

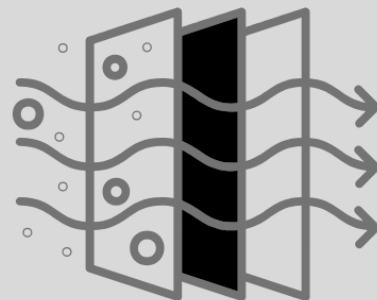
2026 Marion County Air Quality-Related Illnesses Data Report

0- to 4-Year-Old & Pregnancy Special Report



OREGON

Health & Human Services



Purpose of this report

The purpose of this report is to assess infant and children aged 0- to 4-year-old non-infectious respiratory illness (NIRI; formerly known as air quality-related respiratory illness) emergency department and urgent care clinic visits (emergency visits) and hospitalizations (inpatient emergency visits) in relation to the air quality index readings in Marion County. This report explores data by population characteristics (sex, ZIP Code, ethnicity, race, family smoking status, and pregnancy) and characteristics related to air quality. This report also includes information about NIRI emergency visits and hospitalizations among pregnant individuals as well.

This report is a special report that complements the [2026 Marion County Air Quality-Related Illnesses Data Report](#) and is meant to inform resilience and preparedness to environmental health hazards, threats, and natural disasters that impact the public's health and wellbeing.

Background

Located in the heart of the Mid-Willamette Valley, Marion County has a landscape that stretches from the Willamette River to the Cascade Mountains and encompasses nearly 1,200 square miles of rural, urban, forested, and agricultural landscapes. Marion County is home to a diverse population of 348,044 people and 20 cities, including Oregon's capital, Salem. According to the 2020 U.S. Census, 66% of the county's population lives in its five largest cities: Salem, Keizer, Woodburn, Silverton, and Stayton. The remaining 34% live in one of the 15 smaller cities or in unincorporated areas. Marion County is demographically diverse, with residents representing a wide range of ages, occupations, faiths, abilities, languages, and other unique characteristics.

Methods

This report presents year-round data for Marion County on air quality index readings, and emergency visits and hospitalizations due to non-infectious respiratory illness (formerly known as air quality-related respiratory illness). The data was collected from the Oregon Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE) database, U.S. Census, and the Environmental Protection Agency. All counts and rates are based on the patient's residence and not the location where they are seen for care.

Definitions

Emergency visits: Any emergency department or urgent care clinic visits among people residing in Marion County at any Oregon hospital or hospital affiliated clinic.

ESSENCE: The State of Oregon has a public health syndromic surveillance system known as ESSENCE, which stands for Electronic Surveillance System for the Early Notification of Community-Based Epidemics. It provides real-time data for public health and hospitals to monitor what is happening in emergency departments across the state before, during, and after a public health emergency.²

Family Smoking Status: Emergency department and ambulatory care visits among 0- to 4-year-olds with a "smoking cessation packet and/or counseling if patient/family has smoked within the last 12 months" indicated on the patients' procedure codes within ESSENCE.

Hospitalizations: An in-patient designation linked to an emergency department or urgent care clinic visit in Oregon ESSENCE. In-patient visits show that the severity of the emergency visit required more intensive care.³

Identified Pregnant: Emergency department and ambulatory care visits among individuals identified as pregnant between the ages of 15-64. Patients were identified through ESSENCE Identifying code "CDC Pregnancy and Pregnancy Loss and Delivery v1" in CCDD Category Code.²

Non-Infectious Respiratory Illness (NIRI): Emergency department and ambulatory care visits for respiratory illnesses associated with poor air quality. Definition includes chief complaint terms and diagnosis codes for: acute bronchitis, emphysema, chronic obstructive airway disease, chronic obstructive lung disease, chronic obstructive pulmonary disease, asthma, bronchial asthma, reactive airway disease, acute respiratory distress syndrome, difficulty breathing, chest tightness, dyspnea, shortness of breath and wheezing. Using this query in combination with air quality trends may further assist with surveillance efforts. (NSSPCP, 2019) **This query used to be called “Air quality-related respiratory illness” and was retitled “Non-Infectious Respiratory Illness” by Oregon ESSENCE on 5/28/25.*²

Poor air quality: Air quality index (AQI) values above 100 are considered unhealthy. At these levels, air quality is first unhealthy for sensitive groups and becomes unhealthy for everyone as AQI values increase. This includes the following levels of concern: Unhealthy for Sensitive Groups (orange), Unhealthy (red), Very Unhealthy (purple), and Hazardous (maroon).¹

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Summary of Findings

Between 2019-2025, Marion County experienced periodic spikes in poor air quality index (AQI), with improvement observed in 2025.

Non-infectious respiratory illness (NIRI) emergency visits and hospitalizations (in-patient visits) are higher for 0- to 4-year-olds than studied age groups between 5- to 44-years-old. Only adults aged 45 or older had worse NIRI emergency visit outcomes. Among 0- to 4-year-olds, emergency visits and hospitalizations increased over time and peaked in 2025. Emergency visits increased as AQI reached unhealthy levels, but went down drastically on Very Unhealthy and Hazardous days, which may indicate protective actions taken by parents.

NIRI emergency visits do not affect all 0- to 4-year-olds the same. Males had higher rates of emergency visits and hospitalizations than females. Infants and toddlers identified as Hawaiian/Pacific Islander and African American/Black had the highest rates of emergency visits and hospitalizations among identified racial groups. Infants and Toddlers identified Hispanic or Latino had higher rates of emergency visits and hospitalization than residents not identified as Hispanic or Latino; this is a reverse trend when considering all age groups. Geographically, 0- to 4-year-olds residing in urban areas had higher rates of emergency visits and hospitalizations. ZIP Codes with the highest NIRI emergency visit rate include St. Paul Area (97137), Northeast Salem (97305), and North Salem (97301).

The data analyzed also includes information about whether family members were identified to smoke tobacco. Between 2019-2025, 6.3% (357) of 0- to 4-year-old NIRI emergency visits were patients with family members who smoked tobacco, while 56.7% (253) of 0- to 4-year-old NIRI hospitalizations were patients with family members who smoked tobacco. **This means that among all 0- to 4-year-old NIRI emergency visits with a family member who smoked tobacco, 71% resulted in hospitalizations.**

In this report, pregnancy and Non-Infectious Respiratory Illness was also analyzed. Only 0.3% (333) of all NIRI cases were among individuals identified pregnant between 2019-2025. Among those, emergency visits increased in 2024 and 2025.

This report and its associated indicators provide timely information that can detect trends and groups disproportionately affected by non-infectious respiratory illness for targeted interventions. Like any source, ESSENCE has key limitations, including the requirement that a person must be seen at an urgent care or emergency department to be detected in the ESSENCE surveillance system. Patients seen in other settings, such as a clinic, would be missed. Duplications in patient visits may also exist, where one person could be counted more than once due to multiple visits between 2019-2025. Other limitations include errors in medical coding, or incomplete notes, which may influence results.

ESSENCE remains amongst the timeliest data surveillance system for tracking resident patient visits for non-infectious respiratory illness in our community. Like any system, it is most effective when used in concert with other systems and indicators that describe non-infectious respiratory illness and its contributing risk factors.

Air Quality Index

Figure 1: Hours of Unhealthy for Sensitive Groups or worse Air Quality Index by Month, 2019-2025, Salem, OR¹

The figure shows the total monthly number of hours that Unhealthy for Sensitive Groups (Orange) or worse was recorded at the air quality station at the Oregon State Hospital according to the Oregon Department of Environmental Quality (DEQ). Spikes in Unhealthy for Sensitive Groups or worse air quality have occurred consistently in the late fall and early winter each year between 2019-2024. This trend of poor air quality spikes improved in 2025.

