Marion County ESSENCE[1] Cold Related Illness Surveillance Report 2019-2023

Marion County Health & Human Services

Release Date: 3/13/2024

Purpose: To evaluate cold related illness emergency department and urgent care visits, hospitalizations, deaths, and low temperature days experienced among Marion County residents using data from the Oregon Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE), Oregon Health Authority Center for Disease Statistics, and the National Weather Service.

All counts and rates are based on patient's residence and not the location of where they are seen for care.

Contents

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Low Temperature Days – At or Below 40°F | 32°F | 25°F

Figure 1: Number of Low Temperature Days in Salem, OR, National Weather Service[3,4]

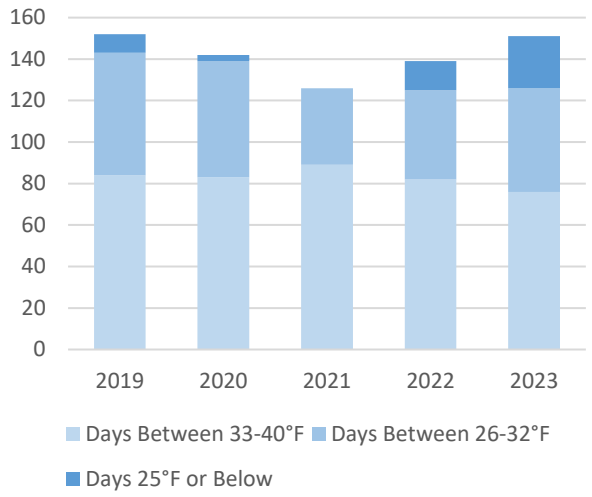


Figure 2: Number of Very Low Temperature Days in Salem, OR, National Weather Service[3,4]

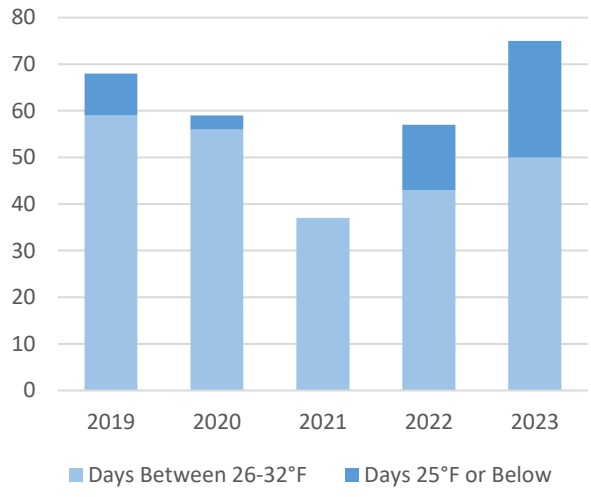
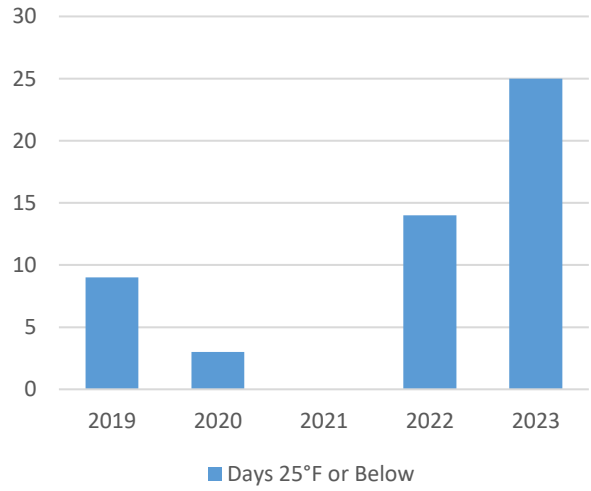


Figure 3: Number of Extremely Low Temperature Days in Salem, OR, National Weather Service[3,4]



According to historical daily low air temperature data from the National Weather Service, 2019 and 2023 had more low temperature days (40°F or lower) and very low temperature days (32°F or lower) compared to 2020-2022. 2023 had the most extreme low temperature days (25°F or lower) when compared to 2019-2021. Low temperature days can put communities at greater risk of cold related illness and its severity when exposed without adequate forms of warming. (Figure 1 – 3)

Emergency Department & Urgent Care Visits

Figure 4: Emergency Department & Urgent Care Visits due to Cold Related Illness in Marion County, OR, ESSENCE[1]

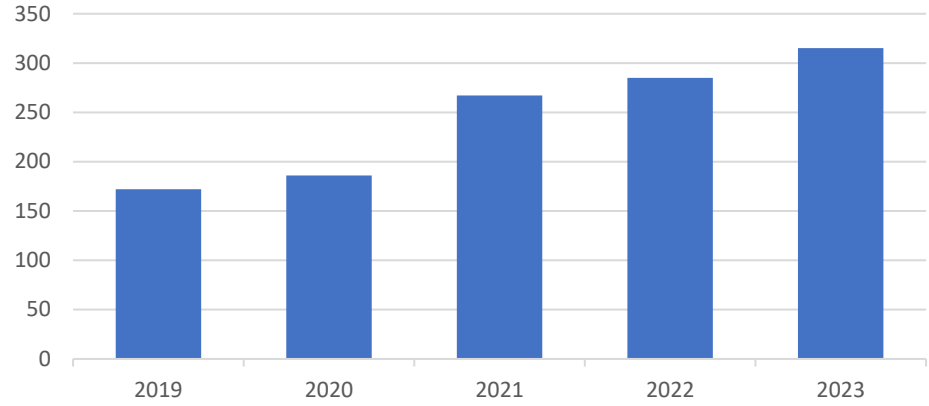
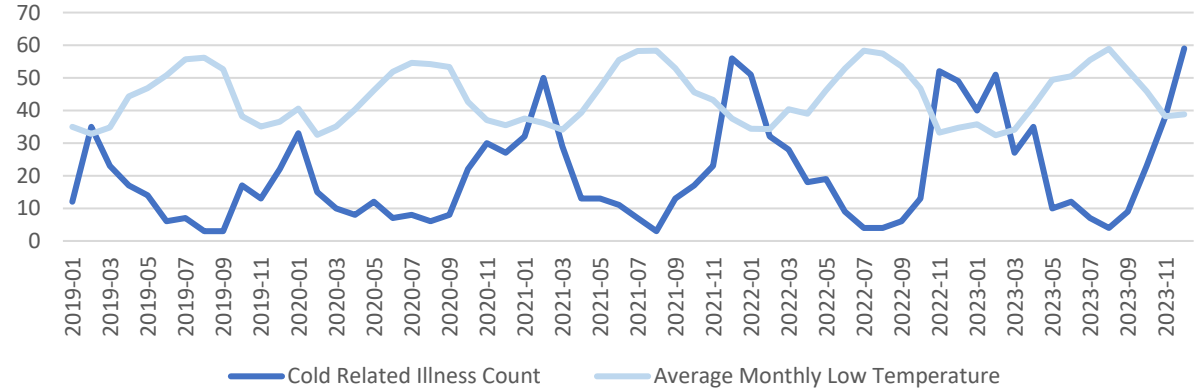


