![ONPOINT Health Data]

Report

Tri-State Variation in Health Services Utilization & Expenditures in Northern New England

Commercially Insured Population Under Age 65 in Maine, New Hampshire, & Vermont

ABOUT THIS REPORT

This report represents the first multiple-state evaluation of health services utilization and expenditures using state-mandated, all-payer commercial claims data. The primary reason for the study was a request from the Vermont Department of Banking, Insurance, Securities & Health Care Administration (BISHCA) to provide information on variation in health services utilization by Vermont Hospital Service Areas for the commercially insured population under the age of 65. Similar reporting was prepared by the Dartmouth Institute using Medicare data. Onpoint Health Data also included Maine and New Hampshire health services utilization by geographic area for comparative purposes.

This report is the first analysis of the northern New England states using statewide all-payer commercial claims data. While the Maine and New Hampshire claims data have been in existence and used for several years, the Vermont claims data is relatively new and was built during 2009 and early 2010. The analysis includes selected measures of utilization and is not a detailed study of all utilization in northern New England. Expenditures were based on plan and member (coinsurance, deductible, copayment) amounts as reported on the administrative claims. Consistent with the comparative study for Vermont by Dartmouth Institute, pharmacy claims were not included.

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EXECUTIVE SUMMARY

This report is the first combined analysis of the northern New England states (Maine, New Hampshire, and Vermont) using statewide all-payer commercial claims data.

The primary reason for the study was a request from the Vermont Department of Banking, Insurance, Securities & Health Care Administration (BISHCA) to provide information on variation in health services utilization by Vermont Hospital Service Areas (HSAs) for the commercially insured population under the age of 65. Similar reporting was prepared by the Dartmouth Institute using Medicare data. Onpoint also included New Hampshire and Maine health services utilization by geographic area for comparative purposes.

The study was based on geographic profiling of utilization and payment rates for residents of 67 Hospital Service Areas (HSAs): 13 in Vermont, 22 in New Hampshire, and 32 in Maine. Reported rates were based on administrative claims and eligibility (enrollment) data for 2008 for the commercially insured residents under the age of 65.[†] Utilization rates were reported per 1,000 members and were adjusted for age and gender differences in the populations. Expenditures were reported as claims payments per member per month (PMPM) and were adjusted for age and gender differences in the populations.

Since this study is an analysis of population-based rates, the following caveat should be noted: The actual counts of average members, services, and payments may be less than the total volume for all commercially insured residents under the age of 65 within a state because state rules do not require all insurers to submit claims data. In Vermont, for example, insurers with fewer than 200 covered lives are not required to submit data. This study includes 73 percent of the commercially insured population of Vermont.[‡]

While significant variations in utilization rates were identified in this report, the "right" rate of utilization for these services is not known. It cannot be assumed, in all cases, that a high rate is bad or a low rate is good. This report focused on describing the variation in rates, but did not explore the potential causes of variation. This study was not intended to evaluate the effectiveness or quality of care provided.

The variation in utilization rates identified in this Executive Summary were statistically significant. Expenditure rates were not tested for statistical significance.

[†] The study was based on Vermont, New Hampshire, and Maine all-payer commercial claims data prepared by Onpoint Health Data as of May 2010. These data are updated periodically; similar reporting run at earlier or later dates may have different results.

[‡] Additional payers are expected to be added to VHCURES, which will boost the sample to over 80%.

Key Findings

ADVANCED IMAGING

- **CT Scans**

  - For CT scans, the highest rate area was Caribou, ME (123.5), and the lowest rate area was Brattleboro, VT (59.5) — a more than twofold variation.

  - In Vermont, the rate of CT scans was 77.4 per 1,000 members. The highest rate area was Bennington (100.4) and the lowest rate area was Brattleboro (59.5) — a 1.7-fold variation. Analysis by both Onpoint (commercial claims) and Dartmouth Institute (Medicare claims) for Vermont showed a high rate for Bennington and a low rate for Brattleboro.

- **MRIs**

  - For MRI, the highest rate area was Keene, NH (90.8), and the lowest rate area was Greenville, ME (46.2) — a nearly twofold variation.

  - In Vermont, the rate of MRI use was 63.8 per 1,000 members. The highest rate area was Rutland (73.8) and the lowest rate area was Middlebury (53.3) — a 1.4-fold variation. Within Vermont, higher rates in Rutland, Springfield, Bennington, and White River Junction were similar to the Dartmouth Institute analysis of Medicare data for Vermont.

INPATIENT USE

- For inpatient hospitalizations, the highest rate area was Claremont, NH (67.3), and the lowest rate area was Brattleboro, VT (41.2) — a 1.6-fold variation.

- In Vermont, the rate of inpatient hospitalization was 48.5 per 1,000 members. The highest rate area was Bennington (63.9) and the lowest rate area was Brattleboro (41.2) — a 1.6-fold variation. Higher rates in Bennington and Rutland and lower rates in Brattleboro and Burlington also were identified in the Dartmouth Institute analysis of Medicare data for Vermont.

- Vermont's statewide rate of inpatient hospitalization was lower than national rates and Maine and New Hampshire rates.[§]

OUTPATIENT USE

- **Outpatient Emergency Department (ED) Visits**

  - For outpatient ED visits, the highest rate area was Caribou, ME (438.9), and the lowest rate area was Burlington, VT (125.1) — a more than threefold variation.

[§] Onpoint acquired national rates from the National Committee for Quality Assurance (NCQA) Health Effectiveness Data and Information Set (HEDIS) for report year 2009 (data year 2008). These include both the HMO and the PPO rates.

- In Vermont, the rate of outpatient ED visits in Vermont was 182.2 per 1,000 members. The highest rate area was St. Albans (267.2) and the lowest rate area was Burlington (125.1) — a twofold variation.

- **Potentially Avoidable Outpatient ED Visits**
  - For potentially avoidable outpatient ED visits, the highest rate area was Caribou, ME (136.3), and the lowest rate area was Burlington, VT (16.1) — a more than eightfold variation.

  - In Vermont, the rate of potentially avoidable outpatient ED visits was 30.4 per 1,000 members. The highest rate area was Newport (50.8) and the lowest rate area was Burlington (16.1) — a more than threefold variation. Within Vermont, St. Albans was another high rate area and Brattleboro was another low rate area.

- **Non-Hospital Outpatient Visits**
  - For non-hospital outpatient visits, the highest rate area was Portsmouth, NH (6,273), and the lowest rate area was Colebrook, NH (3,359) — a 1.9-fold difference.

  - In Vermont, the rate of non-hospital outpatient visits was 4,582 per 1,000 members. The highest rate area was Brattleboro (4,887) and the lowest rate area was Newport (3,872) — a 1.3-fold variation. The high rates for Brattleboro, Burlington, and Rutland and the low rates for St. Johnsbury, Randolph, and Newport were similar to those reported in the Dartmouth Institute analysis of Medicare data for Vermont.

- **Chiropractic/Osteopathic Manipulation**
  - For chiropractic/osteopathic manipulation, the highest rate area was Augusta, ME (1,325), and the lowest rate area was Newport, VT (148) — a nearly ninefold difference.

  - In Vermont, the rate of chiropractic/osteopathic manipulation was 633 per 1,000 members. The highest rate area was Burlington (745) and the lowest rate area was Newport (148) — a fivefold variation. Within Vermont, all areas were below the tri-state average.

SURGERY

- **Hysterectomy**
  - For hysterectomy, the highest rate area was Newport, VT (11.37), and the lowest rate area was Berlin, NH (1.48) — a 7.7-fold variation.

  - In Vermont, the rate of hysterectomy was 5.81 per 1,000 women aged 20–64. The highest rate area was Newport (11.37) and the lowest rate area was Morrisville (3.38) — a 3.4-fold variation. Vermont's statewide rates were lower than the national HEDIS rates.

- **Back Surgery**
  - For back surgery, the highest rate area that reached statistical significance was Bridgton, ME (6.45), and the lowest rate area was Ellsworth, ME (1.48) — a more than fourfold difference.
  - In Vermont, the rate of back surgery was 3.04 per 1,000 members aged 20–64. The highest rate area was St. Albans (4.32) and the lowest rate area was Brattleboro (1.81) — a 2.4-fold variation. Vermont's overall statewide rates were lower than the national HEDIS rates.

EXPENDITURES

- For the combined tri-state area, the rate of medical payments per member per month (PMPM) was $291.[**] For medical payments PMPM, the highest rate area was Portsmouth, NH ($389), and the lowest rate area was Burlington, VT ($240) — a 1.6-fold variation.

- In Vermont, the rate of medical payments PMPM was $266. The highest rate area was Newport ($301) and the lowest rate area was Burlington ($240) — a 1.3-fold variation. Within Vermont, other high rate areas were Rutland ($297) and Bennington ($284) and other low rate areas were Brattleboro ($246) and Middlebury ($256).

- In a combined regression model, advanced imaging, inpatient hospitalizations, and outpatient ED visits explained 42 percent (r-square=0.4203, p=0.0180) of the variability in medical payments PMPM across the tri-state area.

Conclusions, Limitations, & Next Steps

The results for 2008 indicate wide variation in rates of healthcare services utilization in the three northern New England states. While there were some exceptions by type of service and HSA, utilization and expenditure rates were lower in Vermont than in New Hampshire and Maine. Vermont's statewide rates for inpatient hospitalizations, outpatient ED visits, back surgery, and hysterectomy were lower than the HEDIS national average submitted by health plans. Expenditure rates also were lower in Vermont.

Within Vermont, a contrast may be drawn between the Bennington and Rutland HSAs and the Burlington and Brattleboro HSAs. The Bennington and Rutland HSAs had high rates of medical payments PMPM, advanced imaging, and inpatient hospitalization, while the Burlington and Brattleboro HSAs had low rates. The high rates of outpatient ED visits in St. Albans and Newport contrasted with low rates in Burlington and Brattleboro. Burlington had the lowest rate of medical payments PMPM in the three states and ranked low or lowest on inpatient use and outpatient ED use in the three states.

For some HSAs, the patterns exhibited in the utilization rates may indicate fundamental differences in how care is delivered. Several northern Maine areas had the highest rates of potentially avoidable ED visits and the lowest rates of office/clinic visits in the tri-state area. This suggests the possibility of lack of availability of

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[**] Consistent with the Dartmouth analysis of Medicare data, pharmacy claims were not included in this Onpoint study.

primary care practitioners in an office/clinic setting. For the 67 HSAs profiled, a modest relationship was found between higher office/clinic visit rate and lower avoidable ED visit rate. Variation in utilization rates measured in this report explain only some of the variation in per capita rates of expenditure (payments PMPM).

All reported rates were adjusted by Onpoint for both age and gender, but not for health status. Onpoint has proposed such adjustment through the use of Ingenix Episode Risk Groups® (ERGs) for future reporting for Vermont. Additional recommendations include:

- Evaluate potential factors that contribute to variations found in this report. This might include supply of physicians, other providers (e.g., chiropractors and osteopaths), and hospital beds per capita

- Contrast high- and low-rate expenditure areas to determine factors contributing to differences

- Add additional years of data to address the small number of issues related to surgical procedures and to determine referral regions for procedures (e.g., back surgery) that are not performed by all hospitals

- Add additional years of data to evaluate trends in expenditures and utilization

- Employ episode reporting, using Ingenix Episode Treatment Groups® (ETGs), to (a) determine the ETGs (adjusted for comorbid condition) that most contribute to expenditures and have the highest expenditure variation (i.e., highest coefficient of variation for payments) and (b) compare the expenditure rates for these ETGs by HSA

- Use ETGs to analyze variation between areas for treatment patterns for selected conditions (e.g., distinguish episodes involving back disorders; evaluate the variation in the use of MRIs, other diagnostic tests, surgery, manipulation and other therapies, ED use, inpatient use, primary care visit, and expenditures by has; and contrast high-rate and low-rate expenditure HSAs for these conditions to determine utilization and other drivers of differences in expenditures)

- Expand measures to include HEDIS effectiveness of care and preventive visit measures, additional surgical procedures, and diagnostic tests

INTRODUCTION

This report represents the first multiple-state evaluation of health services utilization using state-mandated, all-payer commercial claims data.

What are all-payer claims databases (APCDs)? APCDs are complex data applications that collect claims data from commercial payers and health plans, third-party administrators, and pharmacy benefits managers. In some states, Medicaid and Medicare data also are included. These data sets contain data elements from the transaction systems that process claims payment for private and public payers. While the contents of individual states' APCDs vary, they generally include data derived from medical, eligibility, provider, pharmacy, and dental files.

The medical data elements typically include plan and member payments, diagnoses, CPT codes, revenue codes, ICD-9 procedure codes, NDC codes, CDT codes, date of service, date paid, and servicing provider. APCDs seldom contain information related to uninsured individuals, workers' compensation bills, premium information, referral information (e.g., who ordered diagnostic tests), test results (e.g., lab work, imaging), and administrative fees.

The following states have APCDs for commercial payers in use or development: Kansas, Maine, Massachusetts, Minnesota, New Hampshire, Tennessee, Utah, and Vermont.

The state of Vermont's Act 49, An Act Relating to Containing Health Care Costs by Decreasing Variability in Health Care Spending & Utilization, requires an analysis by the Vermont Department of Banking, Insurance, Securities & Health Care Administration (BISHCA) to identify variations in the use of healthcare provided by both hospitals and physicians and to determine the causes and reasons for the variations across different regions of the state.

BISHCA has a statutory mandate to collect health insurance claims data from health insurers through the Vermont Healthcare Claims Uniform Reporting & Evaluation System (VHCURES). The purpose of VHCURES is to provide information that can be used to evaluate and improve the quality and cost-effectiveness of healthcare. To the extent allowed by federal and state law, this data shall be made available as a resource for the continuous review of healthcare utilization, expenditures, and performance in Vermont.

Since this study is an analysis of population-based rates, the following caveat should be noted: The actual counts of average members, services, and payments may be less than the total volume for all commercially insured residents under the age of 65 within a state because state rules do not require all insurers to submit claims data. In Vermont, for example, insurers with fewer than 200 covered lives are not required to submit data, so an estimated 75 percent to 80 percent of the commercially insured population of Vermont were included in this study.

BISHCA asked Onpoint Health Data to use VHCURES commercial all-payer claims data to report preliminary measures of variation in utilization by Vermont HSAs. The Vermont commercial all-payer claims

data is a new data source with collection, initial review, and reporting starting in 2009. The Vermont results reported in this paper represent an update to an Onpoint report completed in January 2010 that combined Onpoint results for the commercial population with Dartmouth Institute results for the Medicare population.[††]

Consistent with the Dartmouth Institute study, which included comparative data from neighboring states, this current report includes information from New Hampshire and Maine commercial all-payer claims data. New Hampshire and Maine were the first states in the country to mandate, build, and report from statewide commercial all payer claims databases. Compared to the prior Onpoint Vermont-specific report, this new report also incorporates additional inpatient and expenditure measures.

In this report, population-based rates of selected utilization measures are provided by Hospital Service Areas (HSAs). HSAs represent healthcare areas in which residents receive most of their hospitalizations from the local hospitals. HSAs are defined by assigning town codes or ZIP codes to the hospital area where the greatest proportion of residents were hospitalized. Due to small numbers, some adjustments are made to make the geographic areas of HSAs contiguous. The HSAs utilized by Onpoint have been developed independently by each of the three states examined in this analysis. For this study, 67 HSAs — 13 in Vermont, 22 in New Hampshire, and 32 in Maine— were evaluated. (Two notes about HSAs in this report: (1) New Hampshire refers to Hospital Service Areas as Health Analysis Areas, and (2) the Jackman area of Maine is a noncontiguous part of the Waterville HSA because of its affiliation and referral pattern to a hospital located in Waterville instead of Skowhegan.)

The analysis provided here would not be possible without the forward-thinking legislative efforts of the three northern New England states and the state agencies participating in the development of the new claims data sources. These include:

- Vermont Department of Banking, Insurance, Securities & Health Care Administration (BISHCA)

- Office of Medicaid Business and Policy, New Hampshire Department of Health and Human Services

- New Hampshire Department of Insurance

- Maine Health Data Organization

While the analysis for this report was developed by Onpoint Health Data, it owes a significant debt to the long history of prior work of the Dartmouth Atlas Project, which has been a major source of geographic profiling in the United States. The Maine Medical Assessment Foundation also has been a major contributor to profiling of healthcare in Maine and northern New England.

[††] To view this report, see page 71 in BISHCA's Legislative Report, "Recommendations to Improve Utilization And Variation In Health Care Services In Vermont Act 49 of 2009 Legislative Report on Health Care Utilization." January 15, 2010.

The Dartmouth Institute for Health Policy & Clinical Practice's report on geographic variation in utilization in Vermont, "Variations in Practice and Spending in Vermont," was based on Medicare claims data for 2003–2007. This Onpoint report is based on a different set of 2008 incurred claims data, which covers Vermont's commercially insured population (under the age of 65) and includes many of the same measures provided in the Dartmouth Institute report. Based on our experience from other projects using commercial claims data, this study also includes some additional measures not covered in the Dartmouth Institute report.

Methods

This report utilizes all-payer commercial eligibility and claims data to produce population-based rates of utilization by geographic HSAs for Vermont, New Hampshire, and Maine. Each state mandates collection of claims data from commercial payers; 2008 incurred claims based on date of service were used for this analysis.

Eligibility (enrollment) data was used to provide denominators for population-based rates. Member months is the cumulative months of coverage for the population reported. Average members (member months divided by 12) forms the denominator for population-based rates. These denominators adjust for members who may not be covered for the full 12 months of the year. This measure is comparable to "person-time," which is used as a standard denominator in health epidemiology studies. Utilization rates were reported per 1,000 members and were adjusted for age and gender differences in the populations. Expenditures were reported as claims payments per member per month (PMPM) and were adjusted for age and gender differences in the populations.

Medical claims data were used to provide numerator data for population-based rates. ICD-9 diagnosis, ICD-9 procedure codes, CPT procedure codes, and hospital revenue codes in the claims data were used. Whenever possible, national sources for methods were used (e.g., NCQA HEDIS, CMS Berenson-Eggers Type of Service). Onpoint reviewed reporting methods for consistency with the Dartmouth Institute.

Medical claims from mental health and substance abuse carve-out payers were included in the analysis. The eligibility records for behavioral carve-out payers were excluded to ensure that the membership used for the denominators were not counted twice.

Expenditures were derived from the payment information on the administrative medical claims. This included the plan payments and the member cost share (coinsurance, deductible, copayments) as reported on the claims.

Since eligibility and claims data include only some members with Medicare coverage (e.g., supplemental and Advantage), these members were removed from the data prior to analysis. As an additional check, all members age 65 and older also were removed from the commercial data.

The eligibility and claims data used in this analysis include only the residents of the three states. The claims data include services provided to the residents by providers regardless of location. For example, a service provided at a Massachusetts hospital to a resident of Burlington, Vermont, would be included in the data and would be assigned to the Burlington, Vermont, Hospital Service Area.

The resulting 2008 data in the three states used for this study represented 1,322,408 average members covered of which 26 percent were children and teens under the age of 20, 35 percent were between the ages of 20 and 44, and 39 percent were between the ages of 45 and 64.

Note that this study's tables report 95% confidence intervals by including the intervals' endpoints, denoted by 95% LCL (Lower Confidence Limit) and 95% UCL (Upper Confidence Limit).

ADVANCED IMAGING

Computerized Tomography (CT)

METHODS

Claims with CPT/HCPCS codes that correspond to the CMS BETOS (Berenson-Eggers Type of Service) categories I2A and I2B were used to identify CT scans. One event per member per day was allowed in the reporting. Dartmouth Institute used a slightly different method, counting events separately on the same day if ordered by different physicians. The commercial VHCURES claims data contain information about the billing and servicing physicians but not about the ordering physician.

RESULTS

Results are provided in Figure 1 and Table Set 1.

The rate of CT scans for the combined tri-state area was 84.8 per 1,000 members. The highest rate area was Caribou, ME (123.5), and the lowest rate area was Brattleboro, VT (59.5) — a more than twofold variation in use of CT scan.

Other highest rate areas included (in descending order): Calais, ME; Rochester, NH; Dover, NH; Bennington, VT; Presque Isle, ME; Nashua, NH; and Portsmouth, NH. Other lowest rate areas included (in ascending order): Middlebury, VT; Blue Hill, ME; Burlington, VT; Greenville, ME; White River Junction, VT; Lincoln, ME; and Lancaster, NH.

In Vermont, the rate of CT scans was 77.4 per 1,000 members. The highest rate area was Bennington (100.4) and the lowest rate area was Brattleboro (59.5) — a 1.7-fold variation. Analysis of both commercial claims (Onpoint) and Medicare claims (Dartmouth Institute) in Vermont showed a high rate for Bennington and a low rate for Brattleboro.

Among larger population areas, Nashua, NH, had the highest rate (98.4), while Burlington, VT, had the lowest rate (65.6).