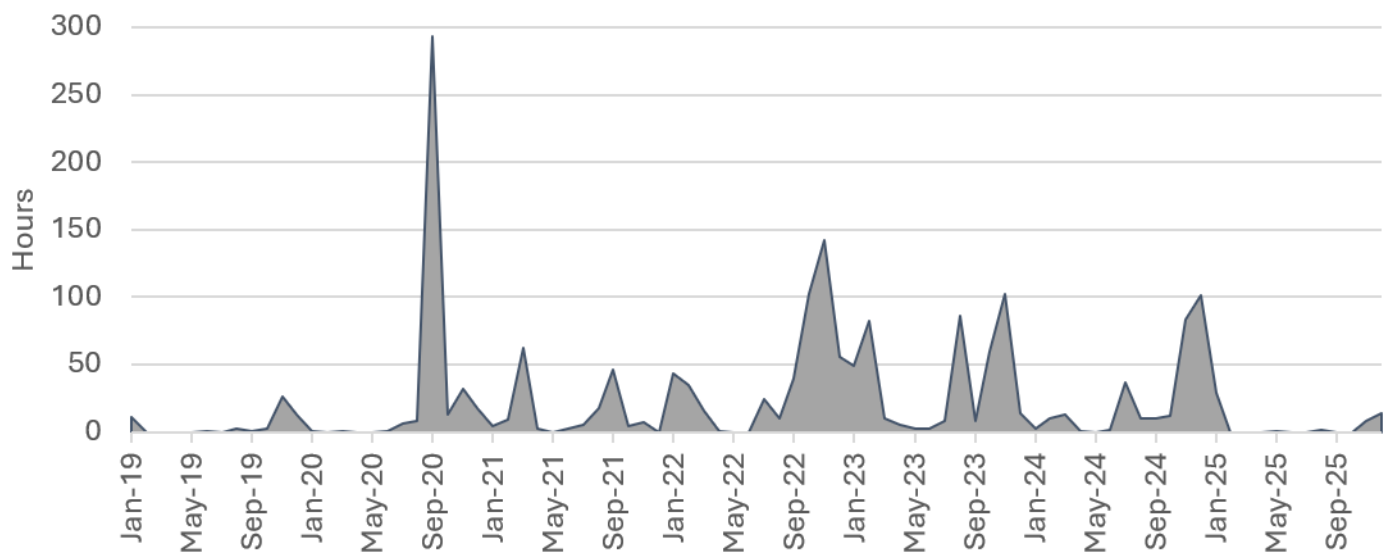
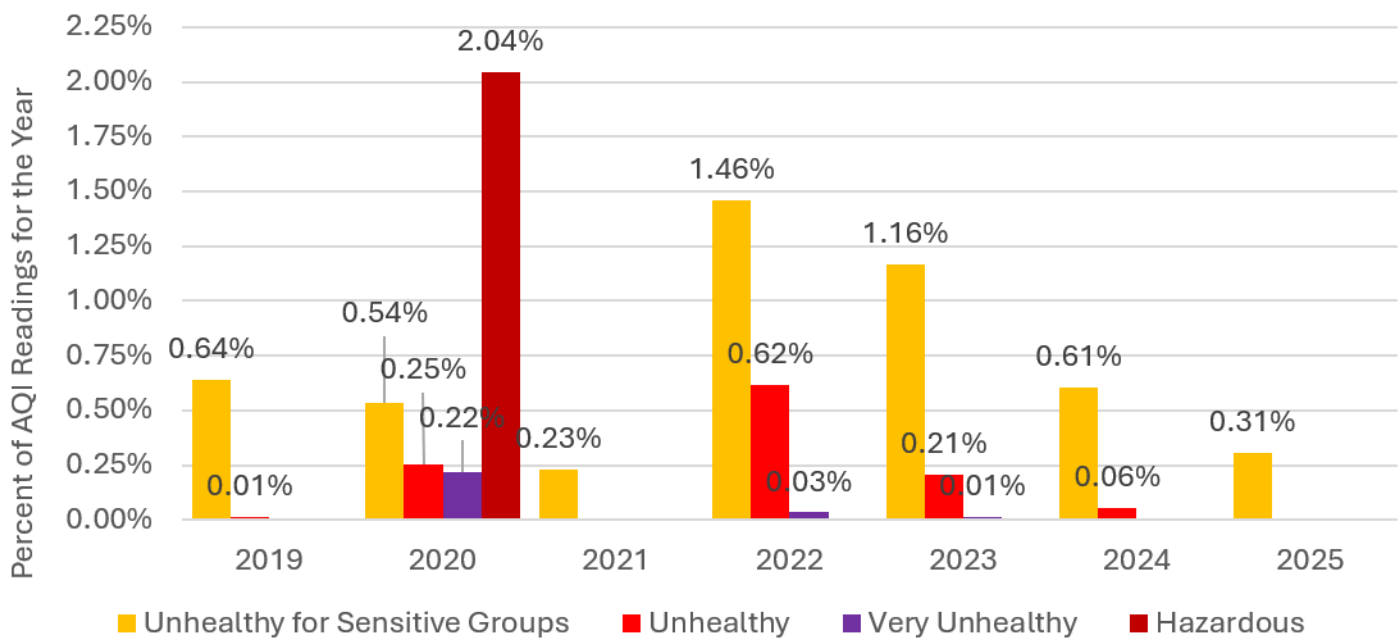


Figure 2: Percent of Unhealthy for Sensitive Groups or Worse Air Quality Hours, 2019-2025, Salem, OR¹

The figure shows the percentage of the year Salem, Oregon experienced air quality index categories starting at Unhealthy for Sensitive Groups through hourly Oregon DEQ readings at the Oregon State Hospital. During the past seven years, the only year that hazardous air quality was experienced in Salem was in 2020 due to the Beachie Creek and Lionshead Fires.



Non-Infectious Respiratory Illness by Age

Figure 3a: Non-Infectious Respiratory Illness Emergency Visit Rates by Age Groups per 100,000 population, 2019-2025, Marion County^{2,4}

The figure shows the rate of non-infectious respiratory illness emergency visits per 100,000 population by age groups from 2019 – 2025 in Marion County. Non-infectious respiratory illness emergency visit rates increase with age. The 65+ age group has the highest rate of emergency visits compared to other age groups. Infants and toddlers 0- to 4-years-old had the highest rate of emergency visits among children. All age group rates increased from the previous report due to 2025 visits.

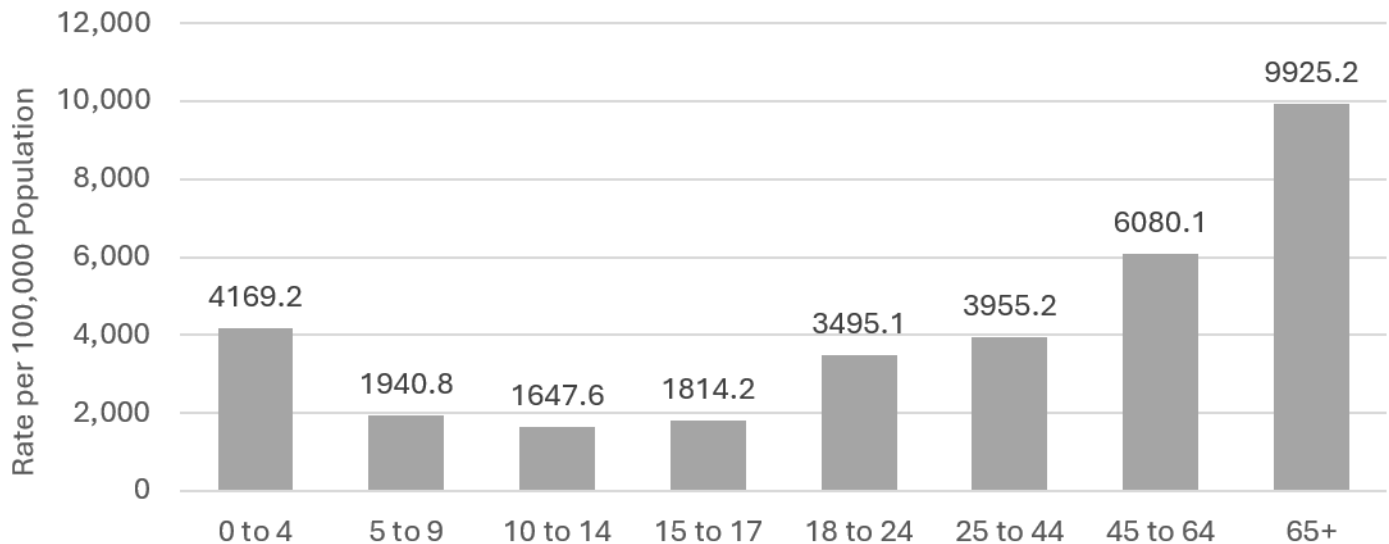
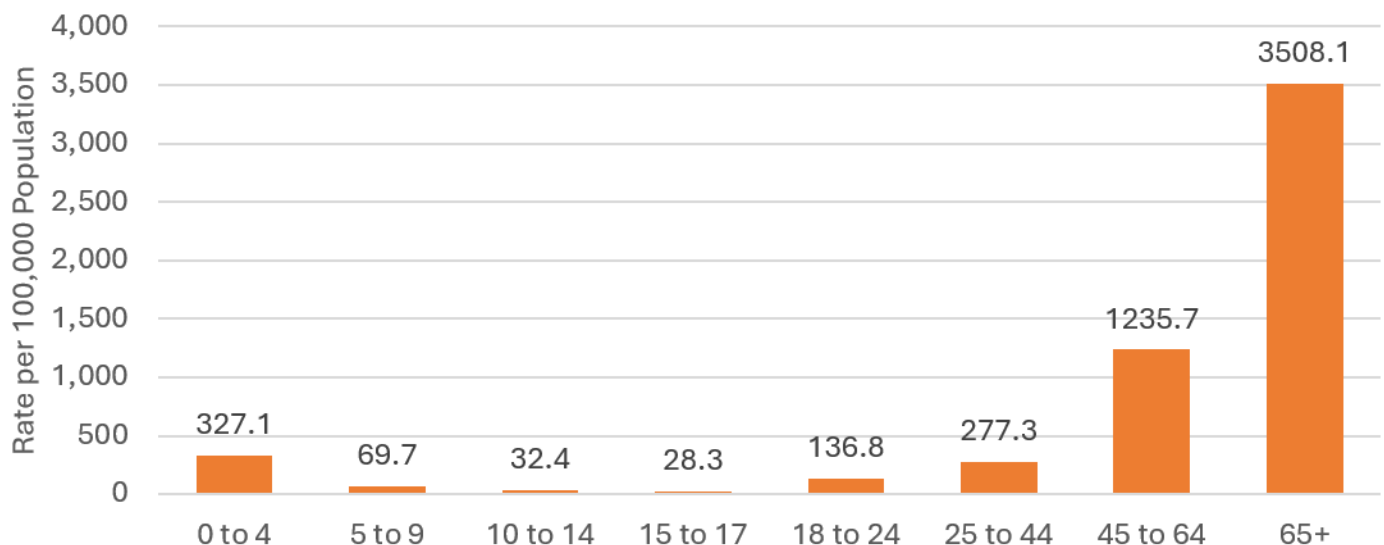


