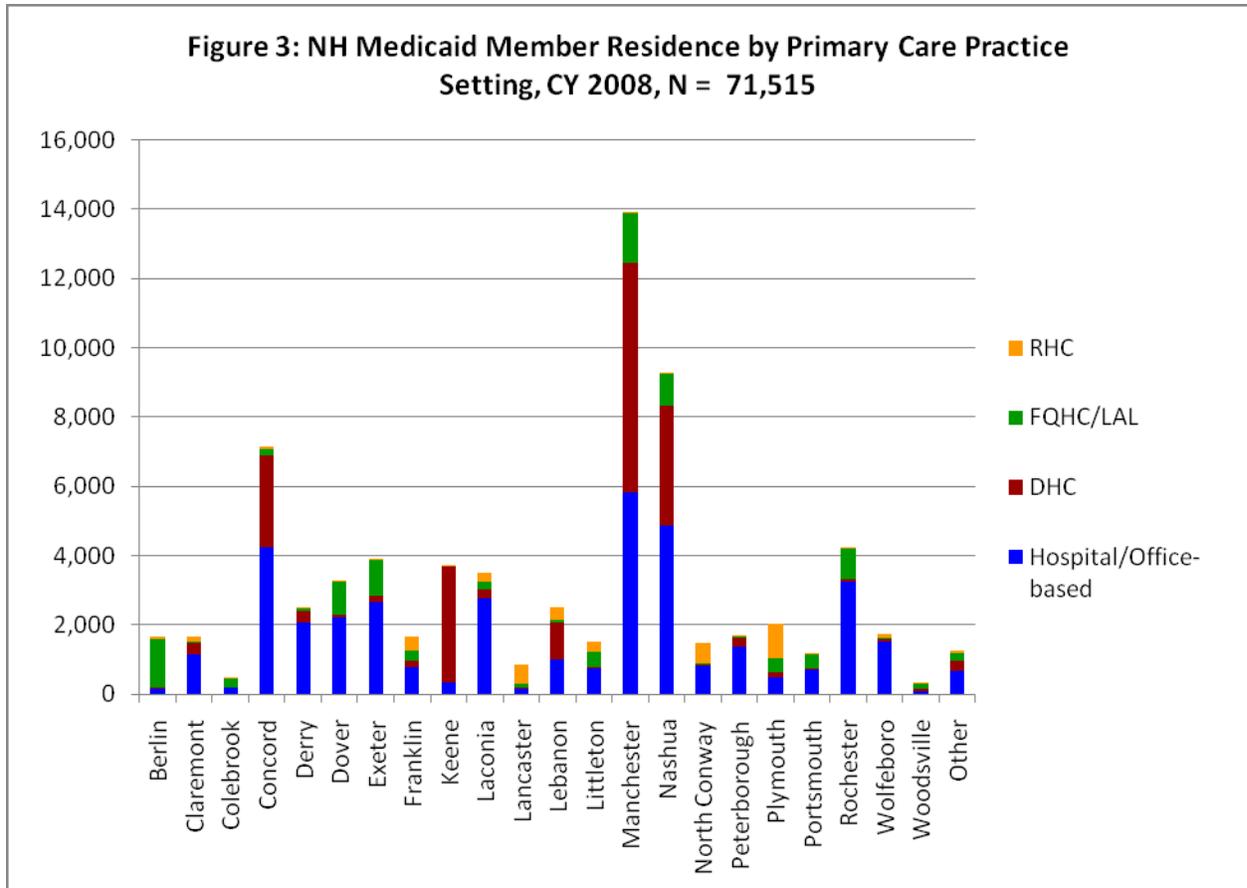
As in 2006, there were significant differences in where Medicaid members sought primary care by HAA, driven in part by the availability of primary care service providers in each area. The largest number of Medicaid members resided in the Manchester (13,924 or 19%), Nashua (9,263 or 13%), and Concord (7,157 or 10%) areas. Similarly, most Medicaid members receiving primary care from DHC and hospital/office-based practices were predominantly from these same areas, and in the case of DHC, heavily concentrated from these areas with the exception of Keene. More than 34% of all DHC Medicaid clients were from Manchester, 18% were from Nashua, 17% were from Keene, and 13% were from Concord, reflecting that most DHC sites are in these areas. Hospital/office-based physicians also primarily served Medicaid clients from Manchester (15%), Nashua (13%), and Concord (11%). Those receiving primary care at FQHCs largely resided in Manchester (15%), Berlin (15%), and Exeter (11%), while those getting care at RHCs were predominantly from Plymouth (24%), North Conway (15%), Lancaster (14%), and Franklin (10%) again reflecting where FQHCs and RHCs are located. Tables 4 and Figure 3 show NH Medicaid average members using primary care by primary care setting and Health Analysis Area (HAA) of the member's residence.

Table 4. Average NH Medicaid Members Receiving Primary Care by Health Analysis Area and Primary Care Setting, CY 2008

	Total	Hospital/Office-based	DHC	FQHC/LAL	RHC
State Total	71,515	38,095	19,655	9,659	4,107
Berlin	1,670	139	51	1,408	72
Claremont	1,672	1,144	352	9	168
Colebrook	489	193	20	234	42
Concord	7,157	4,238	2,652	187	81
Derry	2,490	2,068	338	82	1
Dover	3,266	2,231	59	964	11
Exeter	3,886	2,664	185	1,034	3
Franklin	1,669	777	186	305	402
Keene	3,702	349	3,333	1	19
Laconia	3,510	2,772	262	225	251
Lancaster	869	146	36	107	580
Lebanon	2,523	993	1,062	95	374
Littleton	1,508	733	66	438	272
Manchester	13,924	5,823	6,627	1,449	25
Nashua	9,263	4,866	3,474	914	8
North Conway	1,493	831	23	31	609
Peterborough	1,652	1,362	281	7	3
Plymouth	2,034	502	116	438	977
Portsmouth	1,169	722	29	416	2
Rochester	4,230	3,236	92	893	9
Wolfeboro	1,743	1,534	53	51	105
Woodsville	336	92	56	175	13
Other	1,259	679	304	196	80

Note: Average members = member months / 12.

As shown in Figure 3, an analysis by health analysis area of residence also reveals that certain areas are heavily reliant on specific primary care practice settings for their primary care. For example, 90% of Medicaid members seeking primary care in Keene went to DHC providers. Rural areas were more reliant on FQHCs and RHCs. Eighty-four percent of Medicaid members who sought primary care in Berlin and 48% in Colebrook received it at FQHC providers and more than two-thirds (67%) of Medicaid members in Lancaster and 41% in North Conway sought care at RHC providers. In contrast, Medicaid residents in Derry and Wolfeboro heavily relied on hospital/office-based physicians for their primary care (83% and 88%, respectively).



Clinical Risk of NH Medicaid Members Receiving Primary Care

In order to compare the overall burden of disease across primary care practice setting, the 3M Health Systems Clinical Risk Grouper (CRG) was applied to the administrative claims data. The CRG software uses all ICD-9-CM diagnosis codes from all health care encounters to assign each individual to diagnostic categories (acute or chronic) and body systems. Each individual is assigned to a defined health status group then to a CRG category and severity level if chronically ill. Based on the CRGs each individual member was assigned a risk weight to measure the relative burden of disease.

Overall the average clinical risk score for NH Medicaid members receiving primary care declined between 2006 and 2008 from .931 to .879 (2006 data not shown). DHC primary care practices serving NH Medicaid members had the highest burden of illness, which was significantly higher than other groups. The average risk score per member receiving primary care in DHC settings was 0.942 compared to the 0.879 for all NH Medicaid members receiving primary care. Hospital/office-based practices had the next highest burden of illness and were also significantly different from the other settings, but not from the overall average risk rate. FQHCs and RHCs have significantly lower illness burden than NH Medicaid members receiving primary care generally.

A greater percentage of members receiving care at hospital/office-based primary care settings have dominant chronic diseases in three or more organ systems, while those at DHC practices have complicated malignancies and catastrophic conditions than all other settings.

Table 5 shows the average Clinical Risk Group (CRG)* risk weight per average member in different practice settings and the distribution of Medicaid members receiving care by major CRG groups.

* See Appendix 1 Study Methods. For a more detailed explanation of CRGs, see NH CHIS report *New Hampshire Medical Population Risk Study: Comparison of Medical Risk in New Hampshire Medicaid and Commercially Insured Populations*. March 2008.

Table 5: Distribution of Average Members by Major CRG Group and Average CRG Weight per Average Member by Primary Practice Setting, CY 2008

	Hospital/ Office based	DHC	FQHC/LAL	RHC	Total NH Medicaid Members with PC
Average Monthly Members	38,095	19,655	9,659	4,107	71,515
Average CRG Risk Weight	0.878 [^]	0.942 [^]	0.804 [*]	0.771 [*]	0.879
CI	0.865-0.891	0.922-0.962	0.781-0.826	0.734-0.807	0.869-0.889
% of Average Members by Major CRG Group					
Healthy	61.4%	61.4%	60.6%	65.0%	61.5%
History Of Significant Acute Disease	10.2%	9.6%	10.3%	7.9%	9.9%
Single Minor Chronic Disease Level	8.0%	8.0%	8.5%	9.6%	8.2%
Minor Chronic Disease In Multiple Organ Systems Level	1.2%	0.9%	1.2%	1.3%	1.1%
Single Dominant Or Moderate Chronic Disease Level	13.0%	13.6%	13.3%	11.8%	13.1%
Significant Chronic Disease In Multiple Organ Systems Level	5.2%	4.7%	5.2%	3.3%	4.9%
Dominant Chronic Disease In Three Or More Organ Systems Level	0.3%	0.2%	0.3%	0.2%	0.3%
Dominant, Metastatic, And Complicated Malignancies Level	0.4%	0.6%	0.2%	0.2%	0.4%
Catastrophic Conditions Level	0.5%	1.0%	0.3%	0.6%	0.6%

Average CRG risk weight represents the average risk of all patients receiving primary care at that setting. For all CRG comparisons, the normal clinical risk is a risk score of 1 in the total Medicaid population in 2008 including dual-eligibles and other enrollees not included in this study. Therefore, the average risk weight for members included in this study is lower than 1.

^{*}Statistically significant difference from total NH Medicaid members receiving primary care. [^]Statistically significant difference from all other primary care settings

Access to Primary Care Practitioners

In order to assess Medicaid members' access to care, we analyzed NCQA HEDIS measures for children and adolescents' access to primary care practitioners and for adults' access to preventive/ambulatory health service by different primary care practice settings. For children and adolescents, NCQA HEDIS measures the percentage of children age 12 through 24 months old, and 25 months through 6 years old with at least one visit with a primary care practitioner during the current year (one year measure). For adolescents,

HEDIS measures the percentage of children 7 through 11 years old and 12 through 19 years old with at least 1 visit with a primary care practitioner during the current or prior year (two year measure). For this report, a measure for infants through 11 months of age was added.

For adults, NCQA HEDIS measures the percent of adults age 20 through 44, 45 through 64 and over age 65 who had an ambulatory or preventive visit in the current year. While HEDIS children and adolescent primary care access and adult primary care access measures appear to be similar, the definition of what is included as a visit to a primary care practitioner for children is narrower than what is defined as an ambulatory or preventive visit for adults. The HEDIS access to primary care practitioner measure is not a measure of preventive service; the visits reported include both visits for preventive services and visits for medical illness and other problems. All measures are based on children and adults continuously enrolled during the year (zero or one month gap in coverage during study period).

Results for NH Medicaid children and adolescents' access to primary care practitioners are reported in Table 6. Since this study focuses on primary care and since our method for identifying NH primary care providers included claims with many of the HEDIS CPT codes, it is not surprising that nearly all children under age 6 seen by primary care practitioners had access rates of nearly 100% as defined by HEDIS. The only exception was at RHCs, where the access rates for nearly every age group were significantly lower than other settings. For RHCs, the rate of access to primary care practitioners ranged from a low of 87.5% for children age 7–11 years to a high of 96.4% for infants, age 0–11 months. However, RHC childhood and adolescent access rates did improve from 2006 and were still better than the national HEDIS rates for Medicaid managed care plans. The reason why RHCs have access rates under 100% for children and adolescents may be due to the narrower definition used for the children's and adolescent's access measure in HEDIS noted above which focuses more on preventive visits.

Since RHCs are not required to provide preventive care, children's access to primary and preventive care may be lower at RHCs.

Table 6. Percent of Children with Primary Care Visit by Practice Setting, CY 2008

Note: 95% confidence intervals (CI) in parentheses

New Hampshire Measurement Based on Administrative Claims Data						National 2008 NCQA Medicaid HEDIS Data
Age Group	Hospital/ Office- based	DHC	FQHC/LAL	RHC	Total NH Medicaid with PC	Total Medicaid
0-11 months	100% (99.9-100.0)	100% (99.8-100.0)	100% (99.5-100.0)	97.1% (89.9-100.0)	99.9% (99.5-100.0)	NA
12-24 months	100% (99.8-100.0)	100%* (100.0-100.0)	100% (99.9-100.0)	96.4%* (93.7-99.1)	99.8% (99.6-99.9)	93.4%
25 months - 6 years	99.9% (99.9-100.0)	99.6%* (99.4-99.8)	99.2% (98.8-99.7)	90.4%* (88.4-92.4)	99.2% (99.0-99.3)	84.3%
7-11 years	96.0%* (95.5-96.5)	94.8% (93.9-95.6)	94.1% (92.5-95.6)	87.5%* (84.8-90.2)	94.9% (94.5-95.4)	85.8%
12-19 years	99.9%* (99.7-100.0)	99.5% (99.2-99.8)	99.8%* (99.6-100.0)	91.8%* (89.8-93.8)	99.2% (99.0-99.4)	82.6%

*Statistically significant difference from total NH Medicaid members receiving primary care.

Adult access to primary care by setting is shown in Figure 6 and Table 7. Nearly all adults seen by primary care practitioners had primary care visit rates of nearly 100% as defined by HEDIS. All NH primary care providers had much higher access to primary care for adults age 20-44 and age 44-65 than national HEDIS rates for Medicaid managed care plans.*

The lack of variation in adult access across practice settings compared to children may reflect the narrower definition of primary care used in the NCQA HEDIS access to a primary care practitioner measure for children and adolescents than for the measure for adult access to preventive/ambulatory health services.

* National 2008 HEDIS Medicaid access to primary care practitioners for adults and children benchmarks are based on a denominator of all patients within specified age groups. Since NH well-child visit rates are limited to patients receiving primary care within specified age groups the two measures are not directly comparable.

Table 7. Percent of Adults with Primary Care Visit by Practice Setting, CY 2006*Note: 95% confidence intervals (CI) in parentheses*

New Hampshire Measurement Based on Administrative Claims Data						National 2008 NCQA Medicaid HEDIS Data
Age Group	Hospital/ Office- based	DHC	FQHC/LAL	RHC	Total NH Medicaid with PC	Total Medicaid
20-44	99.4% (99.1-99.6)	99.3% (98.9-99.7)	99.2% (98.7-99.8)	99.2% (98.0-100.0)	99.3% (99.1-99.5)	76.8%
45-64	99.6% (99.3-99.9)	99.9% (99.6-100.0)	99.8% (99.4-100.0)	100% (99.7-100.0)	99.7% (99.6-99.9)	82.4%
65+	97.0% (94.9-99.1)	98.8% (96.7-100.0)	100%* (99.4-100.0)	100% (96.2-100.0)	98.0% (96.8-99.3)	78.8%

*Statistically significant difference from total NH Medicaid members receiving primary care.

Well-Child Visits

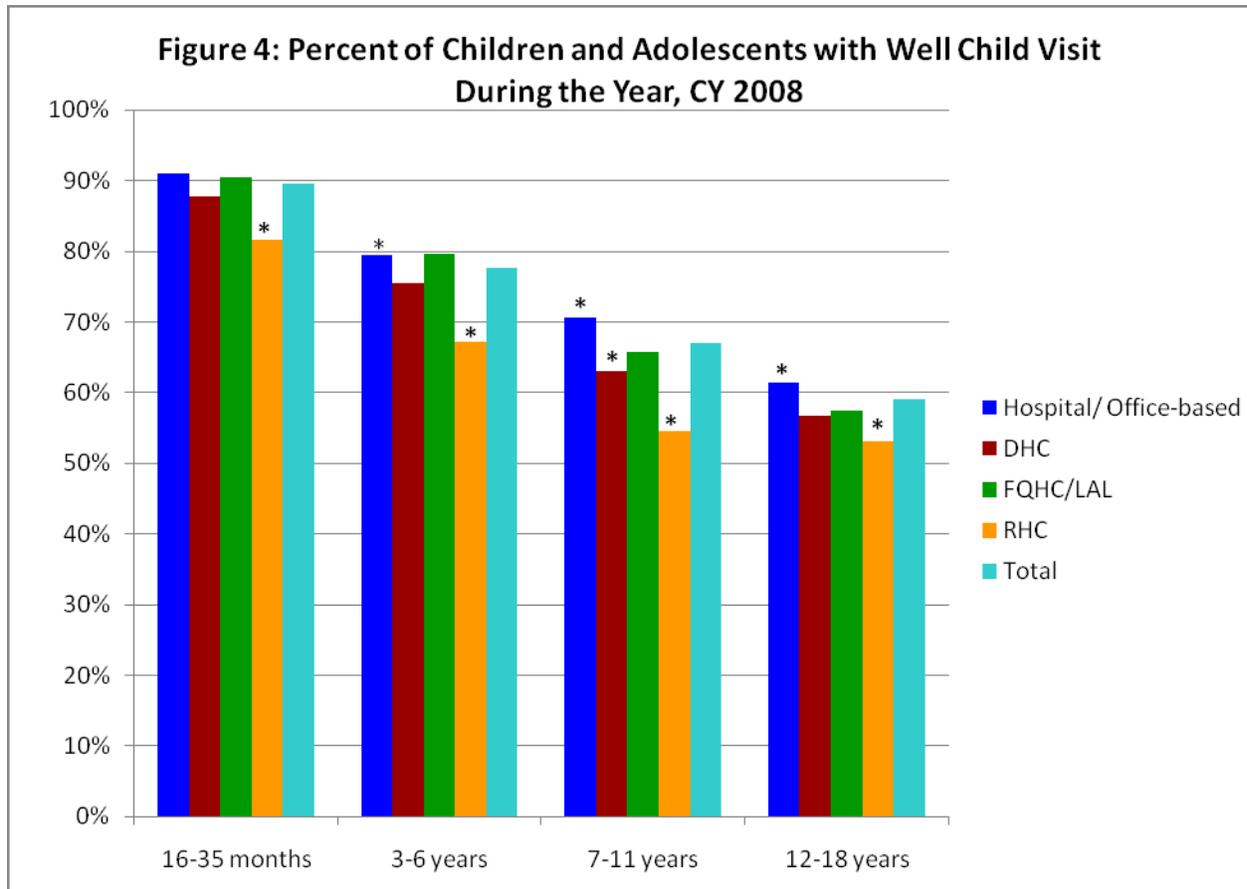
Well-child visits are a NCQA HEDIS use of service measure.²⁵ These HEDIS measures are based on specific codes used to identify the visit as preventive in nature and, therefore, are distinguished from the access to primary care practitioner measure reported in the previous section. NCQA HEDIS reports a one-year measure for children age 3-6 years, a one-year measure for adolescent children age 12-21 years, and the distribution of visits during the first 15 months of life. For this report, a well-child measure for children age 16-35 months and children age 7-11 years was added, and the age 12-19 years measure was modified to 12-18 years for consistency with the definition of children used in other NH CHIS studies.²⁶ All measures are based on continuously enrolled children during the year (zero or one month gap in coverage during study period).

Figure 4 and Table 8 provide well-child visit rates by primary care practice settings. Compared to CY 2006, rates of well-child visits provided by NH Medicaid primary care providers increased in every age group studied in CY 2008 and exceeded the national Medicaid managed care average.

While rates are improving, as in 2006, for all primary care practice settings, well-child visit rates declined with age. For example, at hospital/office-based primary care providers, 91.1% of children age 16 to 35 months had a well-child visit compared to 79% of children age 3-6, 71% of children age 7 to 11, and 61% of adolescents age 12 to 18 years. This trend was consistent across all primary care providers.

Across practice settings, rates of well-child visits were highest for hospital/office-based providers for children—16 to 35 months (91.1%), 7 to 11 years (70.6%), and adolescents aged 12 to 18 (61.4%). While the percentage of children with well-child visits in RHCs increased in all age groups studied compared to 2006, children receiving primary care at RHCs continued to have significantly lower well-child visit rates compared to their peers in other settings in all age groups studied (16-35 months (81.7%), 3-6 years (67.2%), 7-11 years (54.6%), and 12-18 (53.2%)). This may be because RHCs are not required to provide

preventive health care services, but the fact that they serve a disproportionately higher number of children than other settings suggests further improvement is necessary. However, while RHCs were below other NH practice settings, RHCs are above the national Medicaid managed care HEDIS averages for all age groups. ^{*27}



**Statistically significant difference from total NH Medicaid members receiving primary care.*

In the first fifteen months of life, the Early Periodic Screening, Diagnosis, and Treatment (EPSDT) program schedule calls for 7 visits. In New Hampshire Medicaid for those receiving primary care, nearly two thirds of children in their first fifteen months of life (63%) received 6 or more well-child visits, which was significantly higher than in 2006 (56.6%) and continued to be higher than the national HEDIS rates for Medicaid managed care plans (53%). All practice settings were above the national average.[†]

* National 2008 HEDIS Medicaid well-child benchmarks are based on a denominator of all children within specified age groups and/or gender. Since NH well-child visit rates are limited to children receiving primary care within specified age groups the two measures are not directly comparable

† National 2008 HEDIS Medicaid well-child benchmarks are based on a denominator of all children within specified age groups and/or gender. Since NH well-child visit rates are limited to children receiving primary care within specified age groups the two measures are not directly comparable.

