Characterizing Healthcare Utilization in Vermont: Attribution of Children to Primary Care, 2022

VCHIP
VERMONT CHILD HEALTH IMPROVEMENT PROGRAM
The University of Vermont | LARNER COLLEGE OF MEDICINE

Fiscal Year 2024

Health Services Research Team

Vermont Child Health Improvement Program

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Introduction

Our algorithm attributes patients to providers based on services received and assigns providers to practices based on administrative workforce data. The primary objective of this project is to implement our algorithm so that patient and practice data can be used by other VCHIP projects to assess the impact of their quality improvement efforts. Our secondary objective is to describe the population of attributed patients and identify patient characteristics that may contribute to identifying areas or populations for future quality improvement efforts. Throughout the document we use the term 'children' to refer to the population of 0-26-year-olds.

This document details analyses conducted leveraging Vermont's All-Payer Claims Database (VHCURES: Vermont Health Care Uniform Reporting and Evaluation System) to answer the following questions:

o   What proportion of children aged 0-26 are attributed to primary care practices in Vermont?
o   What is the distribution of attributed children by practice type?
o   What proportion of attributed children live in an area defined as rural?
o   What proportion of attributed children in Vermont are classified with varying levels of medical complexity (i.e. complex chronic, non-complex chronic and non-chronic)?
o   What proportion of attributed children live in areas identified as at risk for poor social determinants of health (i.e. low childhood opportunity)?

How to Read This Document

Statistical Comparisons

Statements noting differences between groups in this report are statistically significant. Statistical comparisons in this report were made using chi-square analyses unless otherwise noted, with significance levels set at p<.05. In cases where multiple comparisons were made between groups, significance levels were adjusted using Bonferroni correction (.05/number of comparisons).

The Vermont Health Care Uniform Reporting and Evaluation System (VHCURES) data are under the stewardship of the Green Mountain Care Board (GMCB). The analyses, conclusions, and recommendations from the VHCURES data are solely those of the study authors and are not necessarily those of the GMCB. The GMCB had no input into the study design, implementation, or interpretation of the findings.

Definitions	
Patient-to-Practice Attribution	We use a retrospective, hierarchical patient-to provider attribution by reviewing two years of outpatient professional medical claims. Our approach prioritizes well-care visits with providers. We assign providers to practices each year using a combination of administrative data sources. The provider's National Provider Identifier (NPI) number is used to link between the all-payer claims database and administrative data sources. This will allow us to then attribute the child, through their provider, to a practice.
Practice Type	Practices children are attributed to are categorized based on the providers at those practices and practice information about the patients they serve. This report focuses primarily on Child-Serving Practices, which includes Pediatric, Family Medicine, Mixed Practices, Nurse Practitioner, and Naturopathic practices.
Medicaid Insurance Coverage	Children with Medicaid insurance eligibility in any month, even if Medicaid is not the primary insurance payer, are counted as having Medicaid. This designation is based on enrollment, and not on payments made by Medicaid on a Medical claim.
Rurality	Rural-Urban Commuting Area (RUCA) codes: Based on both population density and daily commuting within or to urbanized areas. Our analyses use a previously established four-tier consolidation: urban, large rural city/town, small town, and isolated rural. The Federal Office of Rural Health Policy: Non-metro counties, areas with RUCA codes of 4-10, large metro areas with a population density of 35 or less per square mile and a RUCA code of 2-3 and outlying metropolitan counties without an urbanized area are all considered rural. In Vermont, this means that ZIP Codes within Chittenden County are identified as non-rural (urban), with all other ZIP Codes identified as rural.
Pediatric Medical Complexity	We used the Pediatric Medical Complexity Algorithm (PMCA) to categorize children by medical complexity. The algorithm categorizes children into different levels of medical complexity based on up to three years of diagnoses that are identified as chronic, malignant, progressive, and/or involve multiple body systems. Children are classified into three categories: Complex Chronic, Non-Complex Chronic, and Non-Chronic (Healthy).
Social Determinants of Health	The Child Opportunity Index (COI) is a child-focused Social Determinants of Health (SDoH) index that uses data from multiple sources including the American Community Survey, the National Center for Education Statistics, the Environmental Protection Agency, and the CDC. At the ZIP Code level, we use the state-normed categorizations ranging from (1) Very Low Opportunity to (5) Very High Opportunity

Key Findings

88%

Of eligible children were attributed in 2022

Of attributed children:

o 60% were attributed to a Vermont Child-Serving Practice

o Most children at a Vermont Child-Serving Practice (57%) were attributed to a pediatric practice.

o 66% had Medicaid coverage.

o 80% lived in a rural area.

o 38% had complex chronic or non-complex chronic medical conditions.

o 43% lived in an area identified as having low or very low opportunities for children.

Attribution to Primary Care

Attributing Children

- 150,053 children aged 0-26 were identified in VHCURES as having at least one Vermont ZIP Code and at least one month of medical insurance eligibility.

- 93% of those children had a medical claim.

- 88% of those children were able to be attributed.

- Most attributed children (80%) were attributed to a child-serving practice in Vermont. Others were attributed to practices outside of Vermont or specialty practices inside or outside of Vermont.
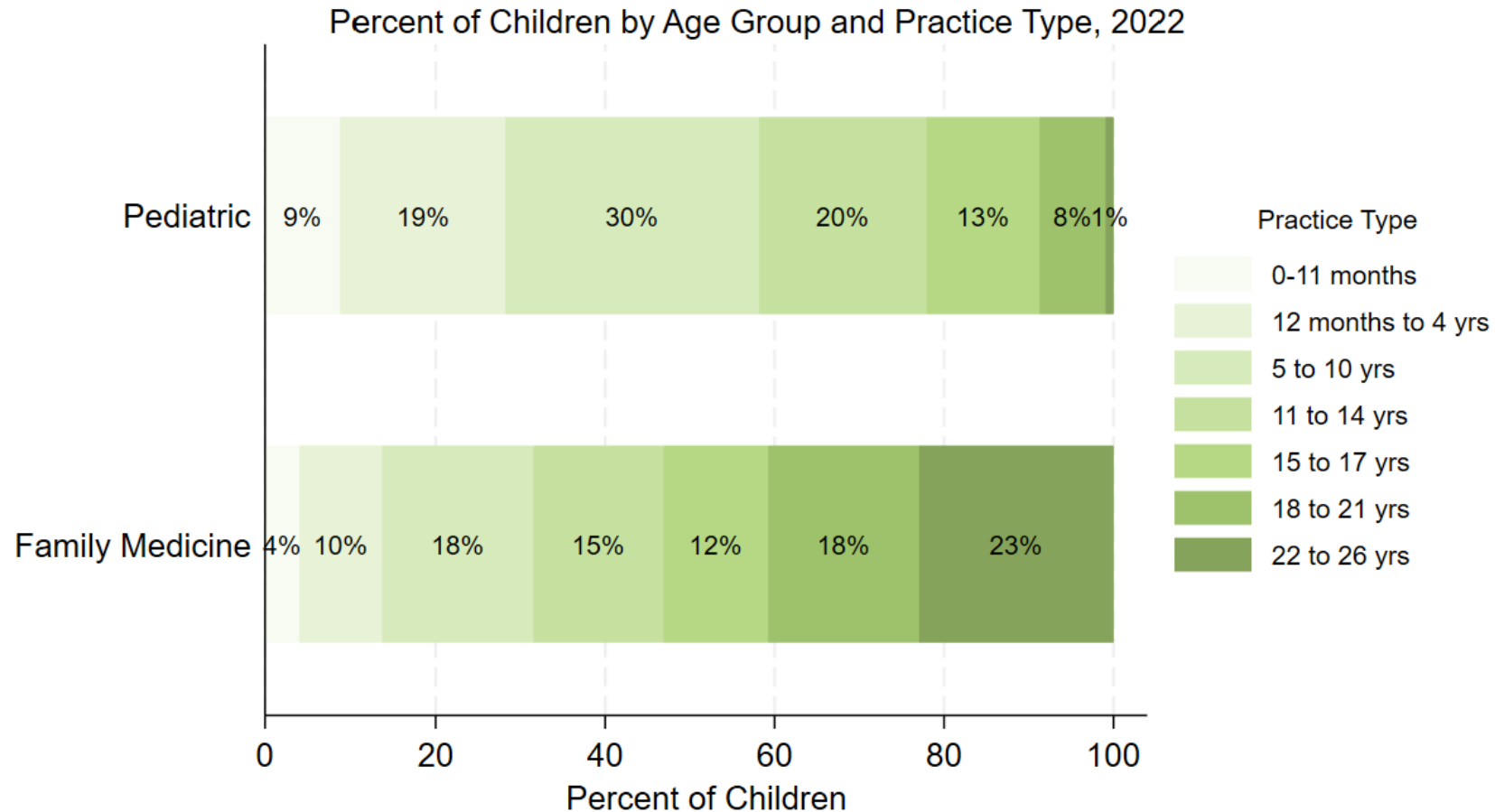
Eligible Children
150,053

Children with Medical Claims
139,945

Attributed Children
131,709

Attributed to Child-Serving Primary Care
105,478
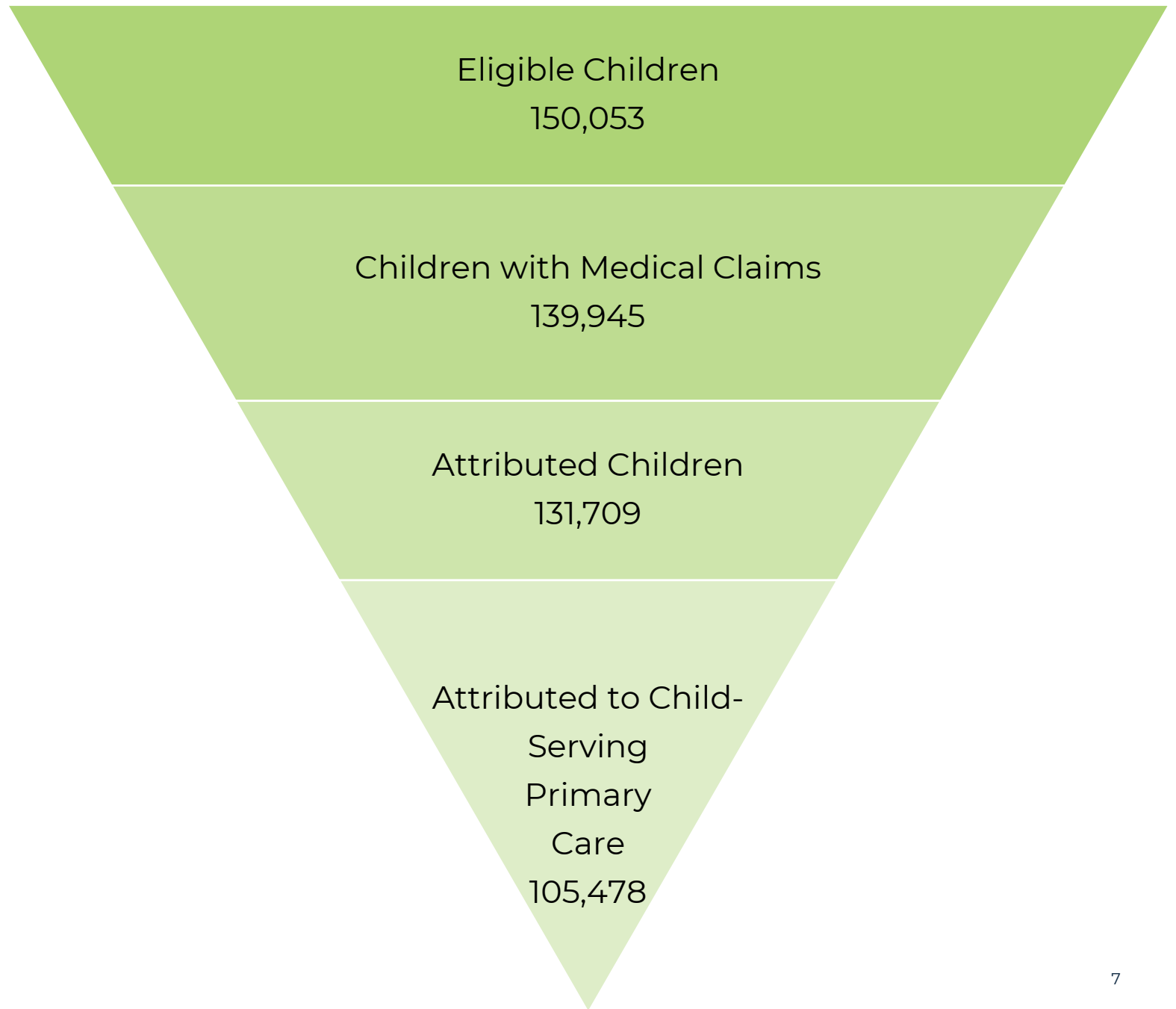
Most children at child-serving primary care were attributed to pediatric practices