Figure 5: Monthly Emergency Department & Urgent Care Visits due to Cold Related Illness in Marion County, OR, ESSENCE[1], National Weather Service[3,4]



Between 2019-2023, trends in emergency department and urgent care visits for cold related illness have steadily increased. While cold related illnesses do follow seasonal trends in temperature (Figure 5), yearly illness counts (Figure 4) due low temperature thresholds (Figure 1-3) is less obvious, indicating that other factors may also be contributing to an increase in yearly cold related illness (Figure 4). These factors may include social factors, financial stress, housing costs, homelessness, or caused by another environmental factor. For instance, an ice storm occurred in the Willamette Valley in February 2021, causing a sheet of ice to blanket the environment, leading to broken branches, down powerlines, power outages, and transportation difficulties for several consecutive days. 50 total emergency department and urgent care visits occurred in February 2021, the highest number of visits in one month up until that point.

Between 2021-23, Marion County residents visited an emergency department or urgent care facility on average 1.6 times as often for cold related illness than the combined average years of 2019-20. In total,

1,225 visits occurred between 2019 and 2023 for cold related illness among Marion County residents (average visits per year = 245).

Figure 6: Rate of Emergency Department & Urgent Care Visits per 100,000 due to Cold Related Illness, ESSENCE[1], US Census[5]

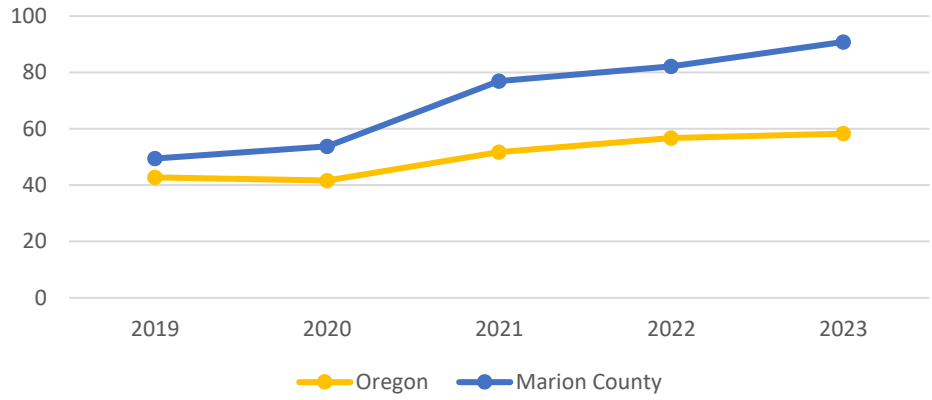
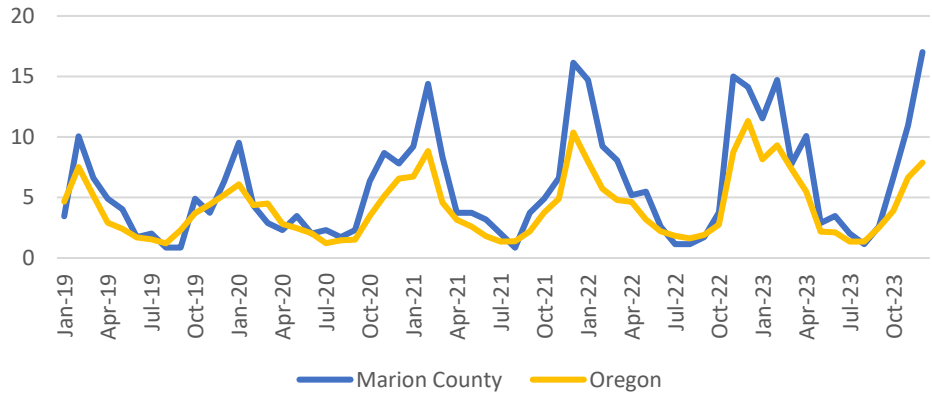
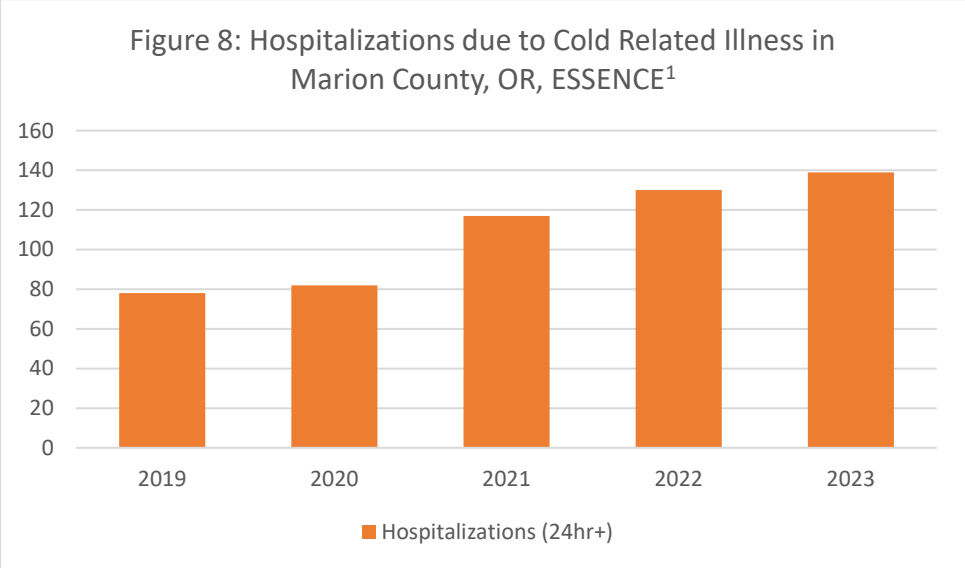