Figure 1. Computerized Tomography (CT)

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate per 1,000

	59.5 - 76.8
	76.9 - 80.7
	80.8 - 88.5
	88.6 - 93.9
	94.0 - 123.5
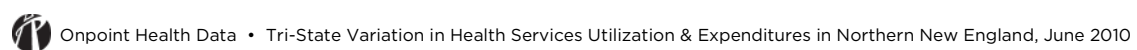
Table Set 1. Computerized Tomography (CT)

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT COMPUTERIZED TOMOGRAPHY (CT)					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	SERVICES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Barre	33,616	2,731	79.2	76.3	82.3
Bennington	14,683	1,540	100.4	95.5	105.6
Brattleboro	12,263	781	59.5	55.4	63.9
Burlington	91,200	5,885	65.6	63.9	67.3
Middlebury	14,166	921	63.3	59.3	67.5
Morrisville	10,195	814	76.8	71.6	82.2
Newport	8,472	788	86.7	80.8	93.0
Randolph	5,985	507	79.5	72.7	86.7
Rutland	27,358	2,627	91.0	87.5	94.5
Springfield	11,261	963	80.4	75.4	85.7
St. Albans	17,384	1,663	95.8	91.2	100.5
St. Johnsbury	9,243	692	71.2	66.0	76.8
White River Junction	16,082	1,122	66.5	62.7	70.5

NEW HAMPSHIRE COMPUTERIZED TOMOGRAPHY (CT)					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	SERVICES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Berlin	5,277	423	79.6	72.1	87.5
Claremont	6,262	574	93.3	85.8	101.2
Colebrook	1,528	125	76.9	64.0	91.6
Concord	58,755	5,410	94.3	91.8	96.8
Derry	22,887	2,112	96.2	92.2	100.4
Dover	22,938	2,249	104.4	100.1	108.8
Exeter	32,637	2,912	92.4	89.0	95.8
Franklin	7,007	599	85.2	78.5	92.3
Keene	20,889	1,909	90.4	86.4	94.5
Laconia	21,893	2,026	91.1	87.2	95.1
Lancaster	2,815	199	68.8	59.6	79.1
Lebanon	30,168	2,291	77.6	74.4	80.8

NEW HAMPSHIRE COMPUTERIZED TOMOGRAPHY (CT)					
HEALTH ANALYSIS AREA	**AVERAGE MEMBERS**	**SERVICES**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Littleton	6,289	464	71.4	65.0	78.2
Manchester	77,605	6,881	92.0	89.9	94.2
Nashua	63,233	6,041	98.4	96.0	101.0
North Conway	6,179	495	77.6	70.9	84.8
Peterborough	13,645	1,058	80.7	75.9	85.7
Plymouth	10,555	842	79.1	73.8	84.6
Portsmouth	12,565	1,230	97.5	92.1	103.1
Rochester	15,799	1,668	107.4	102.3	112.6
Wolfeboro	9,588	912	94.0	88.0	100.3
Woodsville	2,265	178	77.9	66.8	90.2

MAINE COMPUTERIZED TOMOGRAPHY (CT)					
HOSPITAL SERVICE AREA	**AVERAGE MEMBERS**	**SERVICES**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Augusta	30,668	2,931	93.3	90.0	96.8
Bangor	55,610	4,938	88.2	85.8	90.7
Bar Harbor	5,202	463	85.0	77.4	93.1
Belfast	7,179	717	92.7	86.0	99.7
Biddeford	35,318	2,999	84.8	81.8	87.9
Blue Hill	4,178	300	65.2	58.0	73.0
Boothbay	2,671	240	81.0	71.1	92.0
Bridgton	8,179	774	91.4	85.1	98.1
Brunswick	32,505	2,646	79.7	76.7	82.8
Calais	3,535	474	123.2	112.3	134.8
Caribou	4,877	616	123.5	114.0	133.7
Damariscotta	5,670	428	71.1	64.5	78.1
Dover-Foxcroft	6,821	583	79.2	72.9	86.0
Ellsworth	10,150	941	87.3	81.8	93.0
Farmington	12,030	1,030	82.2	77.2	87.3
Fort Kent	4,511	381	79.8	72.0	88.2
Greenville	862	66	66.5	51.4	84.6

MAINE				
COMPUTERIZED TOMOGRAPHY (CT)				
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	SERVICES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Houlton	5,063	409	74.9	67.8	82.6
Lewiston	57,653	5,054	88.5	86.1	91.0
Lincoln	5,170	365	68.3	61.5	75.7
Machias	4,581	417	83.4	75.6	91.8
Millinocket	2,395	229	89.1	78.0	101.5
Norway	10,344	945	89.5	83.9	95.4
Pittsfield	5,462	489	88.5	80.9	96.7
Portland	158,275	11,340	74.1	72.8	75.5
Presque Isle	8,471	868	98.8	92.4	105.6
Rockland	21,024	1,836	82.6	78.8	86.4
Rumford	4,494	438	94.6	86.0	103.9
Sanford	17,539	1,610	93.0	88.5	97.6
Skowhegan	9,949	972	95.4	89.5	101.6
Waterville	30,645	2,478	81.2	78.0	84.4
York	28,706	2,582	90.3	86.9	93.9

Magnetic Resonance Imaging (MRI)

METHODS

Claims with CPT/HCPCS codes that correspond to the CMS BETOS categories I2C and I2D were used to identify MRIs. One event per member per day was allowed in the reporting. Dartmouth Institute used a slightly different counting method, counting events separately on the same day if ordered by different physicians. The commercial VHCURES claims data contains information about the billing and servicing physicians but not about the ordering physician.

RESULTS

Results are provided in Figure 2 and Table Set 2.

The rate of MRI for the combined tri-state area was 69.5 per 1,000 members. For MRI, the highest rate area was Keene, NH (90.8), and the lowest rate area was Greenville, ME (46.2) — a nearly twofold variation.

Other highest rate areas included (in descending order): Portsmouth, NH; Exeter, NH; Fort Kent, ME; Derry, NH; Laconia, NH; Nashua, NH; and Dover, NH. Other lowest rate areas included (in ascending order): Middlebury, VT; St. Johnsbury, VT; Brattleboro, VT; Pittsfield, ME; Farmington, ME; and Colebrook, NH.

In Vermont, the rate of MRI use was 63.8 per 1,000 members. The highest rate area was Rutland (73.8) and the lowest rate area was Middlebury (53.3) — a 1.4-fold variation. Higher rates in Rutland, Springfield, Bennington, and White River Junction were similar to the Dartmouth Institute analysis of Medicare data for Vermont.

Among larger population areas, Nashua, NH, had the highest rate (85.5), while Burlington, VT, and Portland, ME, had the lowest rates (57.8 and 58.9 respectively).

Figure 2. Magnetic Resonance Imaging (MRI)

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.
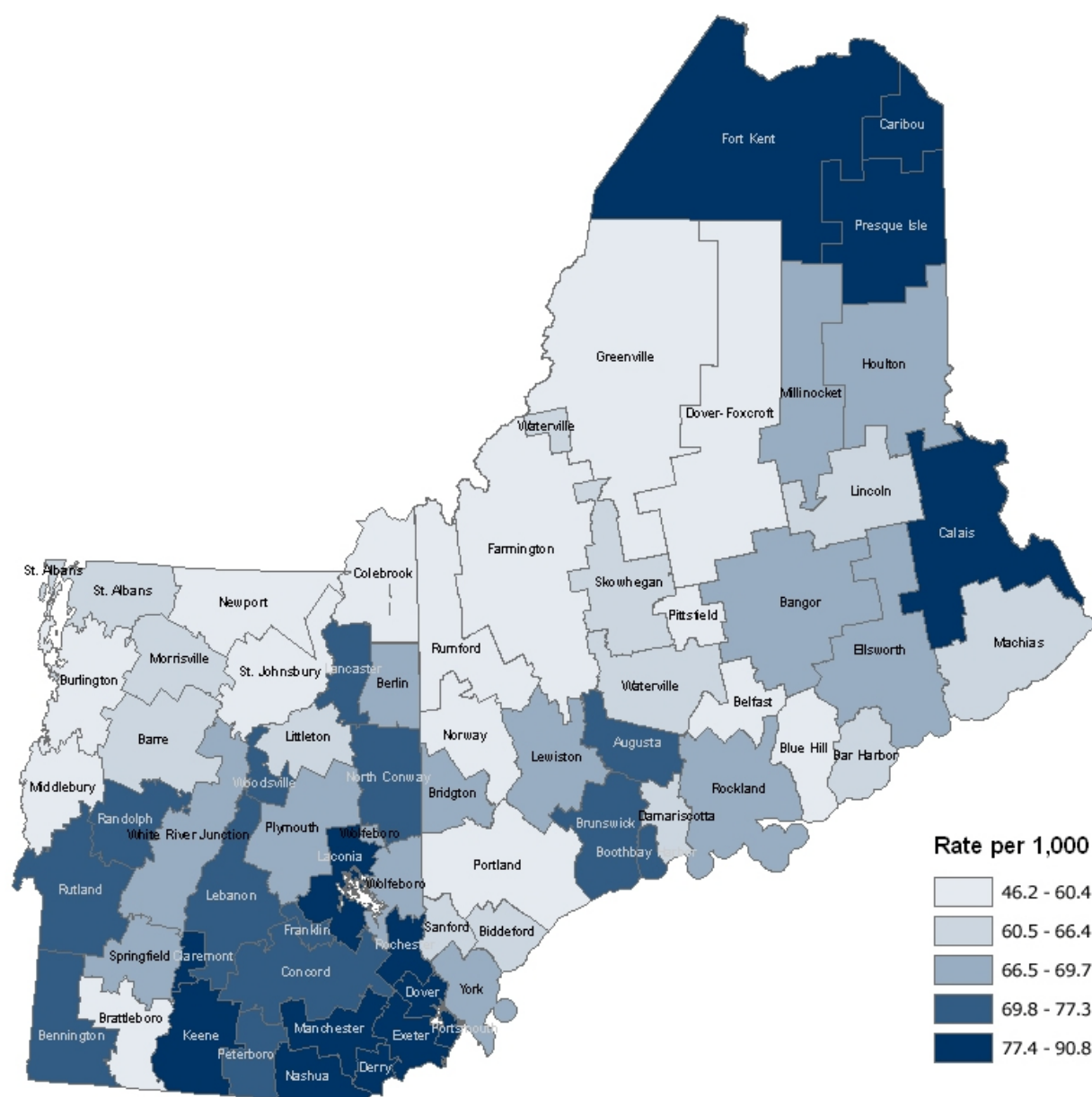
Table Set 2. Magnetic Resonance Imaging (MRI)

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT MAGNETIC RESONANCE IMAGING (MRI)					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	SERVICES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Barre	33,616	2,232	64.7	62.1	67.5
Bennington	14,683	1,070	69.8	65.6	74.1
Brattleboro	12,263	716	54.5	50.6	58.7
Burlington	91,200	5,180	57.8	56.2	59.4
Middlebury	14,166	775	53.3	49.6	57.2
Morrisville	10,195	658	62.0	57.4	66.9
Newport	8,472	550	60.4	55.5	65.7
Randolph	5,985	448	70.2	63.8	77.0
Rutland	27,358	2,132	73.8	70.7	77.0
Springfield	11,261	836	69.7	65.1	74.6
St. Albans	17,384	1,087	62.6	59.0	66.5
St. Johnsbury	9,243	529	54.4	49.9	59.2
White River Junction	16,082	1,135	67.2	63.3	71.2

NEW HAMPSHIRE MAGNETIC RESONANCE IMAGING (MRI)					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	SERVICES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Berlin	5,277	359	67.6	60.8	75.0
Claremont	6,262	504	82.0	75.0	89.5
Colebrook	1,528	94	57.8	46.7	70.7
Concord	58,755	4,431	77.3	75.1	79.6
Derry	22,887	1,918	87.6	83.7	91.6
Dover	22,938	1,801	83.5	79.7	87.5
Exeter	32,637	2,840	90.2	86.9	93.5
Franklin	7,007	538	76.5	70.2	83.2
Keene	20,889	1,919	90.8	86.8	95.0
Laconia	21,893	1,934	86.9	83.1	90.9
Lancaster	2,815	209	72.2	62.8	82.7
Lebanon	30,168	2,204	74.7	71.6	77.9

NEW HAMPSHIRE MAGNETIC RESONANCE IMAGING (MRI)					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	SERVICES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Littleton	6,289	424	65.2	59.1	71.7
Manchester	77,605	5,861	78.5	76.5	80.5
Nashua	63,233	5,240	85.5	83.2	87.9
North Conway	6,179	487	76.4	69.7	83.5
Peterborough	13,645	982	75.1	70.5	79.9
Plymouth	10,555	724	68.0	63.2	73.2
Portsmouth	12,565	1,147	90.8	85.6	96.2
Rochester	15,799	1,290	83.0	78.5	87.7
Wolfeboro	9,588	657	67.8	62.7	73.2
Woodsville	2,265	174	76.3	65.4	88.5

MAINE MAGNETIC RESONANCE IMAGING (MRI)					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	SERVICES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Augusta	30,668	2,265	72.0	69.0	75.0
Bangor	55,610	3,871	69.1	67.0	71.3
Bar Harbor	5,202	339	62.2	55.7	69.2
Belfast	7,179	463	59.6	54.3	65.3
Biddeford	35,318	2,177	61.6	59.0	64.2
Blue Hill	4,178	267	57.9	51.1	65.2
Boothbay	2,671	208	70.1	60.9	80.3
Bridgton	8,179	582	68.7	63.2	74.5
Brunswick	32,505	2,353	70.9	68.1	73.8
Calais	3,535	322	83.4	74.5	93.0
Caribou	4,877	388	77.8	70.3	86.0
Damariscotta	5,670	389	64.5	58.2	71.2
Dover-Foxcroft	6,821	441	59.8	54.3	65.6
Ellsworth	10,150	733	67.8	63.0	72.9
Farmington	12,030	694	55.3	51.2	59.6
Fort Kent	4,511	420	87.7	79.5	96.5
Greenville	862	46	46.2	33.8	61.7

MAINE					
MAGNETIC RESONANCE IMAGING (MRI)					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	SERVICES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Houlton	5,063	369	67.4	60.7	74.7
Lewiston	57,653	3,821	67.0	64.9	69.1
Lincoln	5,170	330	61.8	55.3	68.8
Machias	4,581	308	61.4	54.7	68.6
Millinocket	2,395	171	66.5	56.9	77.2
Norway	10,344	637	60.3	55.7	65.2
Pittsfield	5,462	305	55.2	49.2	61.7
Portland	158,275	9,012	58.9	57.7	60.2
Presque Isle	8,471	688	78.2	72.5	84.3
Rockland	21,024	1,480	66.5	63.1	69.9
Rumford	4,494	272	58.6	51.9	66.0
Sanford	17,539	1,088	62.9	59.2	66.7
Skowhegan	9,949	674	66.1	61.2	71.3
Waterville	30,645	1,848	60.5	57.8	63.3
York	28,706	1,908	66.8	63.8	69.8

INPATIENT USE

Inpatient Hospitalizations

METHODS

Onpoint identifies inpatient hospitalizations from the claims using bill type, revenue code, and other methods. Onpoint aggregates claims into unique hospitalizations.

RESULTS

Results are provided in Figure 3 and Table Set 3.

The rate of inpatient hospitalization for the combined tri-state area was 51.3 per 1,000 members. For inpatient hospitalizations, the highest rate area was Claremont, NH (67.3), and the lowest rate area was Brattleboro, VT (41.2) — a 1.6-fold variation.

Other highest rate areas included (in descending order): Greenville, ME; Boothbay, ME; Fort Kent, ME; Bennington, VT; Pittsfield, ME; Calais, ME; and Portsmouth, NH. Other lowest rate areas included (in ascending order): Millinocket, ME; Burlington, VT; White River Junction, VT; Plymouth, NH; Portland, ME; Skowhegan, ME; and Blue Hill, ME.

In Vermont, the rate of inpatient hospitalization was 48.5 per 1,000 members. The highest rate area was Bennington (63.9) and the lowest rate area was Brattleboro (41.2) — a 1.6-fold variation. Higher rates in Bennington and Rutland and lower rates in Brattleboro and Burlington also were identified in the Dartmouth Institute analysis of Medicare data for Vermont.

Among larger population areas, Nashua, NH, had the highest rate (57.1), while Burlington, VT, and Portland, ME, had the lowest rates (44.3 and 45.9, respectively).

The tri-state rate of inpatient hospitalizations per 1,000 (51.3) was lower than the national HEDIS commercial HMO and PPO rates (57.0 and 54.7, respectively). Vermont's statewide rate of inpatient hospitalization was lower than national rates and Maine and New Hampshire rates.

Figure 3. Inpatient Hospitalizations

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate per 1,000

	41.2 - 47.5
	47.6 - 51.7
	51.8 - 53.6
	53.7 - 58.4
	58.5 - 67.3
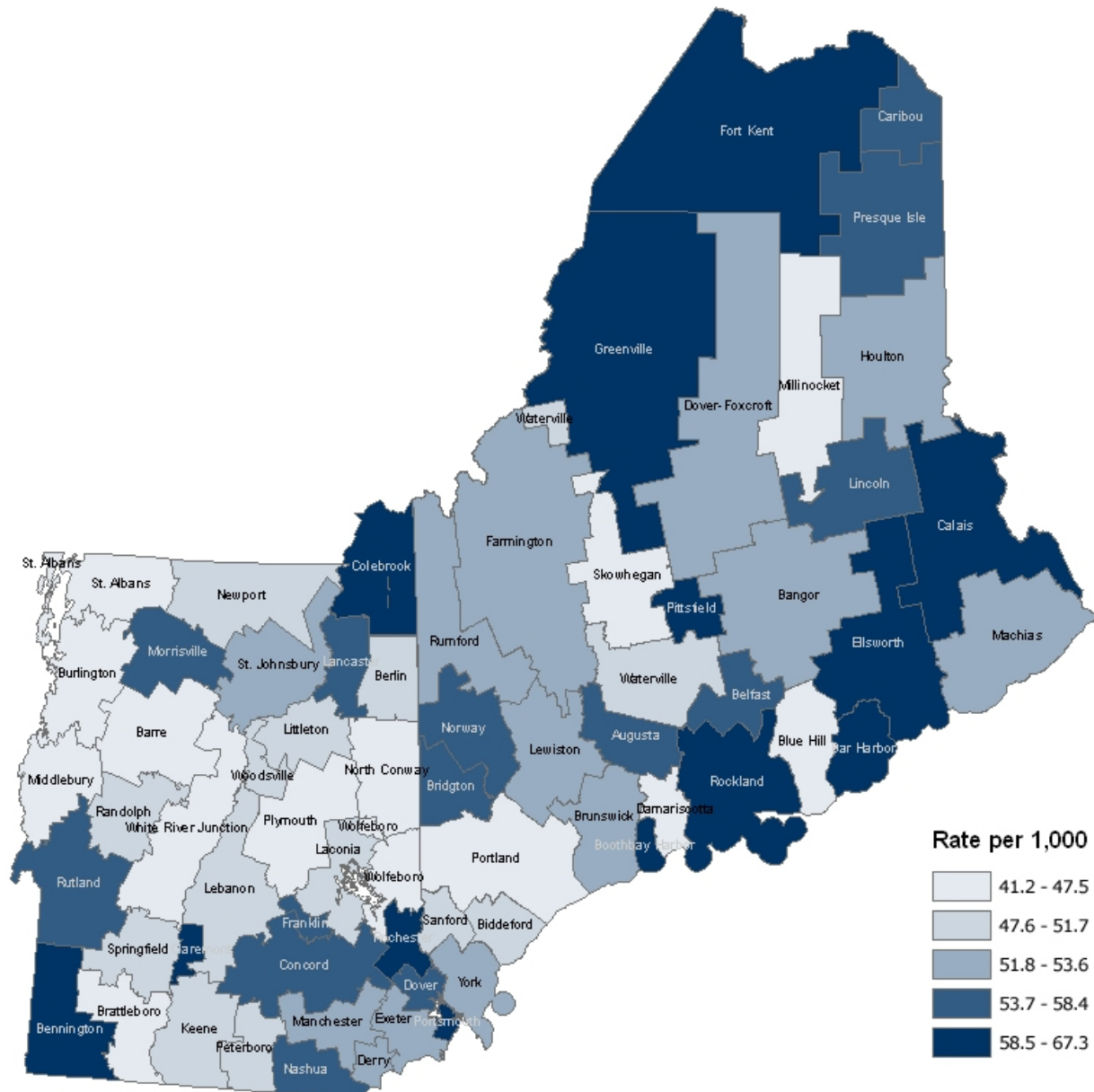
Table Set 3. Inpatient Hospitalizations

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT INPATIENT HOSPITALIZATIONS					
HOSPITAL SERVICE AREA	**AVERAGE MEMBERS**	**HOSPITALIZATIONS**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Barre	33,616	1,605	47.2	44.9	49.6
Bennington	14,683	951	63.9	59.9	68.1
Brattleboro	12,263	520	41.2	37.8	44.9
Burlington	91,200	4,025	44.3	42.9	45.7
Middlebury	14,166	672	47.0	43.5	50.7
Morrisville	10,195	558	53.7	49.4	58.4
Newport	8,472	438	50.0	45.5	54.9
Randolph	5,985	302	49.2	43.8	55.1
Rutland	27,358	1,514	54.3	51.6	57.1
Springfield	11,261	574	50.0	46.0	54.2
St. Albans	17,384	818	47.0	43.8	50.3
St. Johnsbury	9,243	489	51.8	47.4	56.7
White River Junction	16,082	730	44.7	41.5	48.1