Figure 3b: Non-Infectious Respiratory Illness Hospitalization (In-patient) Rates by Age Groups per 100,000 population, 2019-2025, Marion County^{2,4}

The figure shows the rate of non-infectious respiratory illness hospitalizations per 100,000 population by age groups from 2019-2025 in Marion County. Non-infectious respiratory illness hospitalization rates increase with age. The 65+ age group have the highest rate of emergency visits compared to other age groups. Infants and toddlers 0- to 4-years-old had the highest rate of emergency visits among children. All age group rates (except for 15-24) increased from the previous report due to 2025 hospitalizations.



0- to 4-Year-Old Non-Infectious Respiratory Illness

Figure 4a: 0-4yo Non-Infectious Respiratory Illness Emergency Visit Counts, 2019-2025, Marion County²

The figure shows the number of yearly non-infectious respiratory illness emergency visits among 0- to 4-year-olds from 2019 to 2025 in Marion County. Emergency visits have increased over time and peaked in 2025. The total number of 0- to 4-year-olds emergency visits was 5,684.

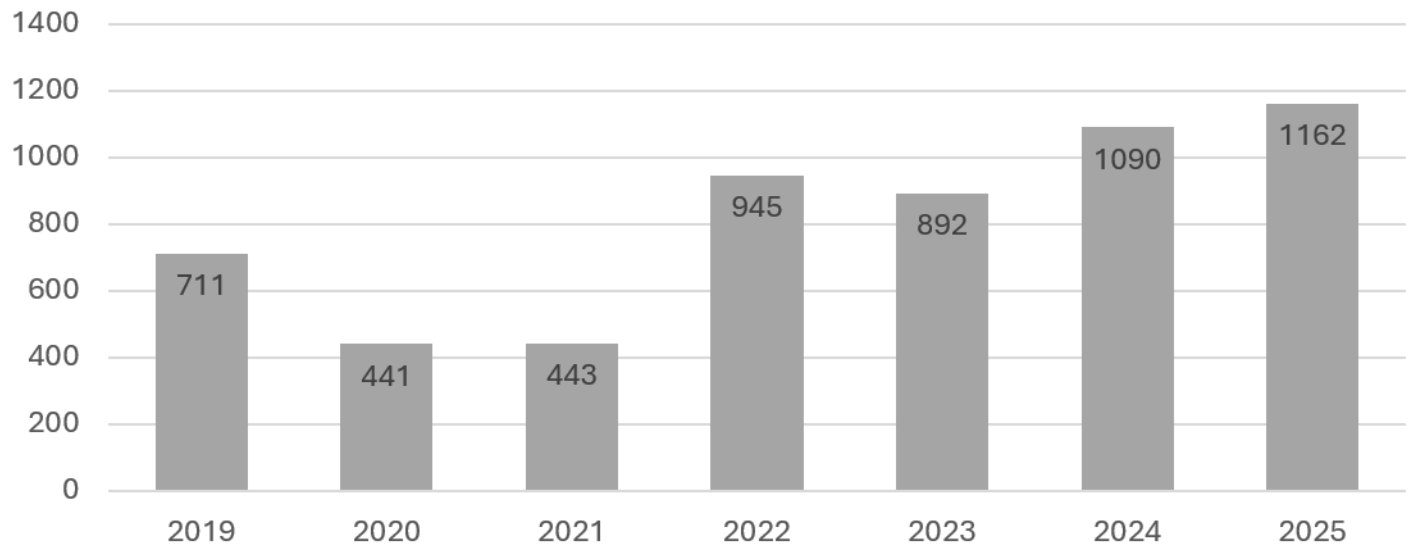


Figure 4b: 0-4yo Non-Infectious Respiratory Illness Emergency Visits per Day by Air Quality Index Classification, 2019-2025, Marion County^{1,2}

The figure shows the average number of 0- to 4-year-old non-infectious respiratory illness emergency visits within each Air Quality Index Classification recorded in Salem between 2019-2025. The number of non-infectious respiratory illness emergency visits were highest on unhealthy days, which may indicate protective actions taken by parents on Very Unhealthy and Hazardous days.

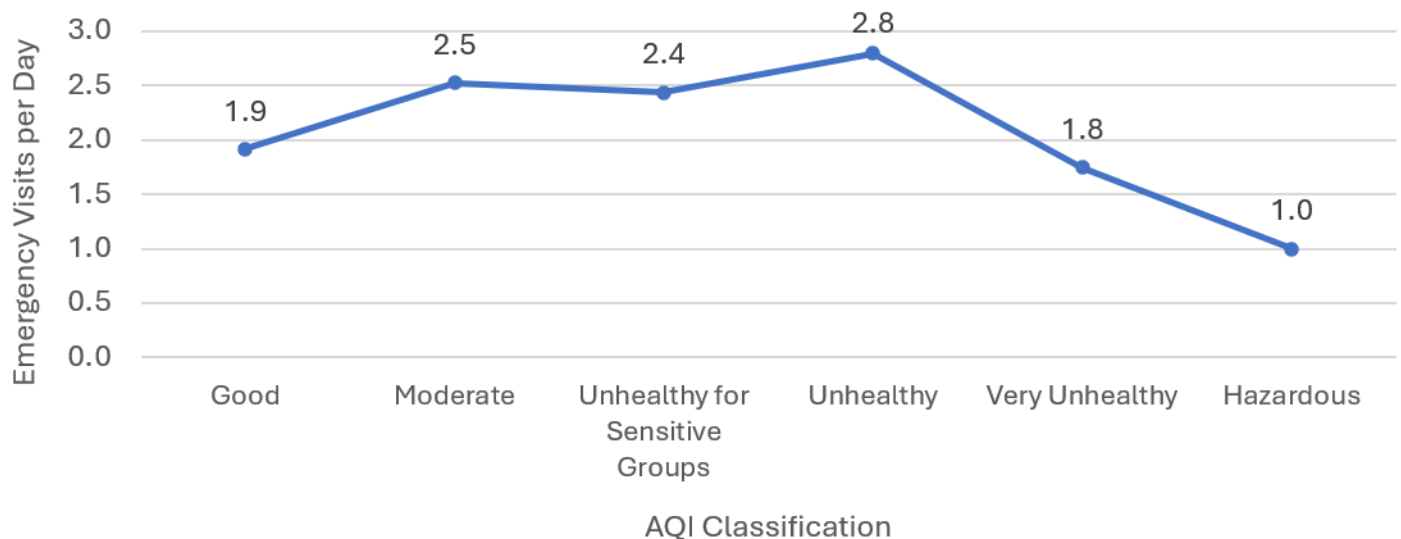


Figure 4c: Family Smoking Status of 0-4yo Non-Infectious Respiratory Illness Emergency Visits by Count and Percent, 2019-2025, Marion County²

The figure below shows the non-infectious respiratory illness emergency visit count and percent of 0- to 4-year-olds with family who smoked tobacco within the past 12 months from 2019-2025 in Marion County. 6.3% of 0- to 4-year-olds had a family member who smoked tobacco. Family members who smoked were provided with a smoking cessation packet and/or counseling services during their visit.