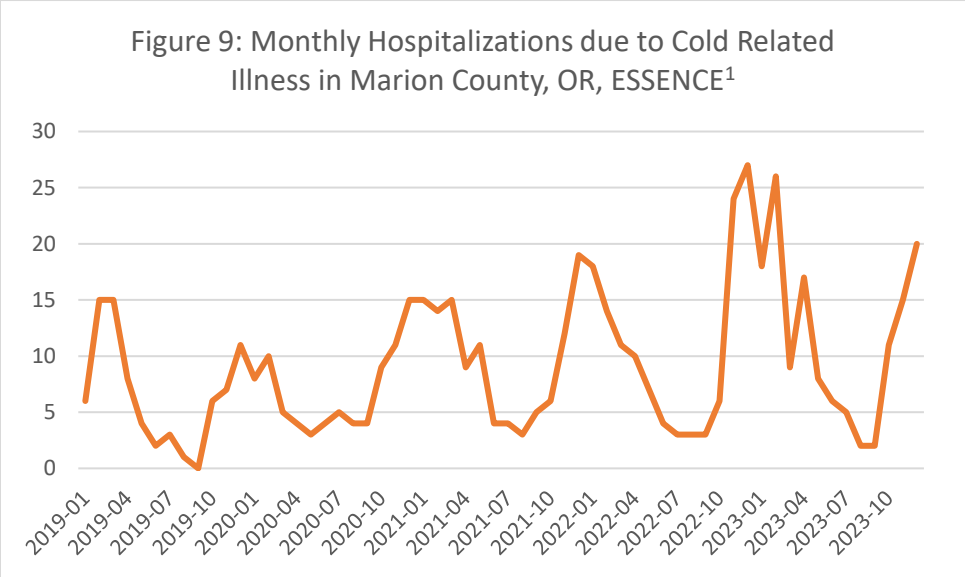
Figure 7: Monthly Rate of Emergency Department & Urgent Care Visits per 100,000 due to Cold Related Illness, ESSENCE[1], US Census[5]



An increasing trend in the rate of patient visits to emergency departments and urgent care facilities for cold related illness occurred between 2019 to 2023 for Marion County and Oregon residents (Figure 6). Each year, Marion County had higher rates of Cold Related Illness compared to Oregon, with the gap widening over time. Figure 7 shows the relationship of the widening gap monthly. Marion County residents had a higher average rate of patient visits compared to Oregon residents between 2019-2022 (70.6 per 100,000 for Marion County Vs. 48.2 per 100,000 for Oregon).

Hospitalizations





Trends in cold related hospitalizations (spending 24 or more hours at the hospital) also increased between 2019-2023 (Figure 8 and Figure 9). Compared to emergency department and urgent care visits, hospitalization statistics show more severe cold related health impacts. Between 2021-23, Marion County residents were hospitalized 1.6 times as often for cold related illness than the combined years of 2019-20. Between 2019-2023, 44.6% of Marion County residents who visited an emergency department or urgent care facility for a cold related illness were hospitalized. In total, 546 hospitalizations occurred between 2019 and 2023 for cold related illness among Marion County residents (average visits per year = 136.5).

Deaths

Table 1. Natural cold deaths that occurred in Marion County and Oregon, 2019-2022, Oregon Health Authority Center for Health Statistics[2]

	Marion County		Oregon	
Year	**Count**	**Rate per 100,000**	**Count**	**Rate per 100,000**
2019	1	0.3	18	0.4
2020	1	0.3	17	0.4
2021	2	0.6	29	0.7
2022	3	0.9	31	0.7
Total	**7**	**0.5**	**95**	**0.6**

Between 2019-2022, Marion County totaled 7 deaths due to natural cold, with a rate of 0.5 people per 100,000 residents (Table 1). Oregon totaled 95 deaths due to natural cold, with a rate of 0.6 people per 100,000 residents. While numbers remain relatively low, a slight upward trend has occurred in recent years. As of the release of this report, data was unavailable for 2023.

Demographics

Sex

Figure 10: Rate of patient visits for cold related illness by sex in Marion County per 100,000, 2019-2022, OR
ESSENCE, US Census