Attribution to Vermont Child-Serving Primary Care Practice

Legend:
- Pediatric
- Family Medicine
- Naturopath
- Other (including Mixed and NP Practices)
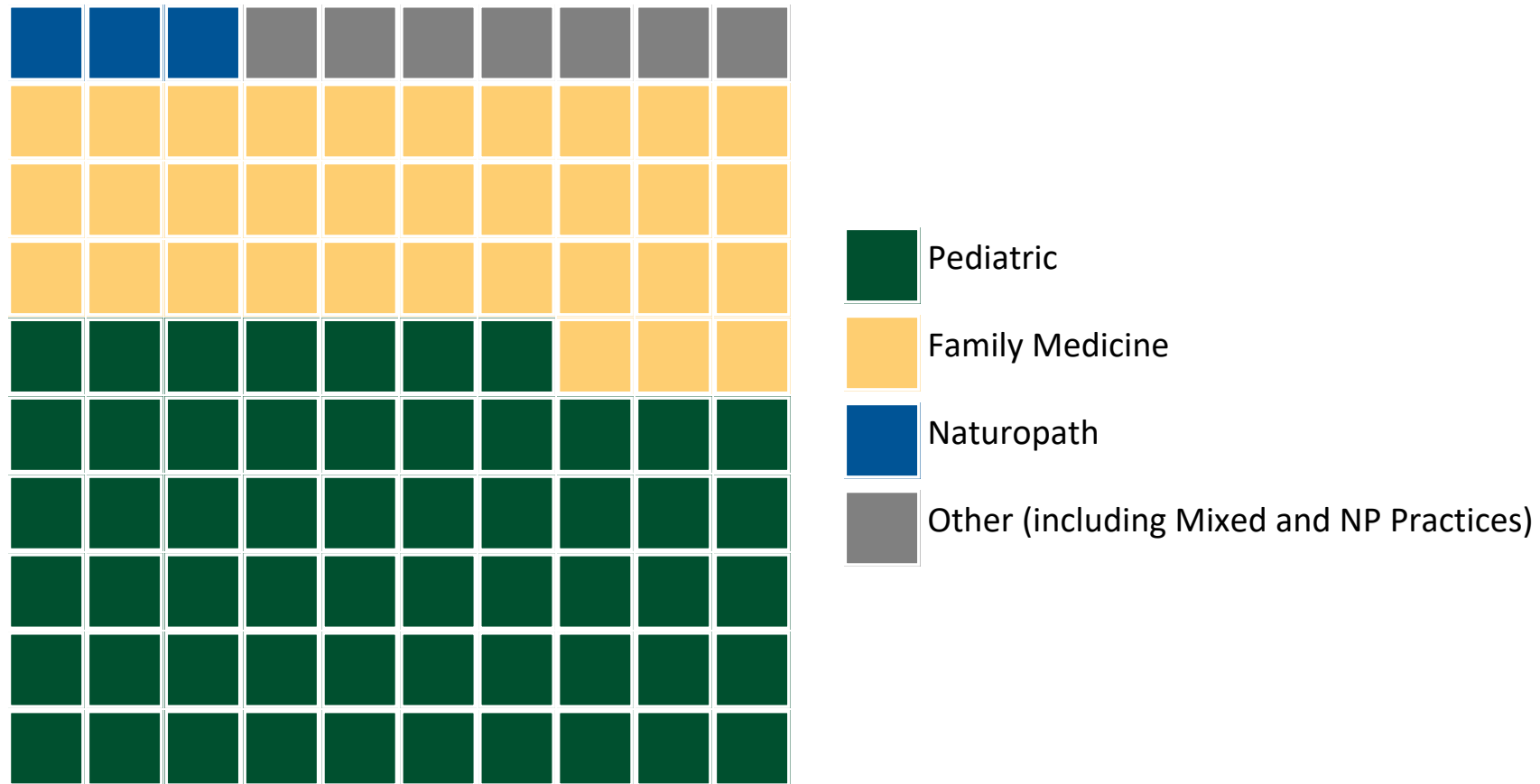
Patients attributed to practices based on healthcare utilization 2021-2022.
SOURCE: VHCURES Extract #3008

Most children at Pediatric practices were 5 to 10 years old

Percent of Children by Age Group and Practice Type, 2022

Pediatric: 9% | 19% | 30% | 20% | 13% | 8% | 1%

Family Medicine: 4% | 10% | 18% | 15% | 12% | 18% | 23%

Practice Type
- 0-11 months
- 12 months to 4 yrs
- 5 to 10 yrs
- 11 to 14 yrs
- 15 to 17 yrs
- 18 to 21 yrs
- 22 to 26 yrs

Percent of Children

More than half of patients at Pediatric practices were 10 years old or younger.

At Family Medicine practices, more than half of patients were 15 to 26 years old.

Patients attributed to practices based on healthcare utilization 2021-2022
Age based on minimum age in year using eligibility records
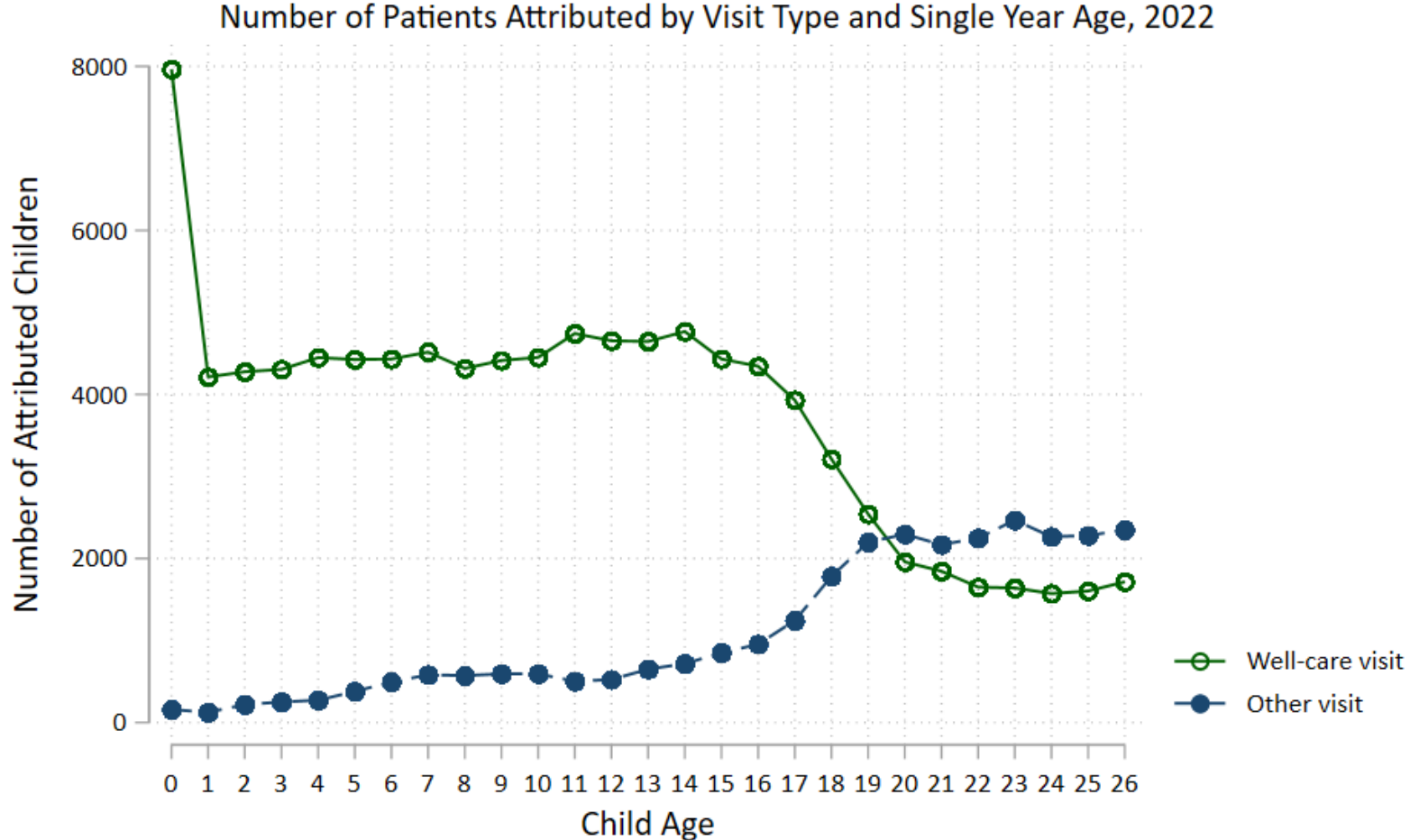SOURCE: VHCURES Extract #3008

Nearly 2/3 of attributed children had Medicaid insurance

Percent of Attributed Children by Medicaid Coverage, 2022

34%

66%

Medicaid Coverage
- Other Insurance
- Medicaid
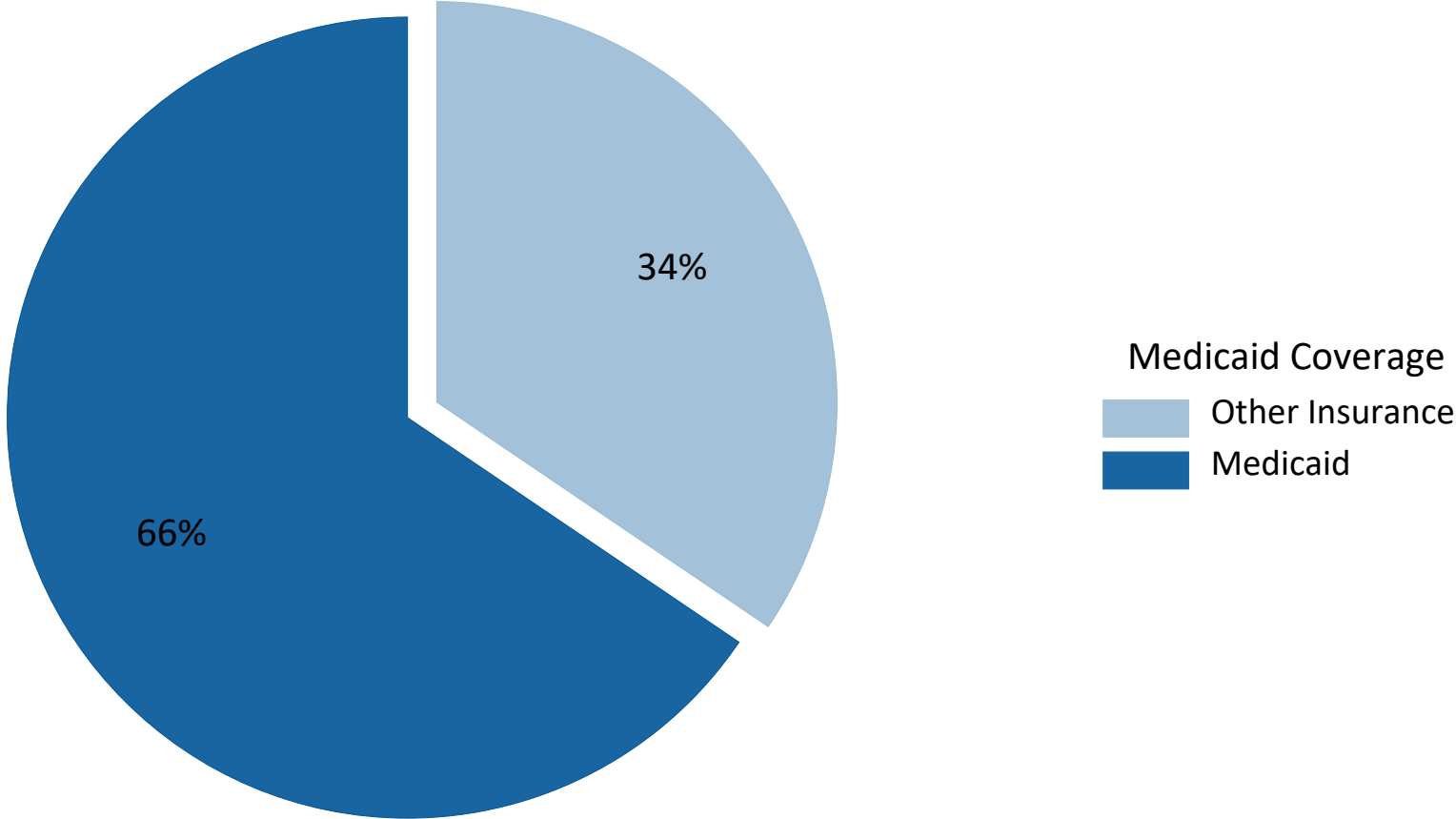
Patients attributed to practices based on healthcare utilization 2021-2022.
Children identified as having any Medicaid had one or more months of Medicaid eligibility during 2022.
SOURCE: VHCURES Extract #3008

Younger children were attributed by well-care visits, whereas young adults were attributed by other visit types

Number of Patients Attributed by Visit Type and Single Year Age, 2022

Legend:
- ○ Well-care visit
- ● Other visit

Patients attributed to practices based on healthcare utilization 2021-2022
Age based on minimum age in year using eligibility records
SOURCE: VHCURES Extract #3008

Note: There were approximately twice as many 0-year-olds than other ages because we used minimum age in the year, so 0-year-olds included children born the previous year and turned 1 during the year.