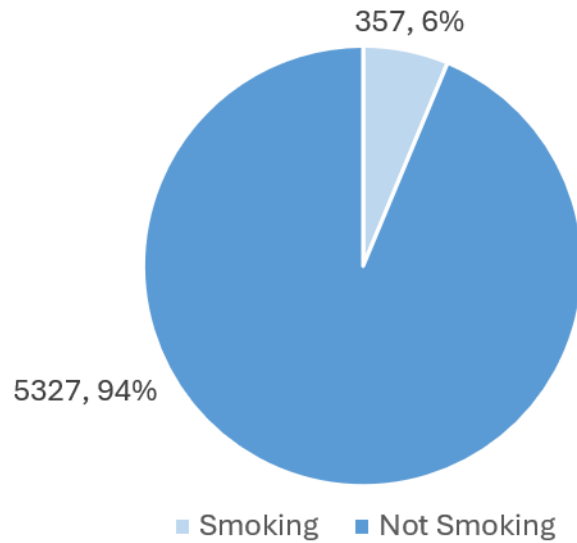


Figure 5a: 0-4yo Non-Infectious Respiratory Illness Hospitalization (In-patient) Counts, 2019-2025, Marion County²

The figure shows the number of yearly non-infectious respiratory illness hospitalizations (in-patient) among 0- to 4-year-olds from 2019 to 2025 in Marion County. Hospitalizations have increased over time and peaked in 2025. The total number of 0- to 4-year-old hospitalizations was 446.

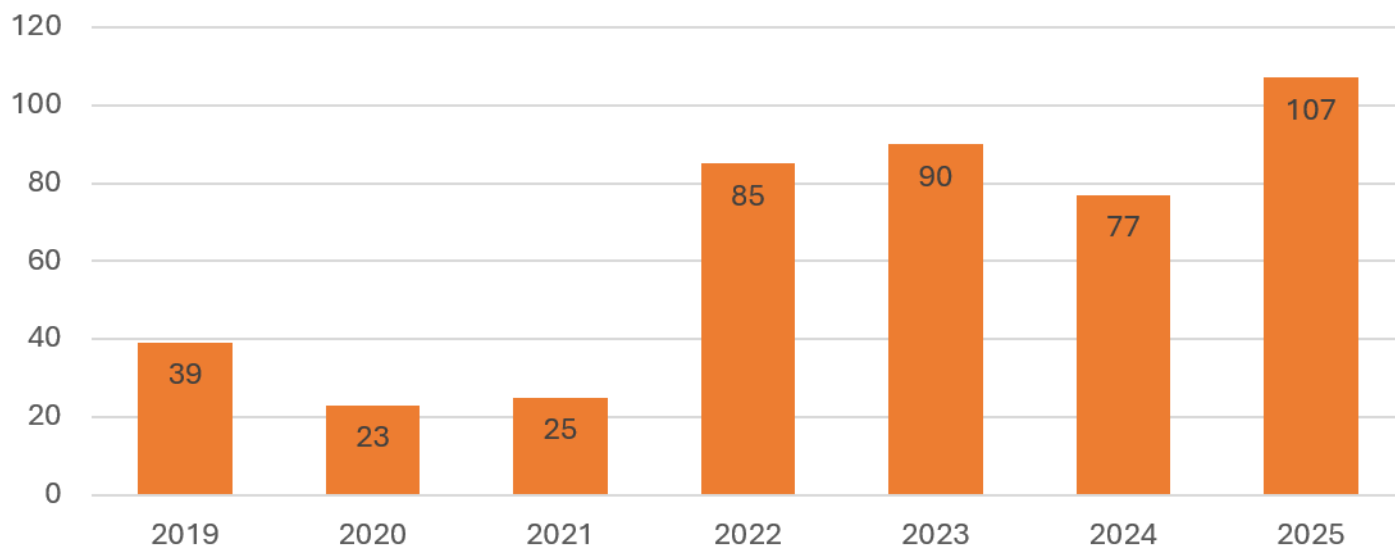
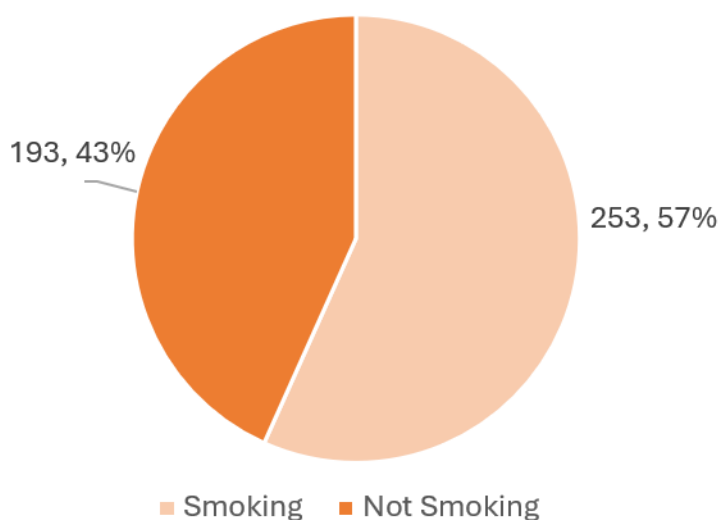


Figure 5b: Family Smoking Status of 0-4yo Non-Infectious Respiratory Illness Hospitalizations by Count and Percent, 2019-2025, Marion County²

The figure below shows the non-infectious respiratory illness (NIRI) hospitalization count and percent of 0- to 4-year-olds with family who smoked tobacco within the past 12 months from 2019-2025 in Marion County. 56.7% of 0- to 4-year-old's who were hospitalized (in-patient) had a family member who smoked tobacco. **Of all 0- to 4-year-old NIRI emergency visits with family who recently smoked (357), 70.9% of those visits resulted in hospitalization (253).** Family members who smoked were provided with a smoking cessation packet and/or counseling services during their visit.



Demographics

By Sex

Figure 6a: 0-4yo Non-Infectious Respiratory Illness Emergency Visit Rates by Sex (Female and Male) per 100,000 Population, 2019-2025, Marion County^{2,4}

The figure shows the rate of non-infectious respiratory illness emergency visits per 100,000 population for males and females 0- to 4-years-old from 2019-2025 in Marion County. Male 0- to 4-year-olds had an emergency visit rate 1.5 times higher than females, which is a reverse trend among all age groups ([AQRI Data Report](#): females 1.3 times higher than males).