Table 8. Percent of Children With a Well-Child Visit to a Primary Care Practitioner by Practice Setting, CY 2008

Note: 95% confidence intervals (CI) in parentheses

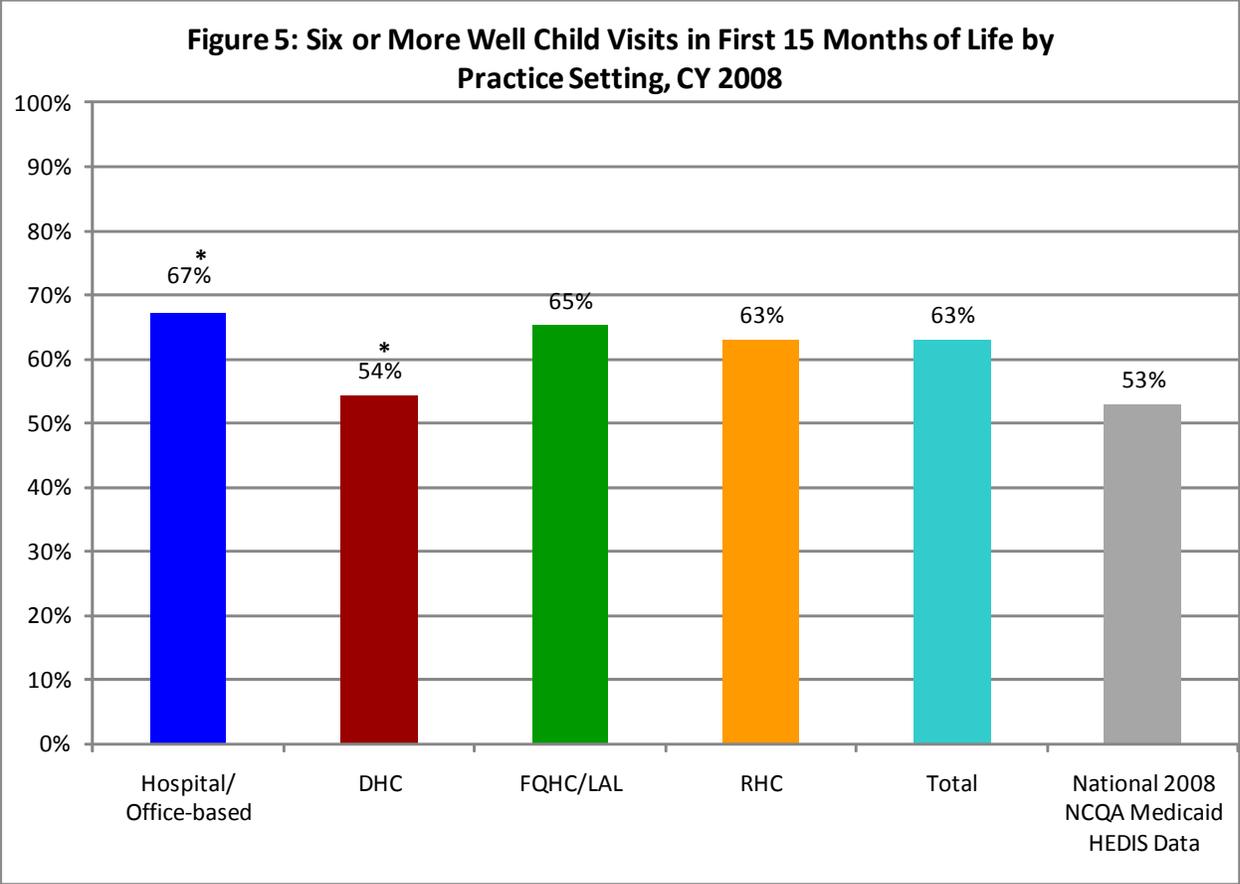
Age Group	Measurement Based on Administrative Claims Data					National 2008 NCQA Medicaid HEDIS Data
	Hospital/Office-based	DHC	FQHC/LAL	RHC	Total NH Medicaid Members with PC	
16-35 months	91.1% (90.1-92.0)	87.8% (86.2-89.3)	90.4% (88.4-92.5)	81.7%* (77.6-85.7)	89.5% (88.8-90.3)	NA
3-6 years	79.4%* (78.4-80.3)	75.5% (74.1-76.9)	79.7% (77.6-81.8)	67.2%* (63.8-70.6)	77.6% (76.9-78.3)	65.3%
7-11 years	70.6%* (69.5-71.6)	63.1%* (61.6-64.7)	65.7% (63.2-68.2)	54.6%* (51.2-58.0)	67% (66.2-67.8)	NA
12-18 years	61.4%* (60.3-62.6)	56.8% (55.2-58.4)	57.4% (54.9-59.8)	53.2%* (49.9-56.4)	59.1% (58.3-59.9)	42%**
First 15 Months of Life, denominator*	1764	921	460	189	3334	
0 visits	0.7% (0.3-1.1)	1.2% (0.4-2.0)	0.7% (0.0-1.5)	5.8%* (2.2-9.4)	1.1% (0.7-1.5)	5.6%
1 visit	0.7% (0.3-1.2)	1.5% (0.7-2.4)	0.9% (0.0-1.8)	5.3%* (1.8-8.7)	1.2% (0.8-1.6)	3.3%
2 visits	1.4% (0.8-1.9)	2.1% (1.1-3.0)	3.0% (1.4-4.7)	1.1% (0.0-2.8)	1.8% (1.3-2.2)	3.9%
3 visits	3.8% (2.9-4.7)	5.8% (4.2-7.3)	5.4% (3.3-7.6)	4.8% (1.5-8.1)	4.6% (3.9-5.3)	6.2%
4 visits	7.6% (6.3-8.9)	13.4%* (11.1-15.6)	9.8% (7.0-12.6)	9.0% (4.7-13.3)	9.6% (8.6-10.6)	10.9%
5 visits	18.8% (16.9-20.6)	21.8% (19.1-24.5)	15% (11.6-18.4)	11.1%* (6.4-15.9)	18.7% (17.3-20.0)	17.2%
6 or more visits	67.1%* (64.8-69.3)	54.3%* (51.0-57.6)	65.2% (60.8-69.7)	63.0% (55.8-70.1)	63% (61.4-64.7)	53.0%

The HEDIS well-child visit during the first 15 months of life tracks visits for continuously enrolled children from 31 days to 15 months of age - up to 6 or more visits. The recommended EPSDT program schedule calls for 7 visits: by 1 month, 2-3 months, 4-5 months, 6-8 months, 9-11 months, 12 months, and 15 months.

*Statistically significant difference from total NH Medicaid members receiving primary care.

**National HEDIS Medicaid managed care data reflect children aged 12-21 so are not directly comparable.

Across practice settings the well-child visit rate in the first fifteen months of life also varied somewhat (Figure 5 and Table 8). Children in their first fifteen months of life receiving primary care at hospital/office-based providers were significantly more likely to have 6 or more well-child visits than children receiving primary care generally (67% compared to 63% overall). In contrast, children receiving primary care at DHC practices were significantly less likely to have 6 or more well-child visits than children receiving care generally (54% compared to 63%). Children receiving care at RHCs were significantly more likely to have only 1 (5.3%) or no well-child visits (5.8%) than children receiving primary care generally (1.2% and 1.1% respectively).



*Statistically significant difference from total NH Medicaid members receiving primary care.

Effectiveness of Care Management Measures

Eleven NCQA HEDIS effectiveness of care measures were evaluated: use of appropriate medications for people with asthma, appropriate testing for children with pharyngitis, appropriate treatment for children with upper respiratory infection (URI), appropriate follow-up for children with ADHD, appropriate treatment of adults with bronchitis, comprehensive diabetes care, cholesterol management for persons with cardiovascular disease, spirometry for persons with chronic obstructive pulmonary disease, imaging for lower back pain, breast cancer screening, cervical cancer screening. All measures were based on continuous enrollment for the study period.

Asthma

Asthma is one of the nation's most common, costly, and increasingly prevalent diseases. Asthma medications can help reduce underlying airway inflammation, and relieve or prevent airway narrowing. Many asthma-related hospitalizations and emergency room visits could be avoided if patients have appropriate medications and medical management.

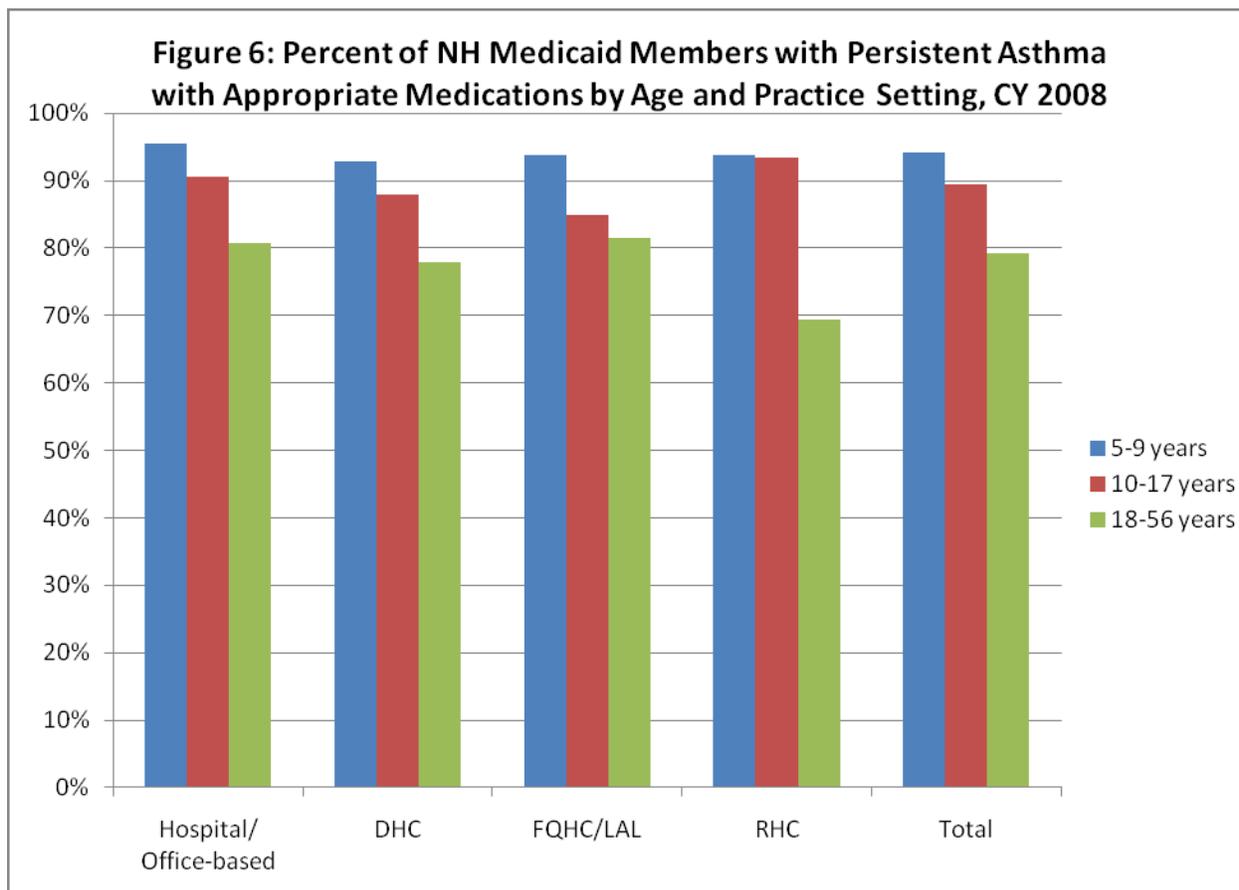
The “appropriate treatment of asthma” HEDIS measure determines members with “persistent” asthma who were appropriately prescribed medication during the measurement year. Appropriate medications are those medications acceptable for long-term control of asthma defined by HEDIS specifications as cromolyn sodium, inhaled corticosteroids, leukotriene modifiers, methylxanthines, and nedocromil. This is consistent with national recommendations for quality asthma care.²⁸ Members with "persistent asthma" were defined as anyone who in the year prior to the measurement year had either at least one ED visit or one acute inpatient discharge with asthma (ICD-9 code 493) as the principal diagnosis; at least four outpatient asthma visits with asthma listed as one of the diagnoses, and at least two asthma medication dispensing events or an asthma medication was dispensed on four occasions.²⁹

Figure 6 and Table 9 shows appropriate medication use rates for persons with persistent asthma for continuously enrolled children and adults. Due to HEDIS's strict definition of persistent asthma, only 952 children and 511 adults statewide met this criteria, thus the number of patients represented within each practice setting, particularly within RHCs and FQHCs, is very low.

For children age 5 to 9, NH Medicaid providers overall and across all practice settings had higher rates of appropriate asthma medication use for children identified with persistent asthma than the national average. Appropriate asthma medication use rates for adolescents age 10 to 17 were higher than the national average overall but lower than the national average in FQHCs and DHC. For those age 18 to 56, overall NH rates and rates in every practice setting for those age 18 to 56 were lower than the national average.

As is true nationally, children were most likely to have appropriate medications. For example, most children aged 5 to 9 with persistent asthma in hospital/office-based practices were on the appropriate medications (95.5%). For NH Medicaid adults, rates of appropriate medication use for those with persistent asthma were highest at FQHCs (81.5%) and

hospital/office-based practices (80.7%) and lowest for those receiving primary care at RHCs (69.4%), although these differences between settings were not statistically significant.



*Not statistically different between practice settings and total NH Medicaid members receiving primary care.

Table 9. Percentage of Members with Persistent Asthma with Appropriate Medication by Practice Setting, CY 2008

Note: 95% confidence intervals (CI) in parentheses

Measure	Measurement Based on NH CHIS Administrative Claims Data					National 2009 NCQA Medicaid HEDIS Data
	Hospital/Office-based	DHC	FQHC/LAL	RHC	Total	
5-9 years	95.5% (92.3-98.6)	92.9% (88.5-97.2)	93.8% (83.8-100)	93.9% (84.3-100)	94.2% (91.9-96.6)	92.0%
10-17 years	90.6% (87.0-94.1)	88% (82.5-93.5)	84.9% (74.3-95.5)	93.5% (85.3-100)	89.5% (86.8-92.2)	89.1%
18-56 years	80.7% (75.4-86.0)	78% (71.0-85.0)	81.5% (73.0-90.0)	69.4% (53.0-85.9)	79.3% (75.6-82.9)	85.2%

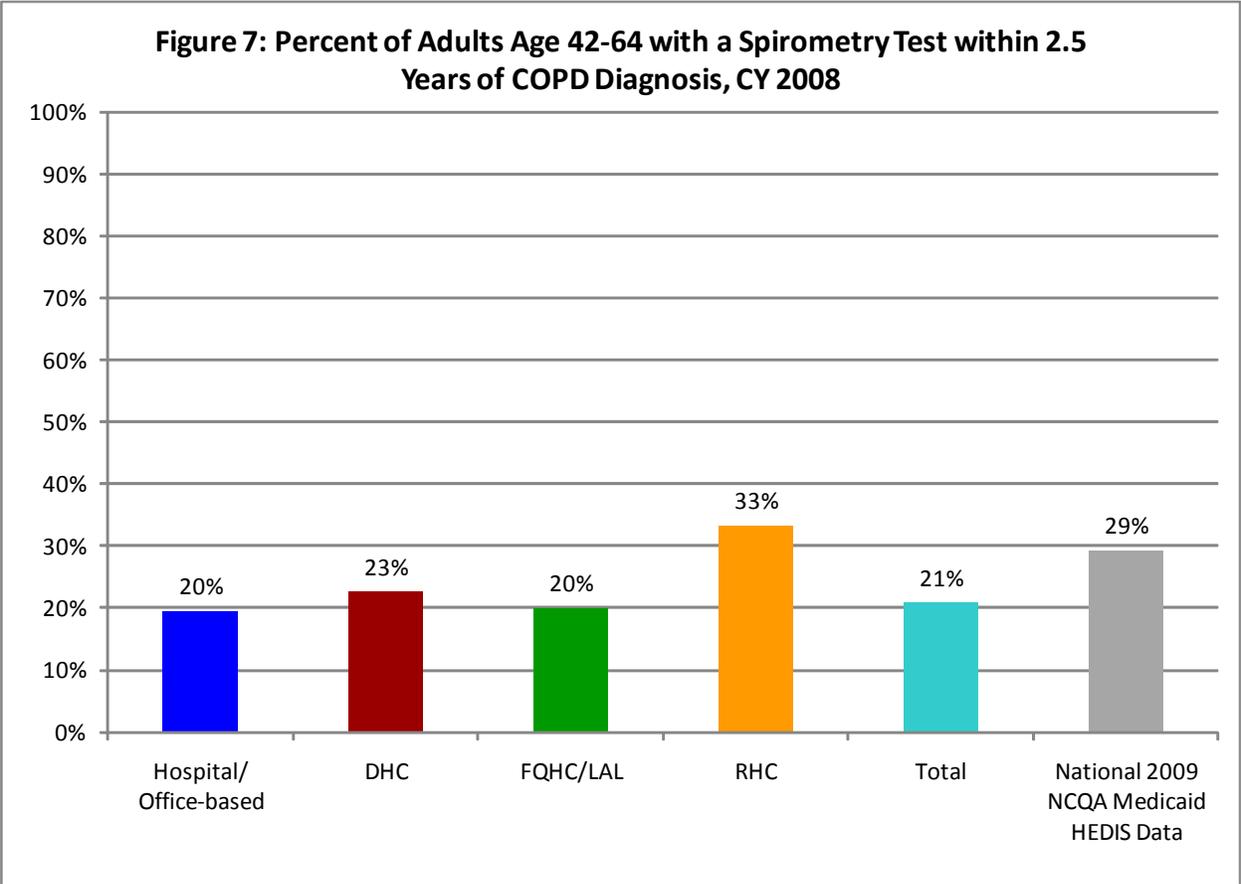
*Not statistically significant different from total NH Medicaid members receiving primary care.

COPD

Chronic obstructive pulmonary disease (COPD) encompasses diseases such as emphysema and chronic bronchitis that is characterized by airflow obstruction. It is the fourth leading cause of death and disability in the United States. Assessments that demonstrate the presence and reversibility of airflow obstruction are needed to confirm COPD and distinguish it from asthma.³⁰

The HEDIS measure on assessment of COPD uses the percentage of members 40 years of age and older who had a spirometry test during the measurement year to confirm a new diagnosis of COPD. Results are shown in Figure 7 and Table 10.

Spirometry test rates by NH primary care providers (21%) are much lower than the Medicaid managed care average (29%), which was also low. Across settings, while there were no statistically significant differences between settings, RHCs were the only setting that had rates (33%) that were above the national average (29.3%).



Differences between primary care settings and the total were not statistically significant

Table 10. Diagnosis of COPD Using Spirometry Test by Practice Setting, CY 2008*Note: 95% confidence intervals (CI) in parentheses*

Measure	Measurement Based on NH CHIS Administrative Claims Data					National 2009 NCQA Medicaid HEDIS Data
	Hospital/ Office- based	DHC	FQHC/LAL	RHC	Total NH Medicaid with PC	
Test Within 2.5 years COPD Diagnosis	19.5% (10.6-28.4)	22.5% (8.3-36.7)	20.0% (0-40.0)	33.3% (0-79.4)	20.9% (14.1-27.7)	29.3%

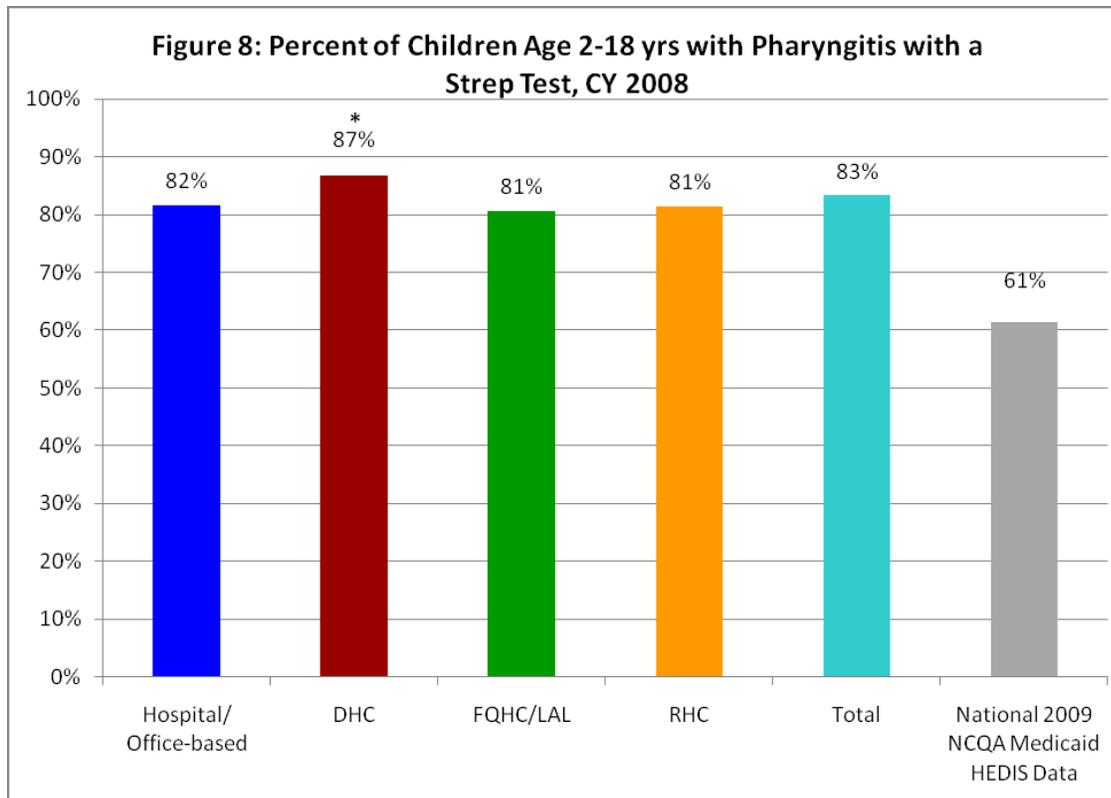
Differences between primary care settings and the total were not statistically significant

Pharyngitis

Pharyngitis, or sore throat, is a common diagnosis in children. The majority of pharyngitis cases are caused by viral illnesses that cannot be successfully treated with antibiotics. While antibiotics are needed to treat *bacterial* pharyngitis, before antibiotics are prescribed, a simple diagnostic test needs to be run to validate whether the pharyngitis is bacterial or viral. Unfortunately, a diagnostic test is not always completed before antibiotics are prescribed.

The “appropriate testing for children with pharyngitis” HEDIS measure determines the percentage of continuously enrolled children 2–18 years of age diagnosed with pharyngitis, who received an antibiotic and received a streptococcus (strep) test for the episode. The national benchmark for this measure from national 2009 NCQA Managed Care Plan HEDIS rates was 61.4%.³¹ Results from NH CHIS data are provided in Table 11 and Figure 8.

Based on NH CHIS claims data, all NH Medicaid primary care provider groups had higher rates of appropriate strep testing than the national Medicaid HEDIS average. Compared to 2006, the rates among NH primary care providers became more aligned, ranging from 80.6% to 86.8% (58%-85.6% in 2006). DHC providers were significantly more likely to do appropriate strep testing among children with pharyngitis than other settings (86.8%).



*Statistically significant difference from total NH Medicaid members receiving primary care.

Note: Lower than expected rates in hospital-based providers could be an artifact of using claims data for HEDIS measures, to the extent that laboratory tests may be included in broader facility rates and not billed as a separate claim.

Table 11. Pharyngitis and URI Effectiveness of Care Measures by Practice Setting, CY 2008

Note: 95% confidence intervals (CI) in parentheses

Measure	Measurement Based on NH CHIS Administrative Claims Data					National 2009 NCQA Medicaid HEDIS Data
	Hospital/Office-based	DHC	FQHC/LAL	RHC	NH Medicaid w/PC Total	
Children with Pharyngitis	81.7% (80.3-83.1)	86.8%* (85.1-88.4)	80.6% (74.3-86.9)	81.4% (75.8-87.1)	83.3% (82.3-84.3)	61.4%
Children with URI	88.4% (87.4-89.4)	88.4% (87.0-89.8)	87.9% (83.2-92.7)	81.1%* (75.9-86.2)	88.1% (87.3-88.9)	85.5%

*Statistically significant difference from total NH Medicaid members receiving primary care.