NEW HAMPSHIRE INPATIENT HOSPITALIZATIONS					
HEALTH ANALYSIS AREA	**AVERAGE MEMBERS**	**HOSPITALIZATIONS**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Berlin	5,277	273	51.7	45.8	58.2
Claremont	6,262	420	67.3	61.0	74.0
Colebrook	1,528	96	61.0	49.4	74.5
Concord	58,755	3,185	54.8	52.9	56.8
Derry	22,887	1,186	53.0	50.0	56.1
Dover	22,938	1,285	56.9	53.9	60.1
Exeter	32,637	1,695	52.7	50.2	55.3
Franklin	7,007	410	58.3	52.8	64.2
Keene	20,889	1,023	48.9	45.9	52.0
Laconia	21,893	1,113	50.7	47.7	53.7
Lancaster	2,815	164	57.6	49.1	67.1
Lebanon	30,168	1,485	49.7	47.2	52.3

NEW HAMPSHIRE INPATIENT HOSPITALIZATIONS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	HOSPITALIZATIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Littleton	6,289	319	50.2	44.8	56.0
Manchester	77,605	4,073	53.2	51.6	54.8
Nashua	63,233	3,547	57.1	55.3	59.0
North Conway	6,179	298	47.7	42.5	53.5
Peterborough	13,645	650	49.0	45.3	52.9
Plymouth	10,555	481	45.3	41.4	49.6
Portsmouth	12,565	777	61.2	57.0	65.7
Rochester	15,799	923	58.5	54.8	62.4
Wolfeboro	9,588	453	47.2	43.0	51.8
Woodsville	2,265	114	50.2	41.4	60.3

MAINE INPATIENT HOSPITALIZATIONS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	HOSPITALIZATIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Augusta	30,668	1,698	54.7	52.2	57.4
Bangor	55,610	2,996	53.5	51.6	55.4
Bar Harbor	5,202	311	58.5	52.2	65.4
Belfast	7,179	405	55.0	49.7	60.6
Biddeford	35,318	1,730	49.0	46.7	51.3
Blue Hill	4,178	201	46.6	40.4	53.5
Boothbay	2,671	179	64.5	55.4	74.7
Bridgton	8,179	449	54.6	49.7	59.9
Brunswick	32,505	1,725	52.8	50.4	55.4
Calais	3,535	232	62.9	55.1	71.6
Caribou	4,877	275	55.9	49.5	62.9
Damariscotta	5,670	274	47.5	42.0	53.4
Dover-Foxcroft	6,821	368	52.4	47.2	58.1
Ellsworth	10,150	638	61.1	56.4	66.0
Farmington	12,030	654	53.6	49.6	57.9
Fort Kent	4,511	296	64.1	57.0	71.8
Greenville	862	61	66.6	51.0	85.6

MAINE					
INPATIENT HOSPITALIZATIONS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	HOSPITALIZATIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Houlton	5,063	279	53.2	47.2	59.8
Lewiston	57,653	3,028	52.6	50.7	54.5
Lincoln	5,170	289	55.5	49.3	62.3
Machias	4,581	251	52.3	46.1	59.2
Millinocket	2,395	105	43.1	35.3	52.2
Norway	10,344	598	57.6	53.0	62.4
Pittsfield	5,462	347	63.3	56.8	70.3
Portland	158,275	7,187	45.9	44.8	46.9
Presque Isle	8,471	480	55.7	50.8	60.9
Rockland	21,024	1,302	61.0	57.7	64.4
Rumford	4,494	240	53.2	46.7	60.4
Sanford	17,539	873	50.1	46.9	53.6
Skowhegan	9,949	463	46.1	42.0	50.5
Waterville	30,645	1,464	47.8	45.4	50.3
York	28,706	1,484	52.2	49.6	54.9

Inpatient Readmissions within 30 Days

METHODS

Inpatient hospitalizations were tracked for 30 days post-discharge for each patient, and the number of post-discharge readmissions were counted. While some studies exclude some types of readmission, no exclusions were made for this initial reporting. A readmission was counted regardless of whether the diagnostic category was the same as the prior hospitalization. Note that readmission rate is expressed as a population-based rate per 1,000 members covered and not as a rate per hospitalized patient.

RESULTS

Results are provided in Figure 4 and Table Set 4.

The rate of inpatient readmission for the combined tri-state area was 5.70 per 1,000 members. The highest rate area was Fort Kent, ME (11.31), and the lowest rate area was Woodsville, NH (2.60) — a more than fourfold variation.

Other highest rate areas included (in descending order): Calais, ME; Ellsworth, ME; Boothbay, ME; Rockland, ME; Bennington, VT; Claremont, NH; and Presque Isle, ME. Other lowest rate areas included (in ascending order): Randolph, VT; Burlington, VT; North Conway, NH; Sanford, ME; Middlebury, VT; Peterborough, NH; and White River Junction, VT.

In Vermont, the rate of inpatient readmission was 4.84 per 1,000 members. The highest rate area was Bennington (9.13) and the lowest rate area was Randolph (3.27) — a 2.8-fold variation. Bennington (9.13) and Rutland (7.16) had the highest rates, while Randolph (3.27) and Burlington (3.38) had the lowest rates.

Among larger population areas, Bangor, ME, had the highest rate (6.23), while Burlington, VT, had the lowest rate (3.38).

Figure 4. Inpatient Readmissions within 30 Days

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate per 1,000

	2.60 - 4.82
	4.83 - 5.51
	5.52 - 6.28
	6.29 - 7.16
	7.17 - 11.31
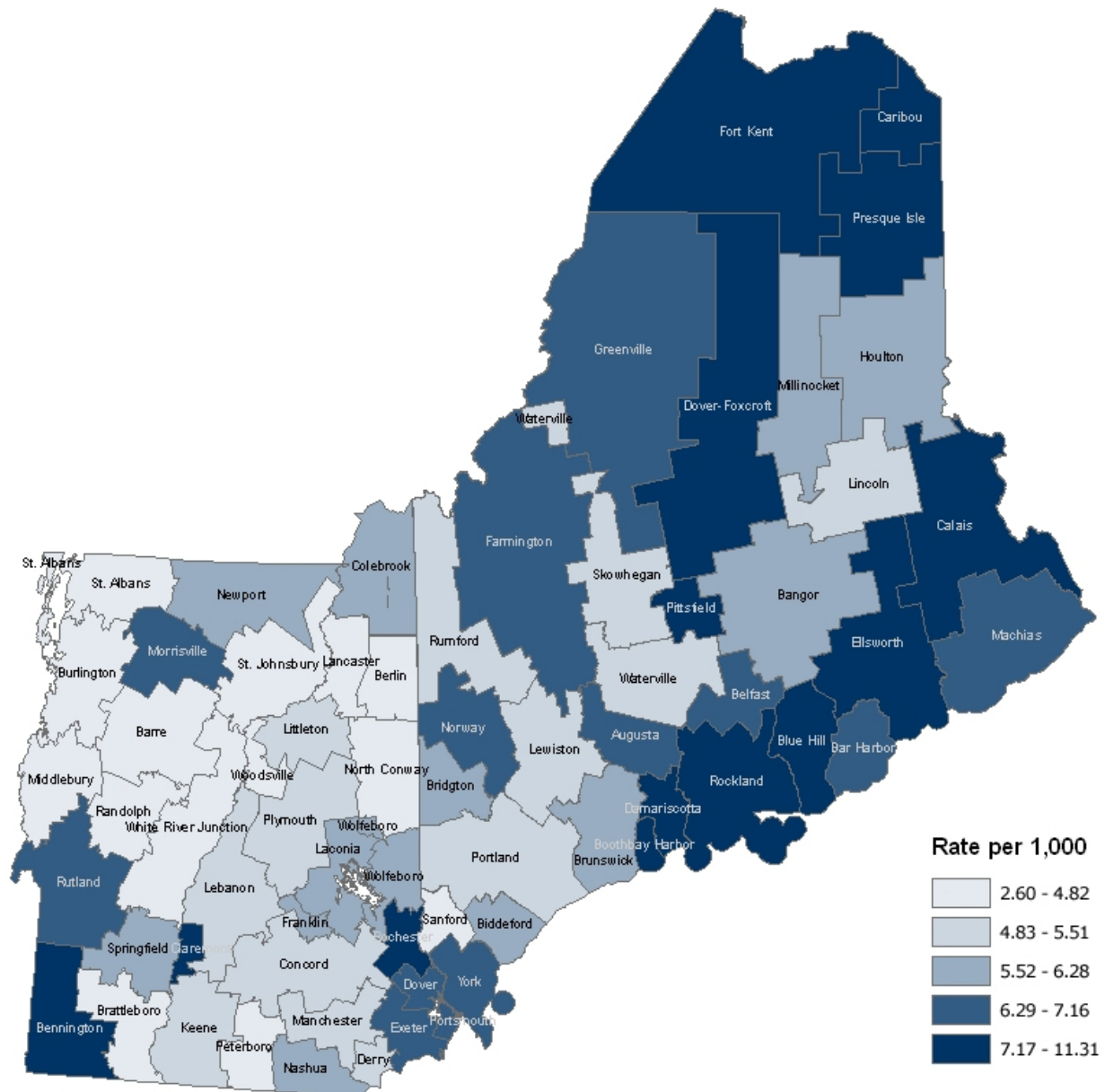
Table Set 4. Inpatient Readmission within 30 Days

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT INPATIENT READMISSIONS WITHIN 30 DAYS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	READMISSIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Barre	33,616	151	4.37	3.70	5.13
Bennington	14,683	141	9.13	7.69	10.77
Brattleboro	12,263	56	4.23	3.20	5.49
Burlington	91,200	302	3.38	3.01	3.79
Middlebury	14,166	56	3.83	2.89	4.97
Morrisville	10,195	71	6.66	5.20	8.41
Newport	8,472	51	5.61	4.18	7.38
Randolph	5,985	21	3.27	2.02	5.00
Rutland	27,358	208	7.16	6.22	8.20
Springfield	11,261	67	5.56	4.31	7.06
St. Albans	17,384	78	4.50	3.56	5.62
St. Johnsbury	9,243	47	4.82	3.54	6.41
White River Junction	16,082	68	4.01	3.11	5.09

NEW HAMPSHIRE INPATIENT READMISSIONS WITHIN 30 DAYS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	READMISSIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Berlin	5,277	25	4.67	3.02	6.90
Claremont	6,262	56	9.11	6.88	11.83
Colebrook	1,528	10	6.09	2.92	11.21
Concord	58,755	317	5.51	4.92	6.15
Derry	22,887	120	5.46	4.53	6.53
Dover	22,938	146	6.90	5.82	8.11
Exeter	32,637	208	6.61	5.74	7.57
Franklin	7,007	44	6.28	4.56	8.43
Keene	20,889	116	5.48	4.53	6.58
Laconia	21,893	131	5.85	4.89	6.94
Lancaster	2,815	12	4.13	2.13	7.21
Lebanon	30,168	153	5.18	4.39	6.07

NEW HAMPSHIRE INPATIENT READMISSIONS WITHIN 30 DAYS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	READMISSIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Littleton	6,289	32	4.90	3.35	6.92
Manchester	77,605	368	4.95	4.46	5.48
Nashua	63,233	363	5.90	5.31	6.54
North Conway	6,179	23	3.59	2.28	5.39
Peterborough	13,645	52	3.93	2.94	5.15
Plymouth	10,555	52	4.86	3.63	6.38
Portsmouth	12,565	83	6.64	5.29	8.23
Rochester	15,799	126	8.15	6.79	9.71
Wolfeboro	9,588	59	6.03	4.59	7.78
Woodsville	2,265	6	2.60	0.95	5.66

MAINE INPATIENT READMISSIONS WITHIN 30 DAYS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	READMISSIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Augusta	30,668	201	6.42	5.56	7.37
Bangor	55,610	348	6.23	5.59	6.92
Bar Harbor	5,202	37	6.73	4.74	9.28
Belfast	7,179	53	6.82	5.11	8.93
Biddeford	35,318	218	6.16	5.37	7.03
Blue Hill	4,178	34	7.26	5.03	10.15
Boothbay	2,671	29	9.65	6.46	13.85
Bridgton	8,179	53	6.20	4.65	8.12
Brunswick	32,505	201	6.02	5.21	6.91
Calais	3,535	39	10.08	7.17	13.78
Caribou	4,877	37	7.40	5.21	10.20
Damariscotta	5,670	45	7.39	5.39	9.88
Dover-Foxcroft	6,821	56	7.56	5.71	9.82
Ellsworth	10,150	106	9.81	8.03	11.86
Farmington	12,030	89	7.06	5.67	8.69
Fort Kent	4,511	54	11.31	8.50	14.76
Greenville	862	7	6.93	2.78	14.27

HOSPITAL SERVICE AREA	AVERAGE MEMBERS	READMISSIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Houlton	5,063	33	6.02	4.14	8.45
Lewiston	57,653	305	5.36	4.77	6.00
Lincoln	5,170	29	5.38	3.60	7.72
Machias	4,581	35	6.98	4.86	9.71
Millinocket	2,395	16	6.16	3.52	10.01
Norway	10,344	73	6.88	5.39	8.65
Pittsfield	5,462	45	8.16	5.95	10.91
Portland	158,275	784	5.17	4.81	5.54
Presque Isle	8,471	76	8.64	6.81	10.81
Rockland	21,024	206	9.18	7.97	10.52
Rumford	4,494	23	4.96	3.15	7.45
Sanford	17,539	66	3.81	2.95	4.85
Skowhegan	9,949	55	5.39	4.06	7.02
Waterville	30,645	168	5.51	4.71	6.41
York	28,706	189	6.57	5.67	7.58

Table title:

MAINE
INPATIENT READMISSIONS WITHIN 30 DAYS

Inpatient Hospitalizations for Ambulatory Care Sensitive Conditions

METHODS

Inpatient hospitalizations for ambulatory care sensitive conditions (ACSCs) are considered preventable/avoidable hospitalizations. These ACSCs involve diagnoses where timely and effective ambulatory care (usually primary care) can help prevent or reduce the risk of hospitalization. They include:

- Chronic conditions (e.g., diabetes, asthma, congestive heart failure) where effective management often can prevent more serious flare-ups that might require hospital admission for treatment

- Acute conditions (e.g., ear/nose/throat infections, gastroenteritis, cellulitis) where early intervention often can prevent more serious progression of the condition that might require hospital admission for treatment

- Preventable illnesses (e.g., pertussis, tetanus, rheumatic fever, and so on) where immunization can prevent the onset of the disease, and any hospitalization represents a serious failure of the healthcare delivery system

The following specific conditions (ICD-9 codes) were used (source: Agency for Healthcare Research and Quality, "Using Administrative Data To Monitor Access, Identify Disparities, and Assess Performance of the Safety Net"):

- Congenital syphilis (090)

- Immunization-related and preventable conditions (033, 037, 045, 320.0, 390, 391)

- Grand mal status and other epileptic convulsions (345)

- Convulsions "A" (780.3)

- Convulsions "B" (780.3)

- Severe ear, nose, and throat infections (382, 462, 463, 465, 472.1)

- Pulmonary tuberculosis (011)

- Other tuberculosis (012–018)

- Chronic obstructive pulmonary disease (491, 492, 494, 496, 466.0)

- Bacterial pneumonia (481, 482.2, 482.3, 482.9, 483, 485, 486)

- Asthma (493)

- Congestive heart failure (428, 402.01, 402.11, 402.91, 518.4)

- Hypertension (401.0, 401.9, 402.00, 402.10, 402.90)

- Angina (411.1, 411.8, 413)

- Cellulitis (681, 682, 683, 686)

- Skin grafts with cellulitis (DRG 263, DRG 264)

- Diabetes "A" (250.1, 250.2, 250.3)

- Diabetes "B" (250.8, 250.9)

- Diabetes "C" (250.0)

- Hypoglycemia (251.2)

- Gastroenteritis (558.9)

- Kidney/urinary infection (590, 599.0, 599.9)

- Dehydration - volume depletion (276.5)

- Iron deficiency anemia (280.1, 280.8, 280.9)

- Failure to thrive (783.4)

- Pelvic inflammatory disease (614)

- Dental conditions (521, 522, 523, 525, 528)

This list includes all of the diagnostic categories that were used in the Dartmouth Institute analysis of ambulatory care sensitive conditions.

RESULTS

Results are provided in Figure 5 and Table Set 5.

The rate of inpatient hospitalizations for ambulatory care sensitive conditions for the combined tri-state area was 3.90 per 1,000 members. The highest rate area was Claremont, NH (8.41), and the lowest rate area was Burlington, VT (1.96) — a more than fourfold variation.

Other highest rate areas included (in descending order): Greenville, ME; Houlton, ME; Colebrook, NH; Millinocket, ME; Lancaster, NH; Franklin, NH; and Fort Kent, ME. Other lowest rate areas included (in ascending order): St. Albans, VT; Brattleboro, VT; Middlebury, VT; Peterborough, NH; Plymouth, NH; Portland, ME; and Caribou, ME.

In Vermont, the rate of inpatient hospitalization for ambulatory care sensitive conditions was 2.98 per 1,000 members. The highest rate area was Bennington (5.98) and the lowest rate area was Burlington (1.96) — a threefold variation. The Dartmouth Institute analysis of Medicare data for Vermont found highest rates in Bennington and Rutland.

Among larger population areas, Manchester, NH, had the highest rate (5.18), while Burlington, VT, had the lowest rate (1.96).

Figure 5. Inpatient Hospitalizations for Ambulatory Care Sensitive Conditions

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate per 1,000

	1.96 - 3.31
	3.32 - 3.74
	3.75 - 4.47
	4.48 - 5.48
	5.49 - 8.41
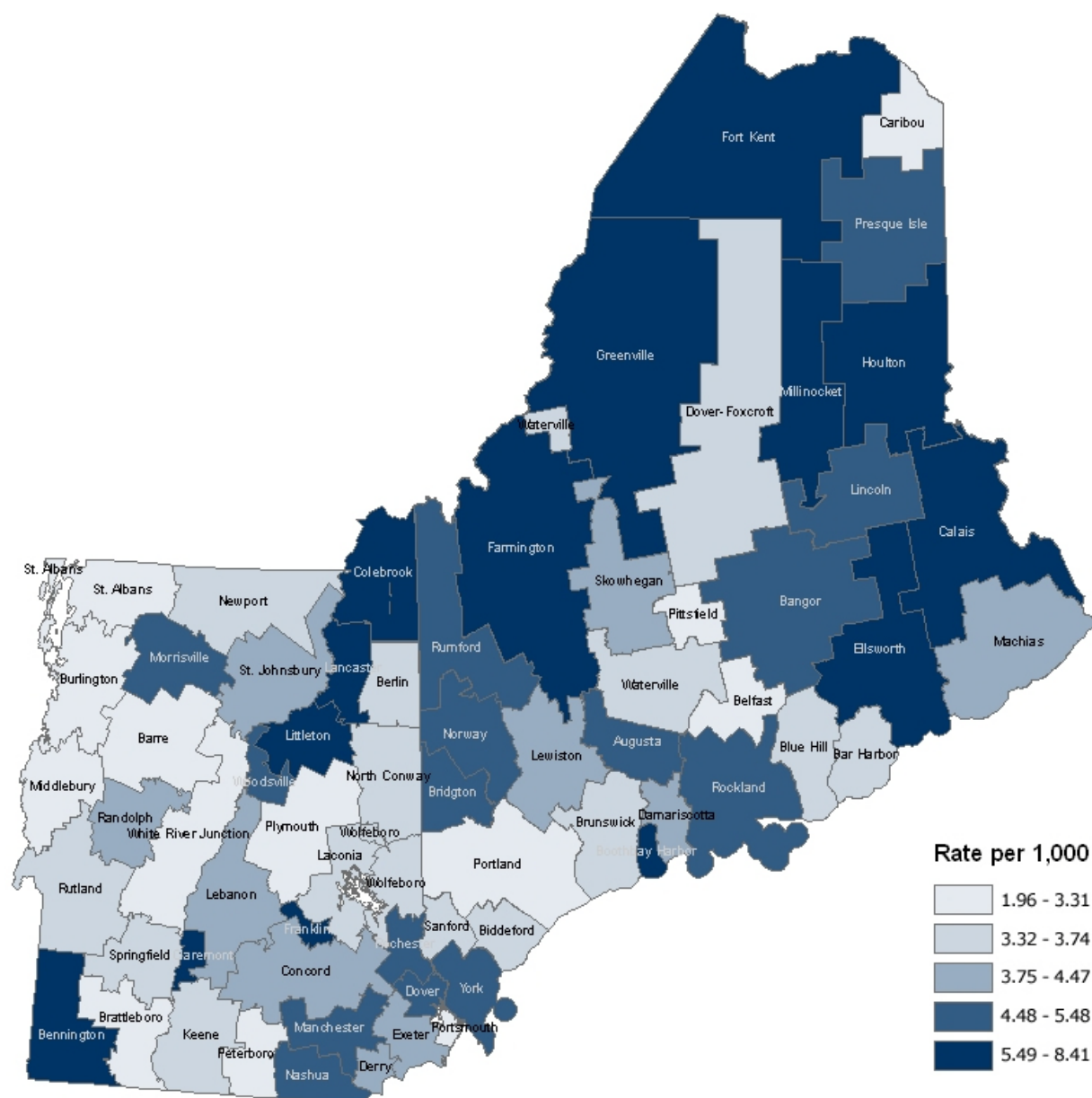
Table Set 5. Inpatient Hospitalizations for Ambulatory Care Sensitive Conditions