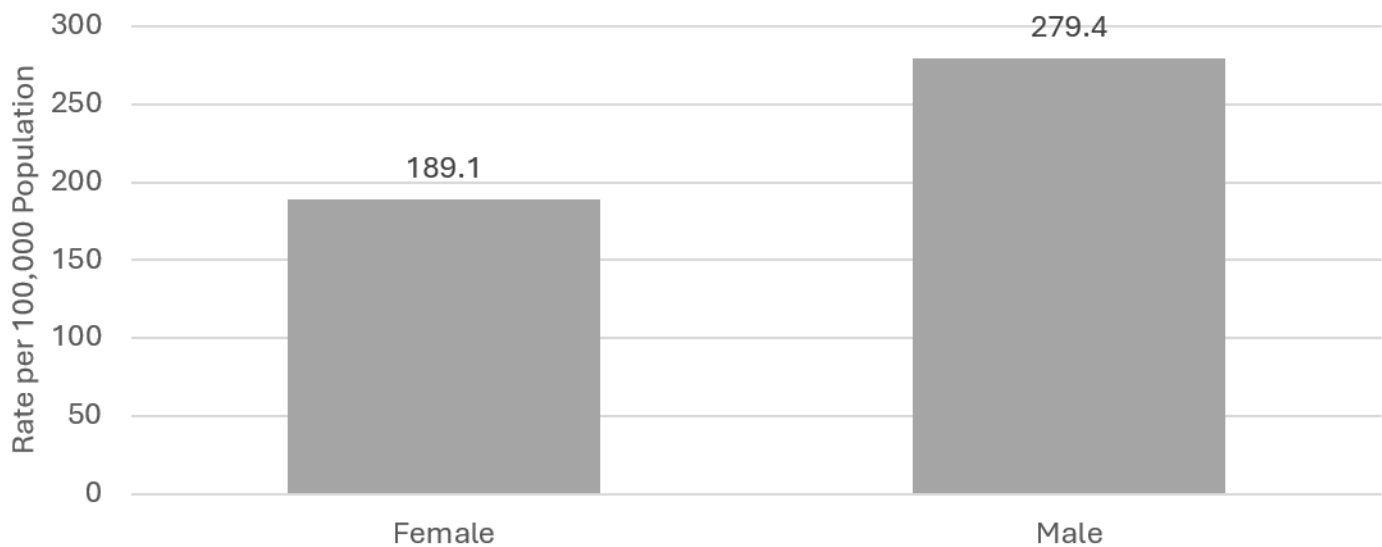
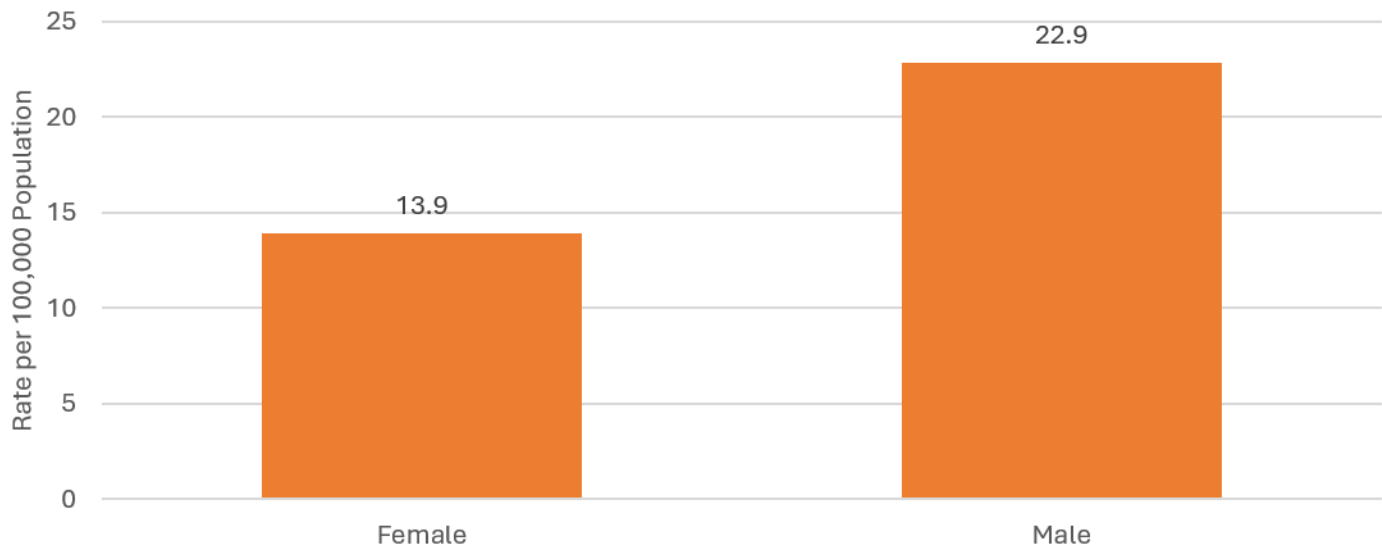


Figure 6b: 0-4yo Non-Infectious Respiratory Illness Hospitalization (In-patient) Rates by Sex (Female and Male) per 100,000 Population, 2019-2025, Marion County^{2,4}

The figure shows the rate of non-infectious respiratory illness hospitalizations per 100,000 population for males and females 0- to 4-years-old from 2019-2025 in Marion County. Male 0-4-year-olds had a 1.6 higher hospitalization rate than females, which is a reverse trend among all age groups ([AQRI Data Report](#): females slightly higher than males).



By Race

Figure 7a: 0-4yo Non-Infectious Respiratory Illness Emergency Visit Rates by Race per 100,000 population, 2019-2025, Marion County^{2,4}

The figure shows the 0- to 4-year-old non-infectious respiratory illness emergency visit rate per 100,000 population by racial group from 2019-2025 in Marion County. Racial groups in this report match those used in the Oregon ESSENCE system. 0- to 4-year-olds identified as Hawaiian/Pacific Islander and African American/Black and had the highest emergency visit rate among all racial groups.

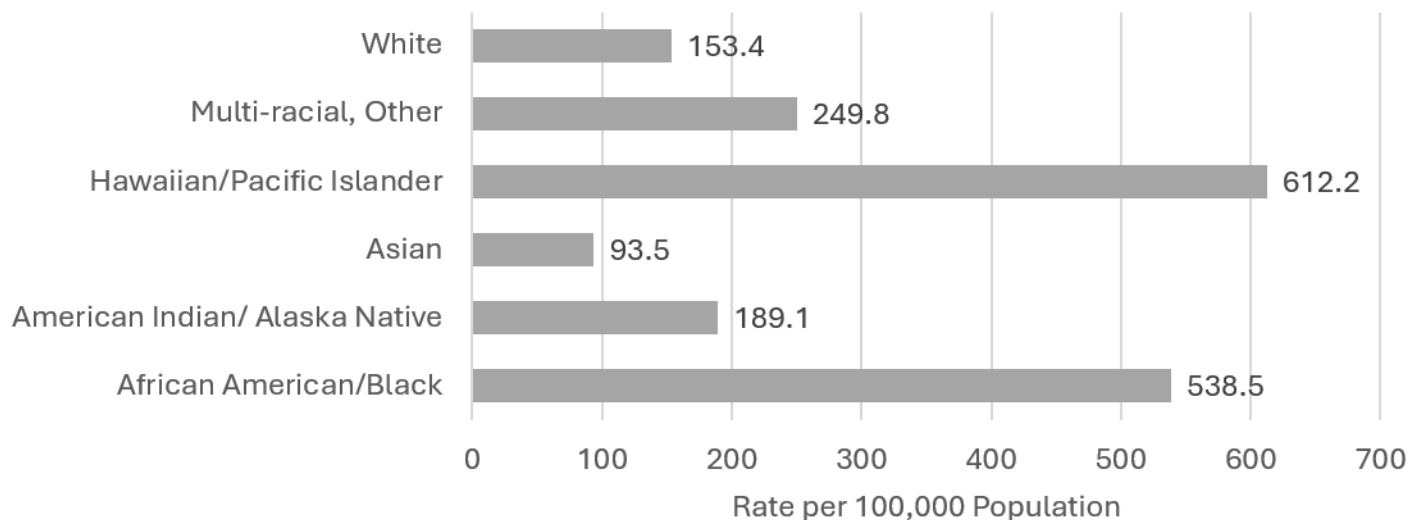
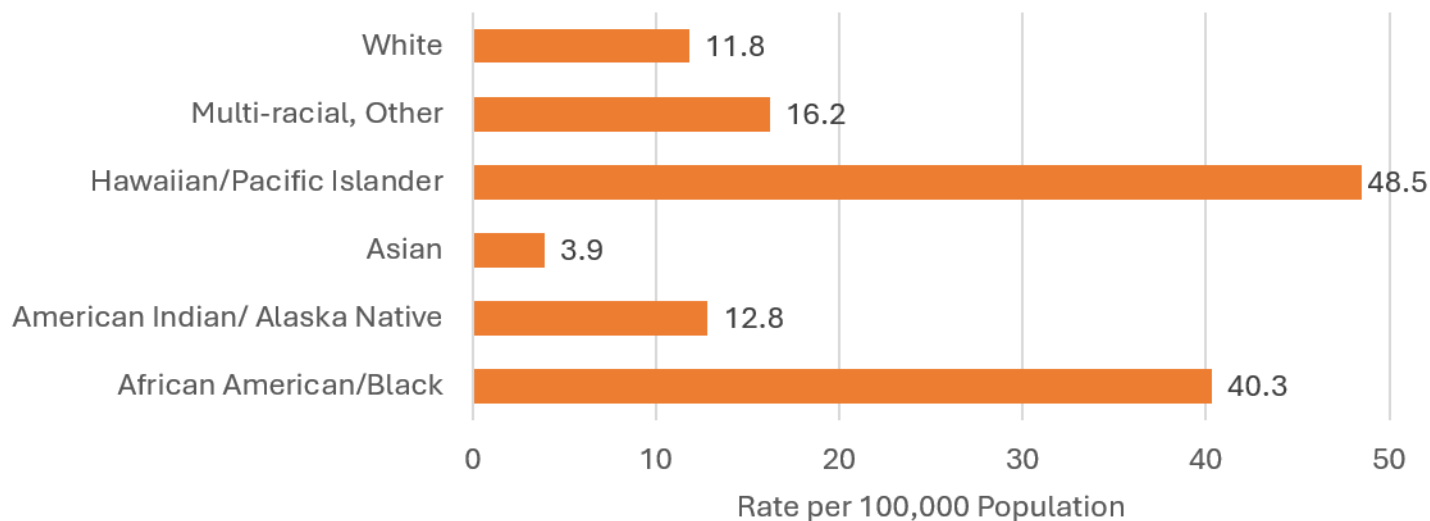