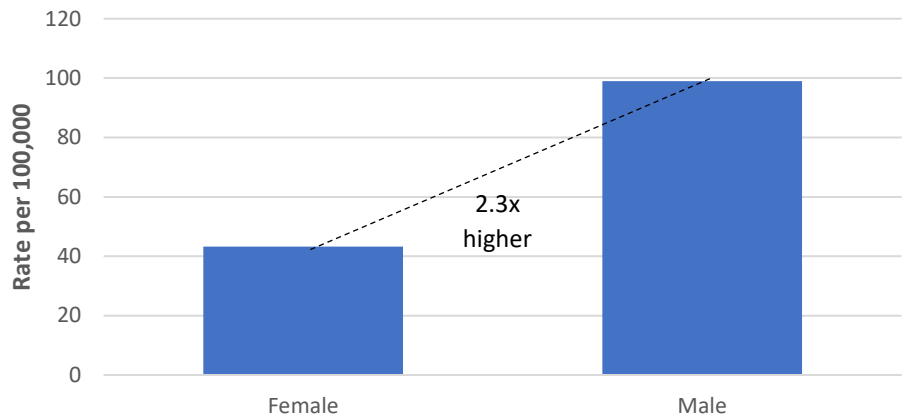
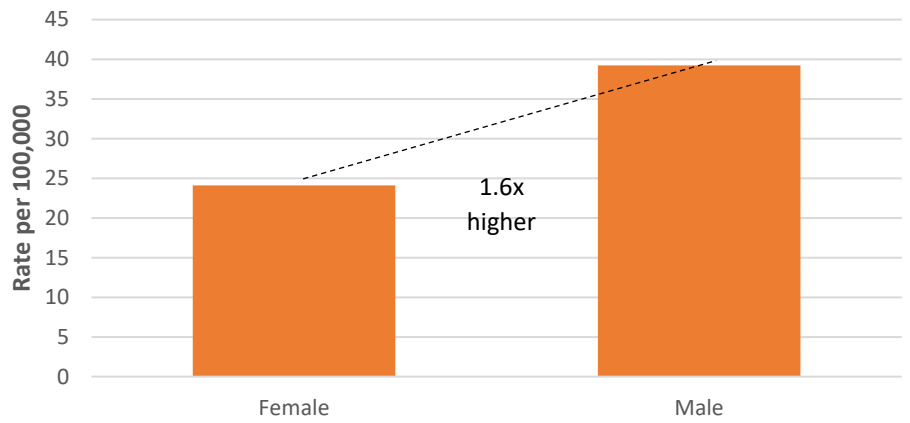


Figure 11: Rate of hospitalizations for cold related illness by sex in Marion County per 100,000, 2019-2022, OR
ESSENCE, US Census



Between 2019-2023, male residents in Marion County visited emergency department and urgent care facilities for cold related illness 2.3 times as often as female residents (Figure 10: 99 per 100,000 for males Vs. 43 per 100,000 for females). Males were also hospitalized for cold related illness 1.6 times as often than females (Figure 11: 39.2 per 100,000 for males Vs. 24.1 per 100,000 for females). Between 2019-2023, 39.6% of males and 55.8% of females who visited an emergency department or urgent care facility for a cold related illness were hospitalized.

Age

Figure 12: Figure Rate of patient visits for cold related illness by age in Marion County per 100,000, 2019-2022, OR ESSENCE[1], US Census[5]

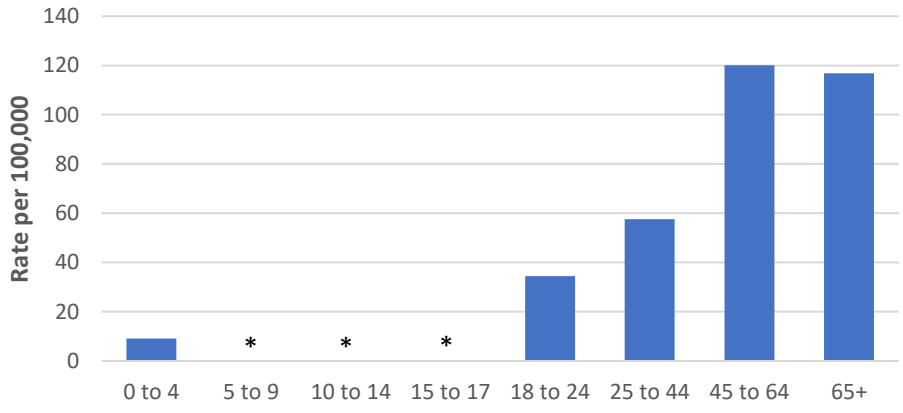
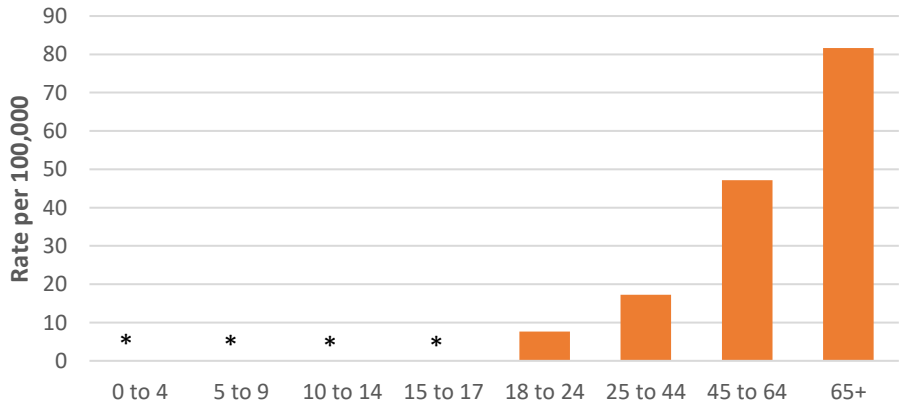


Figure 13: Rate of hospitalizations for cold related illness by age in Marion County per 100,000, 2019-2022, OR ESSENCE[1], US Census[5]



*- Suppressed due to low counts (less than 6)

The rate of patient visits to an emergency department or urgent care facility for cold related illness increased with age for Marion County residents between 2019-2023 (Figure 12). Late middle age (45-64) recorded the highest rate at 120.1 per 100,000, followed by older adults (age 65 or older) at 116.9 per 100,000. The older adult age group (age 65 or older) had the highest hospitalization rate at 81.6 per 100,000, which was 4.7 times that of the 24-44 age group at 17.2 per 100,000. Between 2019-2023, 69.8% of older adults (age 65 or older) who visited an emergency department or urgent care facility for a cold related illness were hospitalized, the highest rate among all demographic groups. These aging trends can be attributed to the body's decreasing inability to regulate internal temperature as age increases and potentially other social, economic, and environmental factors affecting an individual's ability to stay properly warm.