Rurality

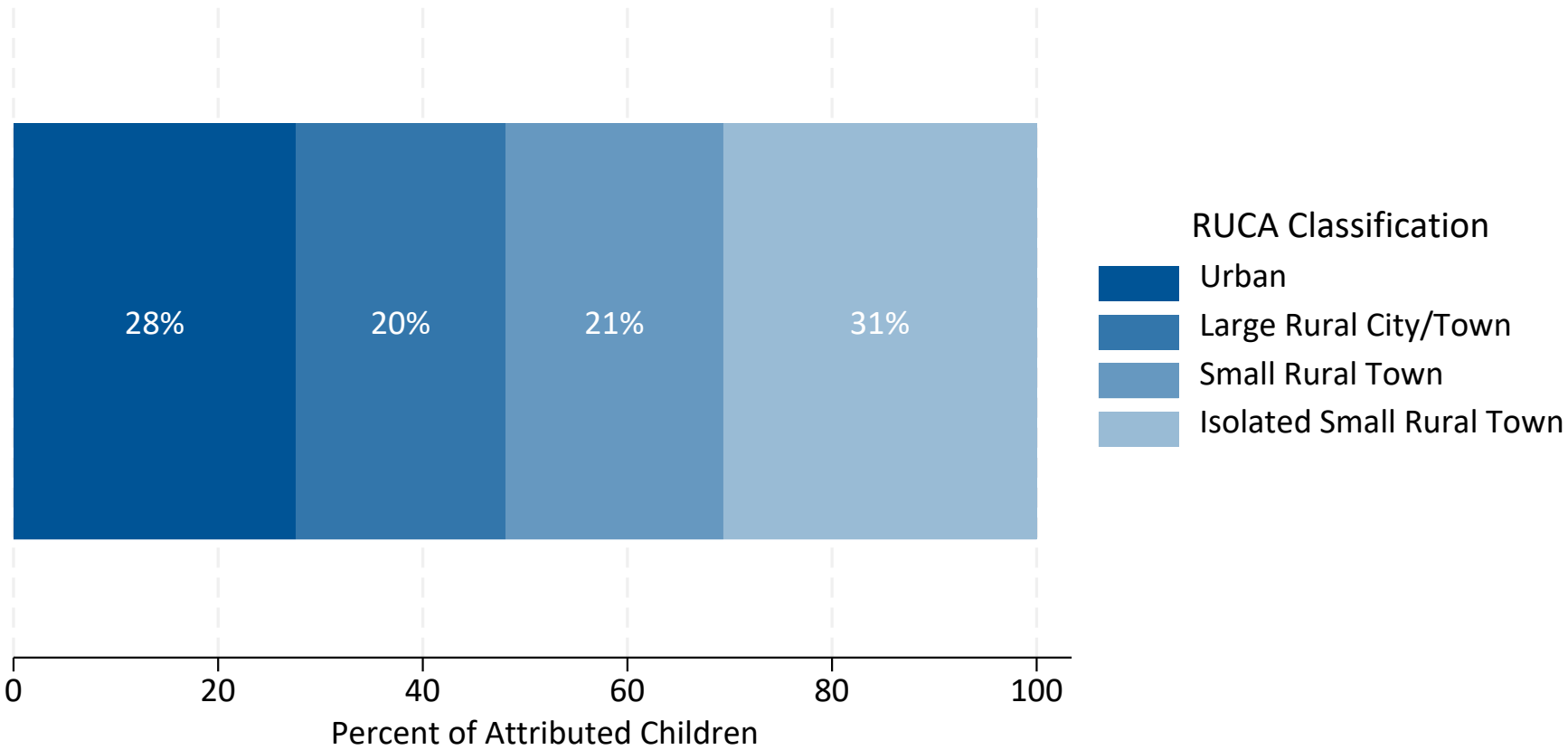# Over a quarter of attributed children lived in isolated small rural towns

Percent of Attributed Children by Rural-Urban Commuting Area, 2022
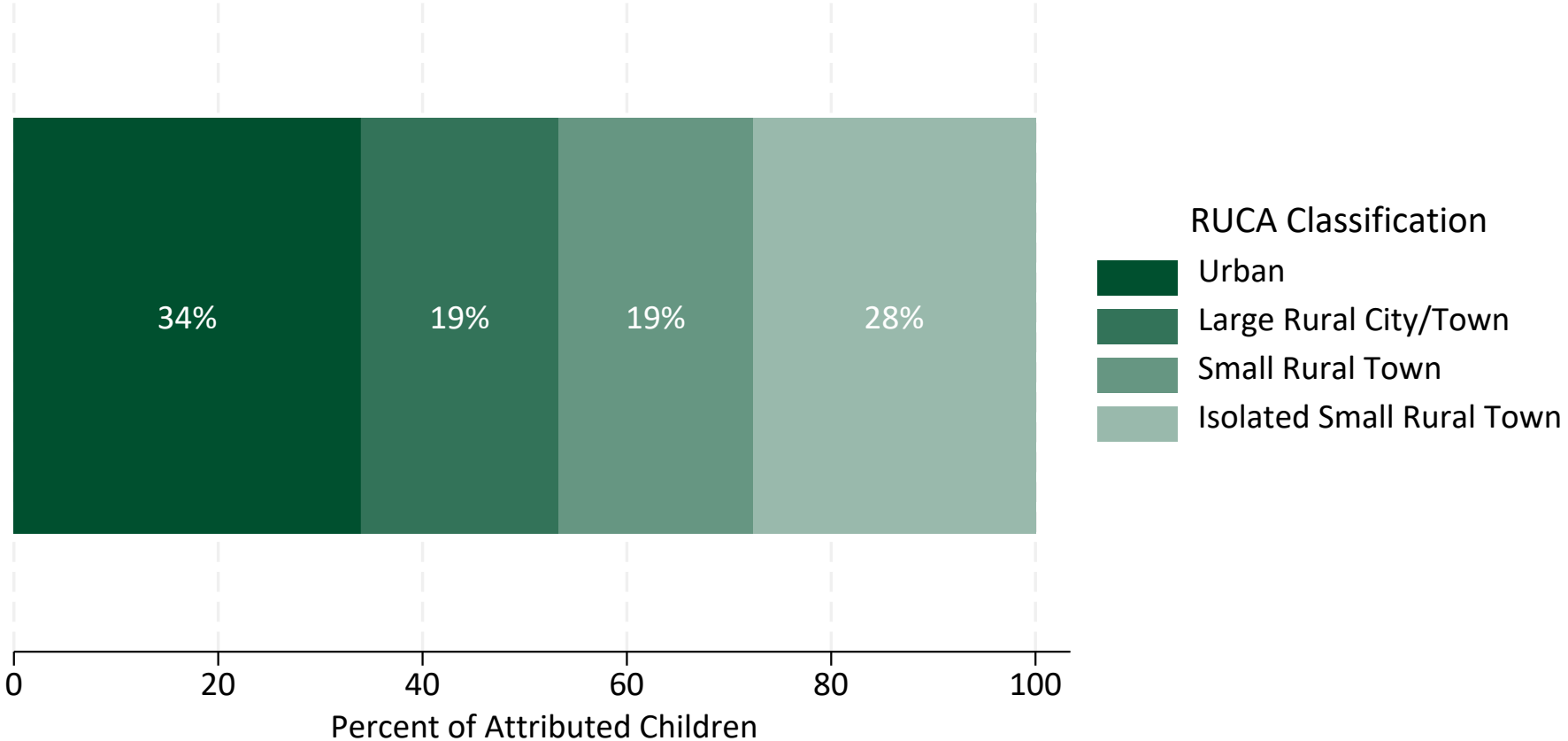
RUCA Classification
- Urban
- Large Rural City/Town
- Small Rural Town
- Isolated Small Rural Town

Bar segments: 34%, 19%, 19%, 28%

Percent of Attributed Children (x-axis: 0, 20, 40, 60, 80, 100)

Children identified as having any Medicaid had one or more months of Medicaid eligibility during 2022.
Rurality-RUCA: USDA Economic Research Service classification system based on both population density and
daily commuting within or to urbanized areas into 10 categories. We use a four-tier consolidation
(urban, large rural city/town, small rural town, and isolated small rural town) of the original RUCA classification system to aid interpretability.
SOURCE: VHCURES Extract #3008

# More than half of attributed children with Medicaid lived in isolated small rural towns or small rural towns

Percent of Attributed Children with Medicaid by Rural-Urban Commuting Area, 2022

Urban	Large Rural City/Town	Small Rural Town	Isolated Small Rural Town
28%	20%	21%	31%

RUCA Classification
- Urban
- Large Rural City/Town
- Small Rural Town
- Isolated Small Rural Town

Percent of Attributed Children

Children identified as having any Medicaid had one or more months of Medicaid eligibility during 2022.
Rurality-RUCA: USDA Economic Research Service classification system based on both population density and
daily commuting within or to urbanized areas into 10 categories. We use a four-tier consolidation
(urban, large rural city/town, small rural town, and isolated small rural town) of the original RUCA classification system to aid interpretability.
SOURCE: VHCURES Extract #3008

# 3/4 of attributed children lived in rural areas of Vermont

Percent of Attributed Children by Rurality, 2022
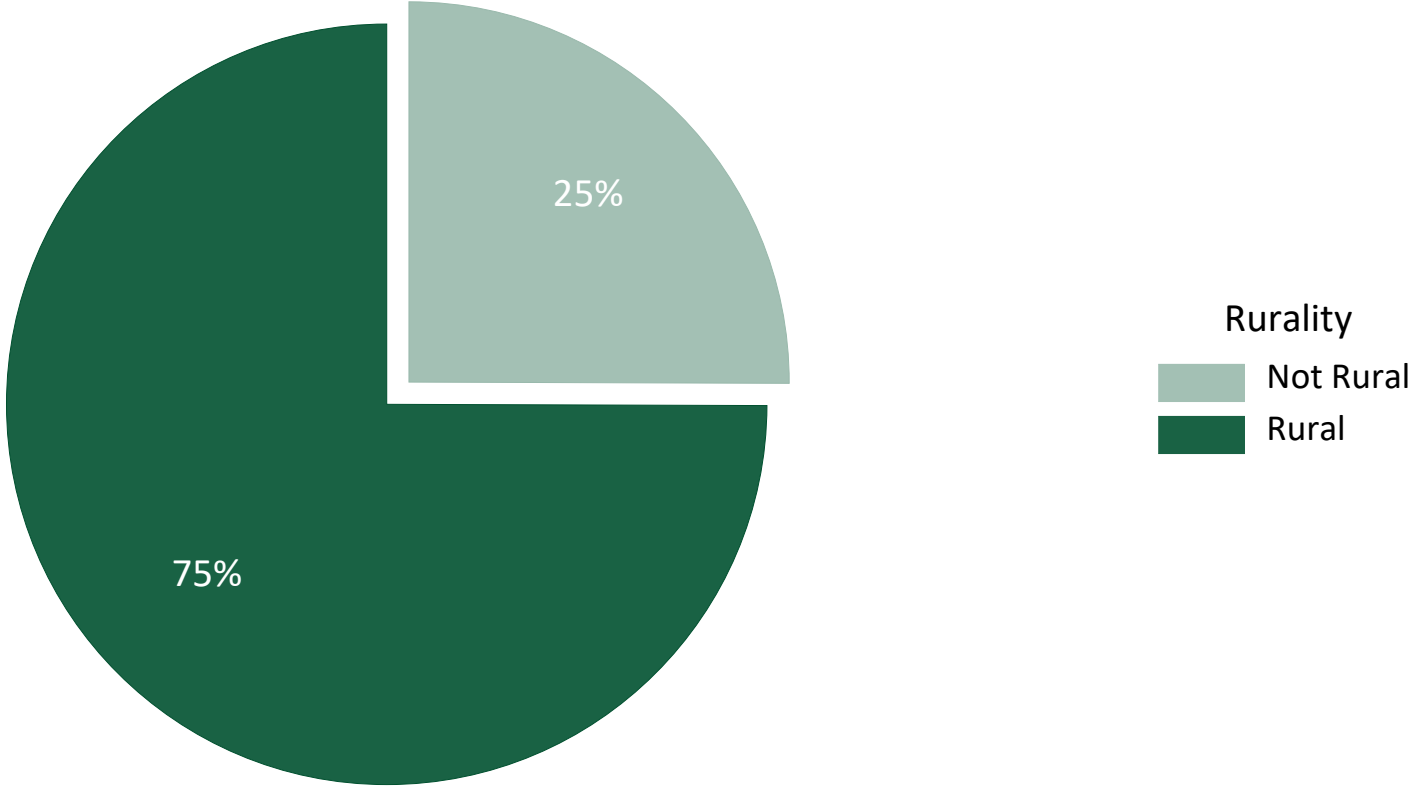
25%