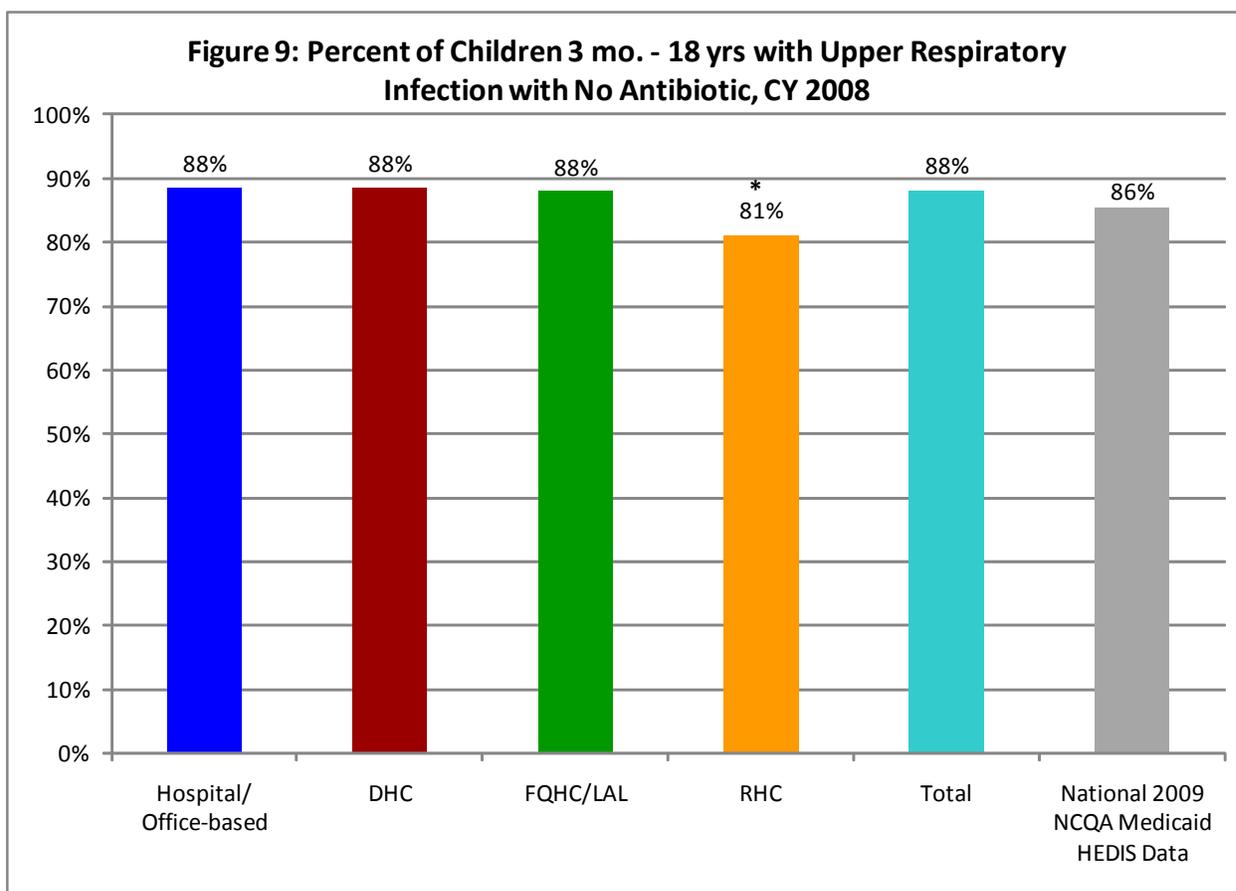
Upper Respiratory Infection

Upper respiratory infections (URI), known more commonly as colds, are highly prevalent among children. Existing clinical guidelines do not support the use of antibiotics for colds, as the cause is often viral.³² However, research indicates antibiotics are frequently prescribed to children with URIs.³³

HEDIS measures the appropriate treatment for children with upper respiratory infection (URI) as the percentage of continuously enrolled children 3 months to 18 years of age who were diagnosed with URI and were *not* dispensed an antibiotic prescription. Results from NH CHIS data are provided in Figure 9 and Table 11.

Based on NH CHIS claims data, the rate of appropriate medication (antibiotic not dispensed) was similar for most primary care practice settings (88%), with the exception of RHCs, where significantly fewer children with URI (81%) were given the appropriate medication (antibiotic not dispensed) than NH Medicaid children receiving primary care generally.

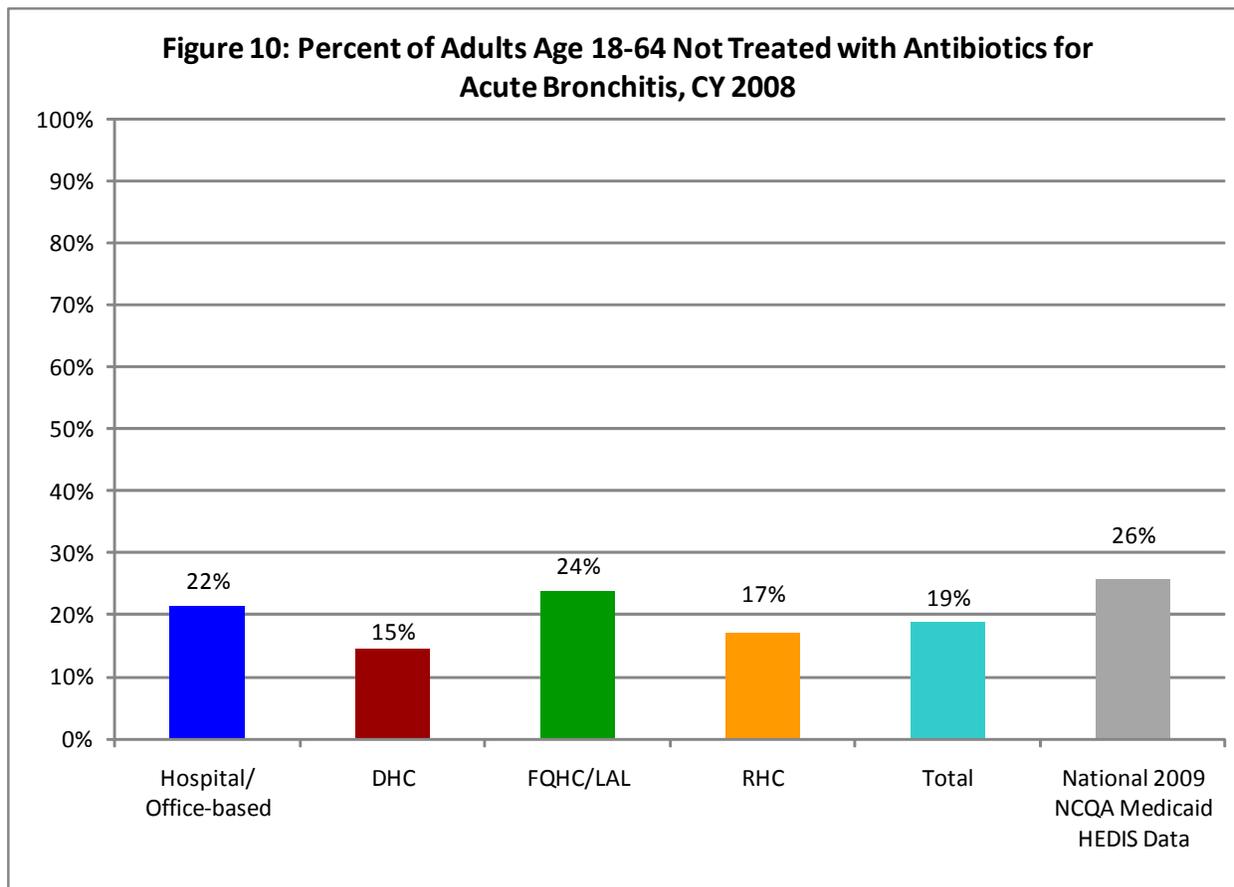
With the exception of RHCs, all other primary care practice settings had higher rates of appropriate medication dispensed to children with URI than national Medicaid HEDIS averages.



**Statistically significant difference from total NH Medicaid members receiving primary care.*

HEDIS measures the appropriate treatment for adults with acute bronchitis as the percentage of continuously enrolled adults age 18 to 64 years of age who were diagnosed with primary acute bronchitis and were *not* dispensed an antibiotic prescription. NH primary care providers were less likely to treat acute bronchitis in adults with antibiotics than the national average and variations between practice settings were not statistically

significant. Results from NH Medicaid primary care providers are provided in Figure 10 and Table 12.



Differences between primary care settings and the total were not statistically significant

Table 12. Percentage of Adults 18-64 Not Treated with Antibiotics for Acute Bronchitis, CY 2008

Note: 95% confidence intervals (CI) in parentheses

Measure	Measurement Based on NH CHIS Administrative Claims Data					National 2009 NCQA Medicaid HEDIS Data
	Hospital/Office-based	DHC	FQHC/LAL	RHC	NH Medicaid w/PC Total	
18 - 64 years	21.5% (17.3-25.6)	14.5% (10.2-18.8)	23.9% (10.5-37.3)	17.2% (1.8-32.7)	18.8% (16.0-21.7)	25.8%

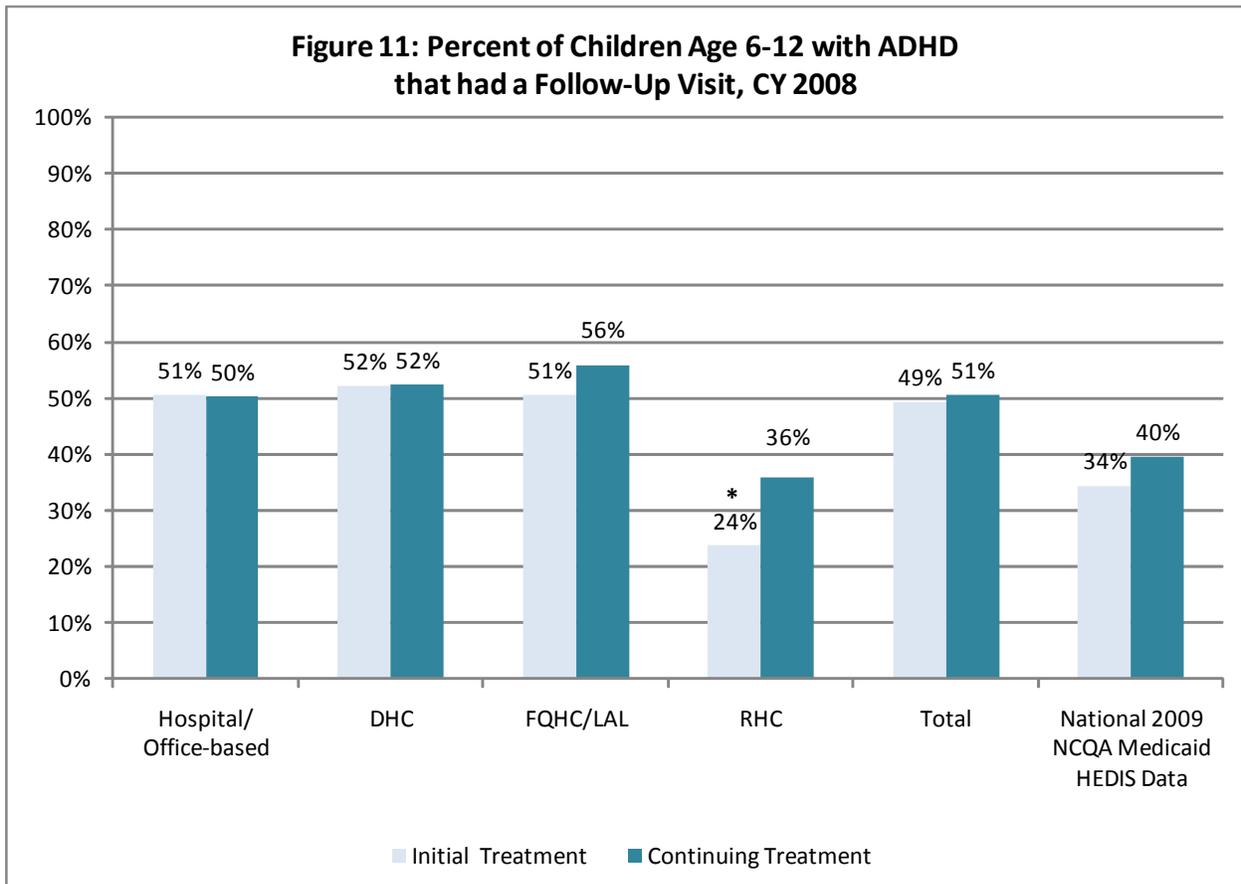
Differences between primary care settings and the total were not statistically significant

Follow-Up Care for Children Prescribed ADHD Medication

HEDIS measures follow-up care for children with ADHD as children ages 6 to 12 years of age who are prescribed ADHD medication and have a follow up visit. This measure includes both the percentage of children with one follow-up visit with a practitioner within 30 days of their first prescription of ADHD medication (initial treatment), and the

percentage of children who remained on the medication for at least 210 days and had at least two follow-up visits in the 9 months since the initial treatment (continuing treatment).

Approximately half of children prescribed ADHD medications received follow-up both for initial and continuing treatment. With the exception of RHCs, this rate was consistent across primary care settings and was significantly higher than the national Medicaid managed care average. In contrast, RHCs were lower than the national average both for follow-up for initial and continuing treatment and were significantly less likely to provide follow up for both initial and continuing ADHD treatment than NH primary care providers generally. Results are shown in Figure 11 and Table 13.



*Statistically significant difference from total NH Medicaid members receiving primary care

Table 13. Percentage of Children Prescribed ADHD Medications with Follow-Up, CY 2008

Note: 95% confidence intervals (CI) in parentheses

Measure	Measurement Based on NH CHIS Administrative Claims Data					National 2009 NCQA Medicaid HEDIS Data
	Hospital/Office-based	DHC	FQHC/LAL	RHC	Total NH Medicaid with PC	
Initial Treatment	50.6% (46.2-55.0)	52.1% (45.9-58.2)	50.6% (39.2-62.0)	23.7%* (12.0-35.4)	49.3% (46.0-52.6)	34.4%
Continuing Treatment	50.2% (43.5-57.0)	52.3% (42.5-62.1)	55.8% (39.8-71.8)	36.0% (15.2-56.8)	50.5% (45.5-55.5)	39.5%

*Statistically significant difference from total NH Medicaid members receiving primary care.

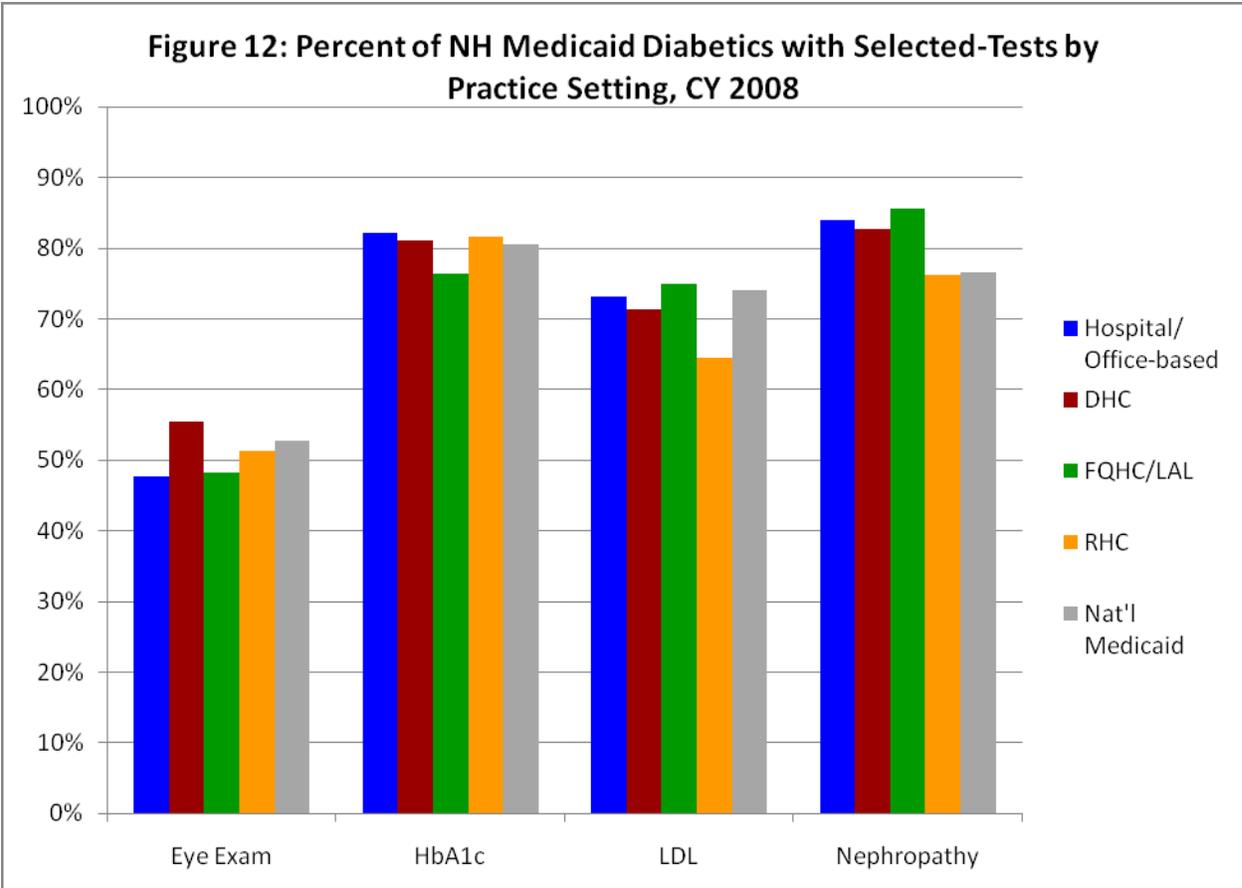
Diabetes Care

Diabetes is one of the leading causes of death and disability in the U.S. Much of the burden of illness and cost of diabetes treatment is attributed to potentially preventable long-term complications, including heart disease, blindness, kidney disease, and stroke. Appropriate and timely screening and treatment can significantly reduce the disease burden.³⁴

The NCQA HEDIS comprehensive diabetes care measure estimates the percentage of adults age 18 to 64 years of age with diabetes (type 1 and type 2) who had a series of recommended tests or exams. For this report, only a few were selected including hemoglobin A1c (HbA1c) testing, retinal eye exam performed, serum cholesterol level (LDL-C) screening, and medical attention for kidney disease (nephropathy).

As in 2006, overall, NH Medicaid beneficiaries with diabetes who are receiving primary care at all settings are more likely to have attention paid to kidney disease (nephropathy) (76% in RHCs to 86% in FQHCs compared to 77% nationally) and, with the exception of RHCs, to get HbA1c tests and their serum cholesterol checked than Medicaid members nationally. For eye exams, diabetics on Medicaid and receiving care at DHC (56%) were more likely to get an eye exam than the national average (53%) but less likely to get an eye exam than the national average if they received care at RHCs (51%), FQHCs (48%), or hospital/office-based practices (48%). Differences between settings were not statistically significant, suggesting that diabetes care is comparable across NH Medicaid primary care providers.

Table 14 and Figure 12 show selected diabetic test rates by primary care practice setting for NH Medicaid members receiving primary care compared with national Medicaid HEDIS rates in 2009.³⁵



Differences between primary care settings and the total were not statistically significant

Table 14. Percentage of Members with Appropriate Diabetes Care

Note: 95% confidence intervals (CI) in parentheses

Measure	Measurement Based on NH CHIS Administrative Claims Data					National 2009 NCQA Medicaid HEDIS Data
	Hospital/Office-based	DHC	FQHC/LAL	RHC	Total NH Medicaid with PC	
Eye Exam	47.7% (44.1-51.4)	55.5% (50.2-60.7)	48.3% (42.4-54.2)	51.3% (39.4-63.2)	49.9% (47.4-52.5)	52.8%
HbA1c	82.1% (79.3-84.9)	81.1% (77.0-85.3)	76.4% (71.3-81.4)	81.6% (72.2-91.0)	80.7% (78.7-82.7)	80.5%
LDL	73.1% (69.9-76.4)	71.3% (66.5-76.1)	75% (69.9-80.1)	64.5% (53.1-75.9)	72.6% (70.3-74.9)	74.1%
Nephropathy	84% (81.3-86.7)	82.8% (78.8-86.8)	85.6% (81.4-89.8)	76.3% (66.1-86.5)	83.6% (81.7-85.5)	76.6%

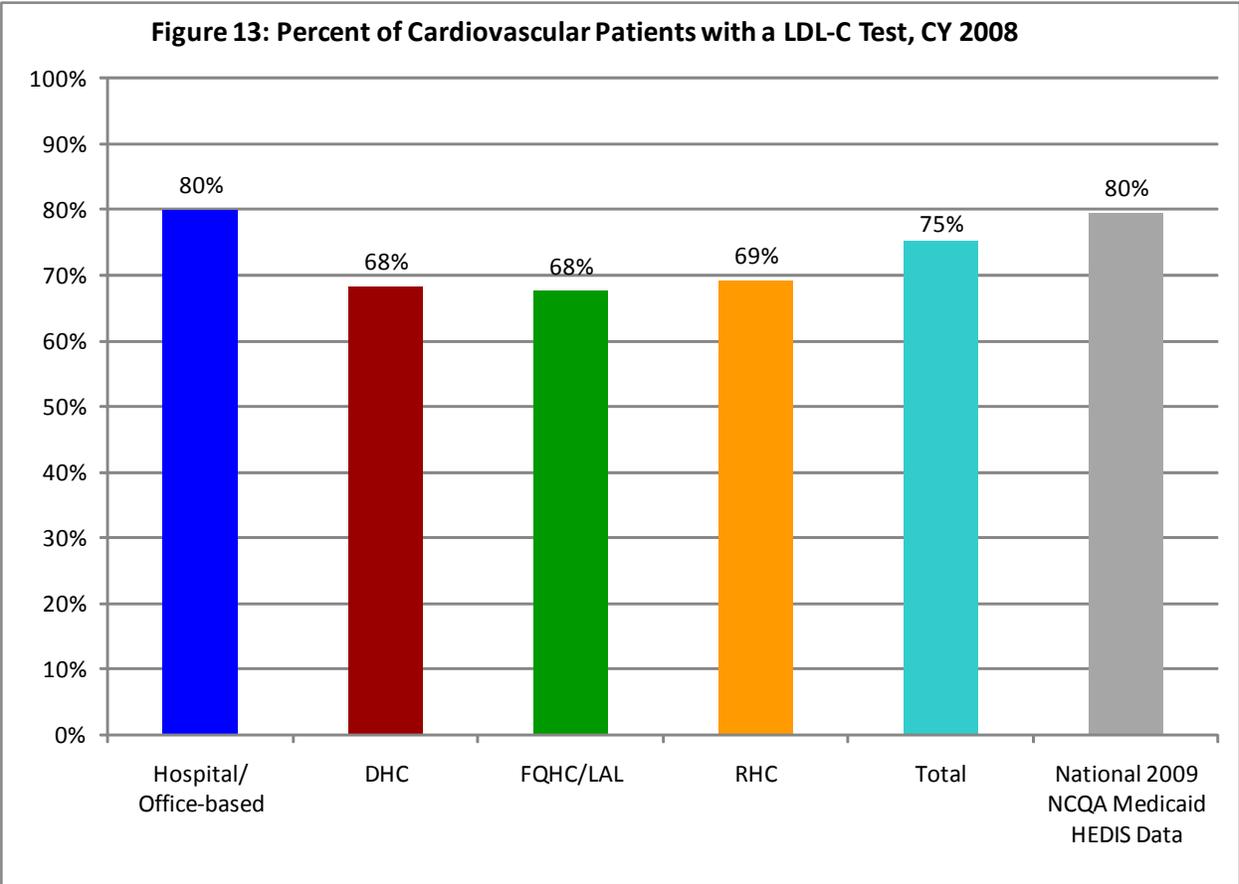
Differences between primary care settings and the total were not statistically significant

Cholesterol Management

One-third of adults in America have some form of cardiovascular disease. High cholesterol is a major risk factor for and cause of cardiovascular disease. Screening and managing cholesterol in patients with cardiovascular disease is important and effective in reducing the harm by coronary heart and other cardiovascular disease.³⁶

A modified HEDIS measure for cholesterol screening was used for this analysis. This included cardiovascular adult patients, ages 18 to 75 who were discharged for acute myocardial infarction or coronary angioplasty, or who had a diagnosis of ischemic vascular disease, who received a LDL-C screening.

Compared to the national Medicaid average, NH Medicaid primary care providers were less likely to do cholesterol screenings for cardiovascular disease patients. This was true for nearly all practice settings. Only hospital and office-based practices were slightly higher than the national average. However, differences in cholesterol screening rates between settings were not statistically significant. Results are shown in Figure 13 and Table 15.