Race

Figure 14: Rate of patient visits for cold related illness by race in Marion County per 100,000, 2019-2023, OR ESSENCE[1], US Census[5]

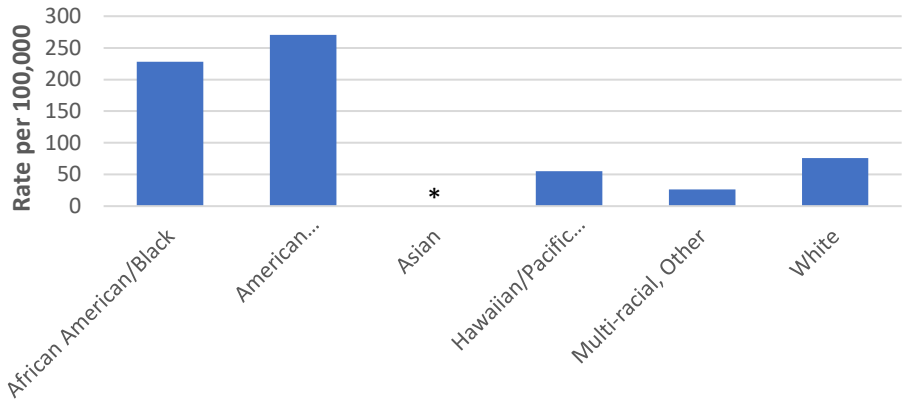
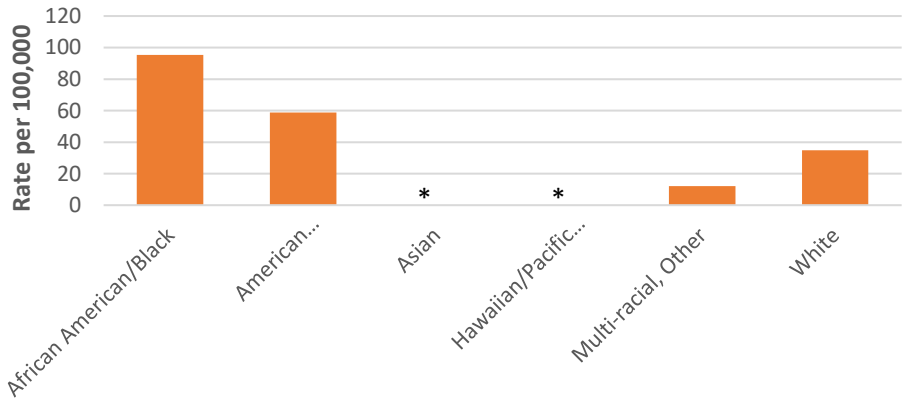


Figure 15: Rate of hospitalizations for cold related illness by race in Marion County per 100,000, 2019-2023, OR ESSENCE[1], US Census[5]



*- Suppressed due to low counts (less than 6)

Between 2019-2023, Marion County residents who identified as American Indian/Alaska Native had the highest rate of visits to emergency departments or urgent care for cold related illness than their peers (270.7 per 100,000), followed by African American/Black (227.9 per 100,000) (Figure 13). The highest rate trend flips when severity of cold related illness increases, where residents who identify as African American/Black had the highest rate of hospitalizations (95.4 per 100,000), followed by American Indian/Alaska Native (58.8 per 100,000).

Ethnicity

Figure 16: Rate of patient visits for cold related illness by ethnicity in Marion County per 100,000, 2019-2023, OR ESSENCE[1], US Census[5]

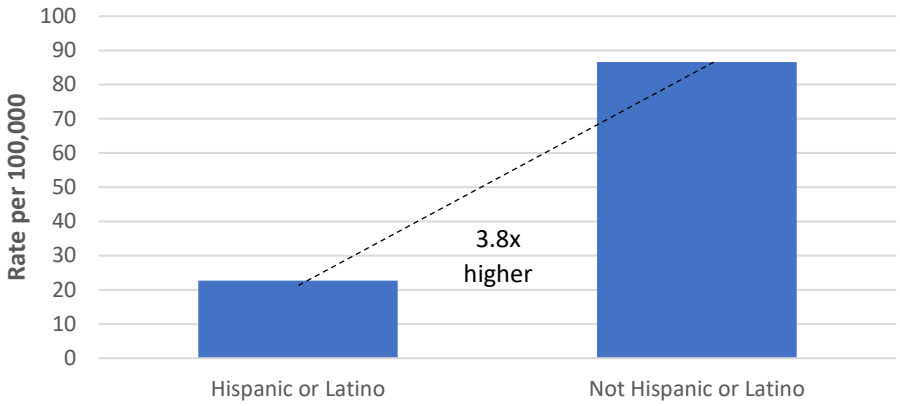
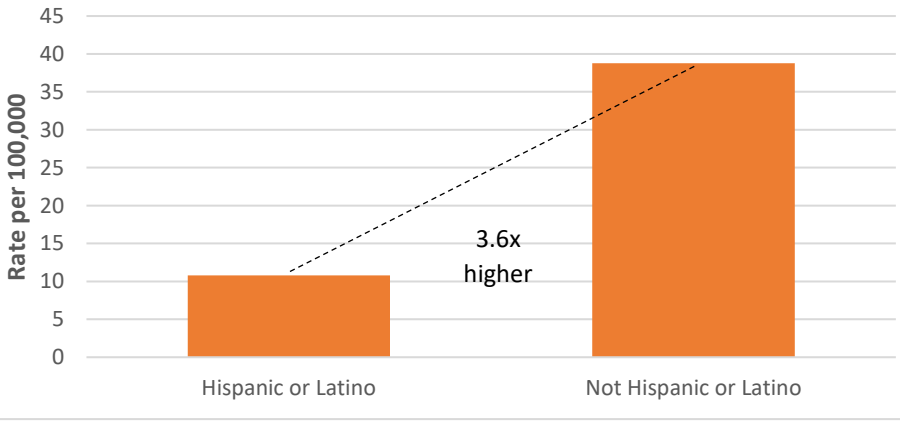


Figure 17, Rate of hospitalizations for cold related illness by ethnicity in Marion County per 100,000, 2019-2023, OR ESSENCE[1], US Census[5]



**Ethnicity as it is defined in OR ESSENCE system*

Between 2019-2023, Marion County residents who identified as 'Not Hispanic or Latino' had a significantly higher rate of visits to emergency departments or urgent care for cold related illness than residents who identified as 'Hispanic or Latino' (Figure 16: 86.6 per 100,000 for not Hispanic or Latino Vs. 22.6 per 100,000 for Hispanic or Latino). This trend continued with hospitalizations (Figure 17: 38.8 per 100,000 for not Hispanic or Latino Vs. 10.8 per 100,000 for Hispanic or Latino). Between 2019-2023, individuals who identified as not Hispanic or Latino had a hospitalization rate 3.6 times than that of individuals who identified as Hispanic or Latino. Between 2019-2023, 47.7% of Hispanic or Latino identifying residents who visited an emergency department or urgent care facility for a cold related illness were hospitalized.