75%

Rurality

Not Rural

Rural

Patients attributed to practices based on healthcare utilization 2021-2022.
Rurality-Federal Office of Rural Health Policy: Non-metro counties, areas with RUCA codes of 4-10,
large metro areas with a population density of 35 or less per square mile and a RUCA code of 2-3,
and outlying metropolitan counties without an urbanized area are all considered rural.
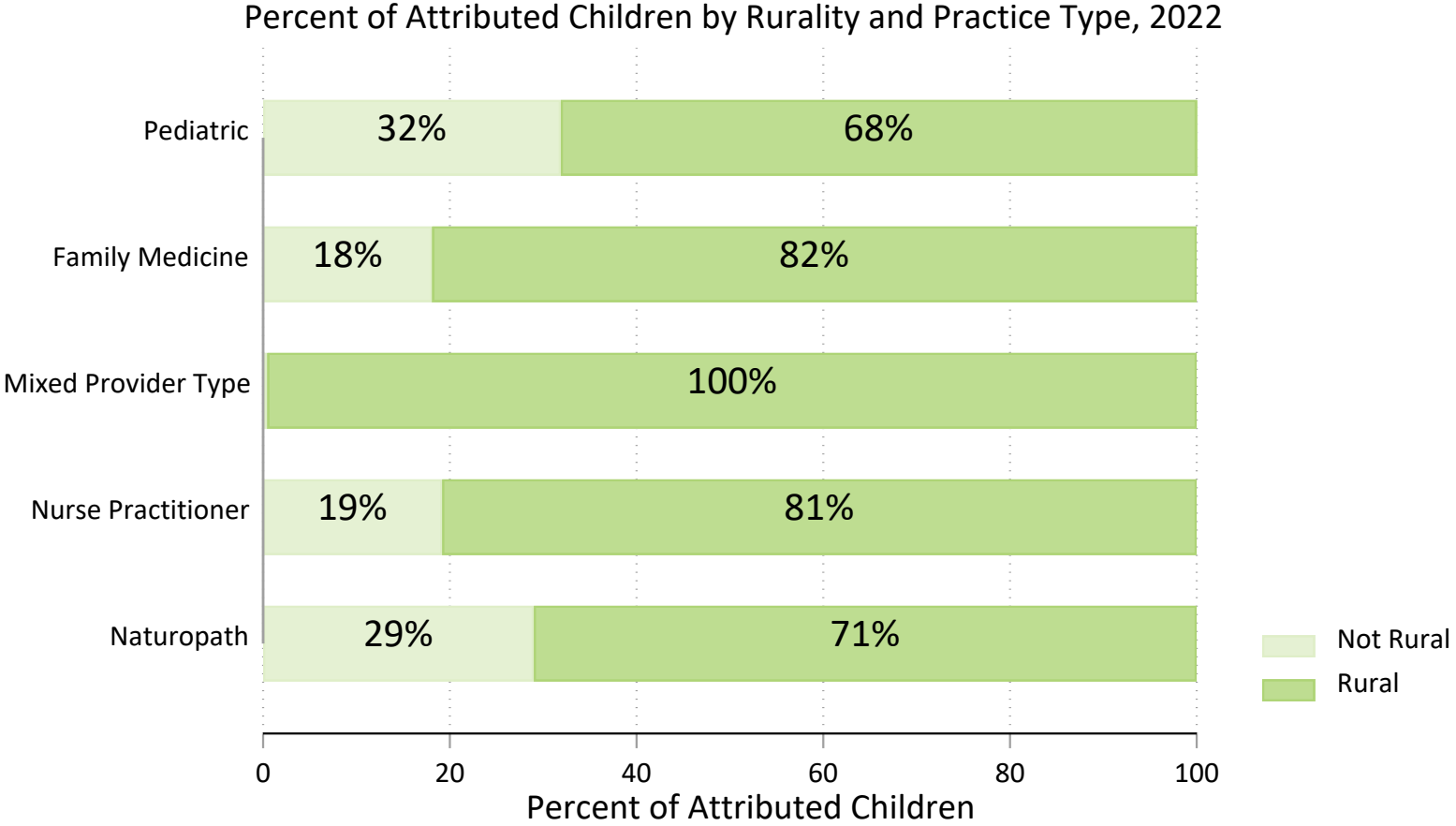SOURCE: VHCURES Extract #3008

15

80% of attributed children with Medicaid lived in rural areas of Vermont

Percent of Attributed Children with Medicaid by Rurality, 2022
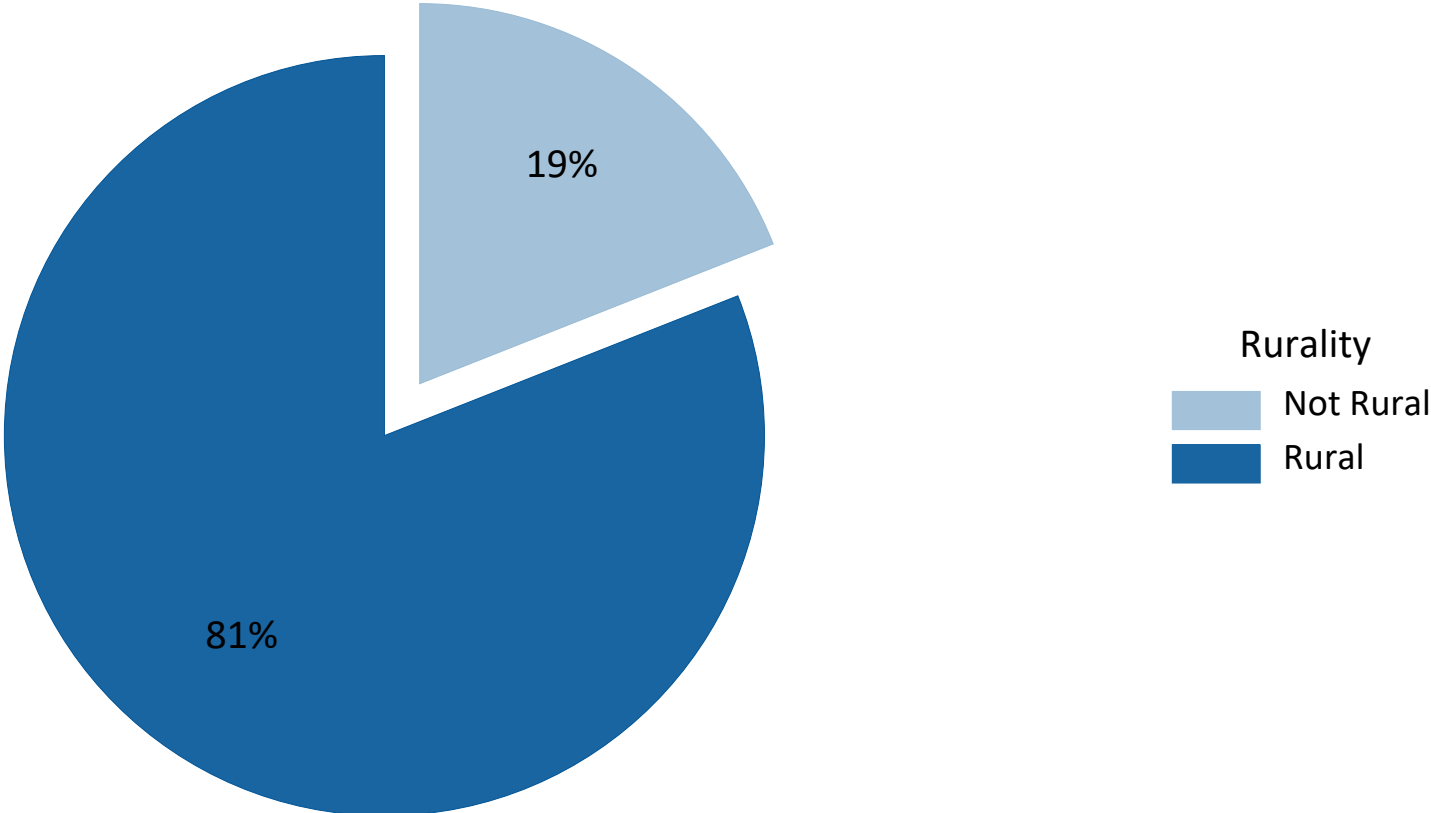
19%

81%

Rurality

Not Rural

Rural

Patients attributed to practices based on healthcare utilization 2021-2022.
Rurality-Federal Office of Rural Health Policy: Non-metro counties, areas with RUCA codes of 4-10,
large metro areas with a population density of 35 or less per square mile and a RUCA code of 2-3,
and outlying metropolitan counties without an urbanized area are all considered rural.
Children identified as having any Medicaid had one or more months of Medicaid eligibility during 2022.
SOURCE: VHCURES Extract #3008

The majority of children attributed to child serving practices lived in rural areas of Vermont

Percent of Attributed Children by Rurality and Practice Type, 2022

Practice Type	Not Rural	Rural
Pediatric	32%	68%
Family Medicine	18%	82%
Mixed Provider Type		100%
Nurse Practitioner	19%	81%
Naturopath	29%	71%

Percent of Attributed Children

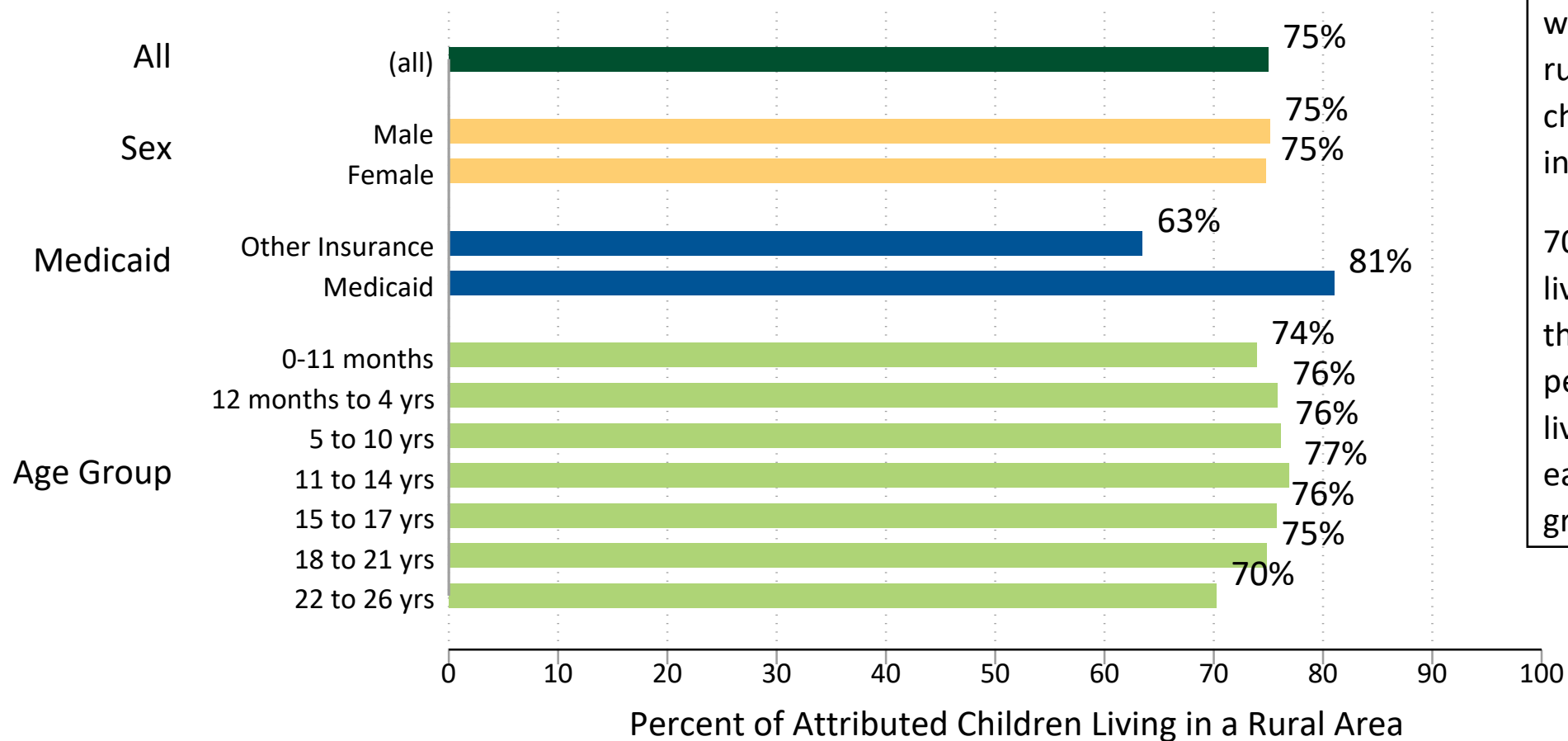Children attributed to practices based on healthcare utilization 2021-2022
Rurality-Federal Office of Rural Health Policy: Non-metro counties, areas with RUCA codes of 4-10,
large metro areas with a population density of 35 or less per square mile and a RUCA code of 2-3,
and outlying metropolitan counties without an urbanized area are all considered rural.
SOURCE: VHCURES Extract #2022

Percent of Attributed Children Living in a Rural Area by Select Patient Demographics, 2022.