Differences between primary care settings and the total were not statistically significant

Table 15. Percentage of Cardiovascular Patients with LDL-C Test, CY 2008*Note: 95% confidence intervals (CI) in parentheses*

Measure	Measurement Based on NH CHIS Administrative Claims Data					National 2009 NCQA Medicaid HEDIS Data
	Hospital/ Office-based	DHC	FQHC/LAL	RHC	Total NH Medicaid with PC I	
LDL-C Test	80.0% (73.5-86.5)	68.4% (55.5-81.4)	67.6% (51.1-84.0)	69.2% (40.3-98.2)	75.3% (69.9-80.6)	79.6%

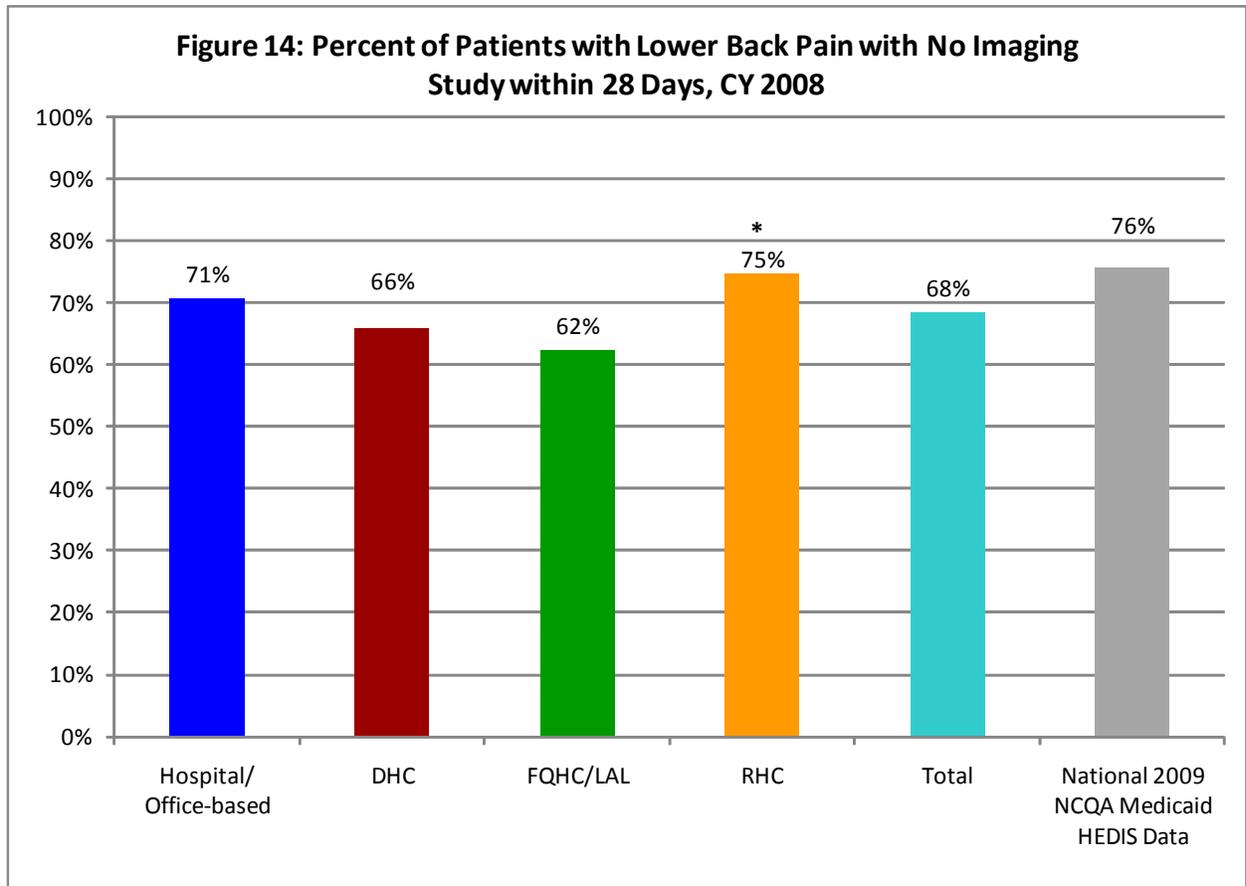
Differences between primary care settings and the total were not statistically significant

Imaging Studies for Low Back Pain

The use of imaging studies for evaluating patients with low back pain are overused. While imaging might be appropriate for patients at risk for more serious conditions, low back pain for most patients is non-specific for no identifiable cause.³⁷

NCQA HEDIS measures the use of imaging studies for low back pain for adults age 18 to 50 years of age who had an episode of acute low back pain with no risk factors or signs of serious pathology identified in the diagnostic visit, who did not receive an imaging study in the following 28 days. Higher scores are better for this measure.

NH Medicaid members seen for lower back pain at primary care settings were more likely to receive potentially unnecessary imaging studies than the national Medicaid managed care average and therefore had lower rates of no imaging (68.4%) than nationally (75.7%). Within NH Medicaid, there was some variation among primary care settings, with FQHCs having significantly lower rates of no imaging (62.2%) (i.e. were more likely to order potentially unnecessary imaging studies) and RHCs having significantly higher rates of no imaging (74.6%) indicating they were less likely to order potentially unnecessary imaging studies. Results are show in Figure 14 and Table 16.



*Statistically significant difference from total NH Medicaid members receiving primary care.

Table 16. Percentage of Patients with Lower Back Pain with No Imaging Study, CY 2008

Note: 95% confidence intervals (CI) in parentheses

Measure	Measurement Based on NH CHIS Administrative Claims Data					National 2009 NCQA Medicaid HEDIS Data
	Hospital/Office-based	DHC	FQHC/LAL	RHC	Total NH Medicaid with PC	
Imaging Study within 28 days	70.6% (70.6-75.0)	65.8% (65.8-72.2)	62.2%* (62.2-71.3)	74.6%* (74.6-86.5)	68.4% (68.4-71.6)	75.7%

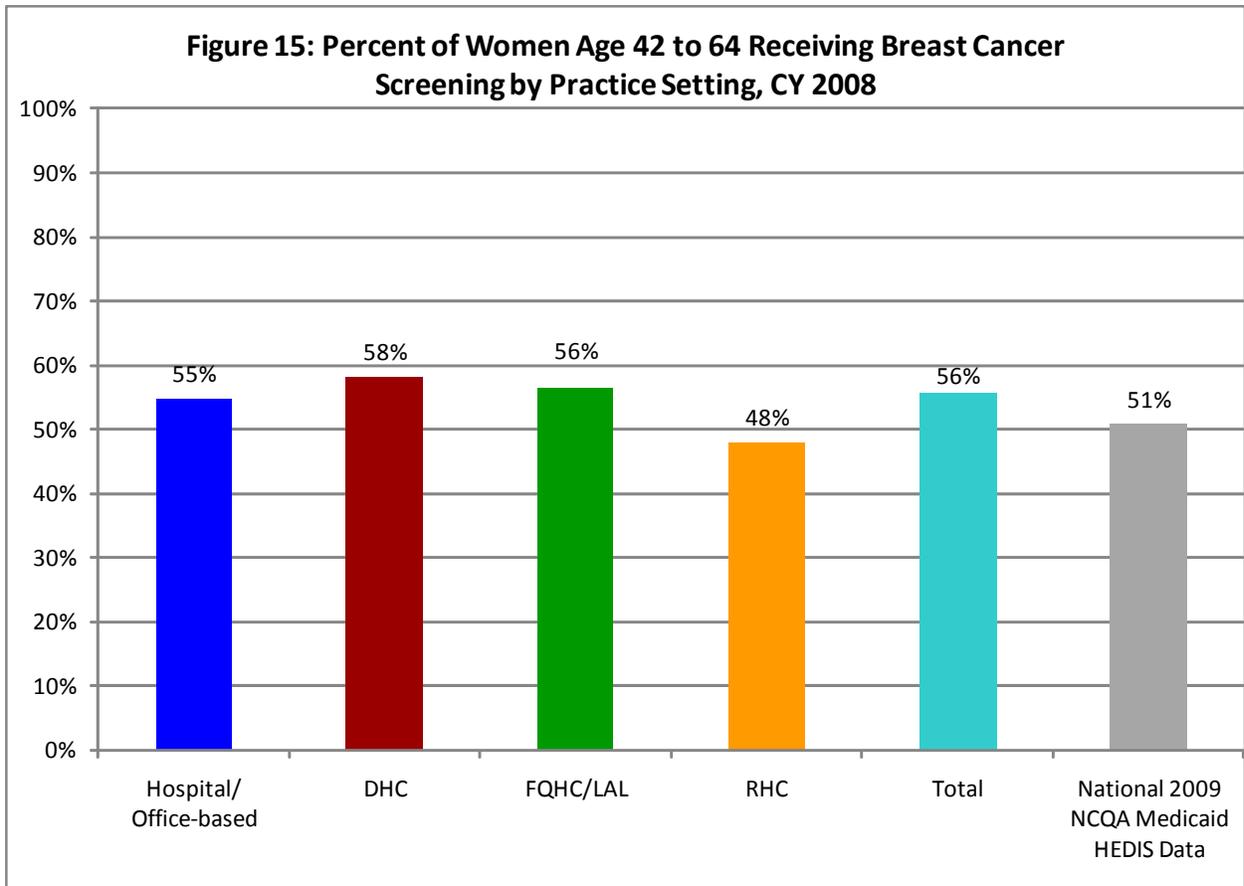
*Statistically significant difference from total NH Medicaid members receiving primary care.

Breast Cancer Screening

Breast cancer is the second leading cause of cancer death for women with an estimated 40,000 deaths among women in 2007. Breast cancer mortality in women has declined in recent years, due in part to early detection through mammogram screening.

The 2009 NCQA HEDIS measure estimates the percentage of women between 42 and 64 years old who had at least one mammogram in the past two years. The national benchmark data for this measure in 2007 extended the age upper limit from 64 to 69 years. In 2009, the NCQA Medicaid Managed Care Plan HEDIS rates for this revised measure was 50.8%.³⁸

As shown in Figure 15 and Table 17, NH Medicaid patients overall had higher breast cancer screening rates than the national average. Differences in screening rates between primary care practice settings were not statistically significant.



Differences between primary care settings and the total were not statistically significant

Table 17. Cancer Screening Prevention Measures by Practice Setting, CY 2008*Note: 95% confidence intervals (CI) in parentheses.*

Measure	Measurement Based on NH CHIS Administrative Claims Data					National 2009 NCQA Medicaid HEDIS Data
	Hospital/ Office- based	DHC	FQHC/LAL	RHC	Total	
Breast Cancer Screening	54.8% (51.9-57.7)	58.2% (54.0-62.3)	56.4% (51.3-61.4)	47.9% (38.5-57.3)	55.6% (53.5-57.6)	50.8%
Cervical Cancer Screening	59.0% (57.4-60.7)	62.4% (60.2-64.5)	65.6%* (63.0-68.2)	56.6% (50.5-62.7)	61.1% (60.0-62.2)	66.0%

[†]2009 National Medicaid HEDIS breast cancer screen rates reflect screening for women age 40 to 69 but this study excluded >65 so measures are not directly comparable.

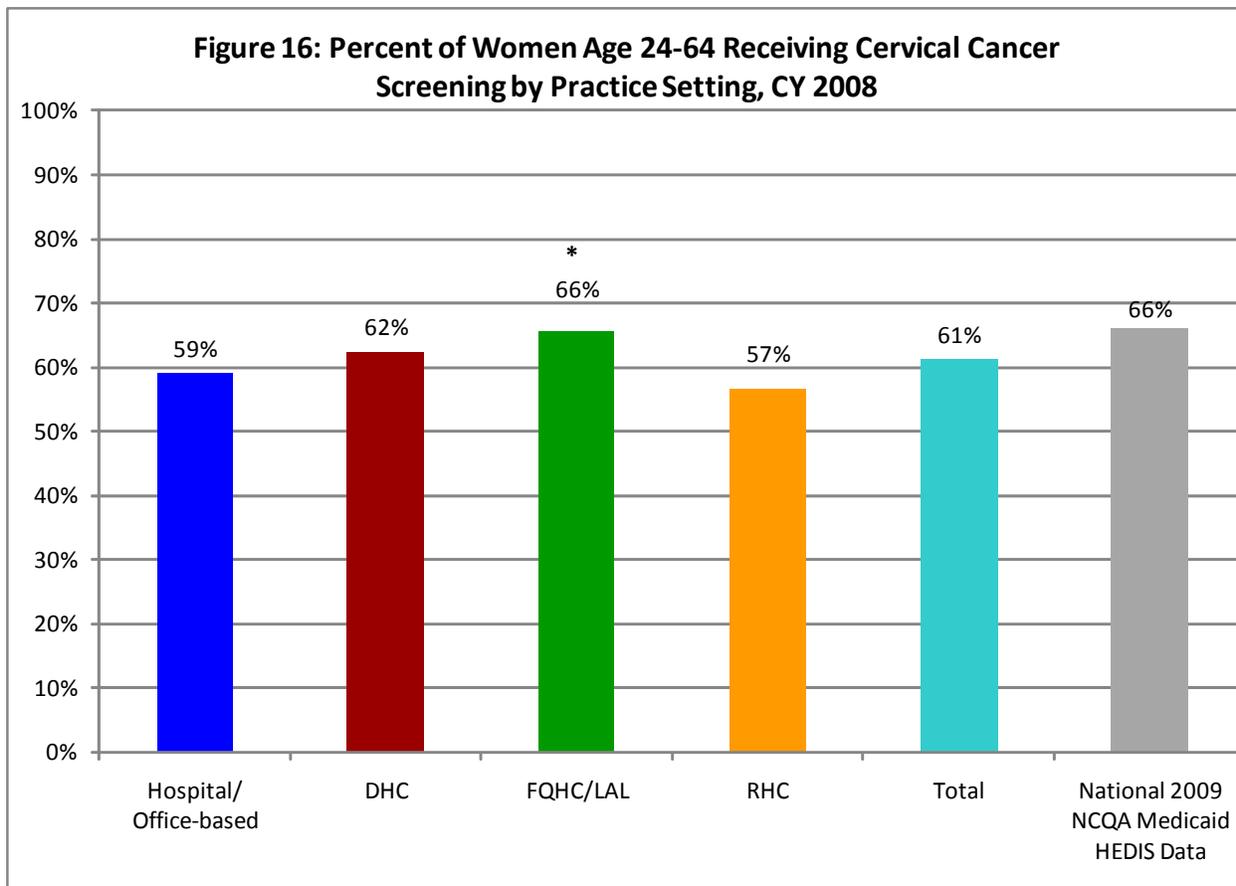
*Statistically significant difference from total NH Medicaid members receiving primary care.

Cervical Cancer Screening

Cervical cancer is treatable when detected early. Increased screening can reduce mortality by up to 80 percent.

The NCQA HEDIS cervical cancer screening measure estimates the percentage of women aged 24 to 64 who had at least one Pap test in the past three years.³⁹ As shown in Table 17 and Figure 16, the national HEDIS Medicaid cervical cancer screening rate in 2009 was 66 percent. Cervical cancer screening rates for NH Medicaid members receiving primary care were below the national average for all practice settings except FQHCs (66%).

Cervical cancer screening rates were significantly higher in FQHCs than for all NH Medicaid members receiving primary care.

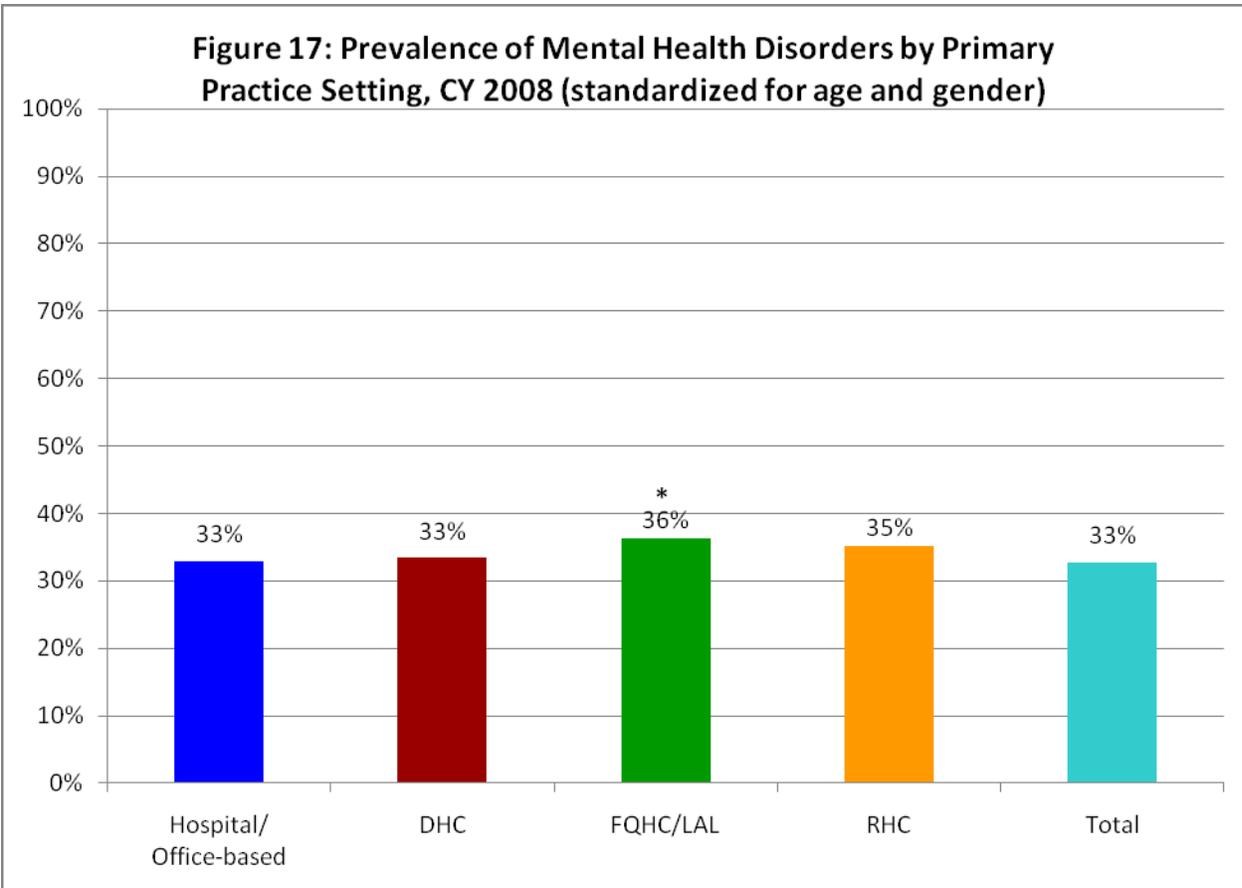


*Statistically significant difference from total NH Medicaid members receiving primary care.

Prevalence and Utilization for Mental Health Disorders

For this report, determination of mental health disorder was based on the diagnostic information contained in the administrative medical claims data (diagnostic codes and groupings are identified in Appendix 1 and were derived from a report prepared for the national Substance Abuse and Mental Health Services Administration (SAMHSA)).⁴⁰ Mental health disorder prevalence and utilization rates are adjusted for age and gender.

Figure 17 and Table 18 summarize the prevalence of any mental health disorder for Medicaid members by primary care practice setting after adjusting for age and gender differences. Among 71,515 average monthly members enrolled in Medicaid and receiving primary care, 45,983 (32.7%) had a diagnosed mental health disorder during CY 2008. After controlling for age and gender, NH Medicaid members receiving primary care at FQHCs (36%) were significantly more likely to be diagnosed with some mental health disorder than the overall average and than in DHC and hospital/office-based practices.



*Statistically significant difference from total NH Medicaid members receiving primary care.

Of those diagnosed with any mental illness, 13,574 (9.6% of all receiving primary care) had a serious mental health disorder identified. These included 5,697 members with major depression and 5,794 members with bipolar and other affective psychoses. After adjusting for age and gender, the prevalence rate of serious mental health disorders across primary care settings was not significantly different.

Age and gender adjusted prevalence of other mental health disorders was significantly higher in FQHCs (33.1%) and in RHCs (32.8%) The most common other mental health disorders diagnosed were neurotic disorders (10.6%) and stress and adjustment disorders (9.7%). Attention Deficit Hyperactivity Disorder (ADHD) was also common (8.4%) as was non-specified depression (8.3%). This was consistent across primary practice settings; however, prevalence of non-specified depression and ADHD varied more than other diagnoses.

Approximately, 3,779 members had psychotropic drug use with no mental health diagnoses, a prevalence rate of 7.3%. When adjusted for age and gender, there was no significant difference in prevalence of psychotropic drug use with no mental health diagnoses between practice settings and the overall total for members receiving primary care.

Table 18. Prevalence of Mental Health Disorders and Psychotropic Drug Use with No Mental Health Diagnoses, Adjusted for Age and Gender by Setting, CY 2008

Note: Numbers in parentheses represent number of members. Categories are not mutually exclusive. The same member may be reported in more than one diagnostic group if the member had claims with different mental health disorder diagnoses during the year. Numbers will not add to total. 95% confidence intervals (CIs) were only calculated for the major mental health categories.

Mental Health Disorder Cohort	Hospital/ Office-based	DHC	FQHC/LAL	RHC	Total
Any Mental Health Disorder	32.9% (12,524)	33.4% (6,573)	36.3%* (3,502)	35.2% (1,445)	32.7% (45,983)
Confidence Intervals	(32.1-33.7)	(32.3-34.6)	(34.7-37.9)	(32.8-37.7)	(32.2-33.1)
Any Serious Mental Health Disorder	9.6% (3,673)	10.6% (2,090)	11.0% (1,059)	8.4% (345)	9.6% (13,574)
Confidence Intervals	(8.7-10.6)	(9.3-12.0)	(9.1-12.9)	(5.6-11.5)	(9.8-10.2)
Schizophrenic Disorders	0.7% (276)	0.9% (168)	0.9% (90)	0.4% (18)	0.8% (1,116)
Major Depression	3.7% (1,422)	4.0% (789)	5.1% (496)	2.8% (115)	4.0% (5,697)
Bipolar & Other Affective Psychoses	4.4% (1,658)	4.4% (858)	5.1% (494)	4.0% (166)	4.1% (5,794)
Other Psychoses	2.6% (1,001)	3.2% (633)	1.7% (168)	2.4% (100)	2.4% (3,449)
Any Other Mental Health Disorder	29.9% (11,374)	29.8% (5,863)	33.1%* (3,195)	32.8%* (1,348)	29.6% (41,623)
Confidence Intervals	(29.0-30.7)	(28.7-31.0)	(31.5-34.7)	(30.4-35.4)	(29.1-30.0)
Stress & Adjustment	9.3% (3,550)	10.1% (1,978)	11.4% (1,103)	10.6% (435)	9.7% (13,635)
Personality Disorder	1.2% (441)	1.1% (214)	1.2% (116)	0.8% (32)	1.1% (1,547)
Disturbance of Conduct	2.5% (958)	3.4% (670)	2.8% (274)	2.5% (104)	2.7% (3,812)
Disturbance of Emotions	1.3% (846)	2.7% (523)	2.2% (210)	3.9% (159)	2.5% (3,468)
ADHD Hyperkinetic	8.7% (3,326)	8.4% (1,645)	7.4% (711)	11.1% (455)	8.4% (11,775)
Neurotic Disorder	11.1% (4,246)	10.4% (2,048)	14.0% (1,356)	11.3% (466)	10.6% (14,859)
Depression NEC	8.5% (3,242)	8.2% (1,618)	9.8% (942)	8.5% (349)	8.3% (11,683)
Other Mental Health Disorders	2.5% (957)	2.2% (437)	3.2% (310)	3.0% (123)	2.5% (3,531)
Psychotropic Drug Use with no Mental Health Dx	7.5% (2,749)	8.4% (1,512)	7.2% (797)	6.8% (233)	7.3% (3,779)
Confidence Intervals	(7.2-7.8)	(7.9-8.8)	(6.7-7.7)	(6.0-7.8)	(6.5-8.1)

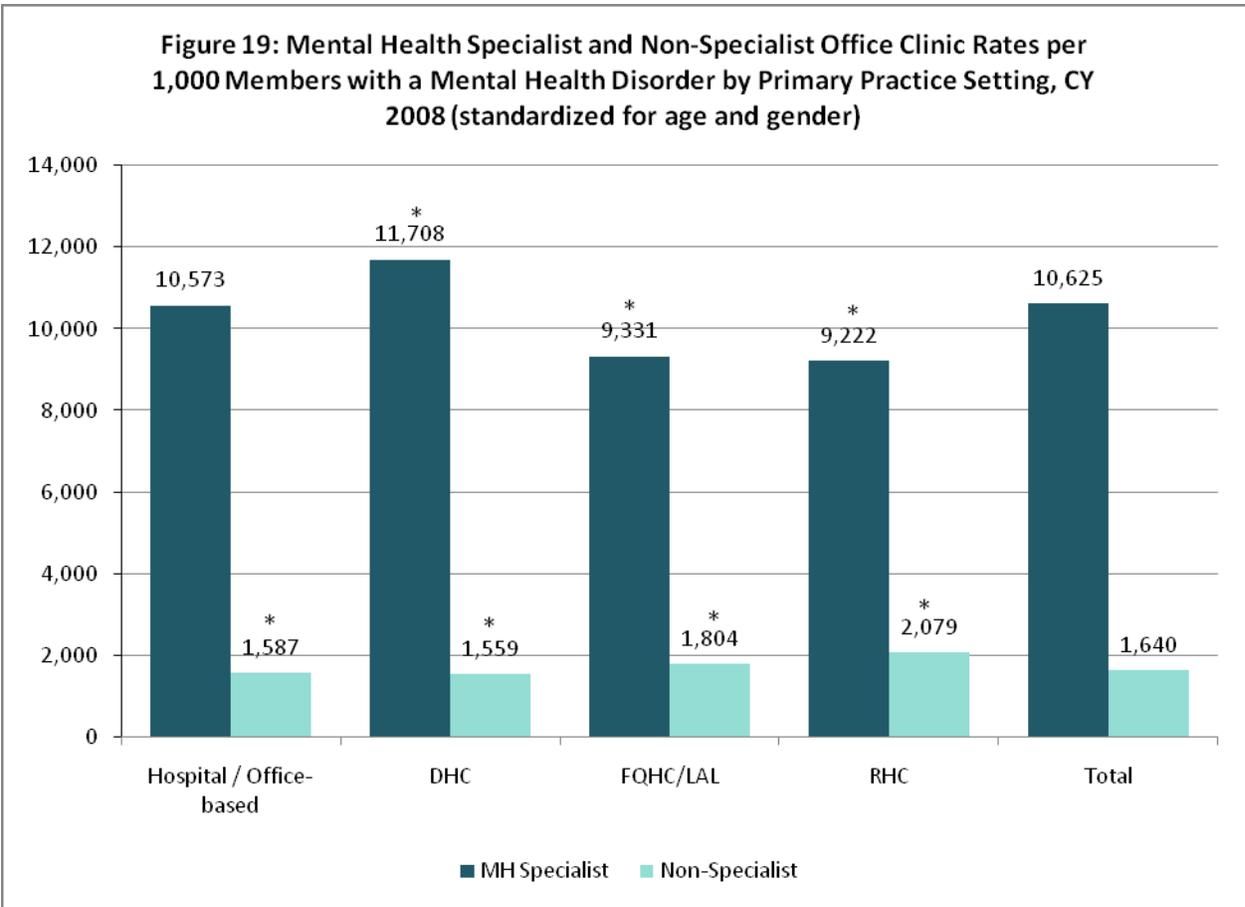
*Statistically significant difference from total NH Medicaid members receiving primary care.