Geographic Designation – Rural & Urban Communities

Figure 18: Rate of patient visits for cold related illness by geographic designation in Marion County per 100,000, 2019-2022, OR ESSENCE[1], US Census[5]

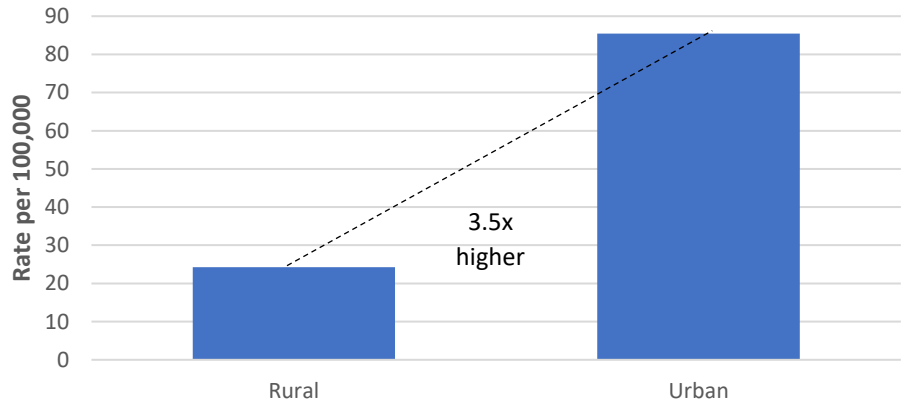
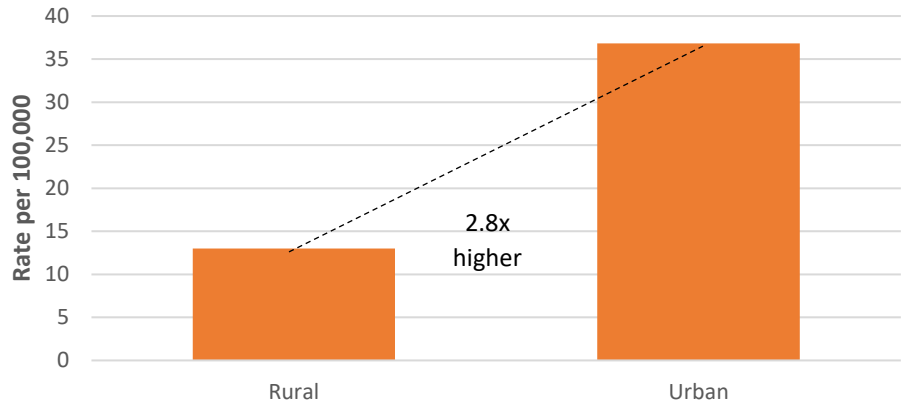


Figure 19: Rate of hospitalizations for cold related illness by geographic designation in Marion County per 100,000, 2019-2022, OR ESSENCE[1], US Census[5]

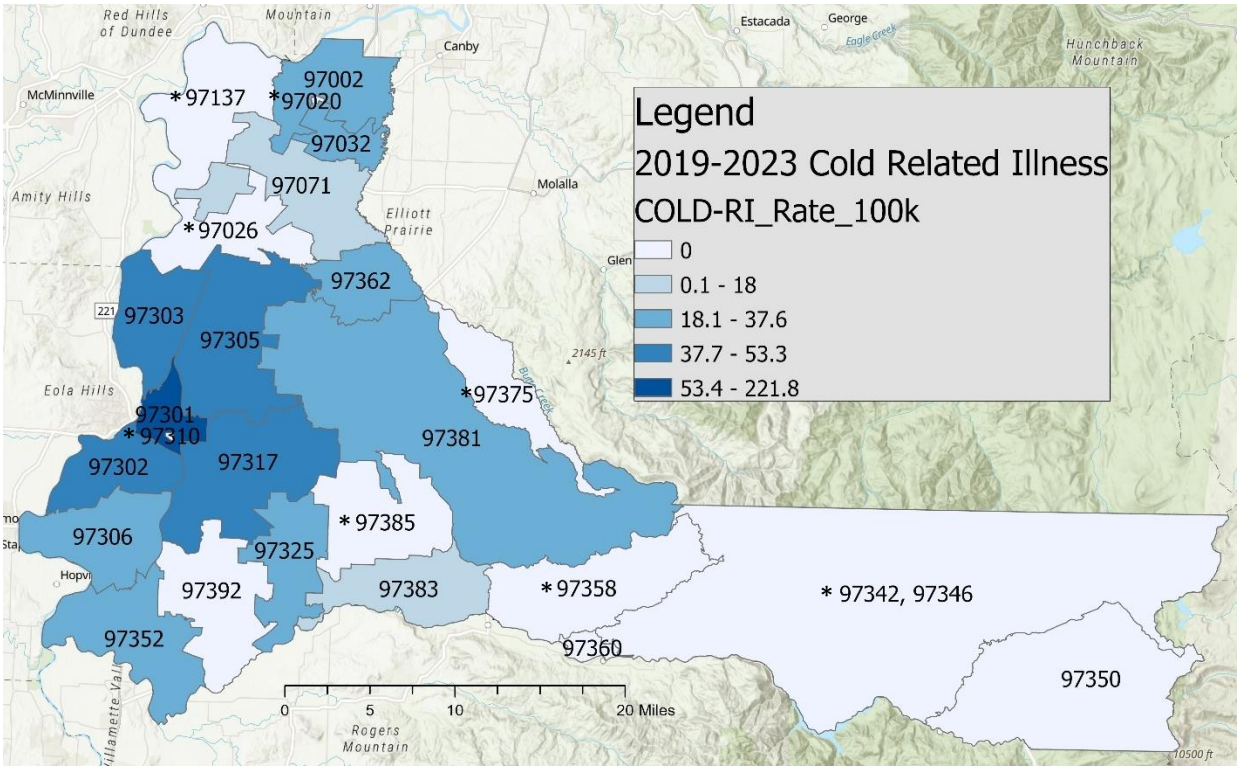


Rural = Any geographic area that is ten or more miles from the centroid of a population center of 40,000 or more