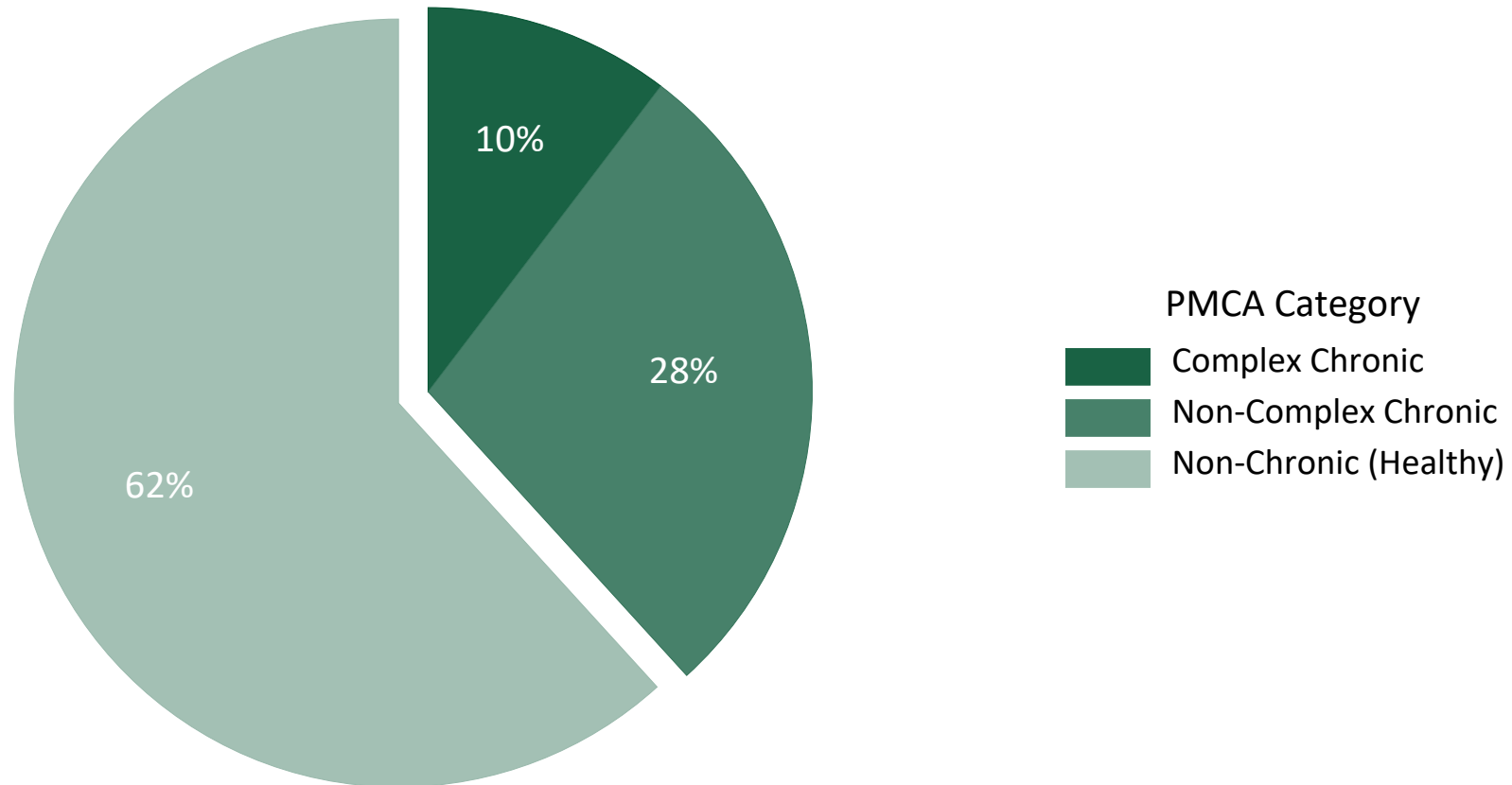More children (81%) with Medicaid lived in rural areas than did children with other insurance (63%)

70% of 22–26-year-olds lived in rural areas, and this is lower than the percentage of children living in rural areas from each of the other age groups.

Children attributed to practices based on healthcare utilization 2021-2022.
Gender identified using eligibility records. Unknown gender omitted from figure.
Children identified as having any Medicaid had one or more months of Medicaid eligibility during 2022.
Age based on minimum age in year using eligibility records
Rurality-Federal Office of Rural Health Policy: Non-metro counties, areas with RUCA codes of 4-10,
large metro areas with a population density of 35 or less per square mile and a RUCA code of 2-3,
and outlying metropolitan counties without an urbanized area are all considered rural.
SOURCE: VHCURES Extract #3008

Pediatric Medical Complexity

38% of attributed children live with medical complexity

Percent of Attributed Children by Pediatric Medical Complexity, 2022

Pie chart segments:
- 10% Complex Chronic
- 28% Non-Complex Chronic
- 62% Non-Chronic (Healthy)

PMCA Category
- Complex Chronic
- Non-Complex Chronic
- Non-Chronic (Healthy)

Pediatric Medical Complexity: Complex Chronic, Non-Complex Chronic, and Non-Chronic (Healthy) categories assigned based on up to three years of medical claims diagnoses.
Children with no medical claim diagnoses but who are attributed are categorized as Non-Chronic (Healthy).
SOURCE: VHCURES Extract #3008

43% of attributed children with Medicaid live with medical complexity

Percent of Attributed Children with Medicaid by Pediatric Medical Complexity, 2022
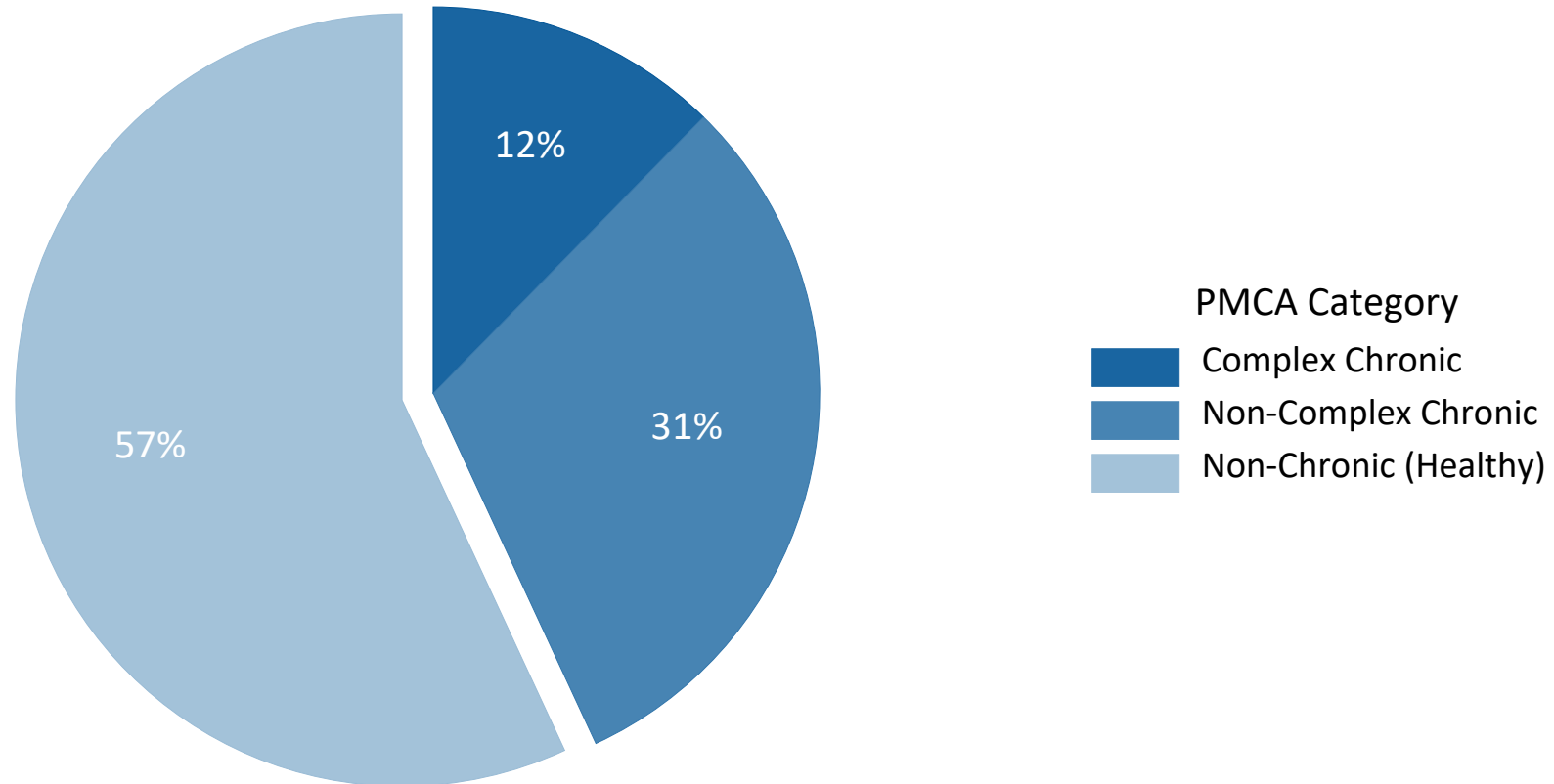
PMCA Category
- Complex Chronic
- Non-Complex Chronic
- Non-Chronic (Healthy)

Children identified as having any Medicaid had one or more months of Medicaid eligibility during 2022.
Pediatric Medical Complexity: Complex Chronic, Non-Complex Chronic, and Non-Chronic (Healthy) categories assigned based on up to three years of medical claims diagnoses.
Children with no medical claim diagnoses but who are attributed are categorized as Non-Chronic (Healthy).
SOURCE: VHCURES Extract #3008

# 50% of children at nurse practitioner practices live with medical complexity

Percent of Attributed Children by Pediatric Medical Complexity and Practice Type, 2022

Practice Type	Complex Chronic	Non-Complex Chronic	Non-Chronic (Healthy)
Pediatric	10%	26%	64%
Family Medicine	11%	31%	57%
Mixed Provider Type	10%	26%	64%
Nurse Practitioner	13%	37%	50%
Naturopath	7%	20%	72%

Legend:
- Non-Chronic (Healthy)
- Non-Complex Chronic
- Complex Chronic

X-axis: Percent of Attributed Children (0, 20, 40, 60, 80, 100)
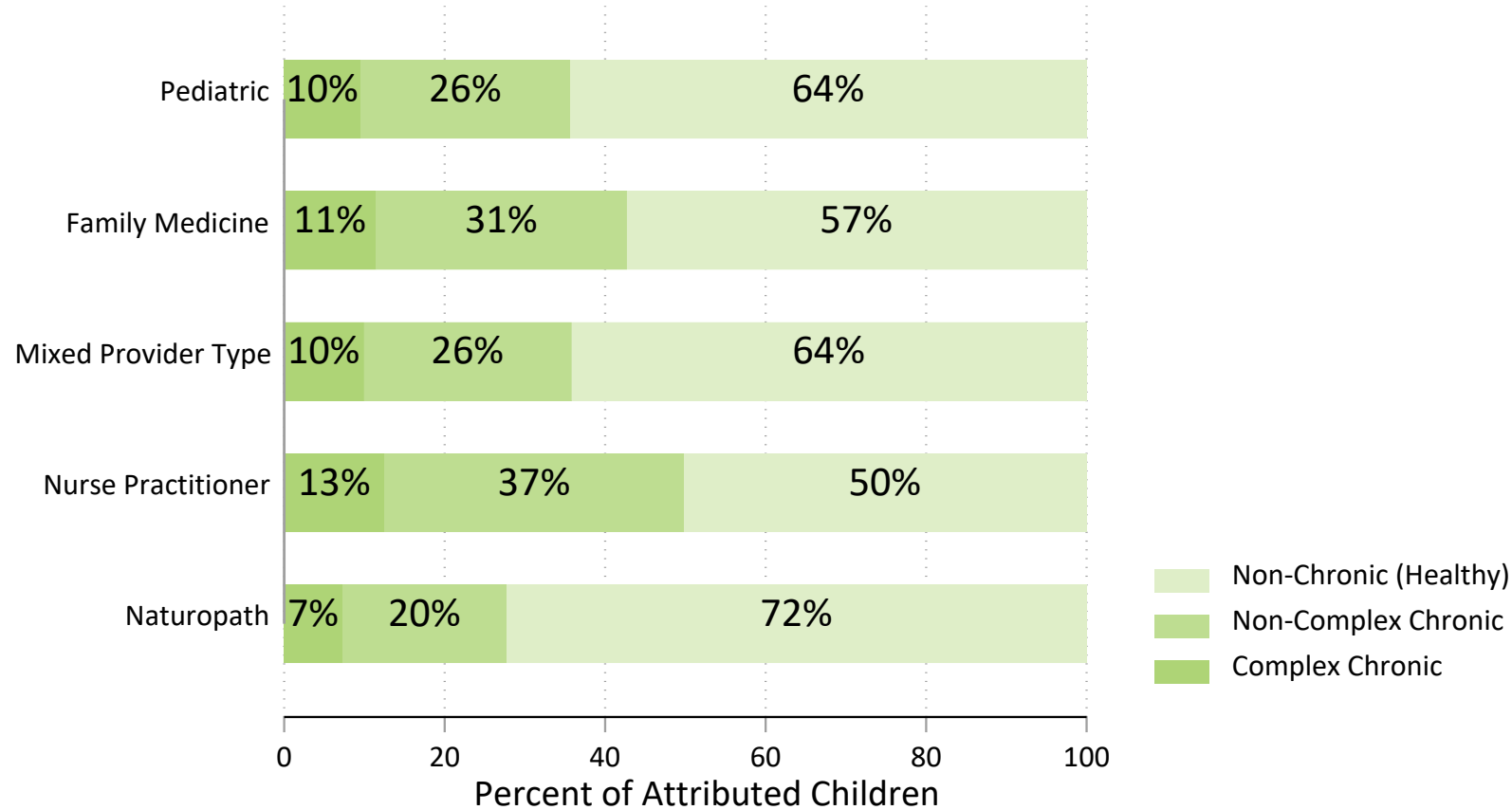
Children attributed to practices based on healthcare utilization 2021-2022
Pediatric Medical Complexity: Complex Chronic, Non-Complex Chronic, and Non-Chronic (Healthy) categories assigned based on up to three years of medical claims diagnoses.
Children with no medical claim diagnoses but who are attributed are categorized as Non-Chronic (Healthy).
SOURCE: VHCURES Extract #3008