Figures 18 and 19 and Table 19 provide summary mental health service utilization rates adjusted for age and gender by practice setting per 1,000 Medicaid members with mental health disorders. Overall, rates of outpatient emergency department mental health use rates were very high among members with mental disorders. These rates varied across practice setting.

Members with mental health disorders receiving primary care from hospital/office-based practices had significantly higher mental health-related emergency department visits than those receiving primary care overall. In contrast, members with mental health disorders receiving care at FQHCs and RHCs were significantly less likely to have a mental health-related emergency room visit. Adjusted for age and gender, members receiving care at hospital/office-based practices had 368 visits to the ED for their mental health disorder per 1,000 members with a mental health condition, compared to 298 visits per 1,000 members with a mental health disorder at FQHCs and 233 visits per 1,000 at RHC practices. Since 2006, the rate per 1,000 members with visits to the ED for mental health disorders significantly increased for FQHCs (222 compared to 298) and overall (313 compared to 350), while the rate for RHCs significantly declined (310 compared to 233). In contrast, inpatient admissions for mental health conditions declined between 2006 and 2008 overall. Medicaid members with mental health disorders receiving care from FQHCs were still significantly less likely to have inpatient admissions for mental health conditions (98 per 1,000 members with a mental health disorder) compared to those with mental health disorders receiving primary care in general (116 per 1,000 members with a mental health disorder). DHC practices were significantly more likely to have inpatient admissions for mental health conditions (139 per 1,000 members with a mental health disorder) compared to those with mental health disorders receiving primary care in general.

As in 2006, for members identified with a mental health disorder, the visit rate for mental health specialists was significantly higher than for non-specialists (10,625 per 1,000 members compared to 1,640 per 1,000 members), but mental health specialist visit rates declined considerably since 2006 (12,504 per 1,000 members)*. Both specialist visit and office visit rates also varied significantly between practice settings as in 2006. Specialist visit rates of members with mental health disorders at FQHCs (9,331 per 1,000) and RHCs (9,222 per 1,000) were significantly lower, and significantly higher at DHC practices (11,708 per 1,000) than the average (10,625 per 1,000). In contrast, rates of office visits with a primary care/non-specialist due to a mental health disorder diagnosis were significantly higher for RHCs (2,079 per 1,000 members) and FQHCs (1,804 per 1,000 members), and significantly lower for DHC (1,559 per 1,000 members) and hospital/office-based practices (1,587 per 1,000).

** Data not shown, See 2006 Primary Care report.



*Statistically significant difference from total NH Medicaid members receiving primary care.

Table 19. Utilization for Members with Mental Health Disorder by Practice Setting, CY 2008

Note: 95% confidence intervals (CI) in parentheses.

	Hospital/ Office-based	DHC	FQHC/LAL	RHC	Total
Members with Mental Health Disorder	12,524	6,573	3,502	1,445	24,044
Average Members (Member Months/12)	11,277	5,960	3,077	1,311	21,625
Mental Health Disorder Outpatient Emergency Department Visits	368* (358-379)	369 (355-384)	298* (282-315)	233* (206-261)	350 (342-357)
Mental Health Disorder Office Visits (non-specialist)	1,587* (1,565-1,609)	1,559* (1,529-1,590)	1,804* (1,760-1,849)	2,079* (2,004-2,155)	1,640 (1,624-1,657)
Mental Health Disorder Specialist Visits	10,573 (10,516-10,630)	11,708* (11,625-11,791)	9,331* (9,228-9,435)	9,222* (9,068-9,379)	10,625 (10,583-10,666)
Total Mental Health Inpatient Admissions	112 (106-118)	139* (130-149)	98* (89-108)	92 (75-111)	116 (111-120)

*Statistically significant difference from total NH Medicaid members receiving primary care.

In sum, this study identified that mental health disorders were prevalent among NH Medicaid members in all primary care settings in CY 2008. In contrast to 2006 when members receiving primary care at RHCs and hospital-based practices had significantly higher mental health prevalence rates, in 2008 FQHCs had significantly higher mental health prevalence rates than those receiving primary care generally. Since 2006, prevalence of mental health disorders has increased in general for members receiving primary care and specifically in DHC practices and FQHCs.

Given a mental health disorder diagnosis, members receiving care at hospital/office-based practices had significantly higher use rates of outpatient ED mental health-related visits, while DHC practices had significantly higher mental health specialist visits than members with mental health disorders seen generally. Members with a mental health disorder receiving care at FQHCs were significantly less likely to have mental health-related ED use or inpatient use.

Utilization and Payments

Service utilization by specific categories of services and associated payments per member per month (PMPM) were evaluated by primary care practice settings. In particular, inpatient hospitalizations, outpatient emergency department visits, and office/clinic visits were analyzed.

Service Utilization

Table 20 shows the adjusted service utilization rates overall and for 14 specific medical and ancillary services per 1,000 members served to compare service utilization across practice settings. Adjusted total service utilization rates per 1,000 members served varied significantly across practice settings. Members receiving primary care at FQHCs had significantly lower overall rates of service utilization (37,043 visits/units per 1,000 average members) while those receiving primary care at DHC practices, RHC and hospital/office-based practices had significantly higher overall rates of service utilization (42,150 visits/units, 39,731 visits/units per 1,000 members, and 38,303 visits/units per 1,000 members, respectively) than the average. Since 2006, RHC practices went from being significantly below the average to being significantly higher than the average in 2008 (37,808 visits/units per 1,000 members compared to 39,731 visits/units per 1,000 members, respectively).

Adjusting for age, gender, and CRG, the highest service use rates for members using primary care services were for prescription drugs, other professional services, and, depending on the setting, either physician services or home and community-based care.

There was significant variation in specific services utilized among all setting types even after adjusting for age, gender, and CRG risk, particularly for high-volume services including outpatient, physician services, other professional services, prescription drugs, behavioral health, home and community-based services, and PNMI for children.

The pronounced differences in rates of outpatient, physician, and other professional services categories, may reflect both differences in billing and/or care models at the different settings or differences in access and availability of services. Patients receiving primary care from hospital/office-based providers used significantly more outpatient services (4,284 visits per 1,000 members) than any of the other practice settings (3,953 visits per 1,000 members overall). Patients receiving services from DHC-affiliated and hospital/office-based practices were significantly more likely to use physician services (7,299 and 7,017 visits per 1,000 members, respectively) than other settings and patients receiving services from FQHCs and RHCs were more likely to use other professional services than the hospital/office-based practice setting (13,425 and 10,417 visits per 1,000 members, respectively). FQHCs and RHCs tend to utilize other medical professional services more than physician services due to their location in medically underserved areas and the difficulty in attracting physicians in remote locations. In addition, RHC rules mandate that mid-level staff be available and provide care 50% of the time the clinic is open.⁴¹

Behavioral health services and home and community-based services were also utilized fairly regularly, and use of these services also varied significantly across practice setting.

After adjusting for age, gender, and CRG risk, patients receiving services at DHC practices were much more likely to use behavioral health services (3,847 visits per 1,000 members), while patients receiving primary care at hospital/office-based practices, RHCs, and FQHCs were significantly less likely to use behavioral health services (3,463, 3,347, and 3,131 visits per 1,000 members, respectively). While practices varied in prevalence of mental health conditions, there does not appear to be a clear association between prevalence rates and high use of behavioral health services. The fact that FQHCs had a higher prevalence rate of mental health conditions but significantly lower rate of behavioral health services make it unclear whether variations reflect differences in service needs of the populations served, provider practice variation, or differences in coding.

For home and community services, members receiving primary care services at DHC and RHC practices had the highest adjusted rates of utilization (5,781 per 1,000 and 5,719 per 1,000, respectively), which were significantly higher than rates for members receiving primary care overall and an increase over 2006. RHCs, and to a lesser extent FQHCs, also had significantly higher nursing facility use rates than other settings. In contrast, NH Medicaid members receiving primary care at FQHCs had significantly lower home and community-based service utilization per member (2,640 per 1,000 members). While FQHCs serve an equal proportion of elderly patients, DHC practices serve a larger percentage of disabled physical and severely disabled children who may require these services disproportionately. It may also be that FQHCs are less likely than hospital-based and office-based practices to have specialists on staff to see this sicker population.

Table 20. Service Utilization Rates Per 1,000 Members by Service Category and Primary Care Practice Setting, CY 2008 (Standardized for age, gender, and CRG)

Note: 95% confidence intervals (CI) in parentheses.

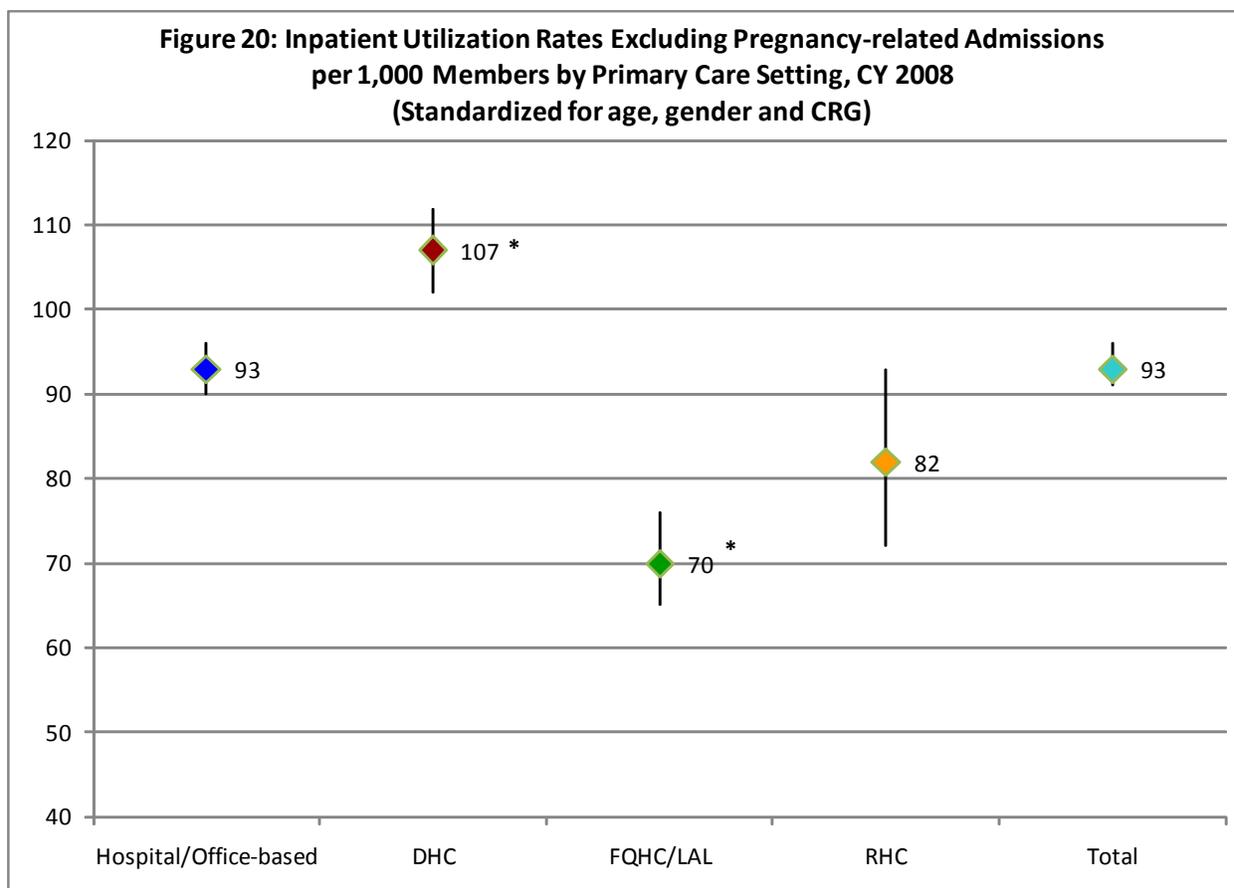
Service Category	Hospital/ Office-based	DHC	FQHC/ LAL	RHC	Total
Total	38,303* (38,241-38,365)	42,150* (42,060-42,240)	37,043* (36,924-37,162)	39,731* (39,528-39,934)	39,267 (39,221-39,313)
Inpatient	187 (183-191)	200 (194-206)	204* (196-213)	160* (146-174)	192 (189-195)
Outpatient	4,284* (4,263-4,305)	3,791* (3,764-3,818)	3,444* (3,409-3,479)	2,904* (2,848-2,961)	3,953 (3,938-3,967)
Physician	7,017* (6,990-7,043)	7,299* (7,261-7,336)	3,269* (3,234-3,304)	2,232* (2,184-2,280)	6,314 (6,296-6,332)
Other Professional	6,913* (6,887-6,940)	8,592* (8,552-8,632)	13,425* (13,351-13,500)	10,417* (10,319-10,516)	8,438 (8,417-8,459)
Rx	13,533* (13,496-13,570)	14,580* (14,526-14,634)	12,608* (12,541-12,676)	15,320* (15,190-15,451)	13,764 (13,737-13,791)
Behavioral Health	3,463* (3,444-3,482)	3,847* (3,820-3,875)	3,131* (3,096-3,166)	3,347* (3,290-3,404)	3,516 (3,502-3,530)
Transportation	177* (173-181)	142* (137-147)	93* (87-99)	157 (144-171)	153 (150-156)
Dental	1,329 (1,305-1,354)	1,400* (1,383-1,417)	1,330 (1,319-1,342)	1,234* (1,202-1,267)	1,343 (1,335-1,352)
Home & C-B Care	4,706* (4,684-4,728)	5,781* (5,749-5,814)	2,640* (2,608-2,672)	5,719* (5,637-5,802)	4,784 (4,768-4,800)
Nursing Facility	39 (37-41)	36 (33-39)	18* (15-21)	98* (87-110)	38 (36-39)
Vision & Other DME	609* (601-617)	718* (706-729)	517* (502-532)	620 (595-646)	631 (625-637)
PNMI for Children	127* (124-131)	172* (166-178)	381* (369-394)	413* (395-432)	191 (188-194)
Mental Retardation	1* (0-1)	11* (10-12)	0* (0-0)	1* (0-3)	4 (4-5)
Other	168* (164-172)	379* (371-388)	328* (316-341)	295* (280-311)	254 (250-257)

*Statistically significant difference from total NH Medicaid members receiving primary care.

Inpatient hospitalization

Given the higher costs associated with inpatient hospitalization, use rates for this service were analyzed more closely in Figures 20 and 21 and Tables 20 and 21. As shown in Table 20, adjusted FQHC inpatient hospitalization rates were higher than other primary care practices; overall 204 per 1,000 Medicaid members compared to 192 per 1,000 for all Medicaid members. Higher inpatient rates at FQHCs are driven in part by the eligibility groups they serve. As identified earlier in this report, FQHCs provide primary care to a much larger proportion of Medicaid low-income adults—in some cases nearly twice as many as other practice settings. Most low-income adults on Medicaid are eligible through TANF and include women in their childbearing years, who are likely to have higher hospitalization rates for labor and delivery.

In fact, as shown in Figure 20, as in the 2006 report when pregnancy-related admissions were excluded, FQHCs have significantly lower inpatient utilization rates (70 admissions per 1,000 members) relative to other settings, while DHC practices have inpatient utilization rates that were significantly higher than all other settings (107 admissions per 1,000 members.).



Vertical lines indicate the upper and lower bound 95% confidence intervals around the estimates.

*Statistically significant difference from total NH Medicaid members receiving primary care.

Higher inpatient hospitalization rates in and of themselves are not necessarily a reflection of poor primary care. However, hospitalizations for certain conditions may suggest a lack of access to timely primary care. Previous studies have identified certain hospitalizations as potentially preventable or avoidable (sometimes referred to as ambulatory care sensitive (ACS) conditions).^{42,43} If patients have access to primary care, hospital utilization for these conditions should be reduced by providing access to timely and effective outpatient care to prevent the onset of an illness or condition, by controlling acute episodic conditions, or by managing chronic diseases. Table 21 and Figure 21 focus on these specific ACS conditions and associated rates of inpatient hospitalizations.

Table 21 shows adjusted inpatient rates for five selected ACS conditions (asthma, dehydration, bacterial pneumonia, urinary tract infections, and gastroenteritis) by primary care practice settings. Overall inpatient hospitalizations for ACS conditions for NH Medicaid members receiving primary care increased from 2006 (656 per 1,000 compared to 584 per 1,000) but still represented less than 5 percent of total admissions (656 out of a total of 13,442 inpatient admissions). As with overall inpatient hospital utilization rates after excluding pregnancy-related admissions, FQHC rates for ACS inpatient hospitalizations adjusted for age, gender, and health status were the lowest of all practice settings (8.5) but not significantly different from other settings.

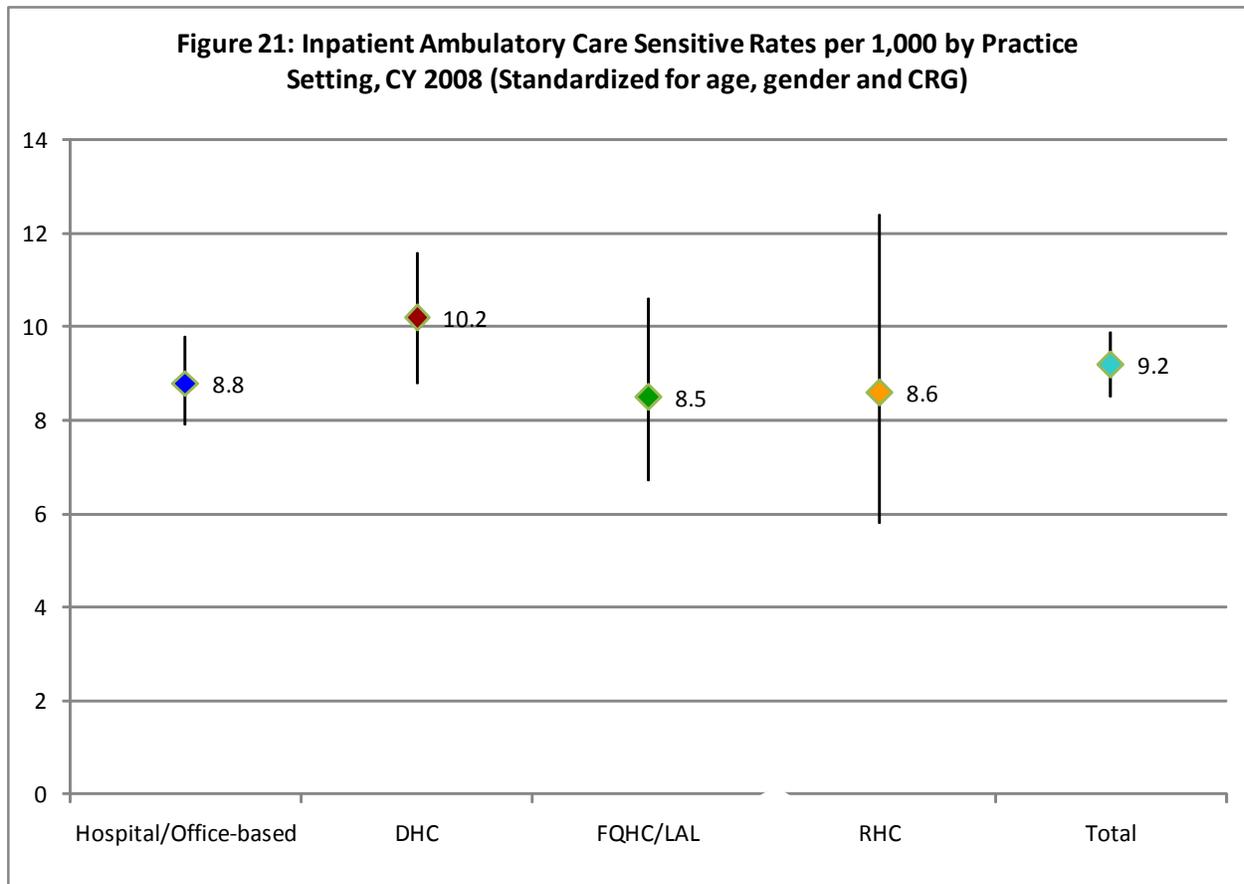
As in 2006, for all Medicaid enrollees, the most common ACS hospitalization was for bacterial pneumonia, which accounted for 40 percent (260 of 656) of all ACS hospitalizations. Asthma was the second most common ACS hospitalization condition, accounting for more than a quarter (29 percent) of all ACS hospitalizations. This varied somewhat by practice setting with bacterial pneumonia accounting for one third of ACS hospitalizations in DHC (35%) to nearly half of hospital/office-based ACS hospitalizations (43%) and asthma accounting for just over a quarter of FQHCs ACS hospitalizations (26%) to more than one third of RHC ACS hospitalizations (31%).

Because ACS hospitalizations may be preventable or avoidable, the cost (total payments) was determined from the claims data. In total, the 656 Medicaid ACS hospitalizations cost \$2,015,883 (average \$3,073), which represents an increase of more than \$500,000 from 2006, as a result of both higher numbers of ACS hospitalizations and higher average payments for these inpatient stays. Average ACS hospitalization costs were fairly comparable between RHCs and FQHCs (\$2,304 to \$2,438, respectively), and similar average costs at hospital/office-based practices and DHC practices (\$3,354 to \$2,968, respectively). Differences in average payments may reflect longer lengths of stay.