Between 2019-2023, Marion County residents living in geographic areas with an urban designation visited emergency department and urgent care facilities for cold related illness 3.5 times as often as residents of rural designation areas (Figure 18: 85.5 per 100,000 urban Vs. 24.2 per 100,000 rural). This trend continued with hospitalizations, where geographic areas with an urban designation were hospitalized 2.8 times as often as residents of rural designation areas (Figure 18: 36.8 per 100,000 urban Vs. 13 per 100,000 rural). This trend indicates urban areas may have more cold sensitivity (vulnerable people) than rural areas. For instance, shelters and homeless services are located primarily in Salem.

Zip Code

Figure 20: Rate of patient visits for cold related illness by zip code in Marion County per 100,000, 2019-2023, OR ESSENCE[1], US Census[5]



** - Suppressed due to low counts (less than 6); Zip codes with no cold related illness between 2019-2022 appear without "*"*

Table 2. Marion County Zip Code rates for patient visits to urgent care or emergency departments for cold related illness per 100,000 population, 2019-2023, OR ESSENCE[1], US Census[5]

Zip Code	Name	Count of Visits	Population‡	Rate per 100,000
97002	Aurora	11	6,558	33.5
97020	Donald	*	1,200	*
97026	Gervais	*	3,620	*
97032	Hubbard	7	4,991	28.1
97071	Woodburn	25	31,345	16.0
97137	St Paul	*	1,157	*
97301	Central Salem	628	56,636	221.8
97302	South Salem	98	41,371	47.4
97303	Keizer	105	41,101	51.1
97305	NE Salem	117	43,869	53.3
97306	South Salem, Sunnyside	63	33,481	37.6
97317	SE Salem	64	25,635	49.9
97325	Aumsville	12	6,884	34.9
97342	Detroit	*	78	*

97346	Gates	0	933	0
97350	Idanha	0	200	0
97352	Jefferson	9	6,740	26.7
97358	Lyons	*		*
97362	Mt. Angel	6	4,174	28.7
97375	Scotts Mills	*	1,339	*
97381	Silverton	24	16,217	29.6
97383	Stayton	9	9,977	18
97384	Mehama	0	80	0
97385	Sublimity	*	3,487	*
97392	Turner	*	5,753	*
Other	Other	20	NA	NA
All	**Total**	**1225**	**348,211**	**70.6**

*- Suppressed due to low counts (less than 6)
NA – not available
‡ - American Community Survey (US Census) population estimate 2017-2021

Between 2019-2023, the rates of visits for cold related illness are concentrated around the Salem area. Residents living in zip code 97301 had the highest rate of visits for cold related illness (Central Salem area at 221.8 per 100,000) followed by 97305 (Northeast Salem area at 53.3 per 100,000) and 97317 (Keizer area at 51.1 per 100,000). This trend indicates that Salem and Keizer, being an urban area, may have more cold sensitivity (vulnerable people) than the surrounding areas. For instance, shelters and homeless services are located primarily in the zip codes highlighted. (Figure 20 and Table 2)

Identified Homeless & Unsheltered Persons

Figure 21: Percentage of patient visits for total cold related illness by identified housing status in Marion County, 2019-2023, OR ESSENCE[1]

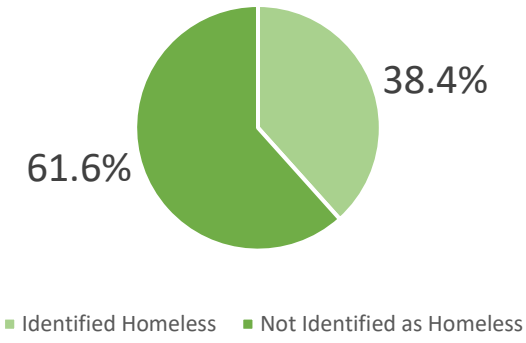


Figure 22: Rate and percentage of patient visits for cold related illness by identified housing status in Marion County, OR, ESSENCE[1], US Census[5]

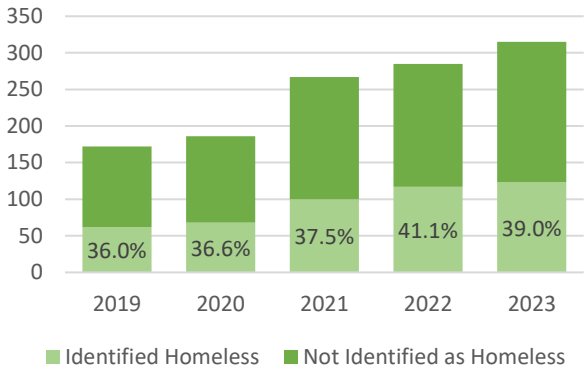


Figure 23: Percentage of hospitalizations for total cold related illness by identified housing status in Marion County, 2019-2023, OR ESSENCE[1]