Figure 7b: 0-4yo Non-Infectious Respiratory Illness Hospitalization (In-patient) Rates by Race per 100,000 population, 2019-2025, Marion County^{2,4}

The figure shows the 0- to 4-year-old non-infectious respiratory illness hospitalization rates per 100,000 population by racial group from 2019-2025 in Marion County. Racial groups in this report match those used in the Oregon ESSENCE system. 0- to 4-year-olds identified as Hawaiian/Pacific Islander and African American/Black and had the highest hospitalization rate among all racial groups, which does not match the trends for all age groups.



By Ethnicity

Figure 8a: 0-4yo Non-Infectious Respiratory Illness Emergency Visit Rates by Ethnicity per 100,000 population, 2019-2025, Marion County^{2,4}

The figure shows the 0- to 4-year-old non-infectious respiratory illness emergency visit rate per 100,000 population by ethnicity from 2019-2025 in Marion County. Ethnicity groups in this report match those used in the Oregon ESSENCE system. 0- to 4-year-olds identified as Hispanic or Latino had an emergency visit rate 2.0 times higher than 0-4yo's identified as Not Hispanic or Latino. This rate difference is reversed for all age groups.

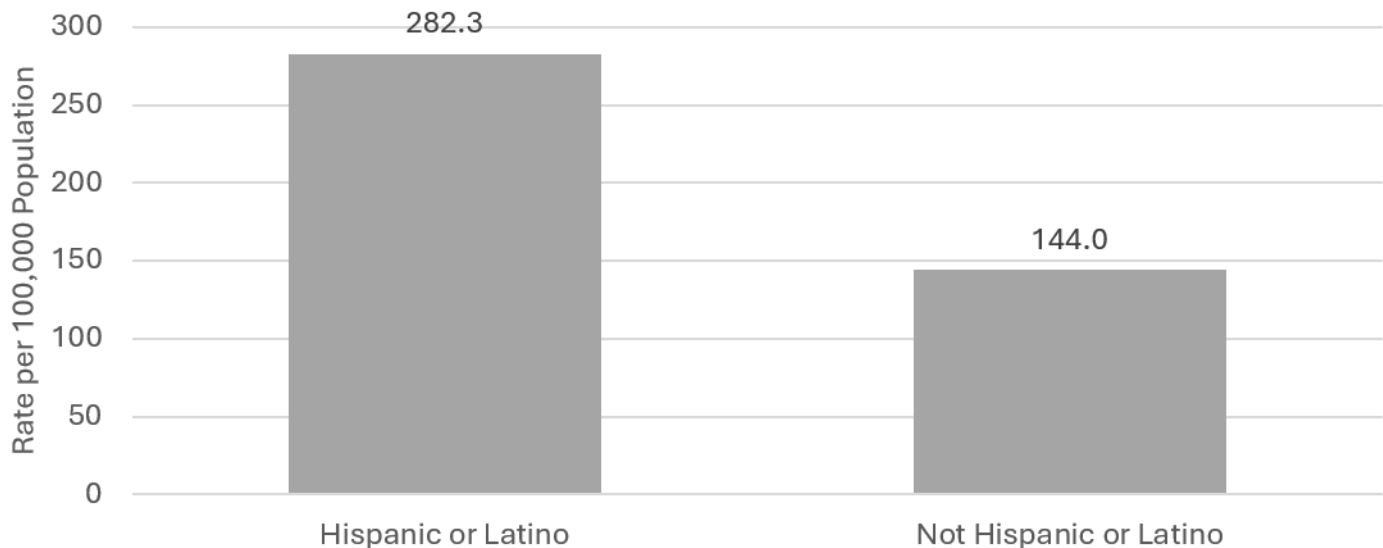
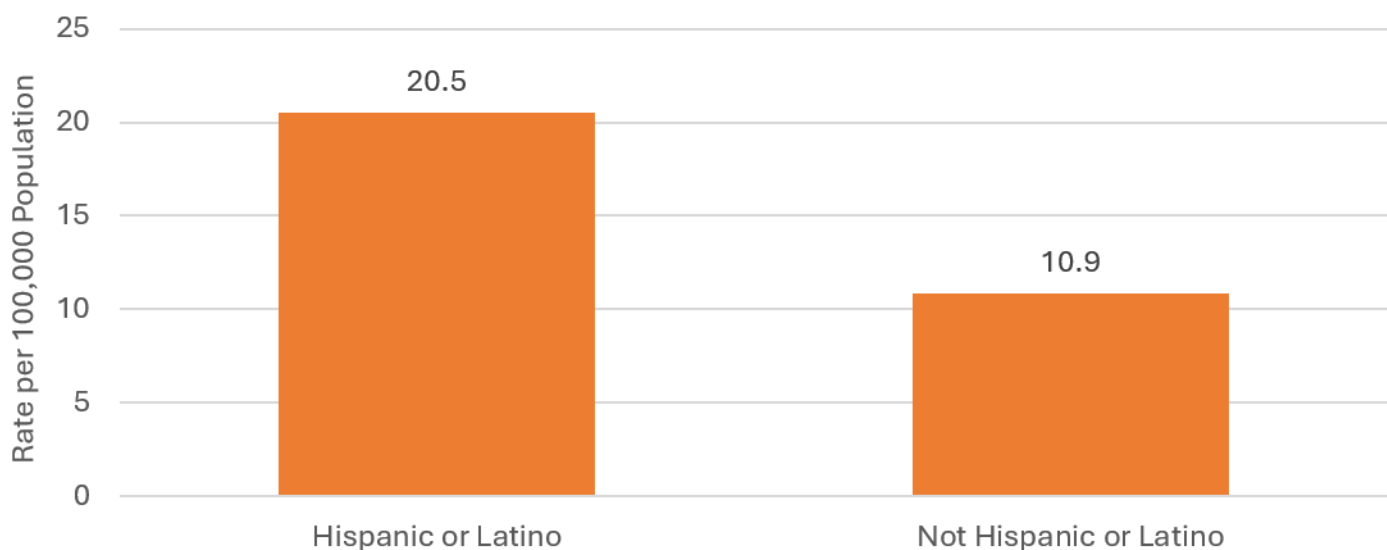


Figure 8b: 0-4yo Non-Infectious Respiratory Illness Hospitalization (In-patient) Rates by Ethnicity per 100,000 population, 2019-2025, Marion County^{2,4}

The figure shows the 0- to 4-year-old non-infectious respiratory illness hospitalization rate per 100,000 population by ethnicity from 2019-2025 in Marion County. Ethnicity groups in this report match those used in the Oregon ESSENCE system. 0- to 4-year-olds identified as Hispanic or Latino had a hospitalization rate 1.9 times higher than 0-4yo's identified as Not Hispanic or Latino. This rate difference is reversed for all age groups.