Table 21. Ambulatory Care Sensitive (ACS) Condition Inpatient Hospitalization Rates per 1,000 Members and Total and Average Payments by Primary Care Practice Setting, CY 2008 (Totals standardized for age, gender, and CRG)

ACS Condition	Hospital/ Office- based	DHC	FQHC	RHC	Total
Rate per 1,000 Members	8.8 (334)	10.2 (216)	8.5 (77)	8.6 (29)	9.2 (656)
Confidence Interval	7.9-9.8	8.8-11.6	6.7-10.6	5.8-12.4	8.5-9.9
Asthma	2.6 (98)	3.3 (64)	2.1 (20)	2.2 (9)	2.7 (191)
Dehydration	0.8 (29)	1.9 (37)	1.0 (10)	0 (0)	1.1 (76)
Bacterial Pneumonia	3.7 (142)	3.9 (76)	2.8 (27)	3.6 (15)	3.6 (260)
Urinary Tract Infection	1.4 (53)	1.4 (28)	1.7 (16)	0.5 (2)	1.4 (99)
Gastroenteritis	0.3 (12)	0.6 (11)	0.4 (4)	0.7 (3)	0.4 (30)
Total Payments	\$1,120,232	\$641,134	\$187,712	\$66,806	\$2,015,883
Average Payments	\$3,354	\$2,968	\$2,438	\$2,304	\$3,073

[†]Total rates are standardized, while condition-specific rates are crude rates and are not standardized.
Differences between rates per 1,000 members in primary care settings and the total were not statistically significant.

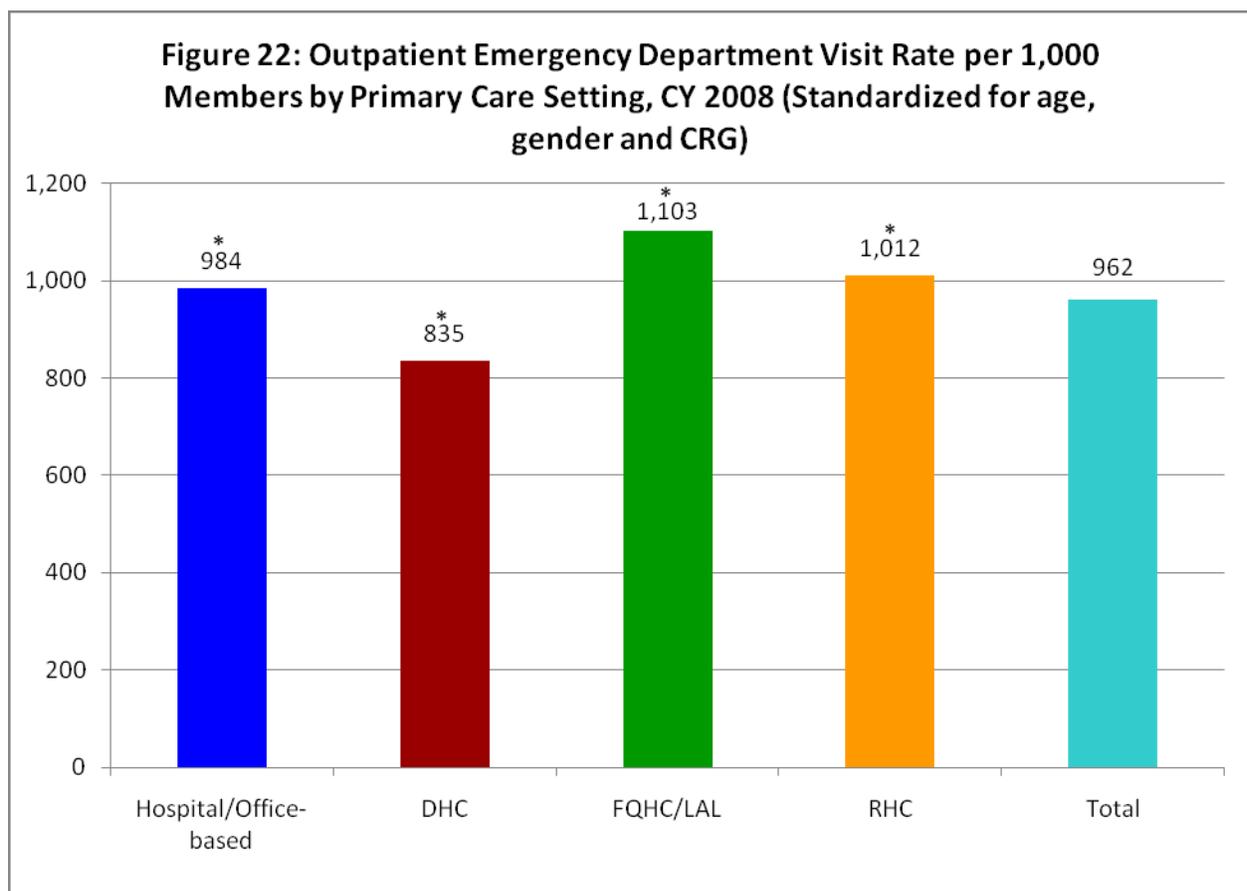


Vertical lines indicate the upper and lower bound 95% confidence intervals around the estimates.
*Differences were not statistically significant.

Emergency Department and Office/Clinic Visits

Hospital outpatient emergency department visit rates and outpatient office/clinic visit rates are summarized in Figure 22 and Table 22. After adjusting for age, gender, and CRG, FQHCs had the highest rates of outpatient emergency department visits (1,103 per 1,000 members) and were significantly higher than the overall average (962 per 1,000 members) and any other setting. Medicaid members receiving primary care at RHCs or hospital/office-based practices also had significantly higher rates of outpatient emergency department visits (1,012 and 984 per 1,000 members, respectively) than members receiving primary care overall, while members receiving primary care at DHC (835 per 1,000 members) had significantly lower rates of outpatient emergency department visits than members receiving primary care overall and in any other settings.

As with ED outpatient use, FQHCs and RHCs also have significantly higher office/clinic visit rates than other settings (6,545 per 1,000 and 5,939 per 1,000, respectively) compared to 5,729 per 1,000 for all members receiving primary care. As a result, while they had higher ED visits per 1,000 members, FQHCs and RHCs ratio of ED visits to office/clinic visits were comparable to other settings.



*Statistically significant difference from total NH Medicaid members receiving primary care.

Table 22. Outpatient Emergency Department and Office/Clinic Visit Rates per 1,000 Members by Primary Care Practice Setting, CY 2006 (Standardized for CRG, age and gender)

Note: 95% confidence intervals (CI) in parentheses.

	Hospital/ Office-based	DHC	FQHC/LAL	RHC	Total
Outpatient Emergency Department Visits	984* (974-994)	835* (822-848)	1,103* (1,084-1,124)	1,012* (979-1,045)	962 (955-969)
Office/Clinic Visits	5,597* (5,573-5,621)	5,518* (5,486-5,551)	6,545* (6,495-6,595)	5,939* (5,862-6,017)	5,729 (5,711-5,746)
Ratio	0.18	0.15	0.17	0.17	0.17

Note: Emergency department visits resulting in inpatient hospitalization are excluded

*Statistically significant difference from total NH Medicaid members receiving primary care.

In a prior study, the NH CHIS project identified emergency department visit diagnostic groups (e.g., upper respiratory infections, ear infections, bronchitis) for which an alternative setting of care would have been more appropriate.⁴⁴

Ratios of ED visits to office/clinic visits and outpatient emergency department visit rates for these selected conditions are summarized in Table 23. In addition to ED visit rates per 1,000 members, the ratio of outpatient emergency department visits to office/clinic visits may be an indicator of quality of care. A higher ratio of outpatient emergency department visits to office/clinic visits may indicate that the usual source of care for some members is more likely to be the hospital emergency department instead of a health care provider's office.

Members enrolled in Medicaid incurred 20,926 of these visits during 2008, a slight increase from 2006 (20,034), most commonly for upper respiratory infections (21% or 4,488 visits), external and middle ear infections (18% or 3,675 visits) and abdominal pain (14% or 2,907 visits).

By source of primary care, outpatient emergency department use rates for these conditions were highest for Medicaid enrollees receiving primary care from FQHCs (334 per 1,000 members) and from RHCs (330 per 1,000), even though rates of ED for these conditions in these settings had declined since 2006, and lowest for DHC (232 per 1,000 members). Differences between settings were statistically significant. Outpatient emergency department use rates for members receiving primary care at RHCs and FQHCs were approximately 1.4 times higher than members receiving primary care from DHC providers.

For these selected conditions, the adjusted ratio of emergency department to office/clinic visits overall was .21. The ratio of ED to office/clinic visits was highest for members who received primary care at FQHCs (.29). This indicates that Medicaid members receiving primary care at FQHCs are more likely than enrollees receiving care at other primary care settings to receive treatment in the hospital emergency department for conditions that could have been treated in a physician's office or clinic.

Table 23. Outpatient Emergency Department Visit Rates per 1,000 Members for Selected Conditions, CY 2008 (Totals standardized for age, gender, and CRG)

Note: Total number of visits in parentheses.

Selected Diagnostic Group	Hospital/ Office-based	DHC	FQHC	RHC	Total
Total Selected Conditions	310* (11,712)	232* (4,550)	334* (3,457)	330* (1,207)	293 (20,926)
Confidence Interval	304-315	225-239	323-345	311-349	289-297
Asthma	14 (549)	16 (311)	17 (161)	14 (59)	15 (1080)
Sore Throat (Strep)	7 (273)	5 (100)	9 (87)	13 (53)	7 (513)
Viral Infection (unspecified)	14 (540)	8 (153)	16 (152)	27 (110)	13 (955)
Anxiety (unspecified or generalized)	6 (223)	5 (100)	8 (77)	3 (14)	6 (414)
Conjunctivitis (acute or unspecified)	8 (304)	5 (90)	12 (113)	9 (38)	8 (545)
External and middle ear infections (acute or unspecified)	56 (2122)	36 (698)	66 (640)	52 (215)	51 (3675)
Upper respiratory infections (acute or unspecified)	66 (2501)	47 (921)	80 (774)	71 (292)	63 (4488)
Bronchitis (acute or unspecified) and cough	26 (998)	19 (366)	34 (325)	19 (76)	25 (1765)
Dermatitis and rash	18 (684)	12 (236)	21 (199)	18 (74)	17 (1193)
Joint Pain	10 (388)	9 (168)	10 (96)	9 (38)	10 (690)
Lower and unspecified back pain	17 (662)	10 (198)	21 (200)	15 (61)	16 (1121)
Muscle and soft tissue limb pain	8 (292)	6 (113)	9 (89)	8 (34)	7 (528)
Fatigue	2 (70)	1 (27)	2 (17)	1 (3)	2 (117)
Headache	15 (564)	16 (310)	14 (140)	7 (27)	15 (1041)
Abdominal pain	42 (1600)	40 (785)	42 (408)	28 (114)	41 (2907)
Ratio of ED Visits to Office/Clinic Visits for Selected Conditions	0.22	0.17	0.29	0.22	0.21

Note: Emergency department visits resulting in inpatient hospitalization were excluded.

† Total rates are standardized, while condition-specific rates are crude rates and are not standardized.

*Statistically significant difference from total NH Medicaid members receiving primary care.

To assess the costs associated with these conditions both for associated ED visits and office/clinic visits that could have been more appropriately treated in a primary care setting. Table 24 summarizes total Medicaid payments for these conditions by practice setting.

Medicaid members incurred \$4.9 million for outpatient emergency department visits for these selected conditions (nearly \$800,000 more than in 2006) and \$7.3 million for office/clinic visits for these conditions. The average payment per visit for an outpatient

emergency department visit increased from \$205 in 2006 to \$216 in 2008 and was significantly higher than an office-clinic visit (\$71) for these conditions.

By primary practice setting, average payments per office/clinic visit for these conditions varied considerably. The higher average payments per office/clinic visit for these conditions in FQHCs (\$138) and RHCs (\$90) may reflect that they are reimbursed on a cost-basis. RHC average office/clinic payments were a quarter higher and FQHC average payments were nearly twice as high as average office/clinic payments overall.

Average payment rates for outpatient ED visits were more similar across settings, but payments for members receiving primary care in an RHC were considerably lower (\$196) compared to \$216 overall. Lower ED average payments per visit might reflect that the relative intensity of services required for the hospital outpatient emergency department was lower in RHCs relative to other primary care practices and/or that hospitals in areas served by RHCs receive lower payment.

Table 24. Outpatient Emergency Department and Office/Clinic Visit Payments for Selected Conditions, CY 2008 (Totals standardized for age, gender, and CRG)

Note: 95% confidence intervals (CI) in parentheses.

	Hospital/ Office- based	DHC	FQHC	RHC	Total
Outpatient ED					
Total Outpatient ED visits	11,712	4,550	3,457	1,207	20,926
Rate per 1,000	310* (304-315)	232* (225-239)	334* (323-345)	330* (311-349)	293 (289-297)
Total payments	\$2,508,199	\$1,081,162	\$701,802	\$236,517	\$4,527,679
Average payment per visit	\$214	\$238	\$203	\$196	\$216
Office-Clinic					
Total Office-Clinic visits	54,396	27,067	11,234	6,000	98,697
Rate per 1,000	1,425* (1,413- 1,437)	1,376 (1,360- 1,393)	1,165* (1,144- 1,187)	1,506* (1,468- 1,545)	1,381 (1,373- 1,390)
Total payments	\$3,183,259	\$1,709,285	\$1,554,352	\$538,410	\$6,985,306
Average payment per visit	\$59	\$63	\$138	\$90	\$71

Note: Emergency department visits resulting in inpatient hospitalization were excluded.

† Total rates are standardized, while condition-specific rates are crude rates and are not standardized.

*Statistically significant difference from total NH Medicaid members receiving primary care.

Payments per Member per Month

Total payment rates per member per month (PMPM) by primary care practice setting and payment rates for traditional medical services excluding long term care are shown in Figures 23 and 24. Figure 23 payments reflect total Medicaid payments for all services. For non-dual Medicaid members included in this study, NH Medicaid incurred \$470.5 million in payments at an adjusted total payment rate of \$509 PMPM. This was a considerable increase from 2006 when the adjusted total payment rate was \$464 PMPM

After adjusting for age, gender, and CRG, FQHCs had among the lowest PMPMs (\$457), despite being reimbursed on a cost-basis. For FQHCs, lower than average PMPMs might be the result of lower overall service utilization rates and lower utilization of higher-cost services (i.e., inpatient excluding pregnancy admissions, behavioral health, home and community-based services, and prescription drugs) discussed above and shown in Table 25.

Members who received primary care at DHCs had the highest PMPM (\$571), which was higher than the overall PMPM even after adjusting for age, gender, and CRG risk. Higher than average PMPMs at DHC may reflect both higher utilization (Table 25) and higher per unit payments (e.g., for inpatient care and mental retardation). In total, Medicaid paid \$169 per service unit for members receiving primary care at DHCs versus \$156 per visit overall (Table 25).

Higher payment may also reflect the different distribution of services provided. When long term care services are excluded (Figure 24), PMPM differences across settings are still present. Once home and community-based care, nursing facility, mental retardation, and private non-medical institution care are removed, FQHCs and hospital/office-based practices have lower than average PMPMs.

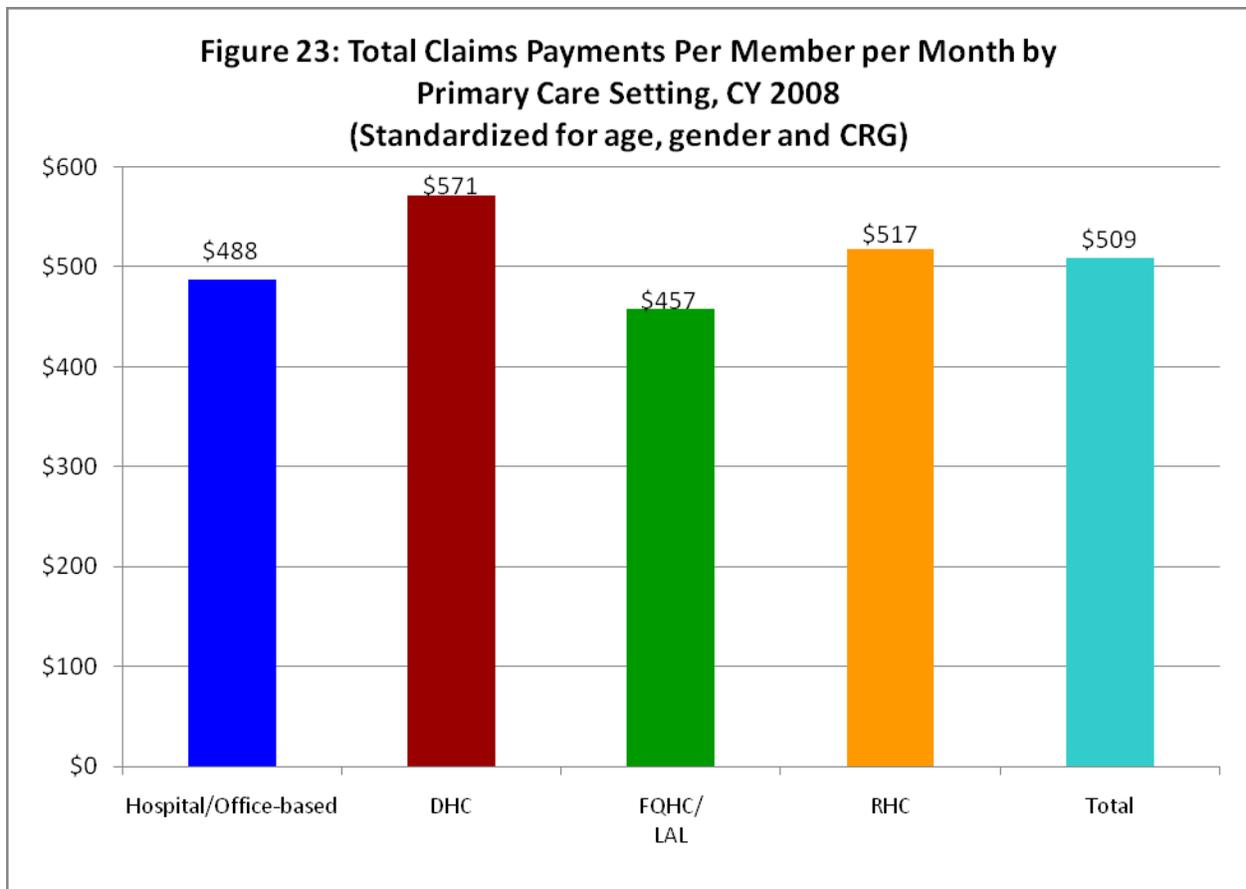
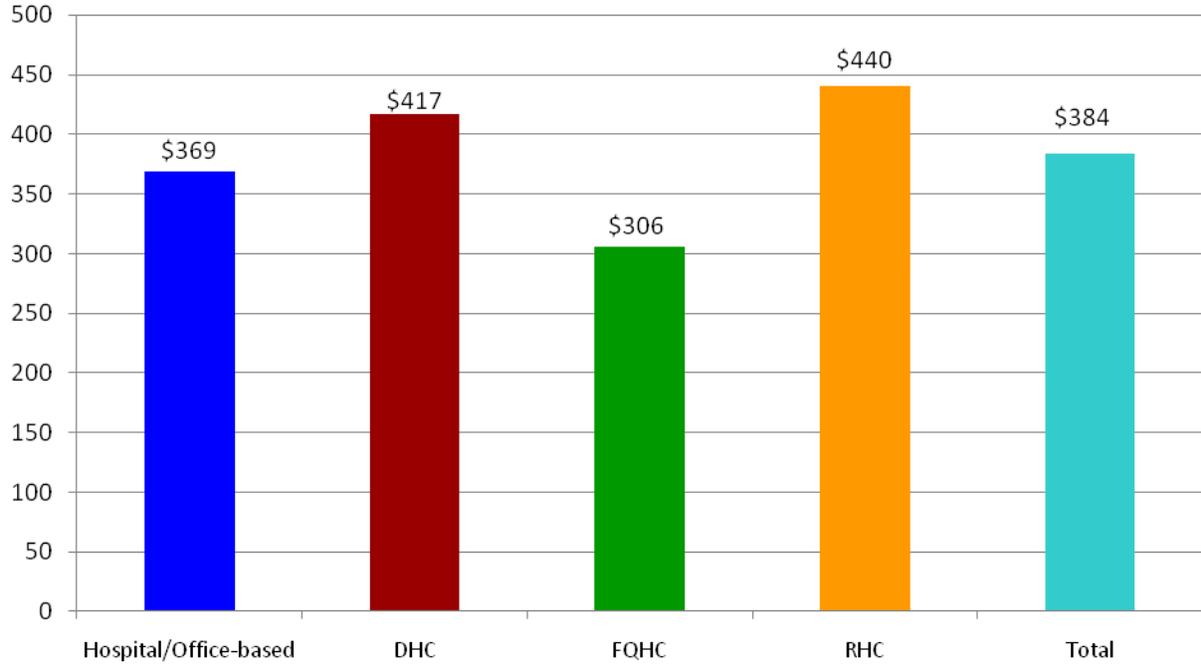


Figure 24: Claims Payments Per Member Per Month (PMPM) for Medical Care by Primary Care Practice Setting, CY 2008 (Standardized for age, gender and CRG)



Note (Figure 24): Excludes payments for home and community-based services, nursing facilities, and private non-medical institutions

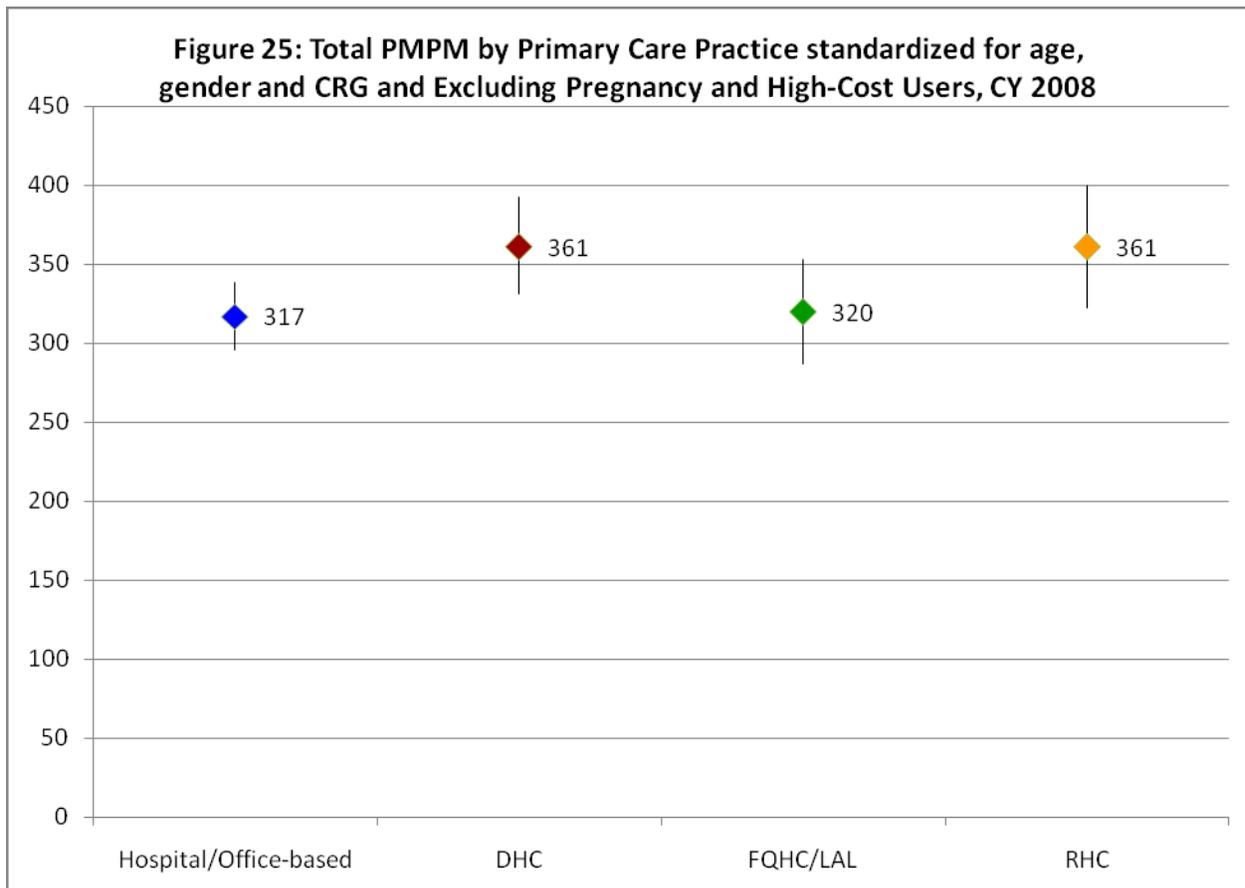
Table 25. Payment Rates per Member per Month (PMPM) and Payments per Service Unit by Primary Care Practice Setting, CY 2008 (PMPM Standardized for age, gender, and CRG)

	Hospital/ Office- based	DHC	FQHC/ LAL	RHC	Total
Payments Per member Per Month (PMPM)					
Total	\$488	\$571	\$457	\$517	\$509
Inpatient	\$55	\$61	\$46	\$38	\$55
Outpatient	\$64	\$65	\$61	\$65	\$64
Physician	\$49	\$51	\$26	\$18	\$44
Other Professional	\$37	\$47	\$102	\$69	\$50
Rx	\$77	\$90	\$66	\$86	\$80
Behavioral Health	\$52	\$59	\$51	\$46	\$53
Transportation	\$2	\$2	\$2	\$2	\$2
Dental	\$17	\$19	\$17	\$16	\$18
Home & C-B Care	\$89	\$109	\$43	\$104	\$89
Nursing Facility	\$16	\$11	\$4	\$22	\$13
Vision & Other DME	\$10	\$12	\$7	\$10	\$11
PNMI for Children	\$13	\$25	\$31	\$24	\$19
Mental Retardation ICF	\$0	\$10	\$0	\$1	\$3
Other	\$6	\$9	\$5	\$11	\$7
Payments Per Unit of Service					
Total	\$151	\$169	\$144	\$153	\$156
Inpatient	\$3,528	\$3,934	\$2,362	\$2,777	\$3,423
Outpatient	\$178	\$216	\$204	\$255	\$194
Physician	\$82	\$84	\$100	\$94	\$84
Other Professional	\$63	\$68	\$92	\$79	\$72
Rx	\$68	\$77	\$59	\$69	\$70
Behavioral Health	\$181	\$183	\$189	\$168	\$182
Transportation	\$148	\$166	\$197	\$139	\$157
Dental	\$152	\$166	\$155	\$159	\$157
Home & C-B Care	\$223	\$232	\$189	\$226	\$224
Nursing Facility	\$4,848	\$3,775	\$2,561	\$2,739	\$4,221
Vision & Other DME	\$195	\$224	\$148	\$194	\$200
PNMI for Children	\$1,233	\$1,798	\$963	\$680	\$1,221
Mental Retardation ICF	\$7,811	\$10,336	\$0	\$9,734	\$10,111
Other	\$409	\$294	\$200	\$462	\$333

To determine the degree to which practice setting predicts higher costs and if differences in PMPM were statistically significant, we ran a linear regression model using the individual member's PMPM as the dependent variable and practice setting, age, gender, CRG risk

score as independent variables. Pregnancy-related admissions and high-cost cases (defined as using more than \$50,000 in the year) were excluded from the model.