41% of attributed children living in small rural towns live with medical complexity

Percent of Attributed Children with Complex Chronic or Non-Complex Chronic Condition by RUCA Classification, 2022

Percent of Children

| Urban	Large Rural City/Town	Small Rural Town	Isolated Small Rural Town
36%	40%	41%	38%
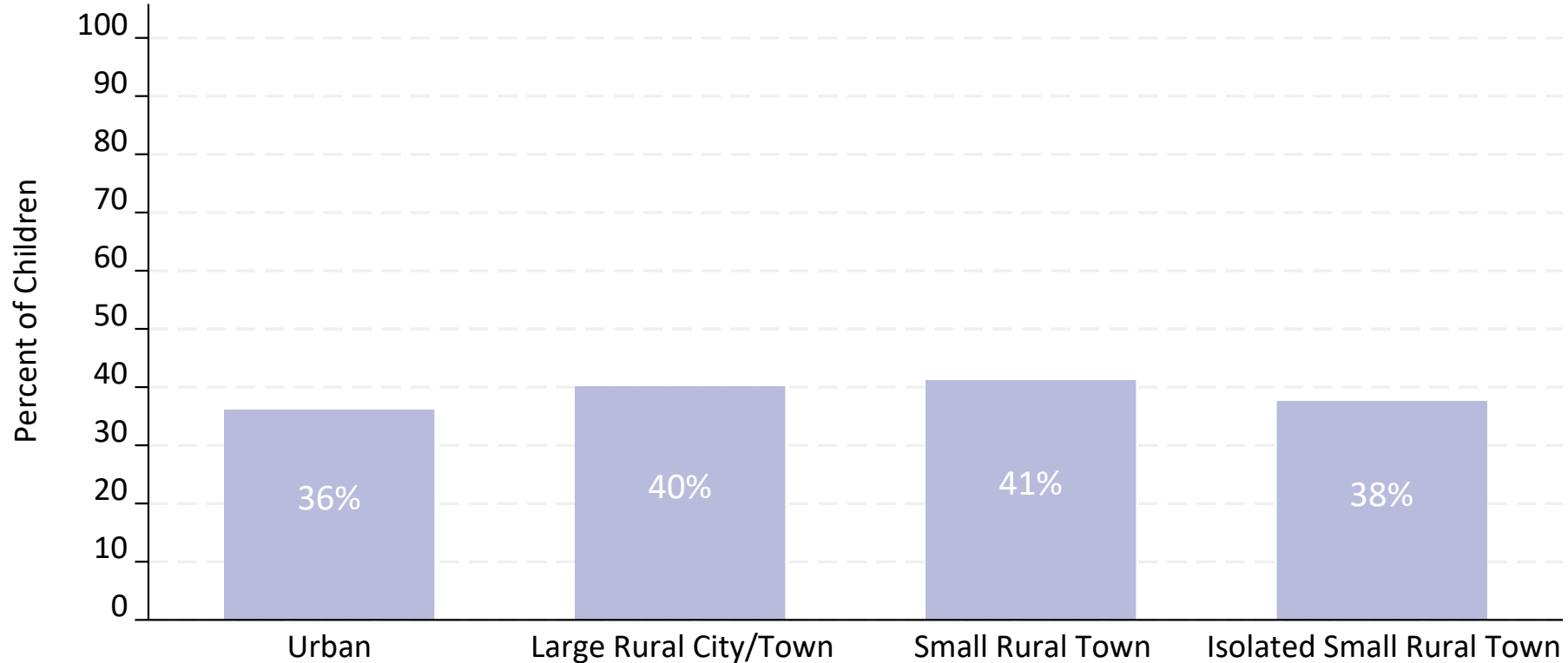
Children living in large rural city/towns, small/rural towns, and isolated small rural towns had a higher prevalence of complex chronic or non-complex chronic conditions compared to children living in urban areas.

Rurality-RUCA: USDA Economic Research Service classification system based on both population density and daily commuting within or to urbanized areas into 10 categories. We use a four-tier consolidation (urban, large rural city/town, small rural town, and isolated small rural town) of the original RUCA classification system to aid interpretability.
Pediatric Medical Complexity: Complex Chronic, Non-Complex Chronic, and Non-Chronic (Healthy) categories assigned based on up to three years of medical claims diagnoses.
Patients with no medical claim diagnoses but who are attributed are categorized as Non-Chronic (Healthy).
SOURCE: VHCURES Extract #3008

Nearly 40% of attributed children in rural Vermont live with medical complexity

Percent of Attributed Children with Complex Chronic or Non-Complex Chronic Condition by RUCA Classification, 2022
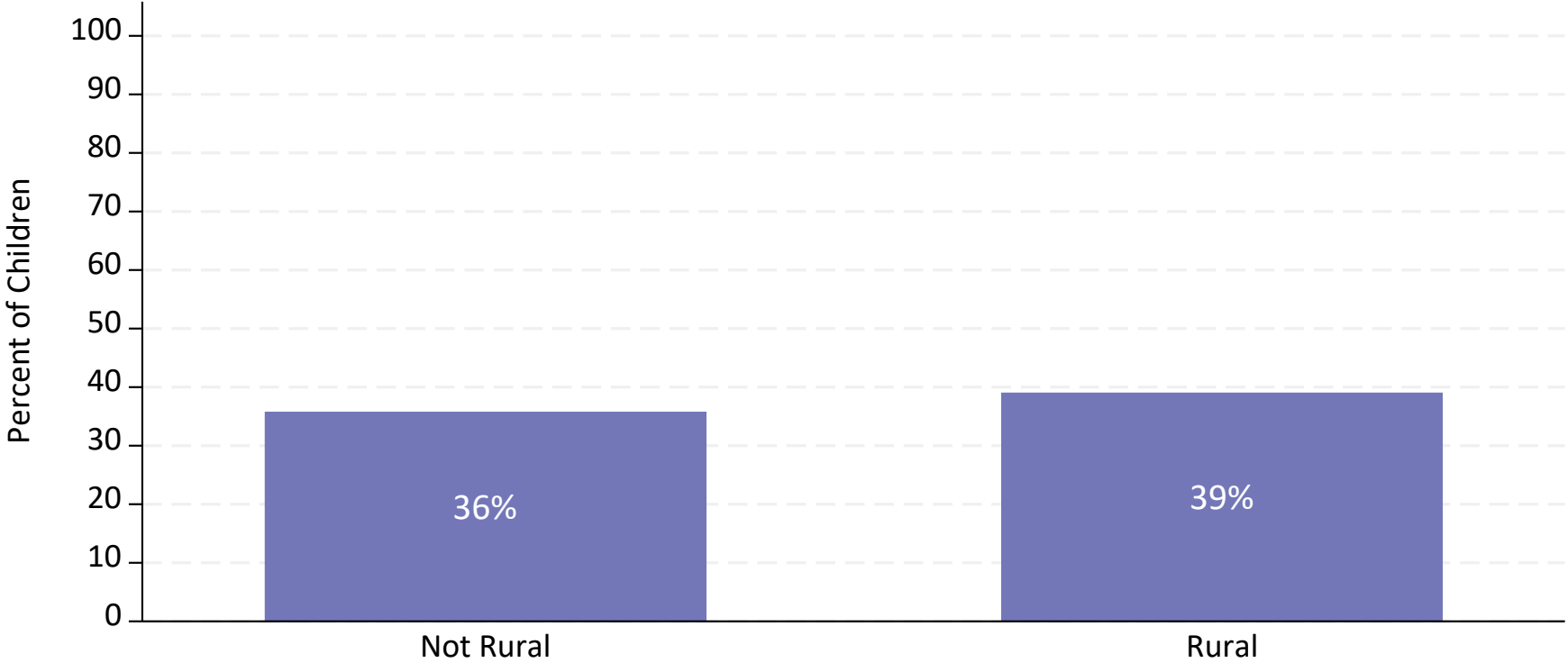
Children living in rural areas of Vermont had a higher prevalence of complex chronic or non-complex chronic conditions compared to children living in non-rural areas.

Chart — Percent of Children (y-axis, 0 to 100):
- Not Rural: 36%
- Rural: 39%

Rurality-Federal Office of Rural Health Policy: Non-metro counties, areas with RUCA codes of 4-10, large metro areas with a population density of 35 or less per square mile and a RUCA code of 2-3, and outlying metropolitan counties without an urbanized area are all considered rural.
Pediatric Medical Complexity: Complex Chronic, Non-Complex Chronic, and Non-Chronic (Healthy) categories assigned based on up to three years of medical claims diagnoses.
Patients with no medical claim diagnoses but who are attributed are categorized as Non-Chronic (Healthy).
SOURCE: VHCURES Extract #3008

Percent of Attributed Children with Complex Chronic or Non-Complex Chronic Condition in 2022 by Select Patient Demographics and Attribution.
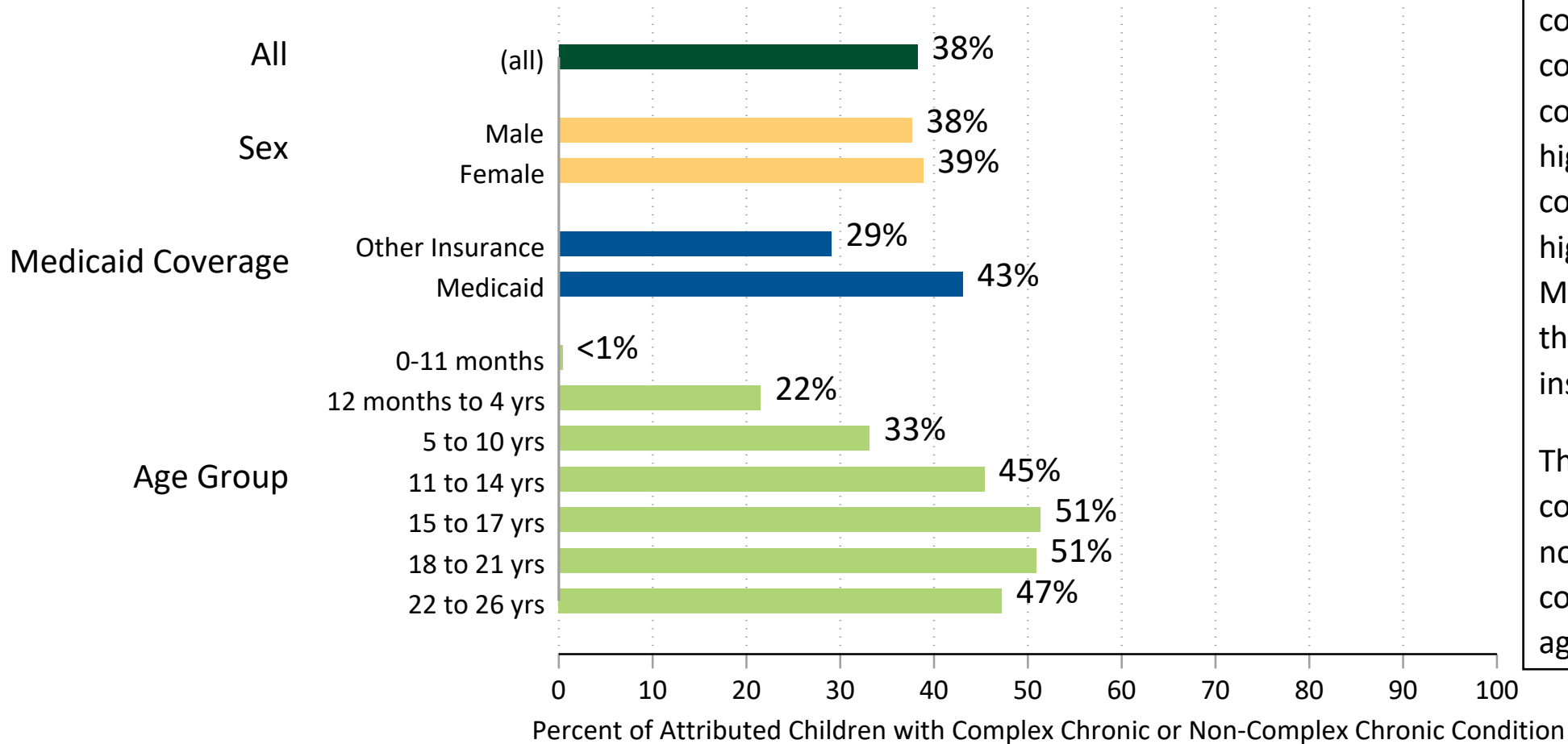
The prevalence of complex chronic or non-complex chronic conditions was slightly higher among females compared to males, and higher among those with Medicaid compared to those with other insurance.

The prevalence of complex chronic and non-complex chronic conditions also varied by age.