By Geographic Designation – Rural & Urban Communities

The designations for rural areas are defined as locations situated ten or more miles from the center point (centroid) of a population center with at least 40,000 residents.

Figure 9a: 0-4yo Non-Infectious Respiratory Illness Emergency Visit Rates by Geographic Designation per 100,000 population, 2019-2025, Marion County^{2,4}

The figure shows the 0- to 4-year-old non-infectious respiratory illness hospitalization rate per 100,000 population by the type of geographic residence (rural or urban) from 2019-2025 in Marion County. 0- to 4-year-old residents in urban designated areas had an emergency visit rate 1.3 times higher than residents in rural areas. Both geographic designation group rates increased from the previous report due to 2025 visits. This rate difference matches all age groups.

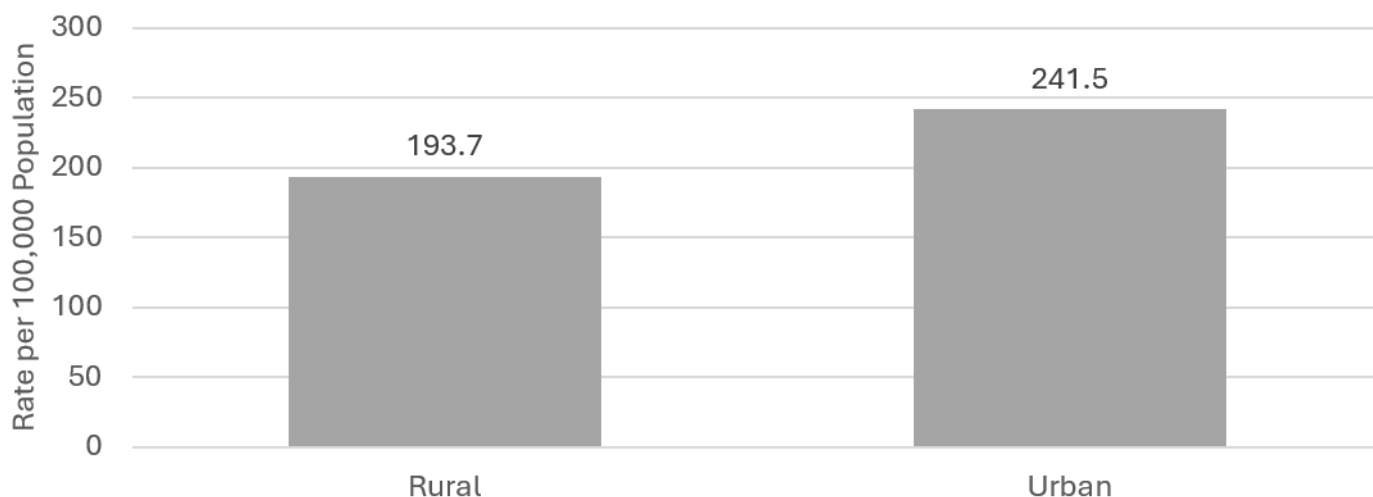
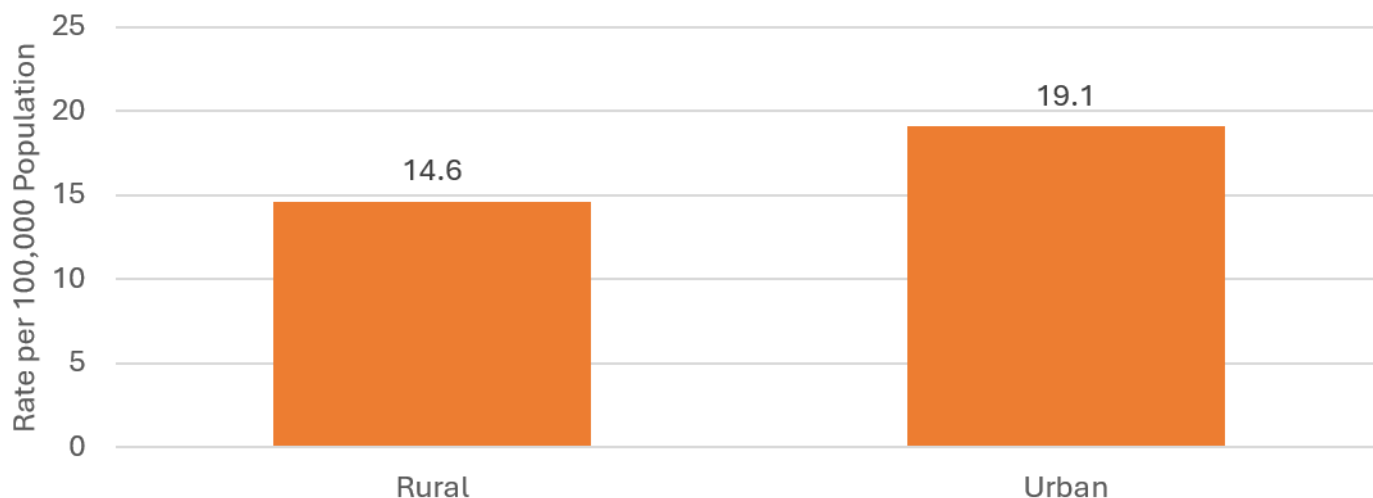


Figure 9b: 0-4yo Non-Infectious Respiratory Illness Hospitalization (In-patient) Rates by Geographic Designation per 100,000 population, 2019-2025, Marion County^{2,4}

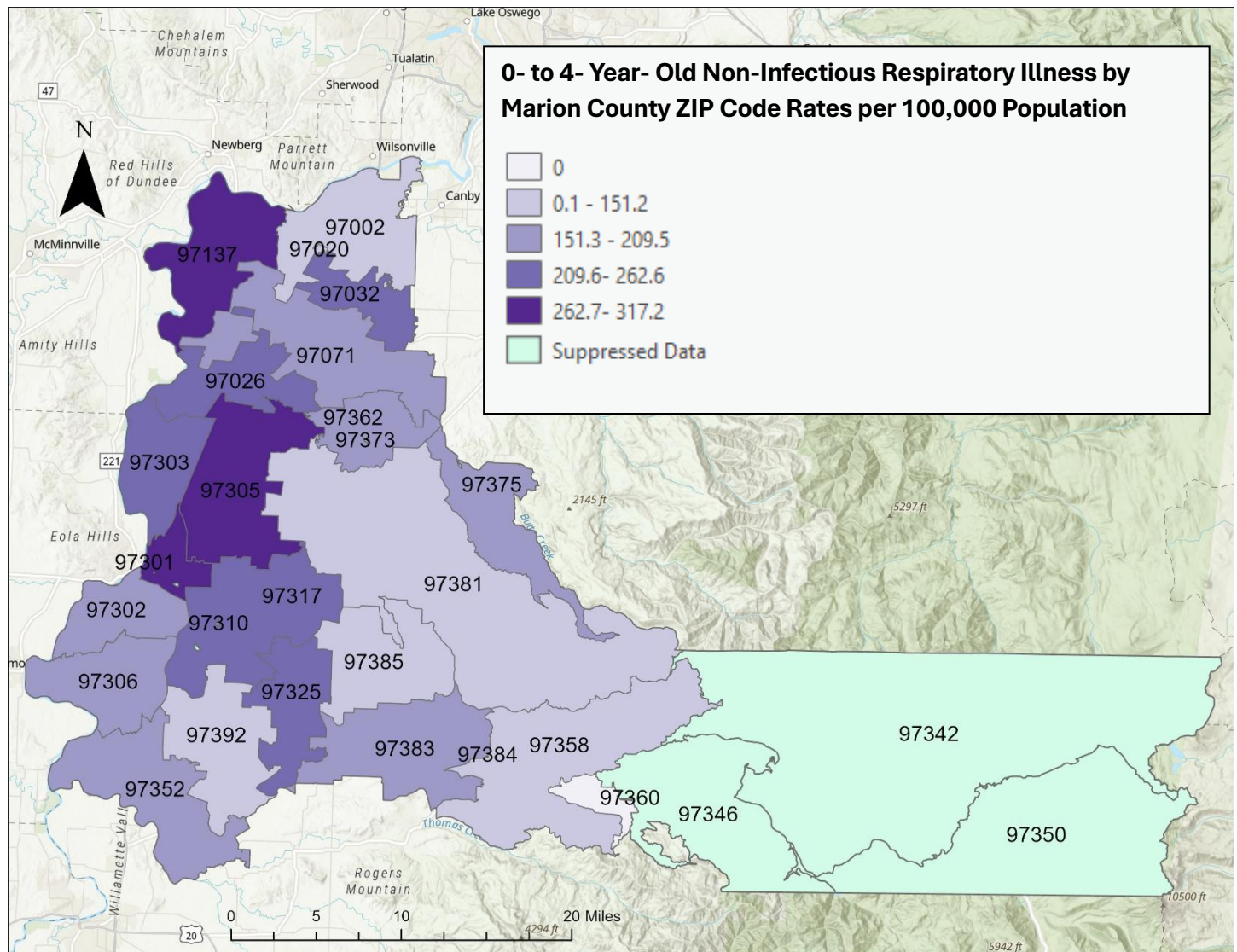
The figure shows the 0- to 4-year-old non-infectious respiratory illness hospitalization rate per 100,000 population by the type of geographic residence (rural or urban) from 2019-2025 in Marion County. 0- to 4-year-old residents in urban designated areas had a hospitalization rate 1.3 times higher than residents in rural areas. This rate difference matches all age groups.