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT INPATIENT HOSPITALIZATIONS FOR AMBULATORY CARE SENSITIVE CONDITIONS					
HOSPITAL SERVICE AREA	**AVERAGE MEMBERS**	**HOSPITALIZATIONS**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Barre	33,616	107	3.13	2.57	3.78
Bennington	14,683	91	5.98	4.81	7.34
Brattleboro	12,263	28	2.16	1.44	3.13
Burlington	91,200	175	1.96	1.68	2.27
Middlebury	14,166	32	2.21	1.51	3.12
Morrisville	10,195	47	4.48	3.29	5.95
Newport	8,472	33	3.74	2.58	5.25
Randolph	5,985	24	3.83	2.45	5.70
Rutland	27,358	103	3.61	2.95	4.38
Springfield	11,261	44	3.73	2.71	5.01
St. Albans	17,384	37	2.14	1.51	2.95
St. Johnsbury	9,243	36	3.76	2.63	5.20
White River Junction	16,082	54	3.23	2.43	4.22

NEW HAMPSHIRE INPATIENT HOSPITALIZATIONS FOR AMBULATORY CARE SENSITIVE CONDITIONS					
HEALTH ANALYSIS AREA	**AVERAGE MEMBERS**	**HOSPITALIZATIONS**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Berlin	5,277	20	3.74	2.29	5.78
Claremont	6,262	52	8.41	6.28	11.03
Colebrook	1,528	12	7.48	3.86	13.07
Concord	58,755	249	4.28	3.76	4.84
Derry	22,887	84	3.75	2.99	4.64
Dover	22,938	102	4.73	3.86	5.75
Exeter	32,637	131	4.10	3.43	4.87
Franklin	7,007	45	6.44	4.70	8.62
Keene	20,889	70	3.32	2.59	4.19
Laconia	21,893	75	3.35	2.64	4.21
Lancaster	2,815	19	6.59	3.97	10.29

NEW HAMPSHIRE
INPATIENT HOSPITALIZATIONS FOR AMBULATORY CARE SENSITIVE CONDITIONS

HEALTH ANALYSIS AREA	AVERAGE MEMBERS	HOSPITALIZATIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Lebanon	30,168	125	4.19	3.49	4.99
Littleton	6,289	40	6.20	4.43	8.44
Manchester	77,605	390	5.18	4.68	5.72
Nashua	63,233	295	4.73	4.20	5.30
North Conway	6,179	21	3.32	2.05	5.07
Peterborough	13,645	34	2.51	1.74	3.51
Plymouth	10,555	30	2.81	1.90	4.01
Portsmouth	12,565	41	3.30	2.37	4.48
Rochester	15,799	70	4.51	3.52	5.70
Wolfeboro	9,588	35	3.57	2.49	4.96
Woodsville	2,265	11	4.77	2.38	8.54

MAINE
INPATIENT HOSPITALIZATIONS FOR AMBULATORY CARE SENSITIVE CONDITIONS

HOSPITAL SERVICE AREA	AVERAGE MEMBERS	HOSPITALIZATIONS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Augusta	30,668	142	4.57	3.85	5.39
Bangor	55,610	253	4.54	4.00	5.14
Bar Harbor	5,202	20	3.69	2.26	5.71
Belfast	7,179	23	3.03	1.92	4.55
Biddeford	35,318	120	3.39	2.81	4.05
Blue Hill	4,178	17	3.73	2.17	5.97
Boothbay	2,671	16	5.49	3.14	8.92
Bridgton	8,179	42	4.96	3.57	6.70
Brunswick	32,505	123	3.70	3.07	4.41
Calais	3,535	23	6.12	3.88	9.18
Caribou	4,877	14	2.83	1.55	4.75
Damariscotta	5,670	25	4.16	2.69	6.14
Dover-Foxcroft	6,821	27	3.74	2.46	5.44
Ellsworth	10,150	66	6.24	4.83	7.94
Farmington	12,030	77	6.19	4.88	7.73
Fort Kent	4,511	30	6.41	4.33	9.16

MAINE					
INPATIENT HOSPITALIZATIONS FOR AMBULATORY CARE SENSITIVE CONDITIONS					
HOSPITAL SERVICE AREA	**AVERAGE MEMBERS**	**HOSPITALIZATIONS**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Greenville	862	8	8.27	3.57	16.30
Houlton	5,063	40	7.49	5.35	10.20
Lewiston	57,653	232	4.07	3.57	4.63
Lincoln	5,170	27	5.06	3.33	7.36
Machias	4,581	21	4.32	2.67	6.60
Millinocket	2,395	19	7.48	4.50	11.68
Norway	10,344	55	5.21	3.93	6.78
Pittsfield	5,462	17	3.10	1.81	4.96
Portland	158,275	433	2.83	2.57	3.10
Presque Isle	8,471	43	4.95	3.58	6.66
Rockland	21,024	99	4.48	3.64	5.45
Rumford	4,494	21	4.57	2.83	6.99
Sanford	17,539	59	3.39	2.58	4.37
Skowhegan	9,949	44	4.35	3.16	5.84
Waterville	30,645	106	3.47	2.84	4.20
York	28,706	145	5.00	4.22	5.88

OUTPATIENT USE

Outpatient Emergency Department Visits

METHODS

Identification of outpatient emergency department (ED) visits was performed using specifications defined by NCQA HEDIS ambulatory care specifications. Claims with Uniform Billing (UB) revenue codes 0450–0459 and 0981 or CPT codes 99281–99285 were used; inpatient stays were excluded.

RESULTS

Results are provided in Figure 6 and Table Set 6.

The rate of outpatient ED visits for the combined tri-state area was 218.2 per 1,000 members. For outpatient ED visits, the highest rate area was Caribou, ME (438.9), and the lowest rate area was Burlington, VT (125.1) — a 3.5-fold variation.

Other highest rate areas included (in descending order): Skowhegan, ME; Calais, ME; Greenville, ME; Millinocket, ME; Laconia, NH; Woodsville, NH; and Pittsfield, ME. Other lowest rate areas included (in ascending order): Brattleboro, VT; Portland, ME; Keene, NH; Bennington, VT; Middlebury, VT; Bangor, ME; and Manchester, NH.

In Vermont, the rate of outpatient ED visits was 182.2 per 1,000 members. The highest rate area was St. Albans (267.2) and the lowest rate area was Burlington (125.1) — a twofold variation. Compared to the Dartmouth Institute analysis, both similarities and differences were found. Both analyses identified high ED use rates for St. Albans and Rutland and low ED use rates for Brattleboro, Middlebury, and White River Junction. The Dartmouth Institute, however, did not find a low rate of ED use for Burlington based on Medicare claims data.

Among larger population areas, Concord, NH, and Lewiston, ME, had the highest rates (245.6 and 239.0, respectively), while Burlington, VT, and Portland, ME, had the lowest rates (125.1 and 169.2, respectively) of outpatient ED use.

Compared to the reported NCQA HEDIS commercial national averages for HMO (194.5) and PPO (181.3) plans, the tri-state rate of 218.2 per 1,000 members was higher. Vermont's rate of 182.2 per 1,000 members was lower than national HMO and similar to national PPO.

Figure 6. Outpatient Emergency Department Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate per 1,000

	125 - 207
	208 - 229
	230 - 261
	262 - 295
	296 - 439
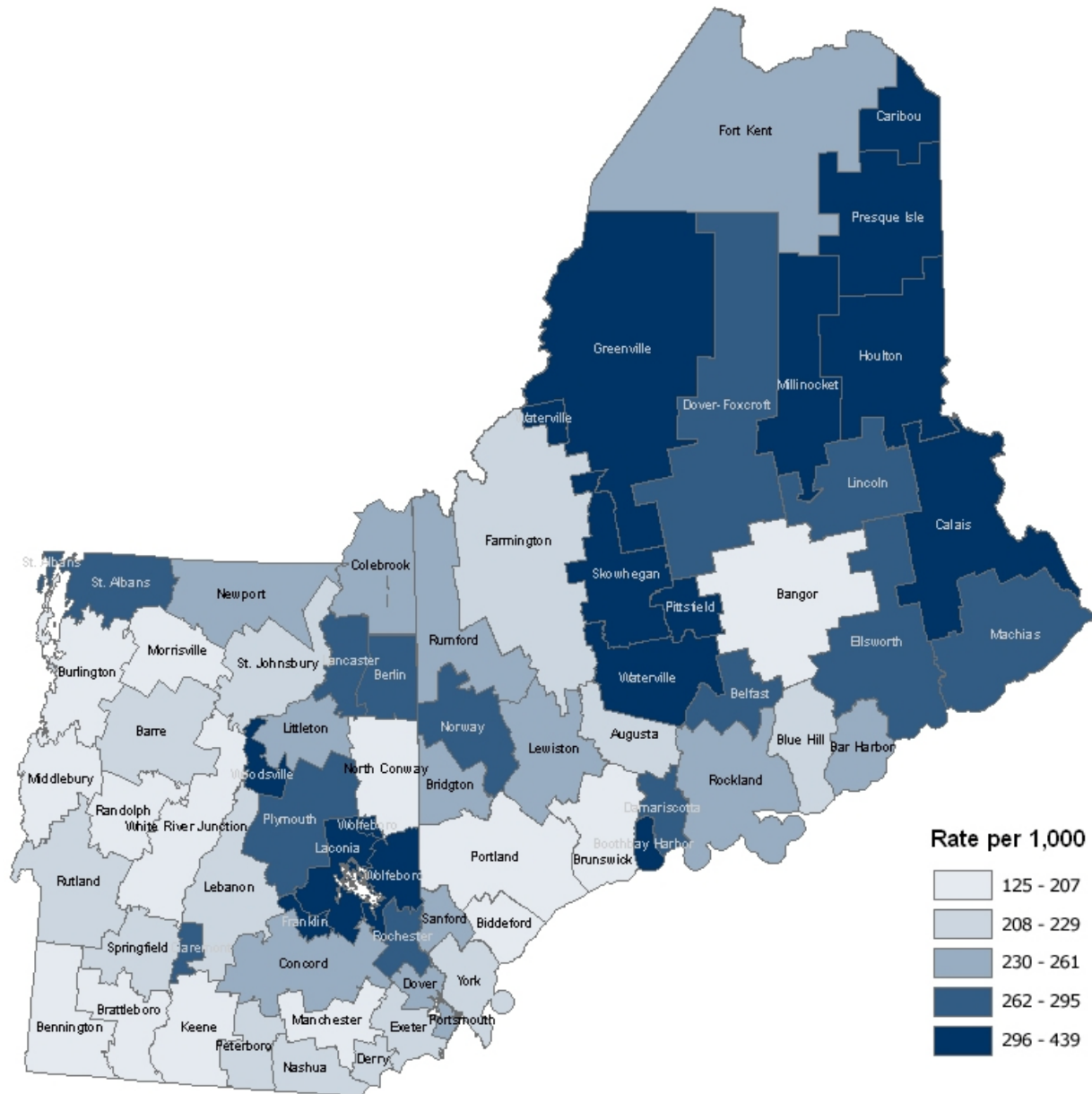
Table Set 6. Outpatient Emergency Department Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT OUTPATIENT EMERGENCY DEPARTMENT VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Barre	33,616	7,336	219.7	214.7	224.8
Bennington	14,683	2,655	183.4	176.5	190.5
Brattleboro	12,263	1,854	154.2	147.3	161.4
Burlington	91,200	11,478	125.1	122.8	127.4
Middlebury	14,166	2,610	185.9	178.8	193.1
Morrisville	10,195	2,088	207.0	198.2	216.1
Newport	8,472	2,036	244.2	233.7	255.1
Randolph	5,985	1,180	200.9	189.6	212.7
Rutland	27,358	6,147	228.5	222.8	234.3
Springfield	11,261	2,433	220.3	211.6	229.2
St. Albans	17,384	4,653	267.2	259.6	275.0
St. Johnsbury	9,243	1,906	209.0	199.7	218.6
White River Junction	16,082	3,162	199.5	192.6	206.6

NEW HAMPSHIRE OUTPATIENT EMERGENCY DEPARTMENT VISITS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Berlin	5,277	1,446	275.2	261.2	289.7
Claremont	6,262	1,851	293.9	280.7	307.7
Colebrook	1,528	362	240.9	216.8	267.1
Concord	58,755	14,498	245.6	241.7	249.7
Derry	22,887	5,160	223.7	217.6	229.9
Dover	22,938	6,102	260.5	254.0	267.1
Exeter	32,637	7,105	215.9	210.9	221.0
Franklin	7,007	2,234	318.5	305.4	331.9
Keene	20,889	3,765	180.9	175.2	186.8
Laconia	21,893	7,270	334.3	326.6	342.1
Lancaster	2,815	803	287.6	268.1	308.2
Lebanon	30,168	6,461	213.1	207.9	218.4

NEW HAMPSHIRE OUTPATIENT EMERGENCY DEPARTMENT VISITS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Littleton	6,289	1,535	246.6	234.4	259.3
Manchester	77,605	15,037	191.7	188.6	194.8
Nashua	63,233	13,688	215.5	211.9	219.1
North Conway	6,179	1,250	204.3	193.2	216.0
Peterborough	13,645	2,911	212.6	204.9	220.4
Plymouth	10,555	2,848	270.6	260.8	280.7
Portsmouth	12,565	2,905	230.3	222.0	238.8
Rochester	15,799	4,165	261.7	253.8	269.8
Wolfeboro	9,588	2,817	295.8	284.9	306.9
Woodsville	2,265	735	326.3	303.1	350.7

MAINE OUTPATIENT EMERGENCY DEPARTMENT VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Augusta	30,668	7,013	229.7	224.3	235.1
Bangor	55,610	10,655	191.5	187.9	195.2
Bar Harbor	5,202	1,182	230.3	217.3	243.8
Belfast	7,179	1,899	270.2	258.1	282.6
Biddeford	35,318	7,245	205.3	200.6	210.1
Blue Hill	4,178	872	215.7	201.6	230.5
Boothbay	2,671	786	304.1	283.2	326.1
Bridgton	8,179	1,929	239.1	228.5	250.0
Brunswick	32,505	6,274	194.6	189.8	199.5
Calais	3,535	1,287	371.7	351.6	392.5
Caribou	4,877	2,127	438.9	420.4	457.9
Damariscotta	5,670	1,464	263.4	250.1	277.3
Dover-Foxcroft	6,821	1,848	276.9	264.4	289.8
Ellsworth	10,150	2,703	270.2	260.1	280.6
Farmington	12,030	2,551	214.7	206.4	223.2
Fort Kent	4,511	1,024	230.1	216.2	244.6
Greenville	862	284	343.8	305.0	386.2

MAINE OUTPATIENT EMERGENCY DEPARTMENT VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Houlton	5,063	1,561	314.2	298.8	330.2
Lewiston	57,653	13,832	239.0	235.0	243.0
Lincoln	5,170	1,429	280.0	265.7	295.0
Machias	4,581	1,221	271.8	256.8	287.5
Millinocket	2,395	796	340.6	317.4	365.1
Norway	10,344	2,808	273.5	263.5	283.9
Pittsfield	5,462	1,752	321.6	306.8	337.1
Portland	158,275	27,086	169.2	167.2	171.2
Presque Isle	8,471	2,609	310.6	298.8	322.8
Rockland	21,024	5,141	249.2	242.4	256.1
Rumford	4,494	1,146	257.5	242.8	272.8
Sanford	17,539	4,274	243.2	235.9	250.6
Skowhegan	9,949	3,708	374.9	362.9	387.2
Waterville	30,645	9,114	297.0	290.9	303.2
York	28,706	6,569	229.5	224.0	235.2

Potentially Avoidable Outpatient Emergency Department Visits

METHODS

Identification of outpatient emergency department (ED) visits was performed using specifications defined by NCQA HEDIS ambulatory care specifications. Claims with Uniform Billing (UB) revenue codes 0450–0459 and 0981 or CPT codes 99281–99285 were used; inpatient stays were excluded.

While methods have been developed nationally to define ambulatory care sensitive conditions that measure potentially avoidable inpatient care, no nationally accepted methods exist for potentially avoidable outpatient emergency department use.

Through work for the New Hampshire Comprehensive Health Care Information System (NH CHIS) and the New Hampshire Department of Health and Human Services (NH DHHS), Onpoint Health Data has developed a set of diagnostic categories that are most likely to represent conditions that are non-urgent and/or treatable in primary care settings. These included diagnoses where outpatient ED use was common and/or office visits were common, but inpatient hospitalization was extremely rare. Commercial and Medicaid populations were evaluated independently and diagnostic codes that met the criteria and had a significantly large volume of outpatient ED visits in both populations were selected. Based on that work, the following specific conditions (ICD-9 codes) were used in this study:

- 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, and cough (466.0, 786.2, 490)

- Asthma (493 – all 4th and 5th digits included)

- 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)

RESULTS

Results are provided in Figure 7 and Table Set 7.

The rate of potentially avoidable outpatient ED visits for the combined tri-state area was 41.5 per 1,000 members. These visits represented one in every five outpatient ED visits. For potentially avoidable outpatient ED visits, the highest rate area was Caribou, ME (136.3), and the lowest rate area was Burlington, VT (16.1) — a more than eightfold variation.

Other highest rate areas included (in descending order): Skowhegan, ME; Calais, ME; Laconia, NH; Millinocket, ME; Houlton, ME; Pittsfield, ME; and Presque Isle, ME. Other lowest rate areas included (in ascending order): Brattleboro, VT; Bennington, VT; Keene, NH; Middlebury, VT; Portland, ME; Peterborough, NH; Brunswick, ME; and Manchester, NH.

In Vermont, the rate of potentially avoidable outpatient ED visits was 30.4 per 1,000 members. The highest rate area was Newport (50.8) and the lowest rate area was Burlington (16.1) — a more than threefold variation. Within Vermont, St. Albans was another high rate area and Brattleboro was another low rate area. Dartmouth Institute did not construct a comparable analysis of potentially avoidable outpatient ED visits.

Among larger population areas, Concord, NH, and Lewiston, ME, had the highest rates (50.2 and 49.9, respectively), while Burlington, VT, had the lowest rate (16.1).