Once pregnancy-related admissions and high-cost cases (>\$50,000) were excluded, differences in PMPM between practice settings are no longer significant (Figure 25).



Differences between primary care settings and the total were not statistically significant

To summarize the results from the utilization section of this report, service utilization rates by members receiving primary care adjusted for age, gender, and CRG risk group increased from 2006 and continue to vary significantly across sites for nearly all services. NH Medicaid members receiving primary care at FQHCs and hospital/office-based practices used significantly fewer overall services than those receiving primary care at other settings, while those receiving services at DHC and RHC practices used significantly more services.

While adjusted inpatient hospital utilization rates were significantly higher for members receiving primary care at FQHCs, once pregnancy-related admissions were excluded, FQHCs had significantly lower rates than any other setting and DHC practices had significantly higher rates than the average.

NH Medicaid hospitalization costs for ambulatory care sensitive (ACS) conditions for members receiving primary care were \$2.1 million, which was \$500,000 more than 2006. There were no significant differences across settings in ACS hospitalization rates.

Medicaid members receiving primary care also incurred \$4.9 million for outpatient emergency department visits for conditions more appropriately treated in a primary care setting, an increase from 2006 of nearly \$800,000. In contrast to ACS hospitalizations, there were significant differences in outpatient ED visit rates for these conditions across settings. Members receiving primary care at FQHCs RHCs and hospital/office-based practices were significantly more likely to use the outpatient ED overall and for these selected conditions, while members receiving care at DHC practices were significantly less likely to use the outpatient ED overall and for selected conditions. Office/clinic visit rates followed a similar pattern overall and for selected conditions with the exception that FQHC office/clinic rates for selected conditions more appropriately treated in a primary care setting were significantly lower than the average across settings and hospital/office-based practices were significantly lower in overall office/clinic visits than the average.

Finally, despite higher cost-based reimbursement of FQHCs, PMPMs were among the lowest in these settings after adjusting for age, gender, and CRG risk, and DHC practices had the highest PMPM rates. However, once pregnancy-related admissions and high-cost cases (> \$50,000) were excluded, differences in PMPMs were not statistically significant. This suggests that DHC practices serve not only patients with higher clinical risk score but that they also serve a disproportionate number of high cost cases.

DISCUSSION AND NEXT STEPS

This study updated and expanded the 2006 analysis comparing access, quality and cost of primary care received by New Hampshire Medicaid members by the practice setting most frequented in 2008. In general, the findings are largely consistent with what was reported in 2006.

The recent attention and focus on patient-centered medical homes emphasizes the central role of primary care in their model of comprehensive health care delivery and payment reform. The patient-centered medical home is designed to put primary care doctors in charge of coordinating care and the new national health reform law further supports expansion of this model, further supporting the need to track practice variations across primary care providers to assess their readiness for taking on this role. This report is intended to provide that information and to help focus future quality improvements in specific settings and/or for specific clinical guidelines where compliance may be low.

Similar to 2006, this report reveals that hospital and office-based practices in New Hampshire provide the vast majority of primary care to Medicaid members. A substantial portion of members also sought primary care at DHC practices, while only one seventh of all Medicaid members received primary care at either an FQHC or an RHC.

The fact that almost one quarter of Medicaid members were not assigned to a primary care practice in this study may be worthy of further investigation. As NH Medicaid does not currently assign members to a primary care provider, this study utilized an algorithm to assign them to a practice based on claims history. People who could not be assigned included both those who received no care in 2008 and those who only received specialty care or received primary care from a specialty provider who was not categorized as a primary care practitioner. Since United States Preventive Services Task Force (USPSTF) guidelines recommend at least one well-child or preventive visit per year for young children and adults, a future study will specifically assess this non-assigned group to understand who they are and, if they are receiving primary care, where they are receiving it.

Many of the differences in populations served by different primary care practice settings in 2006 remain in 2008. FQHCs continue to serve a much larger proportion of low-income adults than other settings, while RHCs in 2008 disproportionately serve children. DHC and to a lesser extent hospital and office-based practices tend to treat clients with worse health status as measured by average clinical risk scores. To account for these differences, all utilization and payment rates were adjusted to factor in differences in age, gender, and health status.

Across most practice settings, NH Medicaid members are more likely to be getting appropriate care as measured by many HEDIS measures compared to national Medicaid managed care HEDIS rates. Between 2006 and 2008, NH providers improved on 3 out of 9 measures previously reported. However, as national Medicaid HEDIS rates are far below commercial rates, there is still room for improvement on many of these effectiveness of care measures. In addition, for many of the new measures added in this 2008 update, NH

primary care providers are lower than the national average suggesting a potential need for targeted practice improvement efforts in these areas.

The study results indicate that there are some differences in quality of care provided across primary care settings in NH. In particular, while RHCs have shown some improvement in certain measures from 2006, they continue to have significantly lower rates on many measures particularly those related to children's health than other primary practice settings. Some of these differences may be due to differences in the organizational focus – RHCs are not required to provide preventive services under federal rules, but since RHCs disproportionately serve children there may be a need for continued oversight and quality improvement in these areas.

Variability across primary care settings in some care effectiveness measures may warrant further study or suggest opportunities for targeted quality improvement initiatives. Significantly lower rates of appropriate medication (antibiotic not dispensed) use for children with URI at RHCs, could be targeted for improvement.

Member actions were not measured in this study, which could be a factor in children's access to primary care and well-child visits and receipt of appropriate tests and screenings. Differences in rates reported here may be influenced by the actions of the members (such as missing appointments due to lack of transportation or an inability to take time off from work) and are not necessarily a reflection of the specific primary care practice settings.

As was true in 2006, study results indicate that there are also differences in service utilization across practice setting. Adjusting for age, gender, and clinical risk, Medicaid members receiving primary care at DHC and RHC practices use significantly more services than those receiving primary care at other settings, particularly at FQHCs and hospital/office-based practices, whose members used significantly fewer services. This is consistent with findings of previous studies of services provided by hospital-based primary care providers in Maine and nationally.^{45 46} Some of these differences may be due to differences in billing practices or could reflect differences in client needs, patterns of care, or clinical practice. Given that these rates adjust for DHC providers' higher burden of illness in the NH Medicaid patient population it serves, differences in utilization may reflect patterns of care or clinical practice that may warrant further study.

Within specific services, there was also significant variation after adjusting for clinical risk, age, and gender. Inpatient hospitalization rates (excluding pregnancy-related admissions) were significantly higher for members getting primary care at DHC settings and significantly lower for members receiving care at FQHCs.

In contrast, members receiving primary care at FQHCs, RHCs and hospital/office-based practices were significantly more likely to use the outpatient ED overall and for certain selected conditions more appropriately treated by primary care, while members receiving care at DHC practices were significantly less likely to use the outpatient ED overall and for selected conditions.

Higher outpatient emergency department use rates for members receiving primary care from FQHCs and RHCs may be an indicator of capacity constraints. RHCs are not required

to provide 24/7 care and are located in limited service capacity areas. Delays in scheduling an appointment with a primary care practitioner could result in higher ED use.

In terms of costs, FQHCs, which are paid on a cost-basis, had among the lowest per member per month payments. This finding is also consistent with a study conducted in another state comparing FQHC to non-FQHC primary care providers.⁴⁷

Despite higher overall utilization rates at DHC settings, differences in adjusted per member per month, which at initial glance appear to be significantly higher in hospital-based settings, are not statistically significant when pregnancy-related admissions and high-cost cases above \$50,000 are excluded. This suggests that a few outlier cases of very sick individuals may have been driving up average costs per service at these settings.

This analysis reveals some differences in the level of care received across these settings that may help inform future quality improvement efforts in the state. This report provided baseline CY 2008 measures; future reporting may evaluate trends, using this baseline. Future studies may include:

- assessment of NH Medicaid members who were not assigned to a primary care provider in 2008 – who are they and where they are getting care;
- an analysis of practice variations by geographic area in the state.
- longitudinal analysis to assess change over time; and
- analysis of the payer mix of clients treated at primary care practice settings and variation in access, and effectiveness of care measures for the commercially insured and Medicaid population.

APPENDICES

Appendix 1: NH Medicaid Primary Care Practice Setting Study–Study Methods

This study was based on administrative eligibility and claims data from New Hampshire Medicaid for CY 2008 based on date of service. The study focused on 2008 results; 2006 data were used for selected HEDIS measures that required two years of data.

1. Data acquisition and preparation. Complete Medicaid data was available for the time period.

2. Data limitations and exclusions.

Eligibility groups studied include low income adults, low income children, severely disabled children, and mentally disabled and physically disabled. Medicaid members who are dually-eligible for Medicare and Medicaid, including enrollees in the Medicare Savings Programs (i.e., Qualified Medicare Beneficiaries (QMB), Specified Low-Income Medicare Beneficiaries (SLMB), and Qualified Individuals (QI-1)) are excluded. Claims for dually eligible were excluded because Medicaid claims for this population are often incomplete, as many services are provided and paid for by Medicare as the primary payer.

3. Provider Assignment to Primary Care Practice Groups

The unit of analysis for this study is the practice setting, not individual providers. Individual primary care providers were assigned to one of four practice setting categories – hospital/office-based, FQHC/LAL, RHC, and DHC – based on category of services billed and, for DHC, first listed provider billing identification numbers.

The definition of ‘primary care visit’ used to initially identify providers included specific CPT codes and revenue codes from HEDIS well-child visits, HEDIS AAP/CAP measures, and office/clinic visits (see #8, 9 and 12 below for specific codes). All providers providing some primary care were then assigned to a setting based on the following criteria.

Practice Setting	Claims Inclusion Criteria
Hospital/ Office-based setting	Category of Service (COS) 7 (Hospital Outpatient/General), excluding DHC provider billing IDs COS 43 and 44 (Physician Office and Nurse Practitioner)
Dartmouth Hitchcock practices	Category of Service (COS) 7 (Hospital Outpatient/General), and DHC provider billing ID.
FQHC	COS 80 (Rural Health Clinic) and FQHC specific billing ID.
RHC	COS 80 (Rural Health Clinic) and RHC specific billing ID.
No assignment	All other claims not assigned to above groups.

A complete list of providers by practice setting category is available upon request.

Duplicate provider IDs found in more than one group were assigned to a group in the priority order of DHC, FQHC, RHC, and hospital/office-based.

4. Member Assignment.

In New Hampshire, the Medicaid population is enrolled in a fee-for-service plan without being assigned to primary care physicians (PCPs) authorizing referrals to further care. For the purposes of this study, NH Medicaid members were assigned to the four primary care practice groups based on where they received primary care services.

Members were assigned to primary care practice providers as per the provider assignment described above based on the practice type at which they received the majority or all of their PCP Visits. Where there was a tie between settings, the member was assigned to the practice setting at which they received their last visit. The unit of analysis is the practice setting category. Thus, members receive services from more than one individual provider in a practice setting type, but all visits would be counted under that one practice setting.

As shown in the table below, the vast majority of Medicaid members assigned to a primary practice setting had received all of their PCP care in that practice setting. This was particularly true for individuals receiving care in hospital/office-based (89%) and at DHC providers (89%), Over three quarters (77%) of members receiving care at RHCs and FQHCs had received all their PCP care at this practice setting.

	PERCENT OF TOTAL NH MEDICAID MEMBERS AND VISITS BY PRACTICE SETTING ASSIGNMENTS							
	Single Setting		TWO Settings		THREE Settings		FOUR+ Settings	
	Members	Visits	Members	Visits	Members	Visits	Members	Visits
DHC	89%	87%	11%	13%	0%	0%	0%	0%
FQHC/LAL	77%	65%	20%	29%	3%	5%	0%	0%
RHC	77%	67%	20%	27%	3%	6%	0%	0%
Hospital/ Office-based	89%	84%	10%	15%	0%	1%	0%	0%

Because members may change age, location of residence, eligibility grouping, or poverty level status during the year, each member was assigned to one and only one category for the year. Their eligibility group, Health Analysis Area, and poverty level on the last day of the last month enrolled and their age on the first day of the last month enrolled were used. This methodology is consistent with other NH CHIS reporting.

Members who did not have a visit at a primary care provider per the provider assignment process discussed above, were included in a 'no assignment group'. Members in this group include those who received no services in 2008, those who received non-primary care services and those who received primary care services from a non-primary care provider (e.g. an office check-up provided at a cardiologist's office).

After attribution to a specific primary care practice setting, ALL claims for that member were assigned to that practice setting

5. Age groups and gender. Consistent with other NH CHIS reporting a child was defined by age 0–18. The cutoff at age 18 is requested by New Hampshire DHHS and corresponds to the definition of child for Medicaid eligibility purposes. Age groups used for reporting were 0-18 years, 19-64, and over 65. For some HEDIS measures, age groups were modified to correspond to the NCQA HEDIS definitions.

6. NH Medicaid Health Analysis Areas. Aggregation of zip codes based on New Hampshire Medicaid Health Analysis Area (HSA) for NH Medicaid enrollees was utilized (Appendix D). Health Analysis Area are relevant to how health care is delivered in NH compared to counties.

7. Clinical Risk Grouper (CRG). In order to compare the overall burden of disease the 3M Health Systems Clinical Risk Grouper (CRG) was applied to the administrative claims data.⁴⁸¹⁴ The CRG system was designed for relative risk assessment. The CRG software uses all ICD-9-CM diagnosis codes from all health care encounters and assigns to a diagnostic category (acute or chronic) and a body system. Each individual is grouped to a defined health status group then to a CRG category and severity level if chronically ill. Over 250 CRG categories are further grouped into higher levels of risk grouping resulting in nine major categories of risk. Each CRG is assigned a relative risk weight based on a common Medicaid weight table provided by 3M. Average risk rates were calculated using unique members as the denominator.

Example of CRG Assignments for a person with both diabetes and asthma

CRG	61425
CRG Description	Diabetes and Asthma Level – 5
ACRG1	614205
ACRG1_Description	Pair – Diabetes and Other Moderate Chronic Disease Level - 5
ACRG2	6255
ACRG2_Description	Pair – One Dominant Chronic Disease and Moderate Chronic Disease or a Minor Chronic Disease
ACRG3	64
ACRG3_Description	Significant Chronic Disease in Multiple Organ Systems Level – 4
Core Health Status Group	6
Core Health Status Description	Disease in Chronic Multiple Organ Systems

*CRG assigned members to a “healthy” CRG category which includes both members with no encounters and members with encounters for preventive service and minor conditions. All members are assigned a relative risk weight. Members classified as healthy are assigned a very low risk weight.

8. Denominator for Population-Based Rates. This study was based on rates of use per member population covered. Not all members are covered for a full year. Therefore, a person covered for a full 12 months might be twice as likely to have preventive and other medical services during the year compared with a person covered for only 6 months. Standard methods to adjust denominators for differences in exposure time were used. Thus, average members (cumulative member months divided by 12) was utilized as denominator for rates in this study. Other measures in this study are based on HEDIS methods which include a subset of members of a specific age that were continuously covered

during the period; it is not necessary to use member month person-time as a denominator for these measures.

9. Children's and Adolescents' Access to Primary Care Practitioners HEDIS measure. The HEDIS access to primary care practitioners is not a measure of preventive service; the visits reported include both visits for preventive service and visits for medical illness and other problems. The coding used to identify the percent of members who had a visit with a primary care practitioner was modified from exact 2009 HEDIS specifications after review of claims data to ensure that primary care visits in hospital/office-clinic and rural health clinic settings were included.

CPT codes 99201,99202,99203,99204,99205,99211,99212,99213,99214,99215,99241,99242,99243,99244,99245,99341,99342,99343,99344,99345,99346,99347,99348,99349,99350,99381,99382,99383,99384,99385,99391,99392,99393,99394,99395,99401,99402,99403,99404,99411,99412,99420,99429,99499,99432
or any diagnosis code V202,V700,V703,V705,V706,V708,V709 or CPT/HCPC codes T1015,99354,99355,99432
or UB revenue codes 0510 - 0529 or 0770,0771,0779,0983

and MHIC provider specialty codes:

0101 Hospital / General
0105 Hospital / Ancillary
0201 Hospital / Outpatient
1002 Misc Facility / Urgent Care Center
1009 Misc Facility / Misc Facility Use
1101 Clinic Facilities / Services
1201 Rural Health Centers
3001 Primary Care - Family / General Practice
3101 Primary Care - Internal Medicine
3201 Primary Care - Pediatrics
5201 Licensed Nurses (includes NP)
4601 Physicians Assistants

Excludes inpatient hospital claims and emergency department services claims

Requires 11+ Months Enrollment, and Enrolled in the final month of the measurement year (CY 2008)

10. Well-Child Visits in the First 15 Months of Life HEDIS measure. The 2009 HEDIS well-child visit measures specific primary care practitioner visits identified as well-care visits. Unlike the access to primary care practitioner measure, which includes both visits for preventive services and for medical illness, this measure is designed to more strictly identify preventive care visits. CPT and diagnosis codes used are identical to 2007 HEDIS specifications and the CPT codes are age group specific. For this study, provider specialty codes include primary care well care visits that might occur in the hospital/office-clinic and rural health clinic settings.

CPT 99381,99382,99391,99392,99432 (well-child visit during first 15 months of life)

CPT 99382,99383,99392,99393 (well-child visit age 25 months to 6 years)

CPT 99383,99384,99385,99393,99394,99395 (adolescent well care visits)

or any diagnosis code V202,V700,V703,V705,V706,V708,V709

and MHIC provider specialty codes:

0101 Hospital / General
0105 Hospital / Ancillary
0201 Hospital / Outpatient
1002 Misc Facility / Urgent Care Center
1009 Misc Facility / Misc Facility Use
1101 Clinic Facilities / Services
1201 Rural Health Centers
3001 Primary Care - Family / General Practice

3101 Primary Care - Internal Medicine
3201 Primary Care - Pediatrics
5201 Licensed Nurses (includes NP)
4601 Physicians Assistants
3906 Obstetrics / Gynecology (HEDIS specifications include OB/GYN only for the adolescent well-child measure)
Excludes inpatient hospital claims and emergency department services claims
Requires 13+ months enrollment from Birth+31 days to Birth+455 days (well-child visit during first 15 months of life)
Requires 11+ Months Enrollment, and enrolled in the final month of the measurement year (CY 2006) for other age groups

National 2007 HEDIS Medicaid well-child benchmarks are based on a denominator of all children within specified age groups and/or gender, while the NH well-child visit rates are limited to patients receiving primary care within specified age groups.

11. Effectiveness of Care Measures. Eleven 2009 NCQA HEDIS effectiveness of care measures were evaluated: use of appropriate controller medications for asthma, appropriate test for patients with COPD, appropriate antibiotic use (not dispensed) for upper respiratory infections, appropriate strep testing for children with pharyngitis and antibiotic use, appropriate prescribing and following-up for children with ADHD, appropriate treatment (no imaging) for lower-back pain, selected tests for comprehensive diabetes care, cardiovascular, breast cancer screening, cervical cancer screening, 2009 NCQA HEDIS specifications were followed for this reporting. The details of these specifications are complex and beyond the scope of inclusion in this appendix; readers are referred to HEDIS 2009, Technical Specifications, Volume 2. National Committee for Quality Assurance. 2006. www.ncqa.org.

National 2009 HEDIS Medicaid cancer screening benchmarks are based on a denominator of all patients within specified age groups and/or gender, while the NH cancer screening rate is limited to patients receiving primary care within specified age groups and/or gender.

12. Emergency Department Visit Definition. This study focused on outpatient hospital emergency department visits. Emergency department visits were selected based on UB revenue codes 0450-0459 or CPT codes 99281-99285. Visits resulting in inpatient hospitalization were excluded by using Medicaid category of service codes 1,3,103. This definition includes revenue code 0456 hospital urgent care visits which are sometimes excluded from other studies.

13. Office/Clinic Visit Definition. Office or clinic visits were identified were selected based on CPT codes.

99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99354, 99355, 99381, 99382, 99383, 99384, 99385, 99386, 99387, 99391, 99392, 99393, 99394, 99395, 99396, 99397, 99401, 99402, 99403, 99404, 99411, 99412, 99420, 99429, 99432, T1015, 99241, 99242, 99243, 99244, 99245 or UB revenue codes 510-519, 520-529, or 983.

This definition was based on codes found in NCQA HEDIS specifications plus additional codes for NH rural health centers, federally qualified health centers, and hospital facility based primary care clinics.