By ZIP Code

Figure 10: 0-4yo Non-Infectious Respiratory Illness Emergency Visit Rate by Zip Code per 100,000 population, 2019-2025, Marion County^{2,4}

The figure below shows the 0- to 4-year-old non-infectious respiratory illness emergency visit rate per 100,000 population by ZIP code from 2019-2025 in Marion County. The ZIP codes with the highest rates are highlighted below and include 97137, 97305, and 97301.



Pregnant & Non-Infectious Respiratory Illness

Figure 11: Identified Pregnant Non-Infectious Respiratory Illness Emergency Visit Counts, 2019-2025, Marion County²

The figure shows the number of yearly non-infectious respiratory illness emergency visits among individuals identified pregnant age 15-64 from 2019 to 2025 in Marion County. Emergency visits have increased over time and peaked in 2025. The total number of emergency visits among individuals identified as pregnant was 333, 0.3% of all non-infectious respiratory illness emergency visits between 2019-2025.

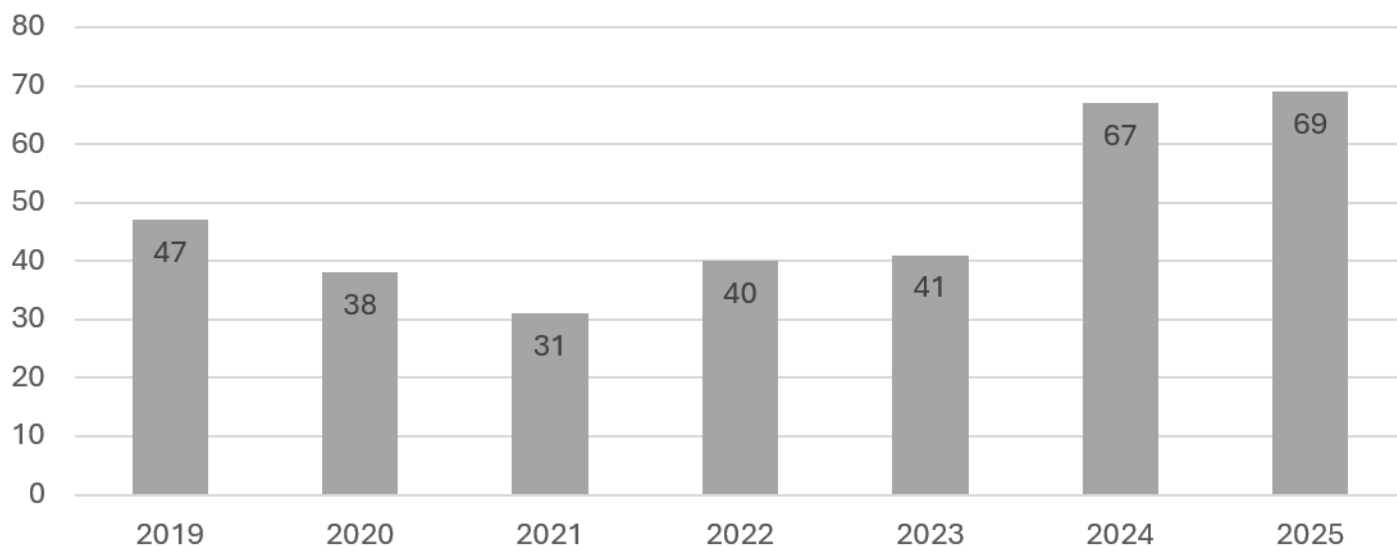
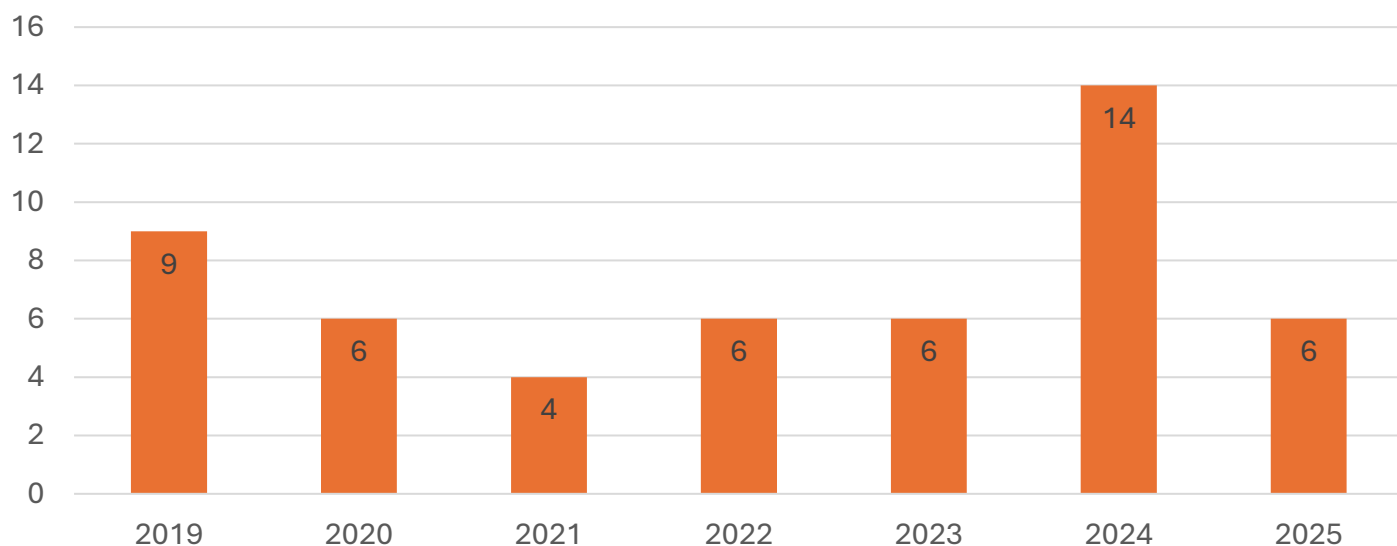


Figure 12: Identified Pregnant Non-Infectious Respiratory Illness Hospitalization (In-patient) Counts, 2019-2025, Marion County²

The figure shows the number of yearly non-infectious respiratory illness hospitalizations (in-patient) among individuals identified pregnant age 15-64 from 2019 to 2025 in Marion County. Hospitalizations peaked at 14 in 2024. The total number of hospitalizations among individuals identified as pregnant was 51, 0.2% of all non-infectious respiratory illness hospitalizations between 2019-2025.



References

¹ Oregon Department of Environmental Quality. *Oregon.gov Air Quality Monitoring*. 2019-2025. <https://aqi.oregon.gov/>.

² Oregon Health Authority. ESSENCE. *Non-Infectious Respiratory Illness*. 2019-2025. <https://www.oregon.gov/oha/ph/diseasesconditions/communicabledisease/preparednesssurveillanceepidemiology/essence/pages/index.aspx>.

³ Oregon Health Authority (2025). Oregon ESSENCE: Hospitalization-related Data Fields. *Oregon Health Authority Oregon ESSENCE Notes*.

⁴ United States Census Bureau. *American Community Survey*. <https://data.census.gov/>.

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This report was released on 8/17/2026