Figure 7. Potentially Avoidable Outpatient Emergency Department Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate per 1,000

- 16.1 - 35.2
- 35.3 - 43.0
- 43.1 - 49.9
- 50.0 - 67.2
- 67.3 - 136.3
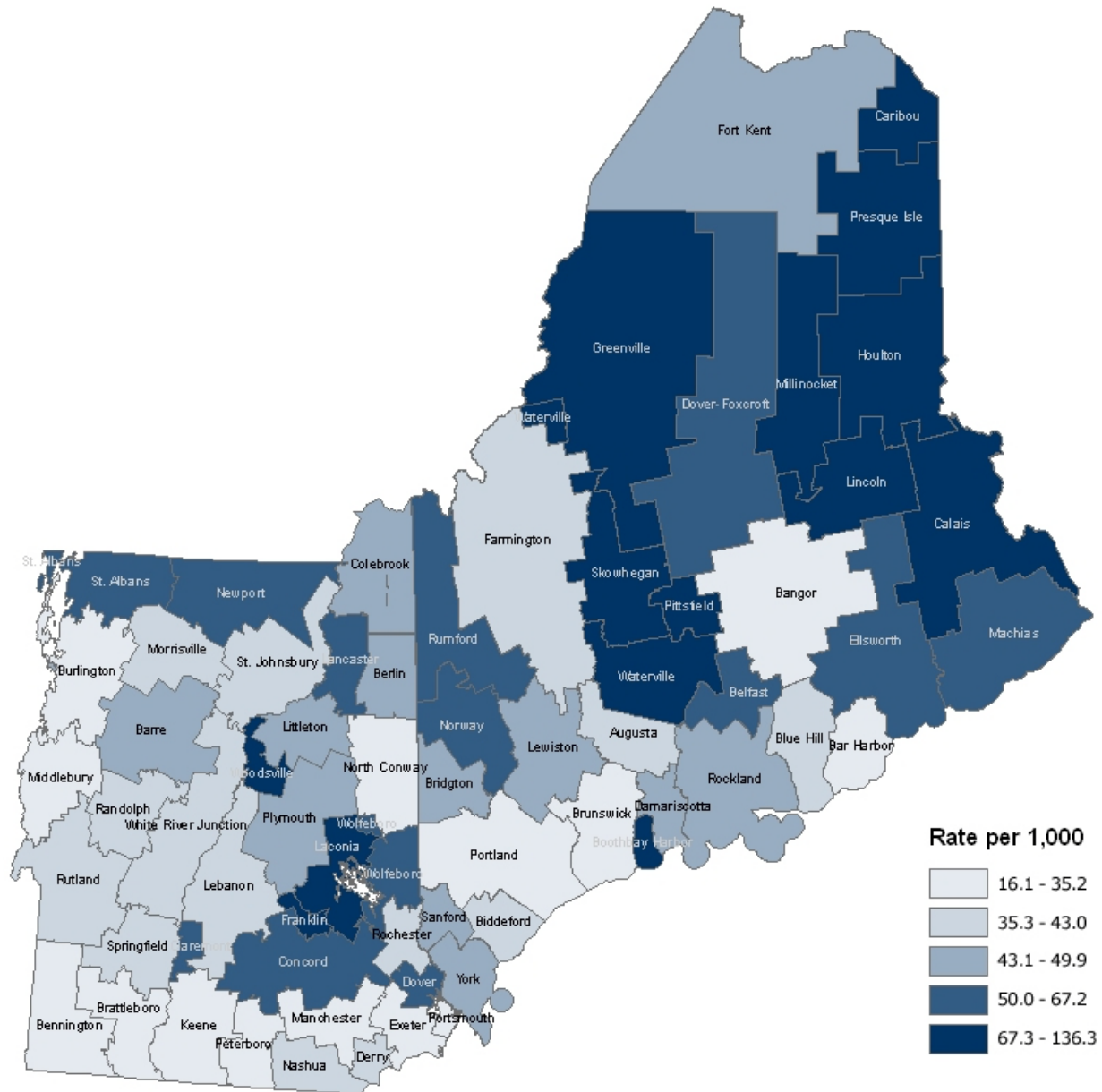
Table Set 7. Potentially Avoidable Outpatient Emergency Department Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT POTENTIALLY AVOIDABLE OUTPATIENT EMERGENCY DEPARTMENT VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Barre	33,616	1,495	45.0	42.8	47.4
Bennington	14,683	396	27.7	25.0	30.6
Brattleboro	12,263	253	21.4	18.8	24.2
Burlington	91,200	1,478	16.1	15.2	16.9
Middlebury	14,166	397	28.5	25.7	31.4
Morrisville	10,195	354	35.4	31.8	39.3
Newport	8,472	417	50.8	46.0	55.9
Randolph	5,985	226	39.1	34.2	44.6
Rutland	27,358	1,011	38.1	35.8	40.6
Springfield	11,261	422	38.8	35.2	42.7
St. Albans	17,384	871	50.0	46.8	53.5
St. Johnsbury	9,243	327	36.3	32.5	40.4
White River Junction	16,082	616	39.3	36.3	42.5

NEW HAMPSHIRE POTENTIALLY AVOIDABLE OUTPATIENT EMERGENCY DEPARTMENT VISITS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Berlin	5,277	228	43.6	38.1	49.6
Claremont	6,262	374	59.1	53.3	65.5
Colebrook	1,528	72	48.7	38.1	61.3
Concord	58,755	2,977	50.2	48.4	52.0
Derry	22,887	906	39.0	36.5	41.6
Dover	22,938	1,227	51.5	48.7	54.5
Exeter	32,637	1,166	35.2	33.2	37.3
Franklin	7,007	495	70.5	64.4	77.0
Keene	20,889	588	28.3	26.1	30.7
Laconia	21,893	1,996	92.2	88.2	96.3
Lancaster	2,815	180	64.8	55.7	75.0

NEW HAMPSHIRE				
POTENTIALLY AVOIDABLE OUTPATIENT EMERGENCY DEPARTMENT VISITS					
HEALTH ANALYSIS AREA	**AVERAGE MEMBERS**	**VISITS**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Lebanon	30,168	1,239	40.7	38.4	43.0
Littleton	6,289	278	45.0	39.9	50.6
Manchester	77,605	2,500	31.6	30.4	32.9
Nashua	63,233	2,444	38.3	36.8	39.9
North Conway	6,179	212	35.0	30.4	40.0
Peterborough	13,645	426	30.9	28.1	34.0
Plymouth	10,555	493	46.9	42.9	51.3
Portsmouth	12,565	445	35.2	32.0	38.6
Rochester	15,799	688	43.0	39.9	46.4
Wolfeboro	9,588	638	67.2	62.1	72.6
Woodsville	2,265	152	67.7	57.4	79.4

MAINE				
POTENTIALLY AVOIDABLE OUTPATIENT EMERGENCY DEPARTMENT VISITS					
HOSPITAL SERVICE AREA	**AVERAGE MEMBERS**	**VISITS**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Augusta	30,668	1,310	43.0	40.7	45.4
Bangor	55,610	1,943	34.9	33.3	36.5
Bar Harbor	5,202	162	31.9	27.2	37.2
Belfast	7,179	398	57.6	52.1	63.5
Biddeford	35,318	1,329	37.7	35.7	39.7
Blue Hill	4,178	153	38.8	32.9	45.4
Boothbay	2,671	170	67.5	57.7	78.4
Bridgton	8,179	346	43.3	38.9	48.2
Brunswick	32,505	1,014	31.6	29.7	33.6
Calais	3,535	330	96.8	86.6	107.8
Caribou	4,877	656	136.3	126.1	147.1
Damariscotta	5,670	238	43.5	38.1	49.4
Dover-Foxcroft	6,821	438	66.8	60.6	73.3
Ellsworth	10,150	606	61.3	56.5	66.3
Farmington	12,030	464	39.4	35.9	43.2
Fort Kent	4,511	201	45.7	39.6	52.5

HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL

MAINE
POTENTIALLY AVOIDABLE OUTPATIENT EMERGENCY DEPARTMENT VISITS

HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Greenville	862	58	72.7	55.2	94.0
Houlton	5,063	394	80.6	72.8	88.9
Lewiston	57,653	2,895	49.9	48.1	51.8
Lincoln	5,170	346	68.5	61.5	76.1
Machias	4,581	257	58.0	51.2	65.6
Millinocket	2,395	196	85.7	74.1	98.5
Norway	10,344	647	63.4	58.6	68.5
Pittsfield	5,462	423	77.9	70.7	85.7
Portland	158,275	4,854	30.1	29.2	30.9
Presque Isle	8,471	644	77.1	71.3	83.3
Rockland	21,024	981	48.2	45.3	51.4
Rumford	4,494	241	54.5	47.9	61.9
Sanford	17,539	851	48.3	45.1	51.7
Skowhegan	9,949	987	100.3	94.2	106.8
Waterville	30,645	2,078	67.6	64.7	70.6
York	28,706	1,275	44.6	42.2	47.1

Non-Hospital Outpatient Visits

METHODS

Onpoint used a definition for non-hospital outpatient visits that was similar to that used in the Dartmouth Institute's analysis of Medicare claims data for Vermont. CMS BETOS categories for evaluation and management CPT and HCPCS codes used included:

- M1A (office visits – new patient)

- M1B (office visits – established patient)

- M4A (home visit)

- M4B (nursing home visit)

- M5A (specialist – pathology)

- M5B (specialist – psychiatry)

- M5C (specialist – ophthalmology)

- M5D (specialist – other)

- M6 (consultations)

Evaluation and management CPT and HCPCS codes for hospital emergency department or physician inpatient visit codes were not included.

This broad set of evaluation and management codes includes a wide range of office visits, specialist visits, psychotherapy visits, and specialist consultations. In the next section, a narrower definition of office/clinic visits based closely on BETOS M1A and M1B was used.

One event per member per day was allowed in the reporting.

RESULTS

Results are provided in Figure 8 and Table Set 8.

The rate of non-hospital outpatient visits for the combined tri-state area was 4,705 per 1,000 members. For non-hospital outpatient visits, the highest rate area was Portsmouth, NH (6,273), and the lowest rate area was Colebrook, NH (3,359) — a 1.9-fold difference.

Other highest rate areas included (in descending order): Derry, Dover, Exeter, Rochester, Nashua, Concord, and Manchester — all in southern New Hampshire. With the exception of Lancaster, NH, all of the other lowest rate areas (in ascending order) — Greenville, Houlton, Blue Hill, Lincoln, Rumford, Farmington, and Millinocket — were in Maine.

In Vermont, the rate of non-hospital outpatient visits was 4,582 per 1,000 members. The highest rate area was Brattleboro (4,887) and the lowest rate area was Newport (3,872) — a 1.3-fold variation. Brattleboro, Burlington, Middlebury, and Rutland had the highest rates of non-hospital outpatient visits, while Newport,

Randolph, White River Junction, Springfield, and St. Johnsbury had lower rates. The high rates for Brattleboro, Burlington, and Rutland and the low rates for St. Johnsbury, Randolph, and Newport were similar to those reported in the Dartmouth Institute analysis of Medicare data for Vermont.

Figure 8. Non-Hospital Outpatient Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate per 1,000

	3,359 - 3,959
	3,960 - 4,280
	4,281 - 4,506
	4,507 - 4,801
	4,802 - 6,273
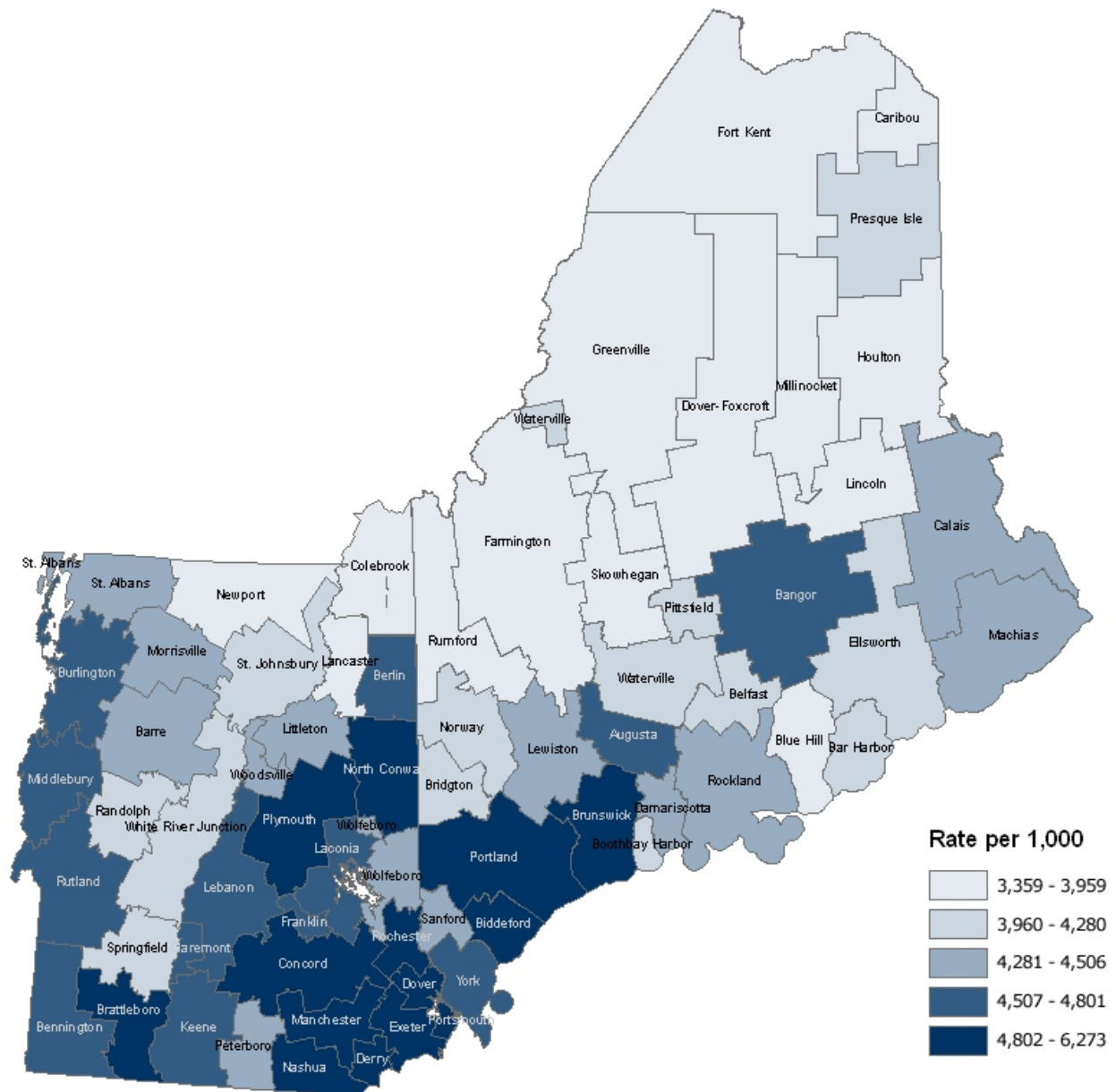
Table Set 8. Non-Hospital Outpatient Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT NON-HOSPITAL OUTPATIENT VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Barre	33,616	149,081	4,404	4,382	4,426
Bennington	14,683	68,864	4,627	4,592	4,661
Brattleboro	12,263	61,373	4,887	4,849	4,926
Burlington	91,200	432,716	4,799	4,784	4,813
Middlebury	14,166	68,031	4,765	4,730	4,801
Morrisville	10,195	45,495	4,400	4,359	4,440
Newport	8,472	33,506	3,872	3,831	3,914
Randolph	5,985	24,181	3,973	3,923	4,023
Rutland	27,358	131,187	4,722	4,697	4,748
Springfield	11,261	48,404	4,222	4,185	4,260
St. Albans	17,384	76,514	4,423	4,392	4,454
St. Johnsbury	9,243	40,200	4,277	4,236	4,319
White River Junction	16,082	66,423	4,061	4,030	4,092

NEW HAMPSHIRE NON-HOSPITAL OUTPATIENT VISITS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Berlin	5,277	23,876	4,514	4,457	4,572
Claremont	6,262	29,421	4,724	4,670	4,778
Colebrook	1,528	5,249	3,359	3,269	3,451
Concord	58,755	301,561	5,155	5,137	5,174
Derry	22,887	124,257	5,502	5,472	5,533
Dover	22,938	121,957	5,437	5,407	5,468
Exeter	32,637	168,724	5,222	5,197	5,247
Franklin	7,007	32,428	4,619	4,569	4,669
Keene	20,889	99,722	4,755	4,726	4,785
Laconia	21,893	104,018	4,707	4,679	4,736
Lancaster	2,815	10,626	3,728	3,657	3,800
Lebanon	30,168	144,232	4,801	4,776	4,826

NEW HAMPSHIRE NON-HOSPITAL OUTPATIENT VISITS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Littleton	6,289	28,633	4,506	4,454	4,559
Manchester	77,605	388,633	5,077	5,061	5,093
Nashua	63,233	325,859	5,208	5,191	5,226
North Conway	6,179	30,149	4,847	4,793	4,902
Peterborough	13,645	60,278	4,457	4,421	4,492
Plymouth	10,555	51,426	4,850	4,808	4,892
Portsmouth	12,565	78,825	6,273	6,230	6,317
Rochester	15,799	82,013	5,219	5,184	5,255
Wolfeboro	9,588	41,609	4,297	4,255	4,338
Woodsville	2,265	10,067	4,429	4,343	4,516

MAINE NON-HOSPITAL OUTPATIENT VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Augusta	30,668	147,480	4,758	4,733	4,782
Bangor	55,610	258,160	4,617	4,600	4,635
Bar Harbor	5,202	22,635	4,268	4,213	4,324
Belfast	7,179	31,618	4,280	4,233	4,327
Biddeford	35,318	177,393	5,015	4,991	5,038
Blue Hill	4,178	15,840	3,642	3,585	3,699
Boothbay	2,671	11,398	4,094	4,019	4,170
Bridgton	8,179	34,274	4,140	4,097	4,184
Brunswick	32,505	158,934	4,846	4,822	4,870
Calais	3,535	15,924	4,333	4,266	4,401
Caribou	4,877	18,560	3,796	3,742	3,851
Damariscotta	5,670	25,189	4,319	4,266	4,373
Dover-Foxcroft	6,821	27,802	3,959	3,913	4,006
Ellsworth	10,150	42,939	4,128	4,089	4,167
Farmington	12,030	45,651	3,735	3,701	3,769
Fort Kent	4,511	17,703	3,842	3,786	3,899
Greenville	862	3,144	3,445	3,325	3,567

MAINE NON-HOSPITAL OUTPATIENT VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Houlton	5,063	18,857	3,616	3,564	3,668
Lewiston	57,653	258,015	4,506	4,488	4,523
Lincoln	5,170	19,107	3,664	3,612	3,716
Machias	4,581	20,712	4,341	4,282	4,400
Millinocket	2,395	9,140	3,738	3,661	3,815
Norway	10,344	41,315	3,964	3,926	4,003
Pittsfield	5,462	22,104	4,046	3,993	4,100
Portland	158,275	750,785	4,804	4,793	4,815
Presque Isle	8,471	35,299	4,100	4,057	4,143
Rockland	21,024	93,278	4,340	4,312	4,368
Rumford	4,494	16,682	3,675	3,620	3,731
Sanford	17,539	75,114	4,302	4,272	4,333
Skowhegan	9,949	38,338	3,821	3,783	3,860
Waterville	30,645	124,597	4,067	4,044	4,090
York	28,706	135,364	4,704	4,679	4,729

Outpatient Office/Clinic Visits

METHODS

The non-hospital outpatient visit measure used by Dartmouth Institute reported in the previous section combines many different types of visits and consultations. This broad set of evaluation and management codes includes a wide range of office visits, specialist visits, psychotherapy visits, and specialist consultations. Within the commercial population, some services (e.g., visits to psychiatrists, psychologists, and social workers for therapy) may occur in large volumes and influence the rate. To remove those effects, Onpoint used an additional measure of office/clinic visits, which is reported in this section. This narrower definition includes primarily physician office visits and does not include specialist consultations or other specialist services such as psychotherapy visits billed by psychiatrists, psychologists, and social workers.

Onpoint Health Data's work for the NH CHIS and NH DHHS partners developed an alternative office/clinic visit measure that is more selective in codes used. It is similar to CMS BETOS M1A, M1B evaluation and management office visit coding. The following coding is used: CPT 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 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, and T1015, as well as UB revenue codes 510–519, 520–529, and 983. Hospital inpatient records were excluded.

RESULTS

Results are provided in Figure 9 and Table Set 9.

The rate of office/clinic visits for the combined tri-state area was 3,442 per 1,000 members. For office/clinic visits, the highest rate area was Portsmouth, NH (4,326), and the lowest rate area was Greenville, ME (2,587) — a 1.7-fold difference in rate.

Other highest rate areas included (in descending order): Derry, Nashua, Dover, Rochester, Manchester, Exeter, and Concord — all in New Hampshire. Other than Colebrook, NH, all of the other lowest rate areas (in ascending order) — Blue Hill, Bar Harbor, Caribou, Houlton, Millinocket, Farmington, and Rumford — were in Maine.

In Vermont, the rate of office/clinic visits was 3,354 per 1,000 members. The highest rate area was Rutland (3,683) and the lowest rate area was Randolph (2,974) — a 1.2-fold variation. Rutland, St. Albans, Middlebury, Burlington, and Bennington had the highest rates, while Randolph, Newport, White River Junction, and Barre had the lowest rates.

For the 67 HSAs profiled, a modest relationship between higher office/clinic visit rate and lower avoidable ED visit rate was found (r-square=.128, p=0.003).

Several areas in northern Maine had the highest rates of avoidable ED visits, inpatient ambulatory care sensitive care hospitalizations, and the lowest rates of office/clinic visits. This may be related to the supply of primary care practitioners in office settings in these areas.