14. Mental Health Disorder ICD-9-CM Diagnosis Coding. The diagnostic groupings used to report mental health disorders in Medicaid members in this report are based on definitions used in other NH CHIS mental health disorder reports and were derived from a report prepared for the Substance Abuse and Mental Health Services Administration.⁴⁹

Serious Mental Health Disorder

- 01 SCHIZOPHRENIC DISORDERS 295
- 02 MAJOR DEPRESSION 296.2, 296.3
- 03 BIPOLAR & OTHER AFFECTIVE PSYCHOSES
 - Manic Disorders 296.0, 296.1
 - Bipolar Affective Disorders 296.4-296.7
 - Other and unspecified manic-depressive disorders 296.8
 - Other and unspecified affective psychoses 296.9
- 04 OTHER PSYCHOSES
 - Transient organic psychotic conditions 293
 - Other organic psychotic conditions, chronic 294
 - Paranoid states or delusional disorders 297
 - Other non-organic psychoses 298
 - Psychoses with origin specific to childhood 299

Other Mental Health Disorders

- 05 STRESS & ADJUSTMENT
 - Acute reaction to stress 308
 - Adjustment reaction 309
- 06 PERSONALITY DISORDER 301
- 07 DISTURBANCE OF CONDUCT 312
- 08 DISTURBANCE OF EMOTIONS 313
- 09 ADHD Hyperkinetic 314
- 10 NEUROTIC DISORDERS 300
- 11 DEPRESSION NEC 311
- 12 OTHER MENTAL DISORDERS
 - Sexual deviations and disorders 302
 - Physiological malfunction arising from mental factors 306
 - Special symptoms or syndromes, not elsewhere specified 307
 - Specific non-psychotic mental disorders due to organic brain damaged 310
 - Psychotic factors associated with diseases specified elsewhere 316

15. Payments. This study includes a report comparing payments per member per month by primary care practice setting. Payments were identified from the claims data. Total payments (including both plan payment and member responsibilities) reported on claims were included. NH Medicaid, may make retroactive payment settlements with hospitals. This study is based only on the payments reflected in the administrative claim files and could not adjust for any retroactive payment settlements.

16. Special diagnosis codes for utilization reporting of ambulatory care sensitive conditions.

Five groups selected for inpatient ambulatory care sensitive conditions

- *Asthma (any) 493xx
- *Dehydration 276.50, 276.51, 276.52, 276.5
- *Bacterial Pneumonia 481, 482.2, 482.30, 482.31, 482.32, 482.39, 482.9, 483.0, 483.1, 483.8, 485, 486
- *Urinary Tract Infection 590.10, 590.11, 590.2, 590.3, 590.80, 590.81, 590.9, 595.0, 595.9 599.0
- **Gastroenteritis 558.9

Additional codes selected for outpatient emergency department and office-clinic visit reporting

- ***Sore throat (Strep) 034.0
- ***Viral Infection (unspecified) 079.99
- ***Anxiety (unspecified or generalized) 300.00, 300.02
- ***Conjunctivitis (acute or unspecified) 372.00, 372.30
- ***External and middle ear infections (acute or unspecified) 380.10, 381.00, 381.01, 381.4, 382.00, 382.9
- ***Upper respiratory infections (acute or unspecified) 461.9, 473.9, 462, 465.9
- ***Bronchitis (acute or unspecified) or cough 466.0, 786.2, 490
- ***Dermatitis and rash 691.0, 691.8, 692.6, 692.9, 782.1
- ***Joint pain 719.40, 719.41, 719.42, 719.43, 719.44, 719.45, 719.46, 719.47, 719.48, 719.49
- ***Lower and unspecified back pain 724.2, 724.5
- ***Muscle and soft tissue limb pain 729.1, 729.5
- ***Fatigue 780.79
- ***Headache 784.0
- ***Abdominal pain 789.00, 789.01, 89.02, 789.03, 789.04, 789.05, 789.06, 789.07, 789.09

* Source AHRQ Quality Indicators, Prevention Quality Indicators, Technical Specifications. Version 3.1 (March 12, 2007). Downloaded May 2, 2007.

http://www.qualityindicators.ahrq.gov/downloads/pqi/pqi_technical_specs_v31.pdf

** Source: Billings J, Zeitel L, Lukomnik J, Carey TS, Blank AE, Newman L: Impact of socioeconomic status on hospital use in New York City. Health Aff 1993;(Spring):162- 173.

http://www.umanitoba.ca/centres/mchp/concept/dict/ACS_conditions.html

*** Source: 2005 Emergency Department Use in New Hampshire: A Comparison of the Medicaid and NH CHIS commercially Insured Populations. March, 2007 NH CHIS report.

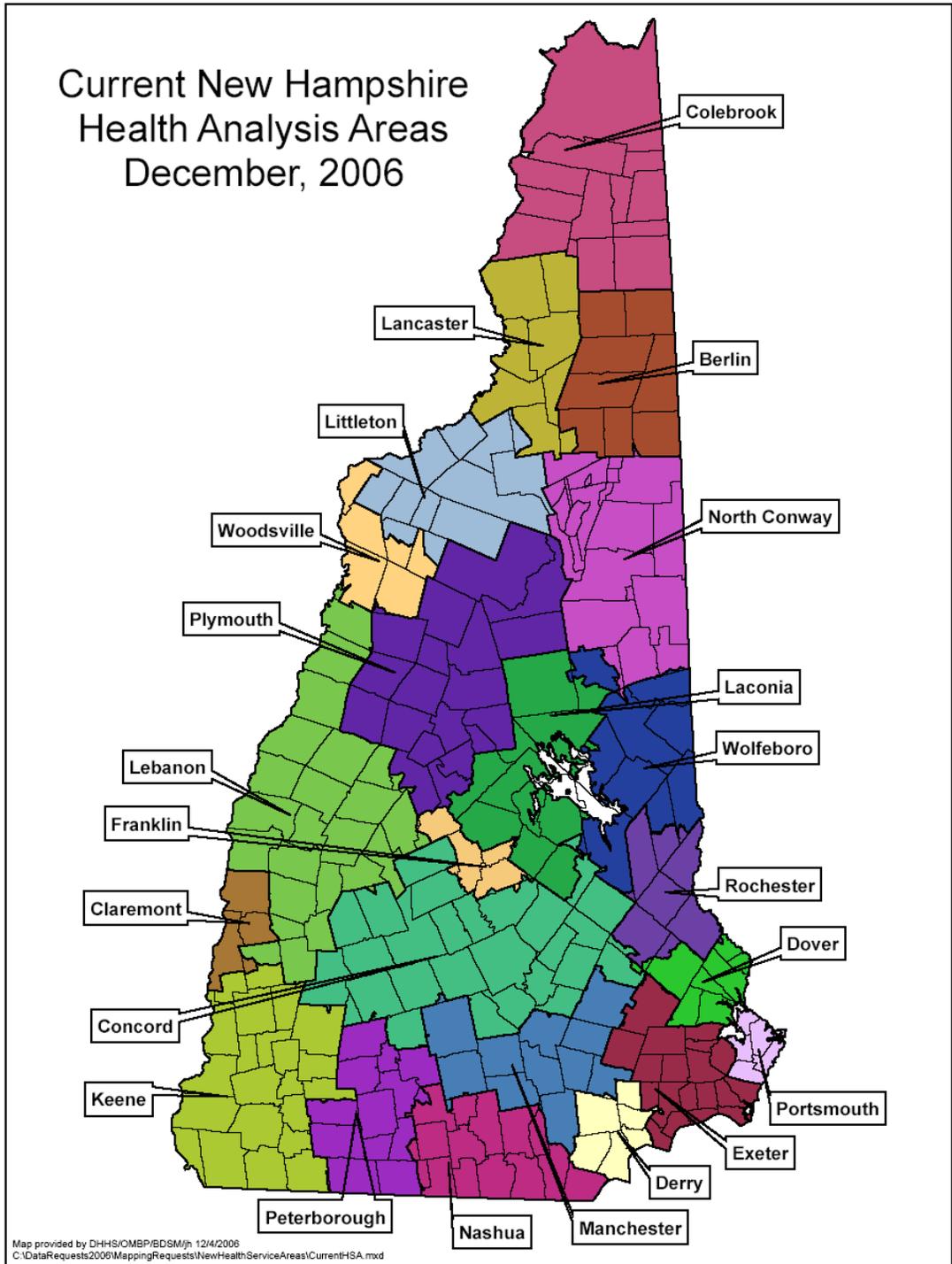
Appendix 2: NH Medicaid Eligibility Groupings

Source: New Hampshire Comprehensive Health Information System Special Project: Defining Medicaid Eligibility Groups. Institute for Health Policy, Muskie School of Public Service, University of Southern Maine.

Aid Category w Code	Medicaid Benefits	Collapsed Groupings
10 OAA/CATEGORICALLY NEEDY	Yes	Elderly
11 OAA/MONEY PAYMENT/CATEGORICALLY NEEDY	Yes	Elderly
12 OAA/MEDICALLY NEEDY	Yes	Elderly
20 AFDC/CATEGORICALLY NEEDY	Yes	Low Income Adult/Child*
21 AFDC/MONEY PAYMENT/CATEGORICALLY NEEDY	Yes	Low Income Adult/Child
22 AFDC/MEDICALLY NEEDY	Yes	Low Income Adult/Child
24 AFDC/REG POV LVL/CAT NEEDY 185%FPL	Yes	Low Income Adult/Child
27 HEALTHY KIDS GOLD - EXPANDED ELIGIBILITY	Yes	Low Income Child
28 AFDC/POVLEV PREG WOMAN/CHILD/CAT/NEEDY170% FPL	Yes	Low Income Adult/Child
2B AFDC/HOME CARE-CHILD/SEVERE DISA/MEDI NEEDY	Yes	Severely Disabled Child
2C AFDC/CHILD WITH SEVERE DISABILITIES/CAT NEEDY	Yes	Severely Disabled Child
2D AFDC/CHILD WITH SEVERE DISABILITIES/MEDI NEEDY	Yes	Severely Disabled Child
2E AFDC/EXTENDED MA/FIRST 6 MONTH PERIOD/CAT NEEDY	Yes	Low Income Adult/Child
2F AFDC/EXT MA/SCND 6 MNTH PER/CAT NEEDY	Yes	Low Income Adult/Child
2H AFDC/POV LVL PREG WMN/CHILD/CAT NDY/REF170% FPL	Yes	Low Income Adult/Child
2K AFDC/HOME CARE-CHILD SEV DIS/CAT. NDY FOR INSTI	Yes	Severely Disabled Child
2U AFDC/AFDC-UP/MONEY PAYMENT/CATEGORICALLY NDY	Yes	Low Income Adult/Child
2V AFDC/AFDC-UP/CATEGORICALLY NEEDY/MA	Yes	Low Income Adult/Child
2W AFDC/AFDC-UP/MEDICALLY NEEDY	Yes	Low Income Adult/Child
2X ADFC/POV LVL PREG WOMEN/POV LVL CHLD CAT NEEDY	Yes	Low Income Adult/Child
30 ANB/CATEGORICALLY NEEDY	Yes	Disabled Physical
31 ANB/MONEY PAYMENT/CATEGORICALLY NEEDY	Yes	Disabled Physical
32 ANB/MEDICALLY NEEDY	Yes	Disabled Physical
40 IV-E-OR-MA /ADOPT SUB-CAT NEEDY	Yes	Low Income Child
41 AFDC/FC OR MONEY PAYMENT/CATEGORICALLY NDY	Yes	Low Income Child
42 AFDC/FC OR MEDICALLY NEEDY	Yes	Low Income Child
50 APTD/MENTAL/CATEGORICALLY NEEDY	Yes	Disabled Mental
51 APTD/MENTAL/MONEY PAYMENT/CATEGORICALLY NEEDY	Yes	Disabled Mental
52 APTD/MENTAL/MEDICALLY NEEDY	Yes	Disabled Mental
61 HEALTHY KIDS SILVER	No	Omitted
66 QUALIFIED MEDICARE BENEFICIARY - SLMB120	No	Omitted
67 QUALIFIED MEDICARE BENEFICIARY - SLMB135	No	Omitted
68 QUALIFIED MEDICARE BENEFICIARY - QDWI	No	Omitted
69 QMB	No	Omitted
70 APTD/PHYSICAL/CATEGORICALLY NEEDY	Yes	Disabled Physical
71 APTD/PHYSICAL/MONEY PAYMENT	Yes	Disabled Physical
72 APTD-PHYSICAL/MEDICALLY NEEDY	Yes	Disabled Physical
80 MEAD WITH ANB/APTD APPROVAL - BLIND	Yes	Disabled Physical
81 MEAD WITH ANB/APTD APPROVAL - PHYSICAL	Yes	Disabled Physical
82 MEAD WITH ANB/APTD APPROVAL - MENTAL	Yes	Disabled Mental
83 MEAD ONLY APPROVAL - BLIND	Yes	Disabled Physical
84 MEAD ONLY APPROVAL - PHYSICAL	Yes	Disabled Physical
85 MEAD ONLY APPROVAL - MENTAL	Yes	Disabled Mental

* Age at beginning of the last month of reporting period is used to designate member as Child <=18 or Adult >18.

Appendix 3: Health Analysis Area Definitions



New Hampshire			New Hampshire		
Health Service Area	Zip Code	Zip Name	Health Service Area	Zip Code	Zip Name
Berlin	00169	Sucess	Franklin	03243	Hill
Berlin	03570	Berlin	Franklin	03276	Tilton
Berlin	03581	Gorham	Franklin	03298	Tilton
Berlin	03588	Milan	Franklin	03299	Tilton
Berlin	03593	Randolph	Keene	03431	Keene
Claremont	03603	Charlestown	Keene	03435	Keene
Claremont	03743	Claremont	Keene	03441	Ashuelot
Colebrook	00170	Second College Grant	Keene	03443	Chesterfield
Colebrook	00186	Erving's Location	Keene	03445	Sullivan
Colebrook	00187	Dix Grant	Keene	03446	Swanzey
Colebrook	03576	Colebrook	Keene	03447	Fitzwilliam
Colebrook	03579	Errol	Keene	03448	Gilsum
Colebrook	03592	Pittsburg	Keene	03450	Harrisville
Colebrook	03597	West Stewartstown	Keene	03451	Hinsdale
Concord	03046	Dunbarton	Keene	03455	Marlborough
Concord	03216	Andover	Keene	03456	Marlow
Concord	03218	Barnstead	Keene	03457	Nelson
Concord	03221	Bradford	Keene	03462	Spofford
Concord	03224	Canterbury	Keene	03464	Stoddard
Concord	03225	Center Barnstead	Keene	03465	Troy
Concord	03229	Contoocook	Keene	03466	West Chesterfield
Concord	03234	Epsom	Keene	03467	Westmoreland
Concord	03242	Henniker	Keene	03469	West Swanzey
Concord	03244	Hillsboro	Keene	03470	Winchester
Concord	03252	Lochmere	Keene	03602	Alstead
Concord	03255	Newbury	Keene	03604	Drewsville
Concord	03258	Chichester	Keene	03607	South Acworth
Concord	03261	Northwood	Keene	03608	Walpole
Concord	03263	Pittsfield	Keene	03609	North Walpole
Concord	03268	Salisbury	Laconia	03220	Belmont
Concord	03272	South Newbury	Laconia	03226	Center Harbor
Concord	03275	Suncook	Laconia	03227	Center Sandwich
Concord	03278	Warner	Laconia	03237	Gilmanton
Concord	03280	Washington	Laconia	03246	Laconia
Concord	03301	Concord	Laconia	03247	Laconia
Concord	03302	Concord	Laconia	03249	Gilford
Concord	03303	Concord	Laconia	03253	Meredith
Concord	03304	Bow	Laconia	03254	Moultonborough
Concord	03305	Concord	Laconia	03256	New Hampton
Concord	03307	Loudon	Laconia	03259	North Sandwich
Concord	03837	Gilmanton Iron Works	Laconia	03269	Sanbornton
Derry	03038	Derry	Laconia	03289	Winnisquam
Derry	03041	East Derry	Laconia	03883	South Tamworth
Derry	03073	North Salem	Lancaster	00185	Kilkenny
Derry	03079	Salem	Lancaster	03582	Groveton
Derry	03087	Windham	Lancaster	03583	Jefferson
Derry	03811	Atkinson	Lancaster	03584	Lancaster
Derry	03826	East Hampstead	Lancaster	03587	Meadows
Derry	03841	Hampstead	Lancaster	03590	North Stratford
Derry	03873	Sandown	Lebanon	03230	Danbury
Dover	03805	Rollinsford	Lebanon	03231	East Andover
Dover	03820	Dover	Lebanon	03233	Elkins
Dover	03821	Dover	Lebanon	03240	Grafton
Dover	03822	Dover	Lebanon	03257	New London
Dover	03823	Madbury	Lebanon	03260	North Sutton
Dover	03824	Durham	Lebanon	03273	South Sutton
Dover	03825	Barrington	Lebanon	03284	Springfield
Dover	03869	Rollinsford	Lebanon	03287	Wilmot
Dover	03878	Somersworth	Lebanon	03601	Acworth
Exeter	03042	Epping	Lebanon	03605	Lempster
Exeter	03044	Fremont	Lebanon	03741	Canaan
Exeter	03077	Raymond	Lebanon	03745	Cornish
Exeter	03290	Nottingham	Lebanon	03746	Cornish Flat
Exeter	03291	West Nottingham	Lebanon	03748	Enfield
Exeter	03819	Danville	Lebanon	03749	Enfield Center
Exeter	03827	East Kingston	Lebanon	03750	Etna
Exeter	03833	Exeter	Lebanon	03751	Georges Mills
Exeter	03842	Hampton	Lebanon	03752	Goshen
Exeter	03844	Hampton Falls	Lebanon	03753	Grantham
Exeter	03848	Kingston	Lebanon	03754	Guild
Exeter	03856	Newfields	Lebanon	03755	Hanover
Exeter	03857	Newmarket	Lebanon	03756	Lebanon
Exeter	03858	Newton	Lebanon	03765	Haverhill
Exeter	03859	Newton Junction	Lebanon	03766	Lebanon
Exeter	03865	Plaistow	Lebanon	03768	Lyme
Exeter	03874	Seabrook	Lebanon	03769	Lyme Center
Exeter	03885	Stratham	Lebanon	03770	Meriden
Franklin	03235	Franklin	Lebanon	03773	Newport

New Hampshire

Health Service Area	Zip Code	Zip Name
Lebanon	03777	Orford
Lebanon	03779	Piermont
Lebanon	03781	Plainfield
Lebanon	03782	Sunapee
Lebanon	03784	West Lebanon
Littleton	03561	Littleton
Littleton	03574	Bethlehem
Littleton	03580	Franconia
Littleton	03585	Lisbon
Littleton	03586	Sugar Hill
Littleton	03595	Twin Mountain
Littleton	03598	Whitefield
Manchester	03032	Auburn
Manchester	03034	Candia
Manchester	03036	Chester
Manchester	03037	Deerfield
Manchester	03040	East Candia
Manchester	03045	Goffstown
Manchester	03053	Londonderry
Manchester	03070	New Boston
Manchester	03101	Manchester
Manchester	03102	Manchester
Manchester	03103	Manchester
Manchester	03104	Manchester
Manchester	03105	Manchester
Manchester	03106	Hooksett
Manchester	03107	Manchester
Manchester	03108	Manchester
Manchester	03109	Manchester
Manchester	03110	Bedford
Manchester	03111	Manchester
Manchester	03281	Weare
Nashua	03031	Amherst
Nashua	03033	Brookline
Nashua	03048	Greenville
Nashua	03049	Hollis
Nashua	03051	Hudson
Nashua	03052	Litchfield
Nashua	03054	Merrimack
Nashua	03055	Milford
Nashua	03057	Mont Vernon
Nashua	03060	Nashua
Nashua	03061	Nashua
Nashua	03062	Nashua
Nashua	03063	Nashua
Nashua	03064	Nashua
Nashua	03076	Pelham
Nashua	03082	Lyndeborough
Nashua	03086	Wilton
North Conway	00168	Beans Purchase
North Conway	00172	Hadleys Purchase
North Conway	00173	Cutts Grant
North Conway	00174	Beans Grant
North Conway	00176	Sargents Purchase
North Conway	00177	Pinkham Grant
North Conway	00179	Chandlers Purchase
North Conway	00180	Thompson/Meserves Purch
North Conway	00181	Low and Burbanks Grant
North Conway	00182	Crawfords Purchase
North Conway	00183	Greens Grant
North Conway	00184	Martins Location
North Conway	03575	Bretton Woods
North Conway	03589	Mount Washington
North Conway	03812	Bartlett
North Conway	03813	Center Conway
North Conway	03817	Chocorua
North Conway	03818	Conway
North Conway	03832	Eaton Center
North Conway	03838	Glen
North Conway	03845	Intervale
North Conway	03846	Jackson
North Conway	03847	Kearsarge
North Conway	03849	Madison
North Conway	03860	North Conway
North Conway	03875	Silver Lake
North Conway	03890	West Ossipee
Peterborough	03043	Fracestown
Peterborough	03047	Greenfield

New Hampshire

Health Service Area	Zip Code	Zip Name
Peterborough	03071	New Ipswich
Peterborough	03084	Temple
Peterborough	03440	Antrim
Peterborough	03442	Bennington
Peterborough	03444	Dublin
Peterborough	03449	Hancock
Peterborough	03452	Jaffrey
Peterborough	03458	Peterborough
Peterborough	03461	Rindge
Peterborough	03468	West Peterborough
Plymouth	03215	Waterville Valley
Plymouth	03217	Ashland
Plymouth	03222	Bristol
Plymouth	03223	Campton
Plymouth	03232	East Hebron
Plymouth	03241	Hebron
Plymouth	03245	Holderness
Plymouth	03251	Lincoln
Plymouth	03262	North Woodstock
Plymouth	03264	Plymouth
Plymouth	03266	Rumney
Plymouth	03274	Stinson Lake
Plymouth	03279	Warren
Plymouth	03282	Wentworth
Plymouth	03293	Woodstock
Portsmouth	03801	Portsmouth
Portsmouth	03802	Portsmouth
Portsmouth	03803	Portsmouth
Portsmouth	03804	Portsmouth
Portsmouth	03840	Greenland
Portsmouth	03843	Hampton
Portsmouth	03854	New Castle
Portsmouth	03862	North Hampton
Portsmouth	03870	Rye
Portsmouth	03871	Rye Beach
Rochester	03815	Center Strafford
Rochester	03835	Farmington
Rochester	03839	Rochester
Rochester	03851	Milton
Rochester	03852	Milton Mills
Rochester	03855	New Durham
Rochester	03866	Rochester
Rochester	03867	Rochester
Rochester	03868	Rochester
Rochester	03884	Strafford
Rochester	03887	Union
Wolfeboro	03809	Alton
Wolfeboro	03810	Alton Bay
Wolfeboro	03814	Center Ossipee
Wolfeboro	03816	Center Tuftonboro
Wolfeboro	03830	East Wakefield
Wolfeboro	03836	Freedom
Wolfeboro	03850	Melvin Village
Wolfeboro	03853	Mirror Lake
Wolfeboro	03864	Ossipee
Wolfeboro	03872	Sanbornville
Wolfeboro	03882	Effingham
Wolfeboro	03886	Tamworth
Wolfeboro	03894	Wolfeboro
Wolfeboro	03896	Wolfeboro Falls
Wolfeboro	03897	Wonalancet
Woodsville	03238	Glenciff
Woodsville	03740	Bath
Woodsville	03771	Monroe
Woodsville	03774	North Haverhill
Woodsville	03780	Pike
Woodsville	03785	Woodsville

Appendix 4: RHC and FQHC/LAL Practices Included in Study

Federally Qualified Health Centers and Look-Alikes (FQHC/LAL)

Ammonoosuc Community Health Services Inc
Avis Goodwin Community Health Center
Coos County Family Health Service Inc
Families First Healthcare for the Homeless
Families First of the Greater Seacoast
Health First Family Care Center
Indian Stream Health Center Inc.
Lamprey Health Care Inc.
Manchester Community Health
Mid State Health Center

Rural Health Clinics (RHCs)

Associates in Medicine
Charlestown Family Medicine
Dartmouth-Hitchcock Clinic Plymouth
David Fagan, MD
Newfound Family Practice
Newport Health Center
Ossipee Tamworth Family Medicine
Saco River Medical Group
Summit Medical Group
Tamworth Family Practice
Weeks Hospital Association Groveton Clinic
Weeks Hospital Association Lancaster Clinic
Weeks Hospital Association Whitefield Clinic
Westside Healthcare Services

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