Gender identified using eligibility records. Unknown gender omitted from figure.
Children identified as having any Medicaid had one or more months of Medicaid eligibility during 2022.
Age based on minimum age in year using eligibility records
Pediatric Medical Complexity: Complex Chronic, Non-Complex Chronic, and Non-Chronic (Healthy)
categories assigned based on up to three years of medical claims diagnoses.
Children with no medical claim diagnoses but who are attributed are categorized as Non-Chronic (Healthy).
SOURCE: VHCURES Extract #3008

Social Determinants of Health

43% of attributed children lived in areas of low or very low opportunity

Percent of Attributed Children by Child Opportunity Index Level, 2022
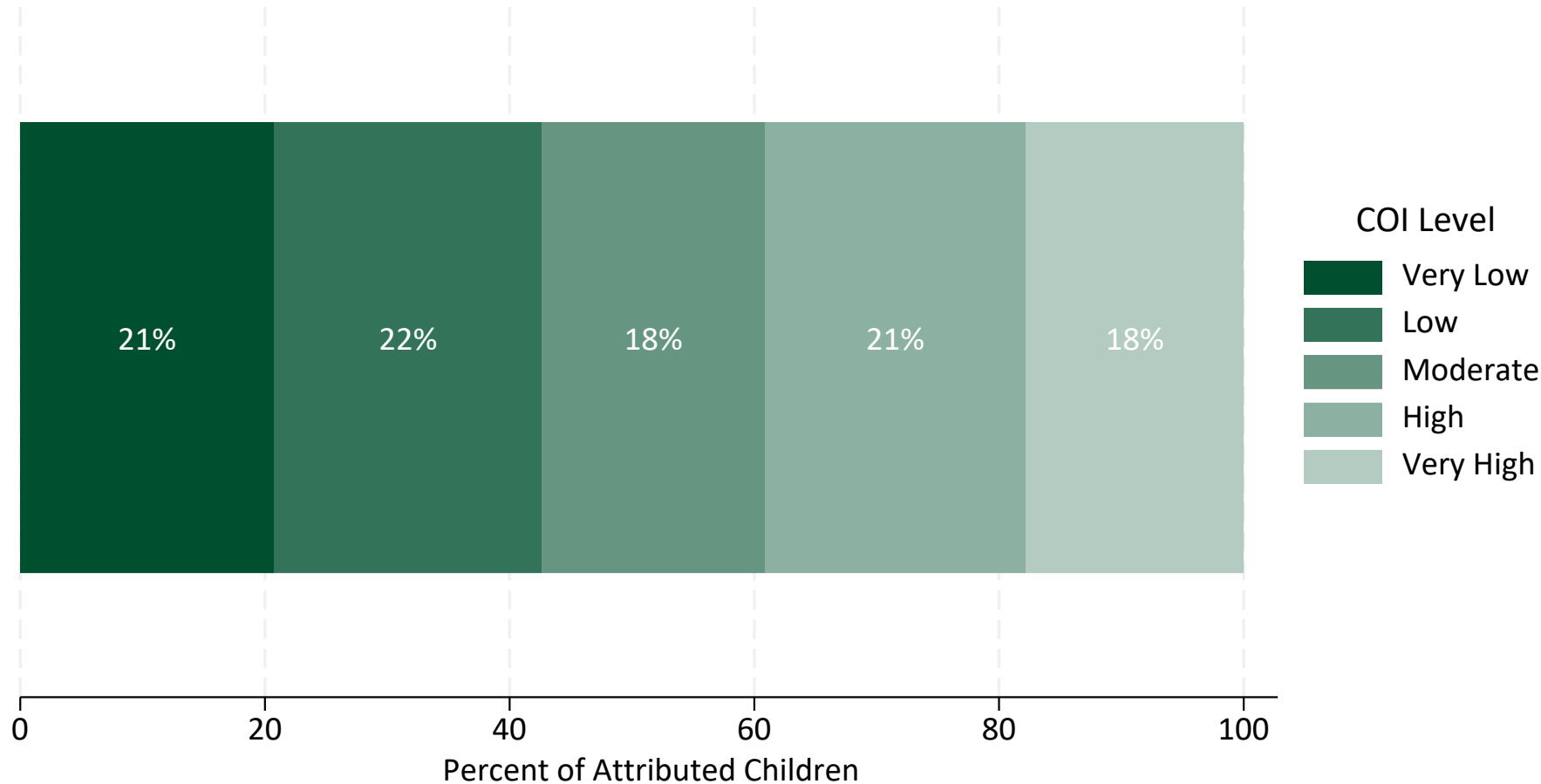
Child Opportunity Index (COI) Level: Child Opportunity Index Level is assigned based on child's first Vermont zip code, using state-normed levels.
SOURCE: VHCURES Extract #3008

Note: 88 patients had Vermont ZIP Codes with no corresponding COI level in the Child Opportunity Index 2.0 were excluded from these analyses.

Almost 50% of attributed children with Medicaid livde in areas of low or very low opportunity

Percent of Attributed Children with Medicaid by Child Opportunity Index Level, 2022

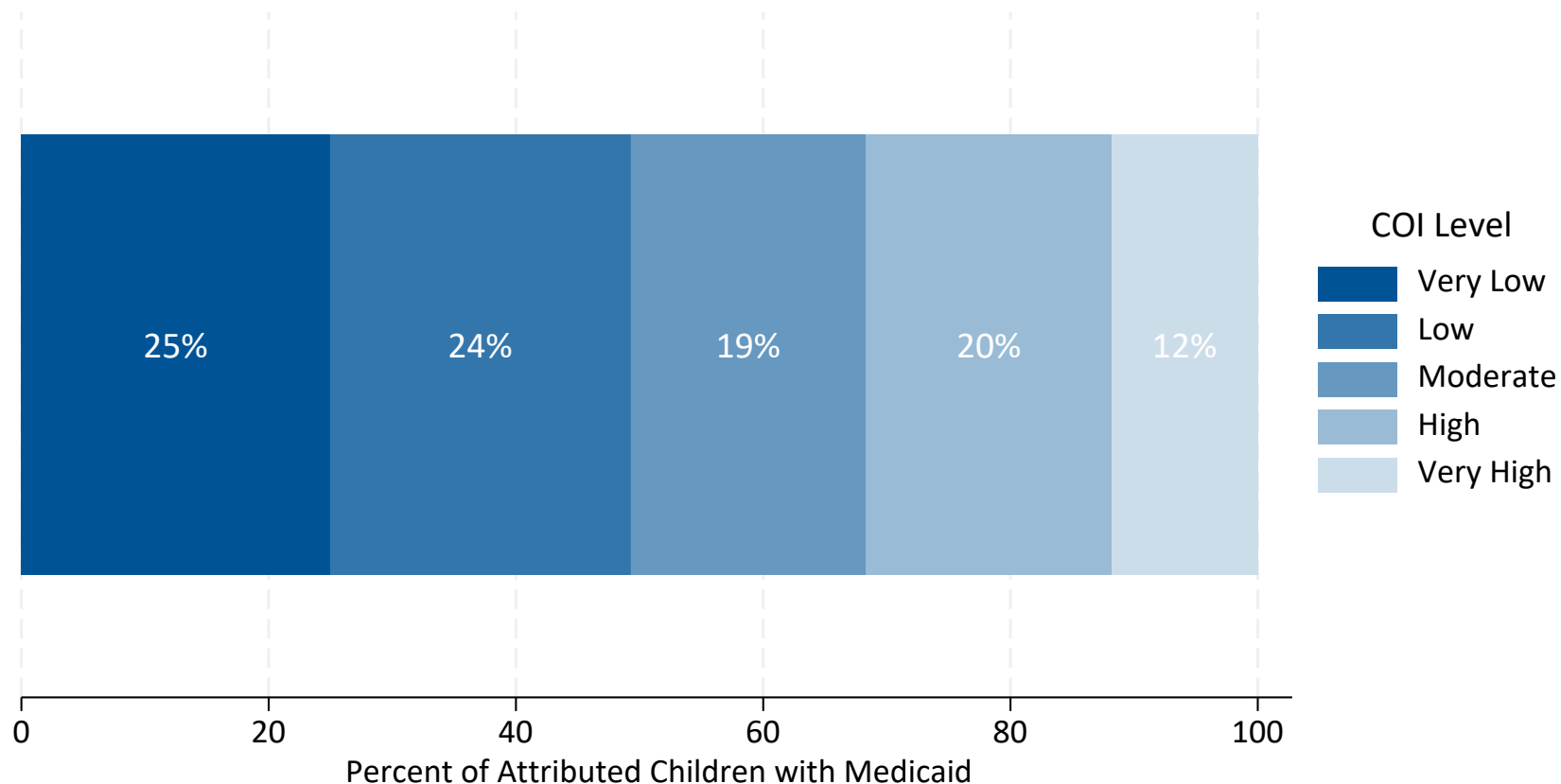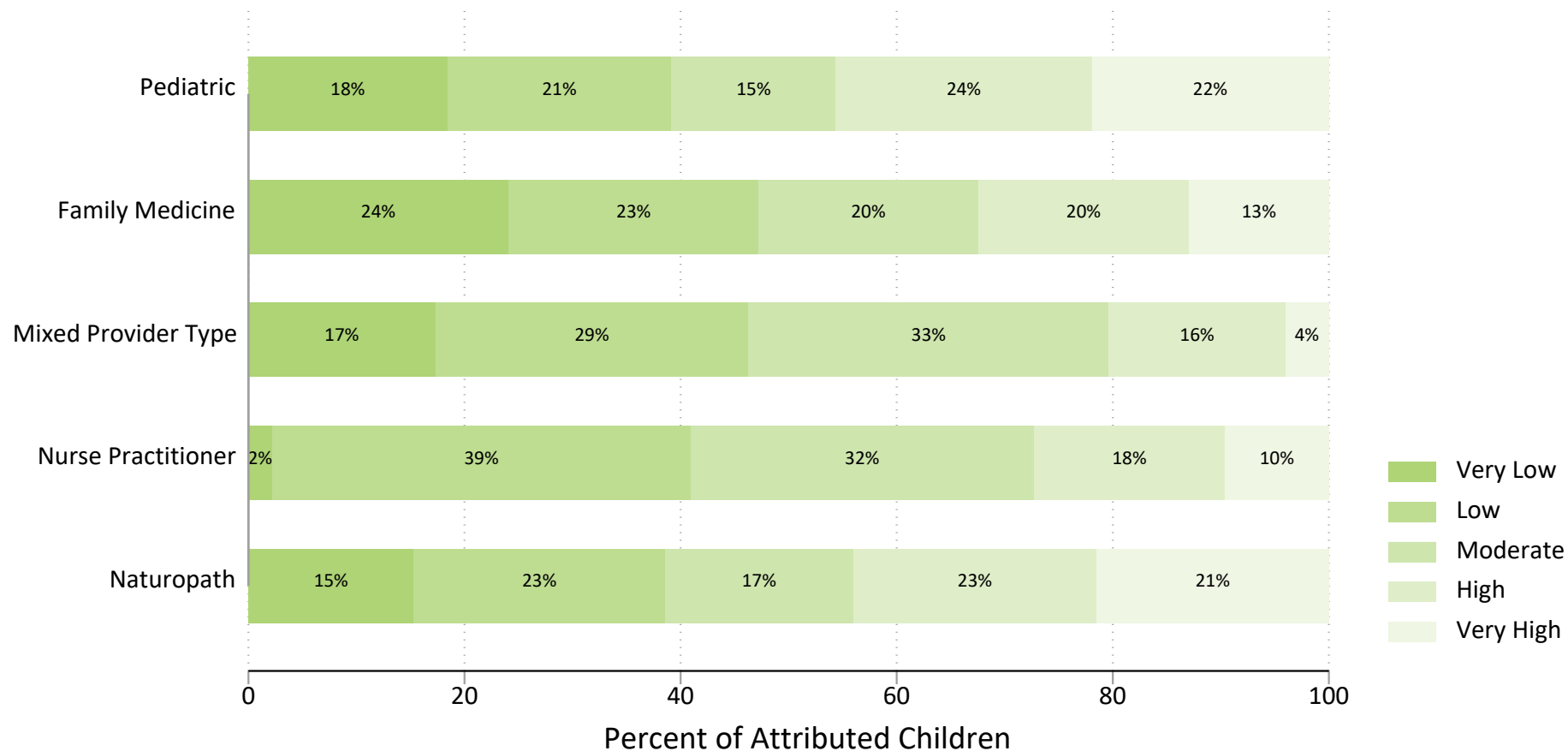Children identified as having any Medicaid had one or more months of Medicaid eligibility during 2022.
Child Opportunity Index (COI): Child Opportunity Index Level is assigned based on patients first Vermont zip code, using state-normed levels.
SOURCE: VHCURES Extract #3008

Note: 88 patients had Vermont ZIP Codes with no corresponding COI level in the Child Opportunity Index 2.0 were excluded from these analyses.

Almost 50% of attributed children at Family Medicine Practices lived in areas of low or very low opportunity

Percent of Attributed Children by Pediatric Medical Complexity and Practice Type, 2022

Practice Type	Very Low	Low	Moderate	High	Very High
Pediatric	18%	21%	15%	24%	22%
Family Medicine	24%	23%	20%	20%	13%
Mixed Provider Type	17%	29%	33%	16%	4%
Nurse Practitioner	2%	39%	32%	18%	10%
Naturopath	15%	23%	17%	23%	21%

Percent of Attributed Children

Children attributed to practices based on healthcare utilization 2021-2022
Child Opportunity Index (COI): Child Opportunity Index Level is assigned based on patients first Vermont zip code, using state-normed levels.
SOURCE: VHCURES Extract #3008

Note: 88 patients had Vermont ZIP Codes with no corresponding COI level in the Child Opportunity Index 2.0 were excluded from these analyses.