Figure 9. Outpatient Office/Clinic Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate per 1,000
- 2,587 - 2,948
- 2,949 - 3,128
- 3,129 - 3,371
- 3,372 - 3,564
- 3,565 - 4,326
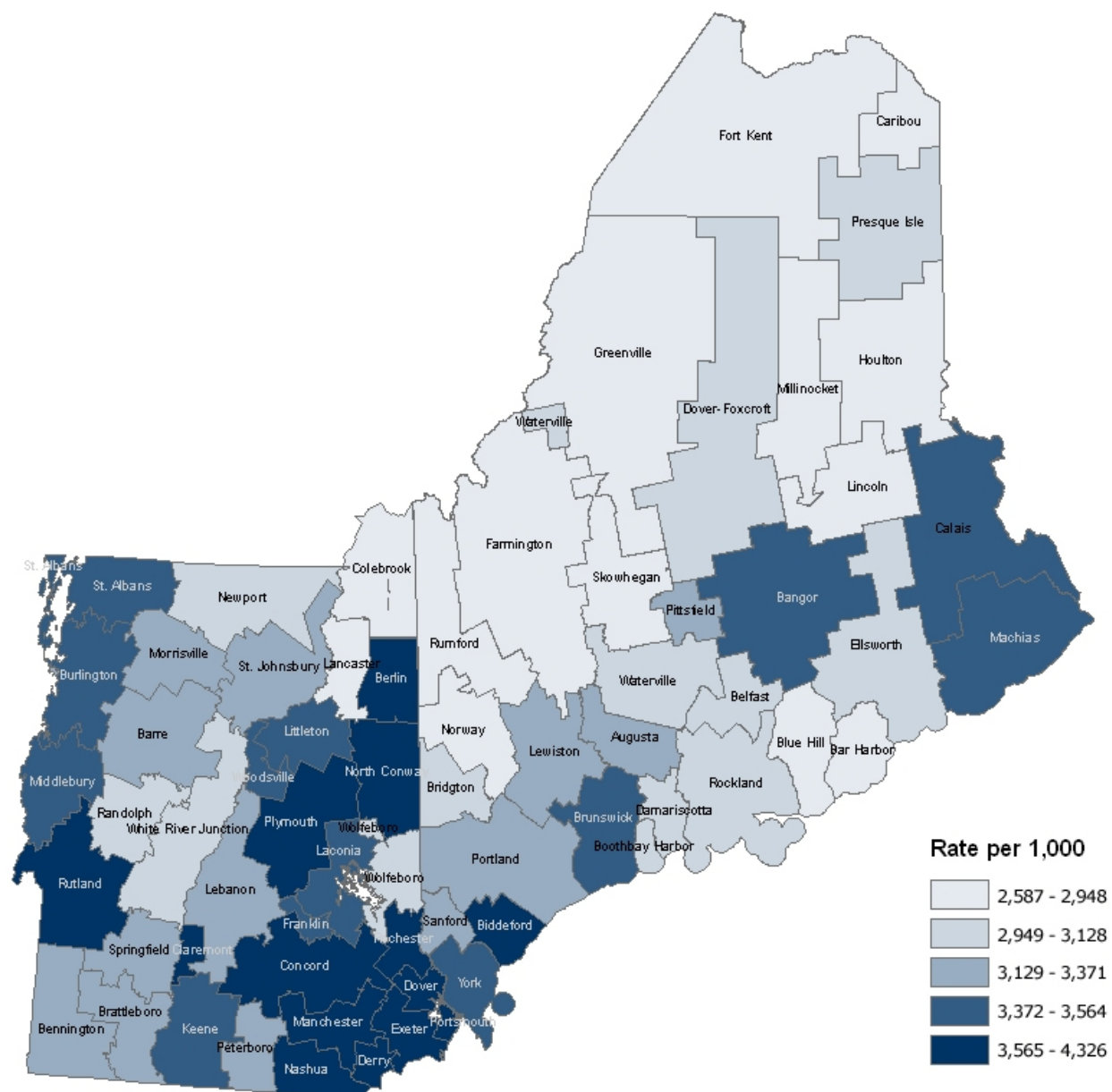
Table Set 9. Outpatient Office/Clinic Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT OUTPATIENT OFFICE/CLINIC VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Barre	33,616	106,438	3,143	3,124	3,162
Bennington	14,683	50,102	3,361	3,332	3,391
Brattleboro	12,263	40,998	3,260	3,228	3,292
Burlington	91,200	305,860	3,395	3,383	3,407
Middlebury	14,166	49,263	3,447	3,417	3,478
Morrisville	10,195	33,512	3,239	3,204	3,273
Newport	8,472	26,007	3,007	2,970	3,044
Randolph	5,985	18,122	2,974	2,931	3,017
Rutland	27,358	102,442	3,683	3,660	3,706
Springfield	11,261	36,519	3,181	3,148	3,213
St. Albans	17,384	61,060	3,532	3,504	3,560
St. Johnsbury	9,243	31,539	3,354	3,317	3,391
White River Junction	16,082	50,121	3,061	3,034	3,088

NEW HAMPSHIRE OUTPATIENT OFFICE/CLINIC VISITS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Berlin	5,277	19,486	3,681	3,630	3,733
Claremont	6,262	23,086	3,708	3,661	3,756
Colebrook	1,528	4,133	2,643	2,563	2,724
Concord	58,755	222,825	3,807	3,792	3,823
Derry	22,887	93,957	4,158	4,132	4,185
Dover	22,938	86,773	3,880	3,854	3,906
Exeter	32,637	123,706	3,829	3,808	3,850
Franklin	7,007	24,893	3,548	3,504	3,592
Keene	20,889	72,696	3,465	3,440	3,490
Laconia	21,893	76,761	3,470	3,445	3,494
Lancaster	2,815	8,214	2,879	2,817	2,942
Lebanon	30,168	101,272	3,371	3,350	3,392

NEW HAMPSHIRE OUTPATIENT OFFICE/CLINIC VISITS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Littleton	6,289	22,284	3,504	3,458	3,550
Manchester	77,605	295,119	3,859	3,845	3,873
Nashua	63,233	247,437	3,952	3,936	3,968
North Conway	6,179	22,367	3,593	3,546	3,641
Peterborough	13,645	44,964	3,318	3,287	3,348
Plymouth	10,555	40,093	3,779	3,742	3,816
Portsmouth	12,565	54,252	4,326	4,290	4,363
Rochester	15,799	60,715	3,869	3,838	3,900
Wolfeboro	9,588	30,344	3,128	3,093	3,163
Woodsville	2,265	7,816	3,433	3,357	3,510

MAINE OUTPATIENT OFFICE/CLINIC VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Augusta	30,668	102,787	3,317	3,297	3,338
Bangor	55,610	194,527	3,481	3,466	3,497
Bar Harbor	5,202	14,666	2,762	2,718	2,807
Belfast	7,179	22,519	3,046	3,006	3,086
Biddeford	35,318	129,477	3,659	3,639	3,679
Blue Hill	4,178	11,532	2,642	2,594	2,691
Boothbay	2,671	8,557	3,065	3,000	3,131
Bridgton	8,179	24,795	2,989	2,952	3,027
Brunswick	32,505	112,292	3,419	3,399	3,439
Calais	3,535	12,473	3,393	3,334	3,453
Caribou	4,877	13,603	2,781	2,735	2,828
Damariscotta	5,670	18,267	3,126	3,081	3,172
Dover-Foxcroft	6,821	21,626	3,076	3,035	3,117
Ellsworth	10,150	31,559	3,034	3,000	3,067
Farmington	12,030	34,907	2,853	2,824	2,883
Fort Kent	4,511	13,453	2,920	2,871	2,970
Greenville	862	2,368	2,587	2,484	2,694

	MAINE OUTPATIENT OFFICE/CLINIC VISITS				
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Houlton	5,063	14,621	2,802	2,757	2,848
Lewiston	57,653	189,886	3,319	3,304	3,333
Lincoln	5,170	15,405	2,948	2,902	2,995
Machias	4,581	17,003	3,564	3,511	3,618
Millinocket	2,395	6,976	2,846	2,779	2,913
Norway	10,344	30,736	2,946	2,913	2,979
Pittsfield	5,462	17,716	3,243	3,196	3,291
Portland	158,275	510,667	3,272	3,263	3,281
Presque Isle	8,471	25,989	3,018	2,981	3,055
Rockland	21,024	66,940	3,109	3,085	3,132
Rumford	4,494	12,971	2,856	2,807	2,905
Sanford	17,539	57,726	3,305	3,278	3,332
Skowhegan	9,949	29,409	2,931	2,898	2,965
Waterville	30,645	92,229	3,011	2,991	3,030
York	28,706	99,166	3,441	3,420	3,462

Chiropractic/Osteopathic Manipulation Visits

METHODS

Claims with CPT/HCPCS codes that correspond to the CMS BETOS categories O1B were used to identify chiropractic manipulation. CMS BETOS does not provide a separate category for osteopathic manipulation; these services are categorized by CMS BETOS as P6C Minor Procedures - Other. When reporting on commercial claims data, Onpoint Health Data uses CPT codes 98925–98929 to report osteopathic manipulation. CPT/HCPCS codes for physical therapy were not included in this analysis. This measure is based entirely on CPT/HCPCS coding and does not use provider specialty data from the claims. One event per member per day was allowed in the reporting.

RESULTS

Results are provided in Figure 10 and Table Set 10.

The rate of chiropractic/osteopathic manipulation for the combined tri-state area was 767 per 1,000 members. For chiropractic/osteopathic manipulation, the highest rate area was Augusta, ME (1,325), and the lowest rate area was Newport, VT (148) — a ninefold difference in rate.

Other highest rate areas (in descending order) were in Maine: Farmington, Boothbay, Biddeford, Lewiston, Belfast, and Waterville. Other lowest rate areas included (in ascending order): Colebrook, NH; Calais, ME; Millinocket, ME; Randolph, ME; Lancaster, NH; Woodsville, NH; and Blue Hill, ME.

In Vermont, the rate of chiropractic/osteopathic manipulation was 633 per 1,000 members. The highest rate area was Burlington (745) and the lowest rate area was Newport (148) — a fivefold variation. Within Vermont, all areas were below the tri-state average. Burlington, Middlebury, and St. Johnsbury had the highest rates, while Newport, Randolph, and Bennington had the lowest rates.

Among larger population areas, Lewiston, ME, had the highest rate (981), while Nashua, NH, had the lowest rate (666).
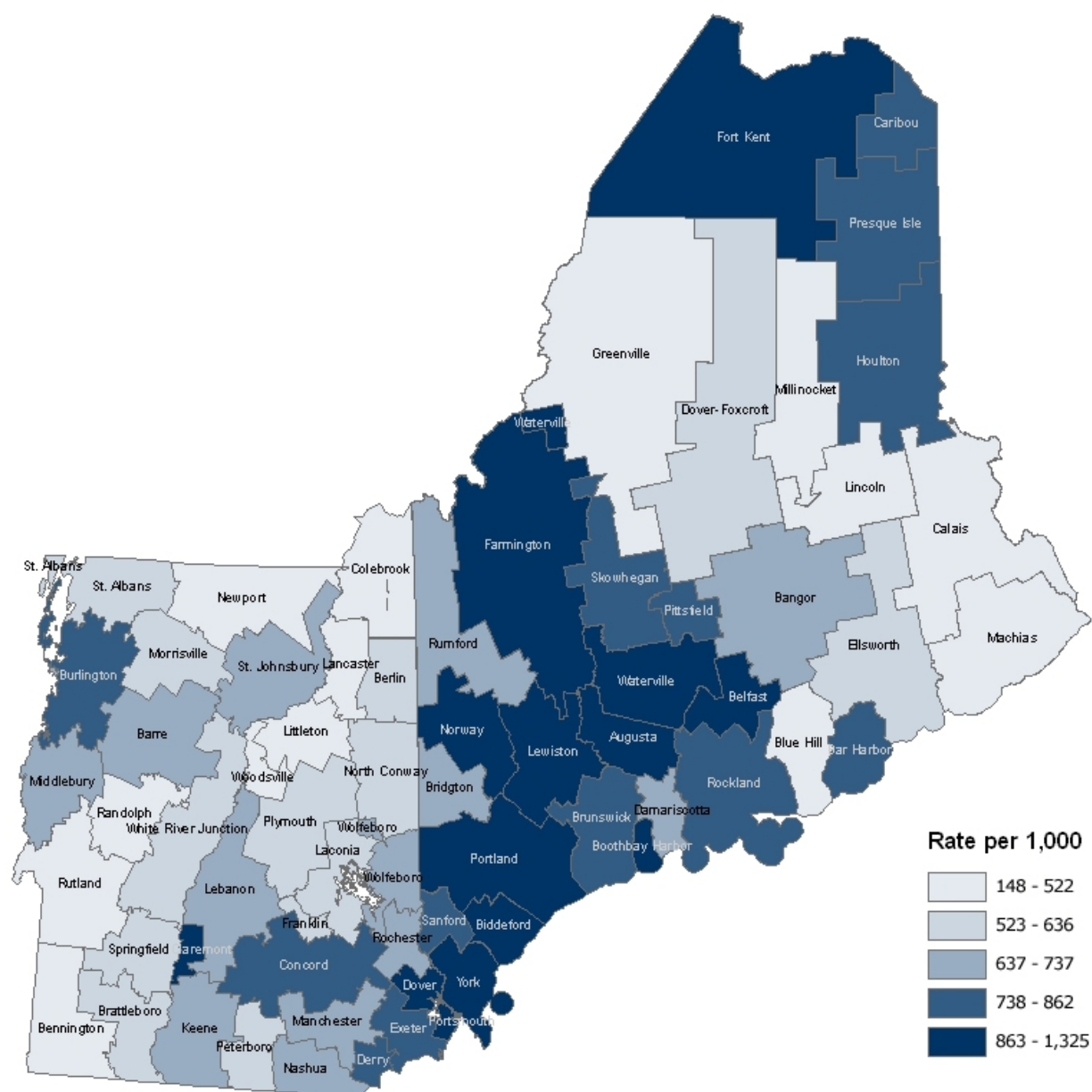
Rates of chiropractic/osteopathic manipulation for the Medicare population were not reported in the Dartmouth Institute study of Vermont.

In addition to analyzing the combined rates of chiropractic/osteopathic manipulation, Onpoint also evaluated chiropractic and osteopathic manipulation services separately. The tri-state rate of chiropractic manipulation was 709 per 1,000 members, while the tri-state rate of osteopathic manipulation was 58 per 1,000. Therefore, services billed using chiropractic manipulation codes were the primary driver of differences in rates. For example, the three highest rate areas overall (Augusta, Farmington, Boothbay — all in Maine) were highest in services specific to chiropractic manipulation coding. Areas that ranked highest in rates of osteopathic manipulation per 1,000 members included North Conway, NH (183); Biddeford, ME (151); Portland, ME (140); Bridgton, ME (130); and Farmington, ME (121). Augusta, ME, and Farmington, ME, were the only areas to rank high in both chiropractic and osteopathic manipulation rates.

Onpoint anticipates that the variation in these rates may reflect the supply of chiropractic or osteopathic providers in these areas, but this hypothesis was not evaluated in this study.

Figure 10. Chiropractic/Osteopathic Manipulation Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate per 1,000

- 148 - 522
- 523 - 636
- 637 - 737
- 738 - 862
- 863 - 1,325

Table Set 10. Chiropractic/Osteopathic Manipulation Visits

Rates per 1,000 members. Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

VERMONT CHIROPRACTIC/OSTEOPATHIC MANIPULATION VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Barre	33,616	21,890	639	631	648
Bennington	14,683	6,688	443	433	454
Brattleboro	12,263	7,660	596	583	610
Burlington	91,200	67,250	745	739	750
Middlebury	14,166	10,602	737	723	751
Morrisville	10,195	6,671	636	621	651
Newport	8,472	1,329	148	140	156
Randolph	5,985	2,430	389	373	404
Rutland	27,358	14,437	509	501	518
Springfield	11,261	7,401	630	616	645
St. Albans	17,384	9,362	538	528	549
St. Johnsbury	9,243	6,622	690	674	707
White River Junction	16,082	9,770	588	576	599

NEW HAMPSHIRE CHIROPRACTIC/OSTEOPATHIC MANIPULATION VISITS					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Berlin	5,277	3,198	607	586	628
Claremont	6,262	5,347	864	841	888
Colebrook	1,528	294	184	164	206
Concord	58,755	47,295	823	815	830
Derry	22,887	17,713	804	792	816
Dover	22,938	19,771	890	877	902
Exeter	32,637	26,451	833	823	843
Franklin	7,007	3,877	549	532	567
Keene	20,889	13,525	643	632	654
Laconia	21,893	12,841	583	573	593
Lancaster	2,815	1,135	396	373	420

NEW HAMPSHIRE
CHIROPRACTIC/OSTEOPATHIC MANIPULATION VISITS

HEALTH ANALYSIS AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Lebanon	30,168	19,152	646	637	655
Littleton	6,289	3,355	522	504	540
Manchester	77,605	50,957	674	668	680
Nashua	63,233	40,908	666	660	673
North Conway	6,179	3,898	619	599	639
Peterborough	13,645	7,852	602	589	615
Plymouth	10,555	5,676	536	522	550
Portsmouth	12,565	12,172	954	937	971
Rochester	15,799	10,219	651	638	664
Wolfeboro	9,588	6,980	727	710	744
Woodsville	2,265	930	411	385	439

MAINE
CHIROPRACTIC/OSTEOPATHIC MANIPULATION VISITS

HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Augusta	30,668	41,603	1,325	1,312	1,337
Bangor	55,610	39,051	695	688	702
Bar Harbor	5,202	4,238	789	766	813
Belfast	7,179	7,424	976	954	998
Biddeford	35,318	34,742	983	973	993
Blue Hill	4,178	1,841	414	395	433
Boothbay	2,671	2,954	1,029	993	1,067
Bridgton	8,179	5,469	657	640	675
Brunswick	32,505	27,857	849	839	859
Calais	3,535	825	217	203	233
Caribou	4,877	3,856	779	755	804
Damariscotta	5,670	4,177	709	687	730
Dover-Foxcroft	6,821	4,286	594	576	612
Ellsworth	10,150	5,767	540	526	554
Farmington	12,030	14,727	1,189	1,170	1,209
Fort Kent	4,511	4,504	952	924	980

MAINE CHIROPRACTIC/OSTEOPATHIC MANIPULATION VISITS					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	VISITS	ADJ. RATE PER 1,000	95% LCL	95% UCL
Greenville	862	408	427	387	471
Houlton	5,063	4,484	834	809	858
Lewiston	57,653	56,243	981	973	989
Lincoln	5,170	2,734	521	502	541
Machias	4,581	2,077	420	402	438
Millinocket	2,395	791	316	295	339
Norway	10,344	9,079	868	850	886
Pittsfield	5,462	4,751	862	838	887
Portland	158,275	140,553	905	901	910
Presque Isle	8,471	7,151	819	800	838
Rockland	21,024	16,355	750	739	762
Rumford	4,494	3,127	681	657	705
Sanford	17,539	13,522	780	767	793
Skowhegan	9,949	8,656	854	836	872
Waterville	30,645	29,301	957	946	968
York	28,706	25,775	908	897	919

SURGERY

Hysterectomy

METHODS

Identification of hysterectomy procedures was made using specifications defined by NCQA HEDIS measures. NCQA HEDIS reports separate rates for abdominal and vaginal hysterectomy. For this Onpoint report, abdominal and vaginal hysterectomies were combined. Abdominal hysterectomy includes claims with CPT codes 51925, 58150, 58152, 58180, 58200, 58210, 58240, 58541–58544, 58548, 58570–58573, 58951, 58953, 58954, 58956, 59135, and 59525, as well as ICD-9 procedure codes 68.3, 68.4, 68.6, 68.8, and 68.9. Vaginal hysterectomy includes claims with CPT codes 58260, 58262, 58263, 58267, 58270, 58275, 58280, 58285, 58290–58294, 58550, and 58552–58554, as well as ICD-9 procedure codes 68.5 and 68.7.

Based on the single year of data used in this study, the volume of hysterectomy procedures is low relative to other measures and is subject to lower statistical reliability than other measures. This is reflected in wide 95% confidence intervals on the rates for many geographic areas. Additional studies combining multiple years of data would improve the reliability of comparisons.

RESULTS

Results are provided in Figure 11 and Table Set 11.

The rate of hysterectomy for women between the ages of 20 and 64 for the combined tri-state area was 6.78 per 1,000 members. For hysterectomy, the highest rate area was Newport, VT (11.37), and the lowest rate area was Berlin, NH (1.48) — a more than 7.7-fold variation.

Other highest rate areas that reached statistical significance were (in descending order): Claremont, NH; Keene, NH; Dover-Foxcroft, ME; Norway, ME; Concord, NH; Lewiston, ME; and Dover, NH. Other low rate areas that reached statistical significance included (in ascending order): Morrisville, VT; Littleton, NH; Burlington, VT; Laconia, NH; and Portland, ME.

In Vermont, the rate of hysterectomy was 5.81 per 1,000 women aged 20–64. The highest rate area was Newport (11.37) and the lowest rate area was Morrisville (3.38) — a 3.4-fold variation. Burlington also was significantly below the tri-state average.

Combining the abdominal and vaginal NCQA HEDIS national commercial rates, the tri-state rate for women between the ages of 45 and 64 (7.4) was lower than the national HEDIS commercial HMO and PPO rates (8.4 and 8.1, respectively). Vermont's statewide rates were lower than the national HEDIS rates.

Rates of hysterectomy were not reported in the Dartmouth Institute study of Medicare utilization in Vermont.

Figure 11. Hysterectomy

Rates per 1,000 members. Commercially insured women, ages 20–64. Adjusted for age. 2008 claims data.

Rate per 1,000

	1.48 - 5.16
	5.17 - 6.31
	6.32 - 6.56
	6.57 - 8.74
	8.75 - 11.37
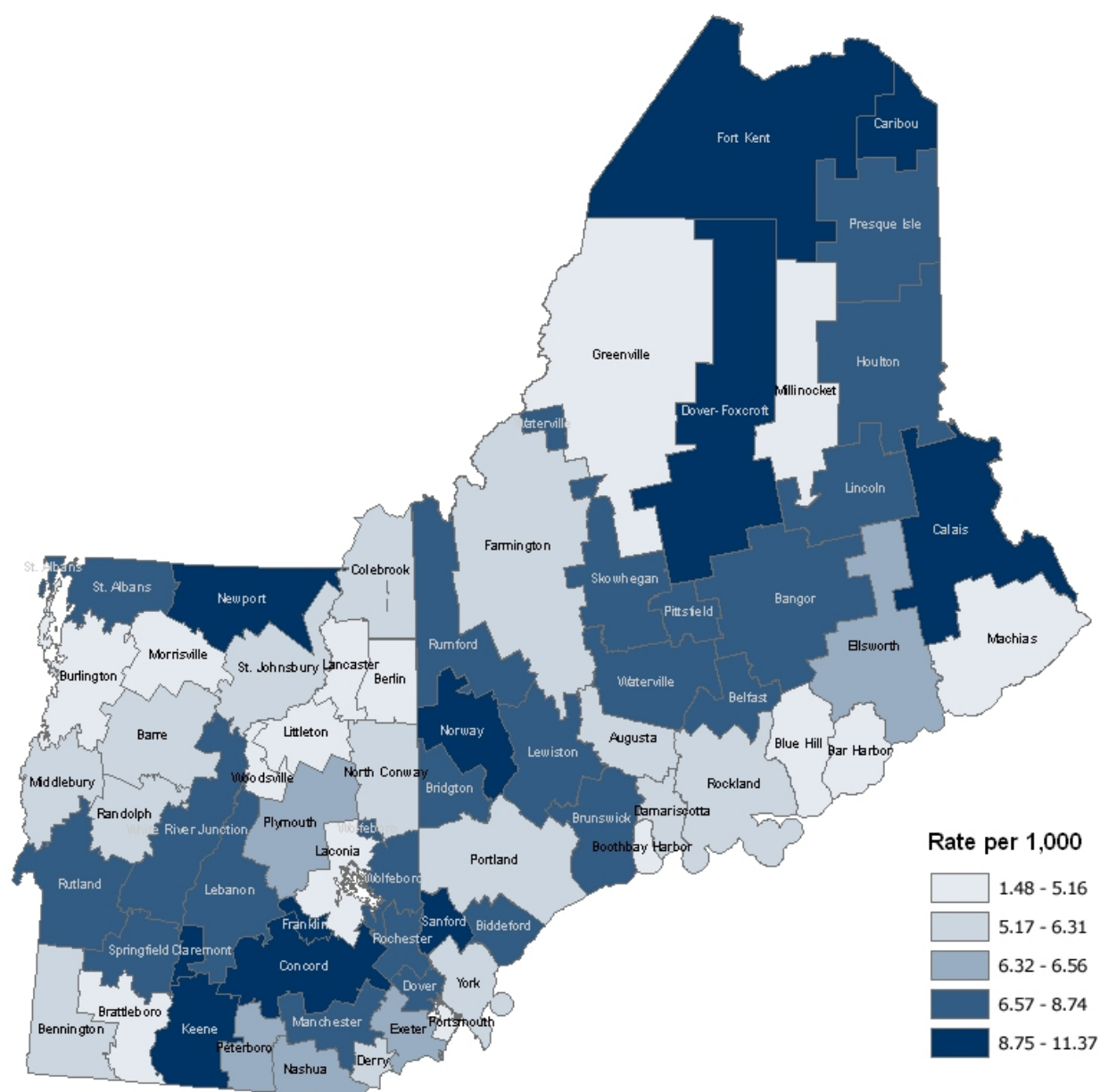
Table Set 11. Hysterectomy

Rates per 1,000 members. Commercially insured women, ages 20–64. Adjusted for age. 2008 claims data.

VERMONT HYSTERECTOMY					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	PROCEDURES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Barre	13,338	84	6.27	5.00	7.77
Bennington	5,833	31	5.26	3.57	7.46
Brattleboro	5,034	26	5.10	3.33	7.47
Burlington	34,741	141	4.09	3.44	4.83
Middlebury	5,547	34	6.10	4.22	8.52
Morrisville	4,117	14	3.38	1.85	5.67
Newport	3,571	41	11.37	8.16	15.43
Randolph	2,410	13	5.33	2.84	9.12
Rutland	10,952	77	6.95	5.49	8.69
Springfield	4,538	37	8.04	5.66	11.09
St. Albans	6,716	58	8.67	6.58	11.21
St. Johnsbury	3,772	21	5.51	3.41	8.43
White River Junction	6,516	45	6.83	4.98	9.13

NEW HAMPSHIRE HYSTERECTOMY					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	PROCEDURES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Berlin	2,027	3	1.48	0.30	4.31
Claremont	2,410	26	10.85	7.09	15.90
Colebrook	628	4	6.31	1.72	16.15
Concord	22,321	204	9.16	7.95	10.51
Derry	8,398	49	5.87	4.34	7.76
Dover	8,774	75	8.70	6.85	10.91
Exeter	12,307	78	6.37	5.04	7.95
Franklin	2,789	25	8.97	5.81	13.24
Keene	8,188	88	10.71	8.59	13.19
Laconia	8,608	44	5.08	3.69	6.82
Lancaster	1,126	5	4.41	1.43	10.30
Lebanon	11,583	83	7.18	5.72	8.90

NEW HAMPSHIRE HYSTERECTOMY					
HEALTH ANALYSIS AREA	**AVERAGE MEMBERS**	**PROCEDURES**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Littleton	2,501	9	3.57	1.63	6.78
Manchester	29,305	215	7.40	6.45	8.46
Nashua	23,372	153	6.56	5.56	7.69
North Conway	2,419	14	5.75	3.15	9.65
Peterborough	4,938	32	6.47	4.43	9.14
Plymouth	4,127	27	6.53	4.31	9.51
Portsmouth	5,085	25	4.94	3.20	7.29
Rochester	6,185	43	7.00	5.06	9.42
Wolfeboro	3,745	26	6.89	4.50	10.10
Woodsville	864	3	3.46	0.71	10.12

MAINE HYSTERECTOMY					
HOSPITAL SERVICE AREA	**AVERAGE MEMBERS**	**PROCEDURES**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Augusta	12,549	77	6.11	4.82	7.64
Bangor	22,369	152	6.80	5.76	7.97
Bar Harbor	2,114	11	5.16	2.57	9.23
Belfast	3,046	27	8.71	5.74	12.67
Biddeford	13,793	101	7.32	5.96	8.89
Blue Hill	1,755	8	4.44	1.92	8.75
Boothbay	1,138	6	5.15	1.89	11.20
Bridgton	3,204	26	8.02	5.24	11.75
Brunswick	12,729	90	7.02	5.64	8.63
Calais	1,563	15	9.45	5.29	15.59
Caribou	1,900	20	10.50	6.42	16.22
Damariscotta	2,340	15	6.29	3.52	10.38
Dover-Foxcroft	2,872	31	10.61	7.21	15.07
Ellsworth	4,297	28	6.45	4.29	9.32
Farmington	4,872	29	5.89	3.94	8.46
Fort Kent	1,898	17	8.86	5.16	14.18
Greenville	385	2	5.05	0.61	18.25

MAINE HYSTERECTOMY					
HOSPITAL SERVICE AREA	**AVERAGE MEMBERS**	**PROCEDURES**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Houlton	2,164	19	8.66	5.22	13.53
Lewiston	22,202	193	8.74	7.55	10.06
Lincoln	1,998	17	8.43	4.91	13.49
Machias	2,059	10	4.79	2.30	8.81
Millinocket	958	5	5.12	1.66	11.94
Norway	4,055	42	10.29	7.42	13.91
Pittsfield	2,135	18	8.42	4.99	13.31
Portland	60,696	350	5.82	5.23	6.46
Presque Isle	3,485	25	7.12	4.61	10.52
Rockland	8,529	53	6.11	4.58	8.00
Rumford	1,798	12	6.61	3.41	11.54
Sanford	6,690	63	9.43	7.25	12.07
Skowhegan	3,984	29	7.25	4.85	10.41
Waterville	11,983	88	7.35	5.89	9.05
York	10,975	65	5.89	4.54	7.51

Back Surgery

METHODS

Identification of back surgery was performed using specifications defined by NCQA HEDIS measures. Claims with CPT/HCPCS codes 22220, 22222, 22224, 22532, 22533, 22548, 22554, 22556, 22558, 22590, 22595, 22600, 22610, 22612, 22630, 22830, 22857, 22862, 22865, 63001–63017, 63020, 63030, 63035, 63040, 63042–63048, 63050, 63051, 63055-63057, 63064, 63066, 63075–63078, 63081, 63082, 63085–63088, 63090, 63091, 63101–63103, S2348, and S2350, as well as ICD-9 procedure codes 03.02, 03.09, 80.50–80.52, 80.59, 81.0, 81.3, 81.6, 84.6, and 84.8 were used to define back surgery. One event per member per day was allowed in the reporting.

Based on the single year of data used in this study, the volume of back surgery is low relative to other measures and is subject to lower statistical reliability than other measures. This is reflected in wide 95% confidence intervals on the rates for many geographic areas. Additional studies combining multiple years of data would improve the reliability of comparisons.

RESULTS

Results are provided in Figure 12, Table 12, and Table Set 13.

The rate of back surgery for ages 20–64 for the combined tri-state area was 3.62 per 1,000 members. For back surgery, the highest rate area that reached statistical significance was Bridgton, ME (6.45), and the lowest rate area was Ellsworth, ME (1.48) —a more than fourfold difference.

Other highest rate areas that reached statistical significance were (in descending order): Fort Kent, ME; Laconia, NH; Norway, ME; Franklin, NH; Rockland, ME; Concord, NH, and Sanford, ME. Other low rate areas that reached statistical significance included (in ascending order): Bar Harbor, ME; Rumford, ME; Brattleboro, VT; St. Johnsbury, VT; York, ME; Bennington, VT; and Springfield, VT.

In Vermont, the rate of back surgery was 3.04 per 1,000 members aged 20–64. The highest rate area was St. Albans (4.32) and the lowest rate area was Brattleboro (1.81) — a 2.4-fold variation. Within Vermont, no area reached statistical significance above the tri-state average.

Compared to NCQA HEDIS national commercial rates per 1,000 by age and gender, the tri-state rates of back surgery varied (see Table 12). Vermont's overall statewide rates were lower than the national HEDIS rates.

Table 12. Back Surgery Rates by Age and Gender

AGE/GENDER GROUP	TRI-STATE RATE	VT RATE	NCQA COMMERCIAL HMO NATIONAL AVERAGE	NCQA COMMERCIAL PPO NATIONAL AVERAGE
Age 20–44, Female	2.2	1.6	2.2	2.3
Age 20–44, Male	2.9	2.6	2.3	2.5
Age 45–64, Female	4.1	3.2	4.5	5.1
Age 45–64, Male	5.1	4.6	4.9	5.3

Results of Onpoint's analysis of back surgery in Vermont's commercial population varied with the Dartmouth Institute's analysis of Medicare data for Vermont. Due to small numbers, the confidence intervals in both the Onpoint and Dartmouth Institute analyses were wide, resulting in few areas reaching statistical significance. Both analyses found a low rate of back surgery in the St. Johnsbury area. The Dartmouth analysis found a high rate in Rutland, while the Onpoint analysis found a lower rate (though not one that was statistically significant). Onpoint found an elevated rate in Barre, while Dartmouth found this to be a lower rate area. Compared to the NQCA HEDIS average, the Vermont statewide rates consistently were lower by age and gender group; the Dartmouth Institute analysis of Medicare also found lower rates in Vermont than national Medicare rates.

Based on prior reporting, BISHCA requested an analysis of the relationship between the rate of back surgery and chiropractic or osteopathic manipulation. Results indicated no relationship (r-square=0.0398, p=0.1057). A more robust analysis of this would require disease-specific episodic reporting; the chiropractic and osteopathic manipulation rates were not specific to back problems and other treatment modalities would need to be considered.

Figure 12. Back Surgery

Rates per 1,000 members. Commercially insured, ages 20–64. Adjusted for age and gender. 2008 claims data.

Rate per 1,000

	0.00 - 2.31
	2.32 - 3.01
	3.02 - 3.58
	3.59 - 4.32
	4.33 - 6.45
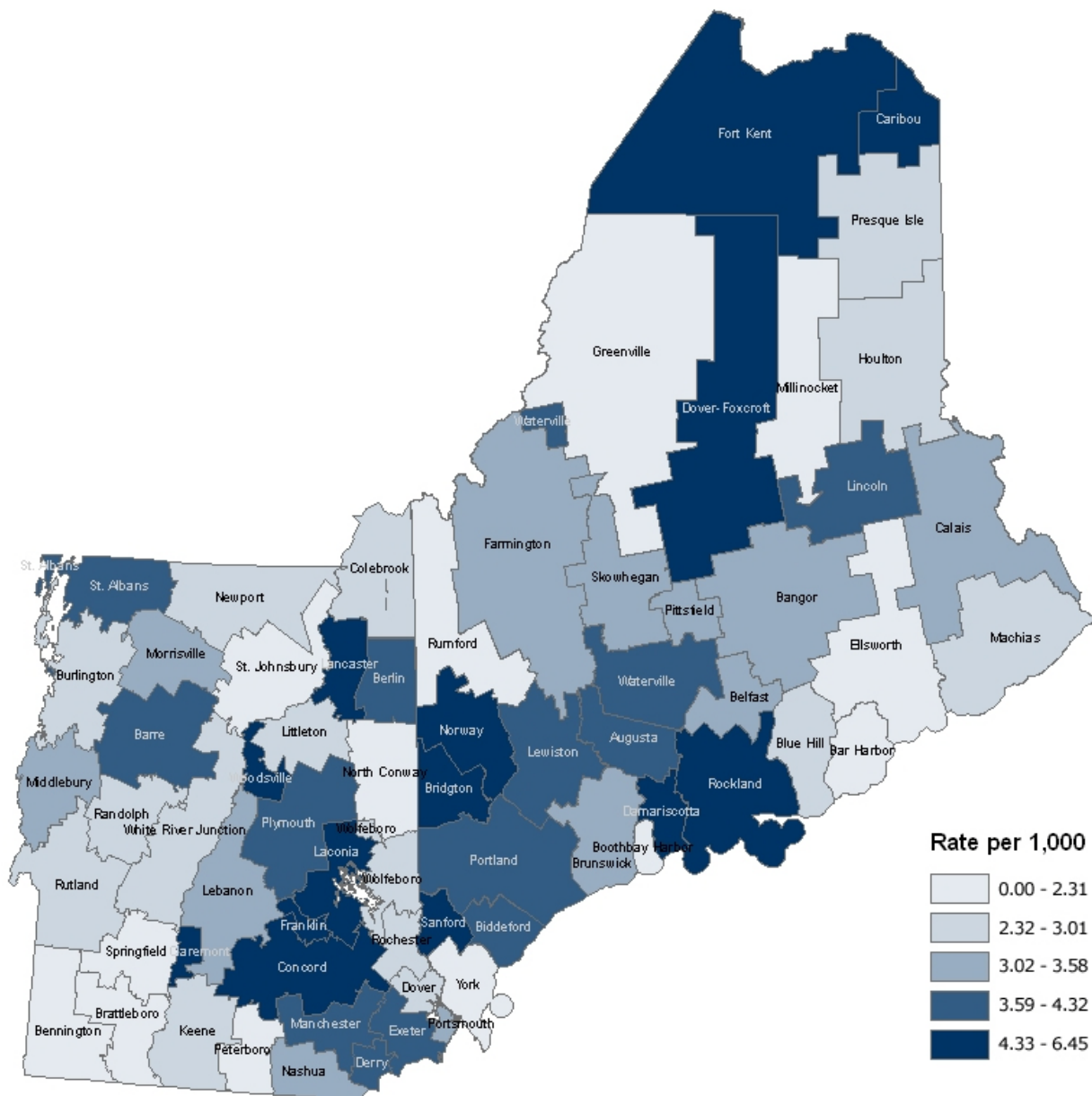
Table Set 13. Back Surgery

Rates per 1,000 members. Commercially insured, ages 20–64. Adjusted for age and gender. 2008 claims data.

VERMONT BACK SURGERY					
HOSPITAL SERVICE AREA	**AVERAGE MEMBERS**	**PROCEDURES**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Barre	25,534	95	3.67	2.97	4.49
Bennington	11,219	26	2.25	1.47	3.29
Brattleboro	9,559	18	1.81	1.07	2.86
Burlington	67,850	201	3.01	2.61	3.46
Middlebury	10,700	39	3.57	2.54	4.88
Morrisville	7,798	27	3.39	2.23	4.93
Newport	6,754	17	2.45	1.43	3.93
Randolph	4,700	13	2.67	1.42	4.56
Rutland	21,196	65	2.97	2.29	3.78
Springfield	8,781	21	2.30	1.43	3.52
St. Albans	13,032	56	4.32	3.26	5.61
St. Johnsbury	7,145	16	2.18	1.25	3.54
White River Junction	12,343	35	2.75	1.92	3.83

NEW HAMPSHIRE BACK SURGERY					
HEALTH ANALYSIS AREA	**AVERAGE MEMBERS**	**PROCEDURES**	**ADJ. RATE PER 1,000**	**95% LCL**	**95% UCL**
Berlin	3,905	15	3.79	2.12	6.25
Claremont	4,588	20	4.41	2.69	6.81
Colebrook	1,188	3	2.44	0.50	7.12
Concord	42,223	200	4.76	4.12	5.47
Derry	16,231	68	4.24	3.29	5.38
Dover	16,580	40	2.55	1.83	3.48
Exeter	23,431	84	3.64	2.91	4.51
Franklin	5,240	28	5.37	3.57	7.76
Keene	15,594	47	2.99	2.20	3.97
Laconia	16,205	93	5.63	4.55	6.90

NEW HAMPSHIRE BACK SURGERY					
HEALTH ANALYSIS AREA	AVERAGE MEMBERS	PROCEDURES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Lancaster	2,116	11	5.10	2.55	9.12
Lebanon	21,821	77	3.56	2.81	4.45
Littleton	4,786	14	2.86	1.57	4.81
Manchester	56,200	221	4.03	3.52	4.60
Nashua	45,355	157	3.48	2.96	4.07
North Conway	4,716	10	2.08	1.00	3.82
Peterborough	9,490	22	2.31	1.45	3.50
Plymouth	7,838	32	4.05	2.77	5.71
Portsmouth	9,547	32	3.41	2.33	4.81
Rochester	11,668	31	2.71	1.84	3.84
Wolfeboro	7,016	21	2.93	1.81	4.48
Woodsville	1,673	10	5.87	2.82	10.80

MAINE BACK SURGERY					
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	PROCEDURES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Augusta	23,262	88	3.76	3.02	4.63
Bangor	41,542	148	3.57	3.02	4.20
Bar Harbor	3,969	7	1.71	0.69	3.52
Belfast	5,637	21	3.58	2.22	5.48
Biddeford	26,163	110	4.20	3.45	5.06
Blue Hill	3,266	10	2.86	1.37	5.25
Boothbay	2,115	5	2.21	0.72	5.16
Bridgton	6,158	41	6.45	4.63	8.75
Brunswick	24,218	77	3.11	2.46	3.89
Calais	2,793	9	3.10	1.42	5.89
Caribou	3,712	18	4.79	2.84	7.57
Damariscotta	4,310	24	5.32	3.41	7.91
Dover-Foxcroft	5,349	28	5.02	3.33	7.25
Ellsworth	7,920	12	1.48	0.76	2.58
Farmington	9,167	31	3.29	2.24	4.68

	MAINE BACK SURGERY				
HOSPITAL SERVICE AREA	AVERAGE MEMBERS	PROCEDURES	ADJ. RATE PER 1,000	95% LCL	95% UCL
Fort Kent	3,517	23	6.39	4.05	9.59
Greenville	704	0	0.00	0.00	3.92
Houlton	3,991	12	2.90	1.50	5.07
Lewiston	42,882	163	3.84	3.27	4.48
Lincoln	3,907	15	3.72	2.08	6.14
Machias	3,637	11	2.92	1.46	5.23
Millinocket	1,864	4	2.04	0.56	5.22
Norway	7,744	43	5.45	3.95	7.34
Pittsfield	4,122	13	3.14	1.67	5.38
Portland	115,521	443	3.95	3.59	4.33
Presque Isle	6,455	17	2.59	1.51	4.15
Rockland	16,086	80	4.77	3.78	5.94
Rumford	3,405	6	1.73	0.63	3.77
Sanford	12,846	61	4.76	3.64	6.12
Skowhegan	7,533	27	3.54	2.33	5.15
Waterville	22,676	96	4.25	3.44	5.19
York	20,800	46	2.18	1.60	2.91

EXPENDITURES

Total Payments Per Member Per Month (PMPM)

METHODS

Expenditures were derived from the payment information on the administrative medical claims. This included the plan payments and the member cost share (coinsurance, deductible, copayments) as reported on the claims. Retroactive payment settlements with providers not reflected in claims data were not available for this report. The Dartmouth Institute analysis of Medicare capped outlier cases at 99th percentile. No exclusions or capping of outlier cases were made by Onpoint for this analysis. As with other sections of this report, payment rates were adjusted for age and gender differences in the population of each area.

The rate of payments per member per month (PMPM) is the total medical claims payments divided by the member months of coverage for the population. Consistent with the data available for the Dartmouth analysis in Vermont, pharmacy claims were not included in the analysis.

Onpoint also evaluated payments by type of provider and compared the proportion of medical payments made to hospitals and other facilities (e.g., ambulatory surgery centers) for facility care with the proportion of payments made to physicians and other professionals.[‡‡]

RESULTS

Results are provided in figures 13 and 14 and Table Set 14.

The rate of medical payments for the combined tri-state area was $291 per member per month (PMPM). For medical payments PMPM, the highest rate area was Portsmouth, NH ($389), and the lowest rate area was Burlington, VT ($240) — a 1.6-fold variation.

Other highest rate areas included (in descending order): Caribou, ME; Rochester, NH; Dover, NH; Presque Isle, ME; Ellsworth, ME; Claremont, NH; and Berlin, NH. Other lowest rate areas included (in ascending order): Portland, ME; Brattleboro, VT; Middlebury, VT; Millinocket, ME; St. Albans, VT; Morrisville, VT; and Randolph, VT.