Percent of Attributed Children with Low or Very Low Opportunity in 2022 by Select Patient Demographics and Attribution.

Category	Group	Percent
All	(all)	43%
Sex	Male	42%
	Female	43%
Medicaid Coverage	Other Insurance	30%
	Medicaid	49%
PMCA	Non-Chronic (Healthy)	41%
	Non-Complex Chronic	45%
	Complex Chronic	46%
Rurality-Federal	Not Rural	20%
	Rural	50%
Rurality-RUCA	Urban	18%
	Large Rural City/Town	48%
	Small Rural Town	61%
	Isolated Small Rural Town	57%

Percent of Attributed Children with Low or Very Low Opportunity

Children attributed to practices based on healthcare utilization 2021-2022.
Gender identified using eligibility records. Unknown gender omitted from figure.
Children identified as having any Medicaid had one or more months of Medicaid eligibility during 2022.
Pediatric Medical Complexity: Complex Chronic, Non-Complex Chronic, and Non-Chronic (Healthy) categories assigned based on up to three years of medical claims diagnoses.
Patients with no medical claim diagnoses but who are attributed are categorized as Non-Chronic (Healthy).
Rurality-Federal Office of Rural Health Policy: Non-metro counties, areas with RUCA codes of 4-10,
large metro areas with a population density of 35 or less per square mile and a RUCA code of 2-3,
and outlying metropolitan counties without an urbanized area are all considered rural.
Rurality-RUCA: USDA Economic Research Service classification system based on both population density and
daily commuting within in or to urbanized areas into 10 categories. We use a four-tier consolidation
(urban, large rural city/town, small rural town, and isolated small rural town) of the original RUCA classification system to aid interpretability.
Child Opportunity Index (COI): Child Opportunity Index Level is assigned based on patients first Vermont zip code, using state-normed levels.
SOURCE: VHCURES Extract #3008

More children with Medicaid and slightly more females lived in areas of low or very low opportunity.

More non-complex chronic and complex chronic children lived in areas of low or very low opportunity compared to non-chronic (healthy) children.

More children in rural areas lived in areas of low or very low opportunity compared to children in non-rural areas.

For the other definition of rurality, compared to urban areas, more children in large rural cities/towns, small rural towns, and isolated small rural towns lived in low or very low opportunity areas.

Note: 88 patients had Vermont ZIP Codes with no corresponding COI level in the Child Opportunity Index 2.0 and were excluded from these analyses.

Data Notes

Vermont Health Care Uniform Reporting and Evaluation System

VHCURES

Our data source was the Vermont Health Care Uniform Reporting and Evaluation System (VHCURES), Vermont's all-payer administrative claims database. VHCURES contains an estimated 90% of Vermonters' medical and pharmaceutical claims, from 2008 to 2016. Starting mid-2016, because of the Gobeille v. Liberty Mutual Insurance Company decision, VHCURES no longer includes approximately half of all the individuals with Commercial Self-Pay insurance. Since mid-2016, VHCURES contains an estimated 75% of Vermonters' claims.

VHCURES includes data on patient insurance coverage, or eligibility, that allows us to identify the types of insurance patients carry, including Medicaid insurance, and how many months of coverage they have. It also includes details on medical claims, including hospital stays at the encounter level, that identify services rendered in a claim in the form of current procedural terminology (CPT) and healthcare common procedure coding system (HCPCS) codes, primary and other diagnoses on a claim using international classification of diseases, tenth revision, clinical modification (ICD-10-CM) codes. VHCURES also includes pharmaceutical claims and more recently dental claims from one of Vermont's largest dental insurance carriers (Northeast Delta Dental). All claims include identification for the provider who rendered and/or billed for the services outlined in the claim.

To reduce the likelihood of the identification of any single patient whose data are included in VHCURES, the Green Mountain Care Board sets the standard that tables with count data (such as counts of eligible patients, encounters, services, etc.) of 10 or fewer in a cell cannot be reported. The VCHIP HSR Team suppresses the data in these cells by either denoting that the cell size as "<11" or otherwise noting that the value is omitted. Note that a value of zero does not violate this policy. Furthermore, depending on other data that may be reported in the same table or document, it may be necessary to suppress other counts so that the cell with a value less than 11 cannot be calculated. The VCHIP HSR Team follows procedures outlined by the Centers for Medicaid & Medicare Cell Suppression Policy to obscure other cell values by coarsening those counts. Coarsening data is a process by which the exact count is not reported, but instead a value generated through a formula is utilized. Cells that have been coarsened are denoted as numeric values preceded by an ">" symbol (e.g., ">456"). By coarsening data, we are able to present approximate values instead of having to omit other values that could be used to back-calculate other cells with counts less than 11.

The analyses, conclusions, and recommendations from the Vermont Health Care Uniform Reporting and Evaluation System (VHCURES) data are solely those of the study authors and are not necessarily those of the Green Mountain Care Board (GMCB). The GMCB had no input into the study design, implementation, or interpretation of the findings.

Practice Type

Practice Type	Patients Served[1]	Providers[2]	Location	Patients Attributed to Specific Practice?
Child-Serving Primary Care				
Pediatric	Children and Adolescents	Pediatricians	Vermont (VT)	Yes
		Nurse Practitioners		
		Physician Assistants		
Family Medicine	All ages	Family Medicine Physicians	VT	Yes
		Nurse Practitioners		
		Physician Assistants		
Mixed Practitioner[3]	All ages	Internal Medicine Physicians	VT	Yes
		Family Medicine Physicians		
		Pediatricians		
		Integrative/Complimentary Wellness Providers[4]		
		Dentists		
Nurse Practitioner	All ages	Nurse Practitioners	VT	Yes
Naturopathic	All ages	Naturopathic Physicians	VT	Yes
Child-Serving, Other	All Ages	Pediatricians	VT[5] or out-of-state	No
		Family Medicine Doctors		
		Nurse Practitioners		
		Physician Assistants		
		Naturopathic Physicians		

1. Patient population served was based on practice type, not on the actual ages of patients served by such practices as found in VHCURES.

2. Primary care provider types were based on typical providers at that type of practice, not the provider types assigned to practices by VCHIP.

3. Mixed practitioner practices may be a mix of taxonomies (e.g., internal medicine and family medicine providers at the same practice) or may be a mix of services (e.g., primary care and dental care offered at a federally-qualified health center).

4. Integrative/Complimentary medicine combines conventional medicine with complementary treatments and therapies (e.g. acupuncture, massage therapy or chiropractic care), taking a more holistic approach to care.

5. Vermont providers with a taxonomy consistent with practice type but who are not assigned to a practice tracked by VCHIP (e.g., student health centers) may be assigned to an "Other" practice type.

6. Other specialists referred to providers that did not have a primary care taxonomy above and were not assigned to UVMMC.

Practice Type, Continued

Practice Type	Patients Served[1]	Providers[2]	Location	Patients Attributed to Specific Practice?
Adult-Serving Primary Care				
Internal Medicine	Adults	Internal Medicine Physicians	VT	Yes
		Nurse Practitioners		
		Physician Assistants		
OB/GYN	Women	OB/GYN Specialists	VT	Yes
		Internal Medicine Physicians		
		Nurse Practitioners		
		Physician Assistants		
		Midwives		
Adult-Serving, Other	Adults	Internal Medicine Doctors	VT[5] or out-of-state	No
		Family Medicine Doctors		
		Nurse Practitioners		
		Physician Assistants		
OB/GYN, Other	Women	OB/GYN Specialists	VT[5] or out-of-state	No
		Internal Medicine Doctors		
		Nurse Practitioners		
		Physician Assistants		
		Midwives		

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4. Integrative/Complimentary medicine combines conventional medicine with complementary treatments and therapies (e.g. acupuncture, massage therapy or chiropractic care), taking a more holistic approach to care.

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6. Other specialists referred to providers that did not have a primary care taxonomy above and were not assigned to UVMMC.

Practice Type, Continued

Practice Type	Patients Served[1]	Providers[2]	Location	Patients Attributed to Specific Practice?
Specialty Care				
UVMMC Specialty Clinic	All ages	Pediatric Specialists	VT	No
		Adult Specialists		
Specialty Clinic, Other[6]	All ages	Pediatric Specialists	VT[5] or out-of-state	No
		Adult Specialists		

1. Patient population served was based on practice type, not on the actual ages of patients served by such practices as found in VHCURES.

2. Primary care provider types were based on typical providers at that type of practice, not the actual provider taxonomies assigned to practices by VCHIP.

3. Mixed practitioner practices may be a mix of taxonomies (e.g., internal medicine and family medicine providers at the same practice) or may be a mix of services (e.g., primary care and dental care offered at a federally-qualified health center).

4. Integrative/Complimentary medicine combines conventional medicine with complementary treatments and therapies (e.g. acupuncture, massage therapy or chiropractic care), taking a more holistic approach to care.

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6. Other specialists referred to providers that did not have a primary care taxonomy above and were not assigned to UVMMC.

Pediatric Medical Complexity

Pediatric Medical Complexity Algorithm (PMCA) classification[a] categories based on clinical criteria and count of affected body systems		
PMCA Category	Criteria	Number of Claims
Complex Chronic Disease[b]	Progressive Condition	≥1 Claim
	Malignancy	≥1 Claim
	Other	≥2 claims per body system for 2 different body systems during the measurement period
Non-Complex Chronic Disease		≥2 claims per body system for 1 body system during the measurement period
Without Chronic Disease		None of the above during the measurement period

a. Classification based on the more conservative version of the algorithm
b. A classification as Complex Chronic Disease can be applied if any one of these three criteria are met.

Source: Simon TD, Cawthon ML, Stanford S, et al. Pediatric Medical Complexity Algorithm: A New Method to Stratify Children by Medical Complexity. Pediatrics. Jun 2014;133(6):E1647-E1654. doi:10.1542/peds.2013-3875

Child Opportunity Index

Child Opportunity Index 2.0 domains and indicators, and their data sources			
Domain	Indicator	Examples	Data Sources
Education	Early Childhood Education (ECE)	ECE centers, high quality ECE centers, ECE enrollment	NAEYC, ACS
	Elementary Education	Third grade reading and math proficiency	EDFacts, GS, and SEDA
	Secondary and postsecondary Education	High school graduation rate, Advanced Placement course enrolment, College enrollment in nearby institutions	EDFacts, GS, CRDC, ACS
	Educational and Social Resources	School poverty, teacher experience, adult educational attainment	NCES CCD, CRCD, ACS
Health & Environment	Healthy Environments	Access to healthy food, access to green space, walkability, housing vacancy rate	USDA, CDC, EPA, ACS
	Toxic Exposures	Hazardous waste dump sites, industrial pollutants, airborne microparticles, ozone concentration, extreme heat exposures	EPA, CDC
	Health Resources	Health insurance coverage	ACS
Social & Economic	Economic Opportunities	Employment rate, Commute duration	ACS
	Economic and Social Resources	Poverty Rate, Public assistance rate, Homeownership rate, High-skill employment, Median household income, Single-headed households	ACS
ACS: American Community Survey **CDC: Centers for Disease Control and Prevention** **CRCD: Civil Rights Data Collection** **EPA: The Environmental Protection Agency** **GS: GreatSchools** **SEDA: Stanford Education Data Archive** **NAEYC: National Association for the Education of Young Children** **NCES CCD: National Center for Education Statistics Common Core of Data**			

Rural-Urban Commuting Area

Primary and Secondary Rural-Urban Commuting Area Codes, 2010		
Primary Code	Secondary Code	Description
1	1.0	Metropolitan area core: primary flow within an urbanized area (UA)
	1.1	Secondary flow 30% to 50% to a larger UA
2	2.0	Metropolitan area high commuting: primary flow 30% or more to a UA
	2.1	Secondary flow 30% to 50% to a larger UA
3	3.0	Metropolitan area low commuting: primary flow 10% to 30% to a UA
4	4.0	Micropolitan area core: primary flow within an urban cluster of 10,000 to 49,999 (large UC)
	4.1	Secondary flow 30% to 50% to a UA
5		Micropolitan high commuting: primary flow 30% or more to a large UC
	5.1	Secondary flow 30% to 50% to a UA
6	6.0	Micropolitan low commuting: primary flow 10% to 30% to a large UC
7	7.0	Small town core: primary flow within an urban cluster of 2,500 to 9,999 (small UC)
	7.1	Secondary flow 30% to 50% to a UA
	7.2	Secondary flow 30% to 50% to a large UC
8	8.0	Small town high commuting: primary flow 30% or more to a small UC
	8.1	Secondary flow 30% to 50% to a UA
	8.2	Secondary flow 30% to 50% to a large UC
9	9.0	Small town low commuting: primary flow 10% to 30% to a small UC
10	10.0	Rural areas: primary flow to a tract outside a UA or UC
	10.1	Secondary flow 30% to 50% to a UA
	10.2	Secondary flow 30% to 50% to a large UC
	10.3	Secondary flow 30% to 50% to a small UC
99		Not coded: Census tract has zero population and no rural-urban identifier information