In Vermont, the rate of medical payments PMPM was $266. The highest rate area was Newport ($301) and the lowest rate area was Burlington ($240) — a 1.3-fold variation. Within Vermont, other high rate areas were Rutland ($297) and Bennington ($284) and other low rate areas were Brattleboro ($246) and Middlebury ($256). The Dartmouth Institute analysis of Medicare data for Vermont found the highest rate

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[‡‡] Hospitals often bill for physicians' services provided at the hospital; in the case of affiliated physicians, hospitals may bill for office visits. These physician payments billed by hospitals were identified through UB revenue and CPT coding and are reported in the proportion of payments to physicians and other professionals; they are not reported in the hospital/facility proportion of payments.

of payment for Rutland. For other HSAs, there was less similarity. For example, Burlington HSA ranked seventh highest among 13 Vermont HSAs in the Dartmouth Institute Medicare analysis but ranked lowest in the Onpoint analysis of Vermont commercial data. Differences in hospital- and services-specific reimbursement rates between Medicare and commercial payers could influence these results.

The Dartmouth Institute analysis of Medicare data reported Vermont to be within the lowest decile of spending in the United States and lower than comparative areas of New Hampshire (Manchester and Lebanon referral regions). While there was some variability by HSA, this Onpoint analysis also demonstrates a lower rate of expenditure in Vermont compared with New Hampshire or Maine.

Among the largest population areas, Bangor, ME, and Nashua, NH, had the highest rates ($310 and $307, respectively), while Burlington, VT, and Portland, ME, had the lowest rates ($240 and $243, respectively).

Onpoint evaluated the relationship between payment PMPM rates and utilization measure rates. This was performed for the tri-state combined and each state individually. For this evaluation, CT scans and MRIs were combined into a single Advanced Imaging measure; rates of CT scans and MRIs were strongly associated (r-square=0.8161, p<0.0001).

Advanced Imaging was associated with higher payments PMPM across the tri-state HSAs (r-square=0.3878, p<0.0001). Advanced Imaging also was associated with higher payments PMPM within each state.

Inpatient hospitalization rates were associated with higher payments PMPM across the tri-state HSAs (r-square=0.2920, p<0.0001). Inpatient hospitalization rates also were associated with higher payments PMPM within each state.

Outpatient emergency department visit rates were associated with higher payments PMPM across the tri-state HSAs (r-square=0.2179, p<0.0001). This relationship was true in Maine and Vermont but not true in New Hampshire. Several areas of southern New Hampshire exhibit a pattern of lower outpatient ED use but higher payments PMPM.

In a combined regression model, advanced imaging, inpatient hospitalizations, and outpatient emergency department visits explained 42% (r-square=0.4203, p=0.0180) of the variability in payments PMPM across the tri-state area. Other measures of utilization (e.g., non-hospital outpatient visits, office/clinic visits, chiropractic/osteopathic manipulation, hysterectomy, and back surgery) were not associated with payments PMPM across the tri-state area.

The proportion of total medical payments attributed to hospitals and other facilities for the combined tri-state areas was 60.1%. The highest rate area was Lancaster, NH (74.4%), while the lowest rate area was Burlington, VT (50.7%) — a 1.5-fold variation.
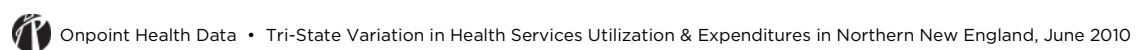
In Vermont, the proportion of total medical payments attributed to hospitals and other facilities also was 60.1%. The highest rate area was Newport (69.8%), and the lowest rate area was Burlington (50.7%) — a 1.3-fold variation.

Other high rate areas included (in descending order): Colebrook, NH; Houlton, ME; Berlin, NH; Greenville, ME; Newport, VT; Caribou, ME; and Littleton, NH. Other low rate areas included (in ascending order):

Portland, ME; Biddeford, ME; Middlebury, VT; Manchester, NH; Derry, NH; Brunswick, ME; Concord, NH; and Nashua, NH.

Among large population areas, Bangor, ME (63.2%), had the highest proportion of total payments associated with facility payments, while Burlington, VT, and Portland, ME, were lowest (50.7% and 50.8%, respectively). In general, large population areas had a lower proportion of total payments associated with facility cost.

Figure 13. Rates Per Member Per Month (PMPM)

Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Rate Per Member Per Month

- $240 - $275
- $276 - $294
- $295 - $302
- $303 - $324
- $325 - $389

Figure 14. Percent of Total Payments Made to Hospitals and Other Facilities for Facility Care

Commercially insured under age 65. Adjusted for age and gender. 2008 claims data.

Percent

☐	51% - 60%
☐	61% - 63%
☐	64% - 65%
☐	66% - 67%
☐	68% - 75%
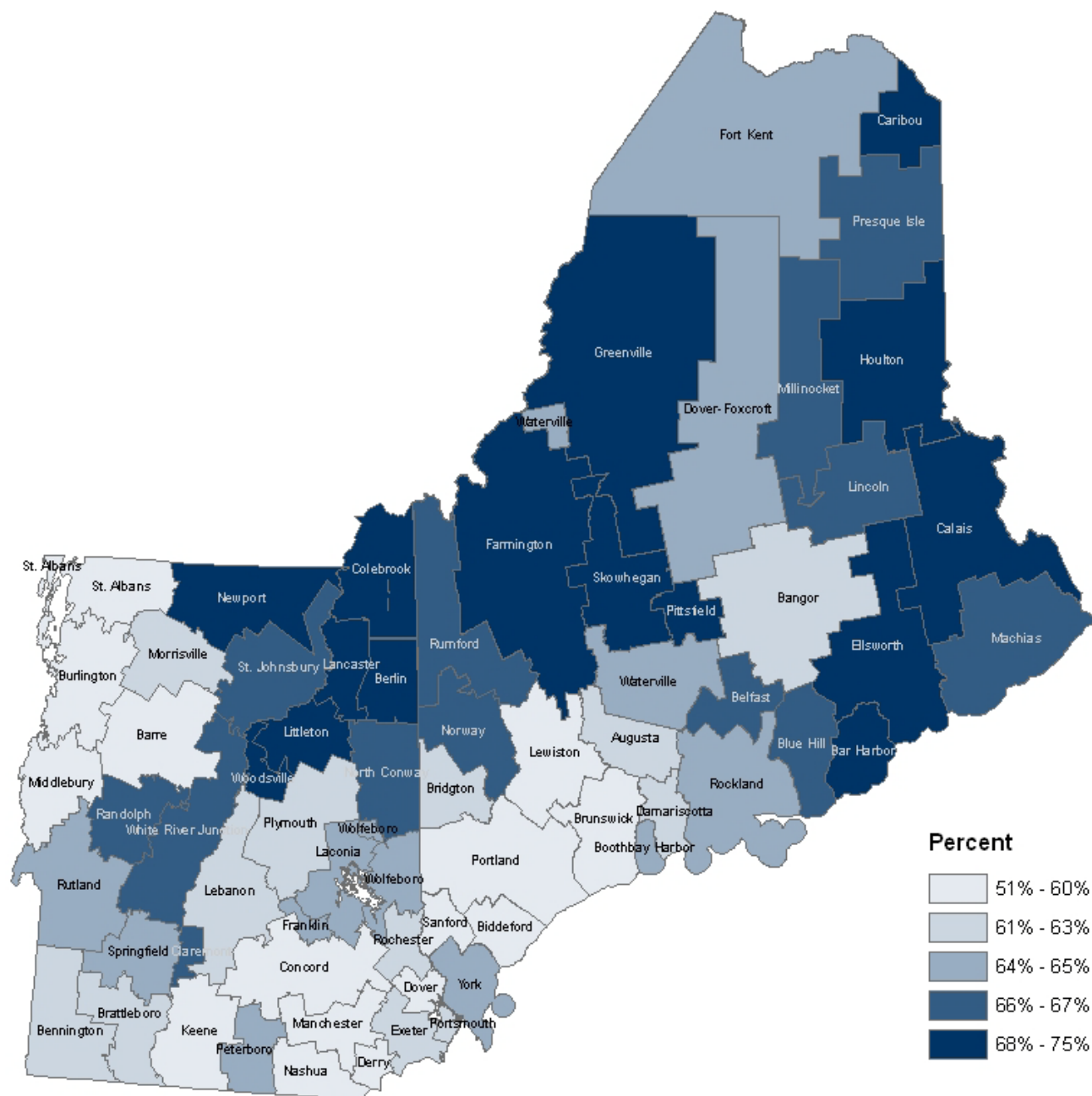
Table Set 14. Total Plan and Member Medical Payments

Rates per member per month (PMPM). Commercially insured under age 65. Adjusted for age and gender. 2008 claims data. Pharmacy not included.

VERMONT TOTAL PLAN AND MEMBER MEDICAL PAYMENTS					
HOSPITAL SERVICE AREA	MEMBER MONTHS	PAYMENTS (MILLIONS)	PAYMENTS PMPM	HOSPITAL/ FACILITY PROPORTION	PHYSICIAN/ OTHER PROPORTION
Barre	403,387	$109.1	$265	59.9%	40.1%
Bennington	176,197	$52.0	$284	63.4%	36.6%
Brattleboro	147,152	$38.5	$246	62.7%	37.3%
Burlington	1,094,378	$257.7	$240	50.7%	49.3%
Middlebury	169,992	$44.5	$256	55.9%	44.1%
Morrisville	122,343	$32.9	$260	62.0%	38.0%
Newport	101,649	$32.5	$301	69.8%	30.2%
Randolph	71,817	$20.1	$264	66.9%	33.1%
Rutland	328,298	$102.2	$297	65.0%	35.0%
Springfield	135,131	$38.5	$270	64.9%	35.1%
St. Albans	208,608	$53.4	$257	58.4%	41.6%
St. Johnsbury	110,894	$32.4	$279	66.3%	33.7%
White River Junction	192,991	$55.4	$275	65.6%	34.4%

NEW HAMPSHIRE TOTAL PLAN AND MEMBER MEDICAL PAYMENTS					
HEALTH ANALYSIS AREA	MEMBER MONTHS	PAYMENTS (MILLIONS)	PAYMENTS PMPM	HOSPITAL/ FACILITY PROPORTION	PHYSICIAN/ OTHER PROPORTION
Berlin	63,328	$22.4	$351	70.3%	29.7%
Claremont	75,145	$26.4	$357	66.3%	33.7%
Colebrook	18,335	$5.7	$291	71.6%	28.4%
Concord	705,051	$210.3	$304	57.4%	42.6%
Derry	274,648	$83.0	$314	56.6%	43.4%
Dover	275,241	$94.7	$365	60.1%	39.9%
Exeter	391,634	$132.4	$349	62.9%	37.1%
Franklin	84,078	$26.5	$314	64.7%	35.3%
Keene	250,666	$76.6	$302	58.6%	41.4%
Laconia	262,714	$87.5	$328	65.4%	34.6%

NEW HAMPSHIRE
TOTAL PLAN AND MEMBER MEDICAL PAYMENTS

HEALTH ANALYSIS AREA	MEMBER MONTHS	PAYMENTS (MILLIONS)	PAYMENTS PMPM	HOSPITAL/ FACILITY PROPORTION	PHYSICIAN/ OTHER PROPORTION
Lancaster	33,758	$11.0	$316	74.4%	25.6%
Lebanon	362,021	$115.4	$324	61.4%	38.6%
Littleton	75,459	$25.1	$323	69.0%	31.0%
Manchester	931,264	$264.0	$293	56.2%	43.8%
Nashua	758,796	$227.1	$307	57.7%	42.3%
North Conway	74,153	$22.9	$300	65.8%	34.2%
Peterborough	163,741	$46.3	$292	63.7%	36.3%
Plymouth	126,658	$37.9	$296	61.4%	38.6%
Portsmouth	150,781	$58.7	$389	61.4%	38.6%
Rochester	189,571	$68.4	$366	62.5%	37.5%
Wolfeboro	115,051	$33.6	$288	64.8%	35.2%
Woodsville	27,177	$8.3	$301	68.4%	31.6%

MAINE
TOTAL PLAN AND MEMBER MEDICAL PAYMENTS

HOSPITAL SERVICE AREA	MEMBER MONTHS	PAYMENTS (MILLIONS)	PAYMENTS PMPM	HOSPITAL/ FACILITY PROPORTION	PHYSICIAN/ OTHER PROPORTION
Augusta	368,014	$118.8	$316	63.1%	36.9%
Bangor	667,313	$208.6	$310	63.2%	36.8%
Bar Harbor	62,423	$21.6	$331	68.1%	31.9%
Belfast	86,148	$28.6	$310	67.3%	32.7%
Biddeford	423,819	$114.5	$270	53.2%	46.8%
Blue Hill	50,132	$15.5	$281	65.9%	34.1%
Boothbay	32,052	$10.7	$302	63.9%	36.1%
Bridgton	98,152	$27.3	$270	61.3%	38.7%
Brunswick	390,053	$109.1	$274	57.4%	42.6%
Calais	42,419	$15.8	$344	67.7%	32.3%
Caribou	58,521	$22.1	$370	69.6%	30.4%
Damariscotta	68,044	$20.7	$287	62.7%	37.3%
Dover-Foxcroft	81,854	$26.4	$301	64.4%	35.6%
Ellsworth	121,792	$46.2	$358	68.9%	31.1%

MAINE				
TOTAL PLAN AND MEMBER MEDICAL PAYMENTS				
HOSPITAL SERVICE AREA	MEMBER MONTHS	PAYMENTS (MILLIONS)	PAYMENTS PMPM	HOSPITAL/ FACILITY PROPORTION	PHYSICIAN/ OTHER PROPORTION
Farmington	144,364	$44.6	$297	67.6%	32.4%
Fort Kent	54,126	$17.3	$304	65.1%	34.9%
Greenville	10,328	$3.5	$300	70.2%	29.8%
Houlton	60,749	$20.4	$313	70.5%	29.5%
Lewiston	691,841	$188.0	$275	60.2%	39.8%
Lincoln	62,044	$18.0	$282	67.4%	32.6%
Machias	54,968	$19.8	$331	66.8%	33.2%
Millinocket	28,733	$7.9	$257	66.0%	34.0%
Norway	124,134	$37.6	$297	66.5%	33.5%
Pittsfield	65,549	$21.7	$329	68.5%	31.5%
Portland	1,899,302	$447.1	$243	50.8%	49.2%
Presque Isle	101,637	$38.4	$365	66.0%	34.0%
Rockland	252,279	$77.0	$290	63.8%	36.2%
Rumford	53,939	$15.6	$281	66.1%	33.9%
Sanford	210,487	$58.4	$281	60.0%	40.0%
Skowhegan	119,376	$37.3	$306	67.7%	32.3%
Waterville	367,735	$107.7	$294	63.9%	36.1%
York	344,464	$110.9	$322	63.8%	36.2%

CONCLUSIONS, LIMITATIONS, & NEXT STEPS

Conclusions

This report represents the first multiple-state evaluation of health services utilization using state-mandated, all-payer commercial claims data and the first reporting of Vermont commercial claims data by HSA. Similar reporting has been prepared by the Dartmouth Institute using Medicare data. Onpoint included New Hampshire and Maine health services utilization by HSA for comparative purposes.

The results for 2008 indicate wide variation in rates of utilization of healthcare services in the three northern New England states as well as within Vermont. Advanced imaging (CT scans and MRIs) rates varied twofold from the highest to the lowest rate areas. Inpatient hospitalization rates varied 1.6-fold, while readmission and inpatient ACSC rates both varied more than fourfold. Outpatient emergency department visits varied 3.5-fold; when this was restricted to diagnoses for which an ED visit was most likely to be avoidable, the variability increased to more than eightfold. Variation in non-hospital outpatient visits varied 1.9-fold, while office/clinic visits varied 1.7-fold. The rate of chiropractic/osteopathic manipulation varied ninefold. The rate of hysterectomy varied more than 7.5-fold, and the rate of back surgery varied more than fourfold across the three states.

Similar patterns of variability existed within Vermont HSAs. While there were some exceptions by HSA and type of service, utilization rates in Vermont were lower than in New Hampshire and Maine. The Vermont statewide rates for inpatient hospitalizations, outpatient ED visits, back surgery, and hysterectomy were lower than the NCQA HEDIS commercial HMO and PPO national averages based on data submitted by health plans. These findings for the commercially insured population in Vermont were consistent with the findings of the Dartmouth Institute report on Vermont's Medicare beneficiaries, which noted, "Vermont's utilization rates were lower than those observed in the rest of the United States and were generally lower than those observed in the adjacent regions of New York, Massachusetts, and New Hampshire."

Within Vermont, a contrast may be drawn between the Bennington and Rutland HSAs and the Burlington and Brattleboro HSAs. The Bennington and Rutland HSAs had higher rates of medical payments PMPM, advanced imaging, and inpatient hospitalization, while the Burlington and Brattleboro HSAs had lower rates. The higher rates of outpatient emergency department visits in St. Albans and Newport contrasted with lower rates in Burlington and Brattleboro. Burlington had the lowest rate of medical payments PMPM in the three states and ranked low or lowest in inpatient use and outpatient ED use.

This report did not evaluate trends in utilization or expenditures. Other Vermont commercial reporting prepared by Onpoint for BISHCA indicates increased expenditures and utilization of advanced imaging, other diagnostic tests, ED use, and other services between 2007 and 2008.[§§] Therefore, in this report, the

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[§§] Vermont Health Care Utilization Profile: 2007–2008 Incurred Major Medical Claims for Commercially Insured Residents Under the Age of 65. Vermont Department of Banking, Insurance, Securities and Health Care Administration.

lower relative rates identified for expenditures and several utilization measures for Vermont do not imply that opportunities do not exist to further evaluate and change the use and cost of healthcare services in the state.

For some HSAs, utilization rate patterns may indicate fundamental differences in how care is delivered in different geographic areas. For the 67 HSAs profiled, a modest relationship between higher office/clinic visit rate and lower avoidable ED visit rate was found. Several northern Maine areas had the highest rate of potentially avoidable ED visits and the lowest rates of office/clinic visits in the tri-state area. Within Vermont, Newport had the highest rate of potentially avoidable ED visits and the second lowest rate of office/clinic visits. These patterns suggest that in these areas, people with commercial insurance may be more likely to seek care at the local hospital instead of at a physician office or clinic.

Expenditure payments PMPM varied 1.6-fold across the tri-state area. The purpose of this study was to identify variation rather than explain it. Factors that contribute to high expenditure rates are many and complex. Among the limited set of measures reported here, care provided at hospitals (inpatient hospitalizations, outpatient emergency department visits, and advanced imaging (CT scans and MRIs) were associated with higher payment PMPM areas.

This Onpoint analysis suggests that variation in utilization is a factor contributing to higher or lower expenditures. But other demographic, socioeconomic, provider supply, and financial factors also may influence the variation in these payment PMPM rates. For example, some area commercial rates may be influenced by a local hospital's payer mix and/or contracting leverage of commercial insurers.

Limitations

This report represents a first look at health services utilization using state-mandated, all-payer commercial claims data for the three northern New England states. For Vermont the data source was newly developed during 2009. Data for all three states was updated as recently as May 2010.

The all-payer commercial claims contain data from a large number of different payers. Benefit structures vary by payer and plan type for the members covered. These include differences in covered services, copayments, and deductibles, which can influence the claims data and services reported.

Onpoint age- and gender-adjusted all rates reported. Age and gender differences are strongly associated with health status and use of services. Onpoint works with a number of different health status risk adjustors (e.g., Ingenix ERGs). Although planned for the future, application of health-status risk adjustment was not incorporated in the current Onpoint work plan for Vermont's BISHCA.

Evaluation of variability in surgical procedures (back surgery and hysterectomy) was limited by small numbers. Many areas had high or low rates but did not reach statistical significance. Back surgery is not a service provided by hospitals in all 67 HSAs profiled in this report; for example, back surgery was performed at only four locations in Maine. Alternative surgical referral regions that have been used in other studies by Onpoint and other organizations would provide a more reliable evaluation of variability in this procedure in northern New England.

Expenditures were evaluated using plan and member payments as reported on the administrative claims data. Retroactive payment settlements with providers not reflected in claims data were not available for this report.

This study did not attempt to evaluate or interpret potential causes of the variation in the rates reported. Determining potential causes would require additional data sources and more detailed evaluation.

Next Steps

The following recommendations are made for additional analysis in the future:

- Evaluate potential factors that contribute to variations found in this report. This might include supply of physicians, other providers (e.g., chiropractors and osteopaths), and hospital beds per capita

- Contrast high- and low-rate expenditure areas to determine factors contributing to differences

- Add additional years of data to address the small number of issues related to surgical procedures and to determine referral regions for procedures (e.g., back surgery) that are not performed by all hospitals

- Add additional years of data to evaluate trends in expenditures and utilization

- Employ episode reporting, using Ingenix Episode Treatment Groups® (ETGs), to (a) determine the ETGs (adjusted for comorbid condition) that most contribute to expenditures and have the highest expenditure variation (i.e., highest coefficient of variation for payments) and (b) compare the expenditure rates for these ETGs by HSA

- Use ETGs to analyze variation between areas for treatment patterns for selected conditions (e.g., distinguish episodes involving back disorders; evaluate the variation in the use of MRIs, other diagnostic tests, surgery, manipulation and other therapies, ED use, inpatient use, primary care visit, and expenditures by has; and contrast high-rate and low-rate expenditure HSAs for these conditions to determine utilization and other drivers of differences in expenditures)

- Expand measures to include HEDIS effectiveness of care and preventive visit measures, additional surgical procedures, and diagnostic tests

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Health Data

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