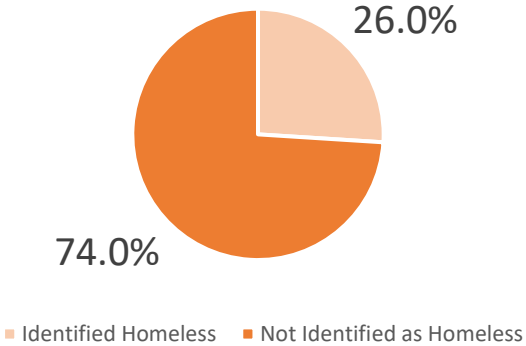
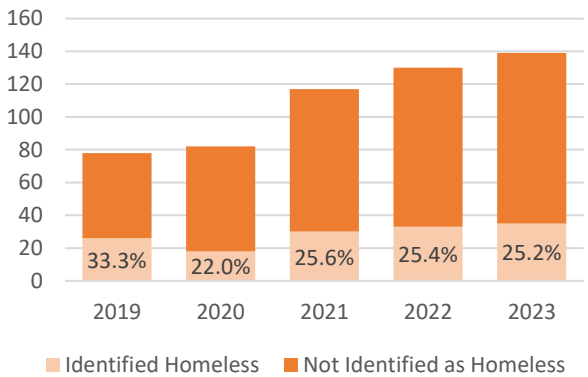


Figure 24: Rate and percentage of hospitalizations for cold related illness by identified housing status in Marion County, OR, ESSENCE[1], US Census[5]



Homelessness data acquired from Oregon ESSENCE is limited to if a provider identifies an individual or an individual self-identifies as homeless, houseless, unsheltered, or unhoused – and it was notated in the patient chart.

Between 2019-2023, 38.4% (470 people) of all urgent care and emergency department visits in Marion County were identified as homeless (Figure 21). When broken down by year, the rate of individuals identified as homeless who visit an urgent care or emergency department consistently increases (Figure 22). Additionally, the percentage of total visits by year increases between 2019-2022 and remains high for 2023 for individuals identified as homeless. The five-year total and yearly patient visits show that homeless individuals are disproportionately affected by cold-related illness. However, when taking severity into account, 26% of all hospitalizations in Marion County were identified homeless (Figure 23). Individuals not identified as homeless had a steady increase by year (Figure 24).

Figure 25: Rate of patient visits for cold related illness by sex and identified housing status in Marion County per 100,000, 2019-2023, OR ESSENCE[1], US Census[5]

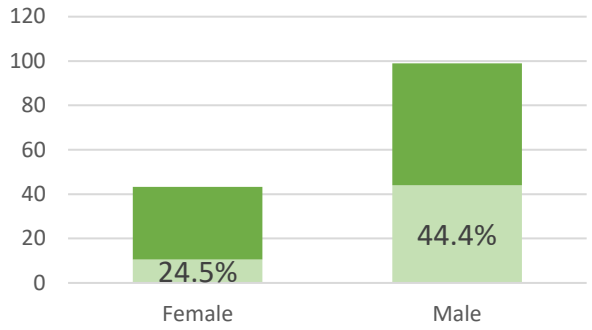


Figure 26: Rate of hospitalizations for cold related illness by sex and identified housing status in Marion County per 100,000, 2019-2022, OR ESSENCE[1], US Census[5]

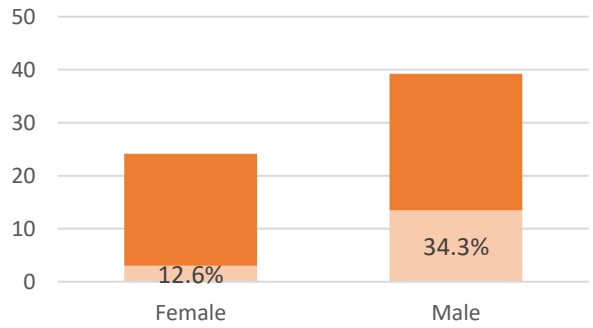
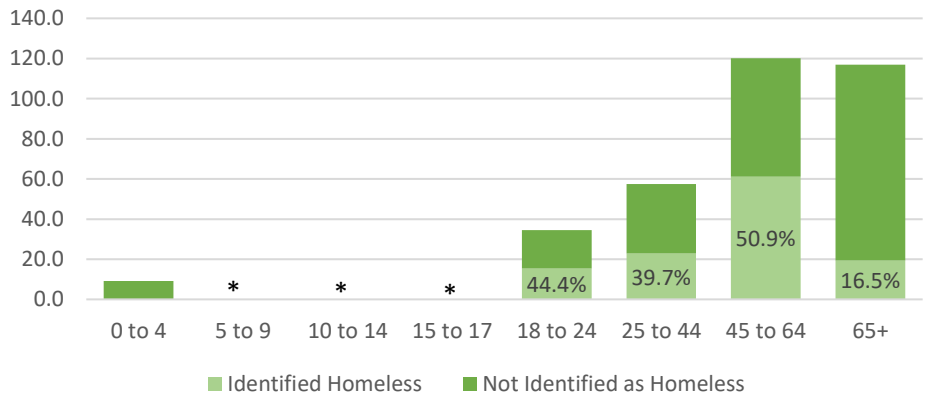


Figure 27: Rate of patient visits for cold related illness by age and identified housing status in Marion County per 100,000, 2019-2022, OR ESSENCE[1], US Census[5]



*- Suppressed due to low counts (less than 6)

Homelessness data acquired from Oregon ESSENCE is limited to if a provider identifies an individual or an individual self-identifies as homeless, houseless, unsheltered, or unhoused – and it was notated in the patient chart.

Between 2019-2023, homelessness had a disproportionate affect on cold related illness urgent care and emergency department visits for male, individuals aged 18-64, and urban areas. Of all patient visits among individuals identified as homeless, 81% (379 people) were male. Males identified as homeless had higher rates and proportions of patient visits and hospitalizations than females (Figure 25 and Figure 26). A large proportion of adult visits for cold related illness aged 18-64 were identified as homeless, with a majority of the late middle age group (50.9% of persons 45-64) seeking care at an emergency department or urgent care (Figure 27). Among individuals identified as homeless, 96% of all emergency department and urgent care visits occurred in urban areas (340 people), primarily in the 97301 zip code. In fact, 55.3% of all urgent care and department visits that occurred in the 97301 zip code were from individuals identified as homeless. This is likely due to sheltering sites and homelessness services being

provided centrally around Salem. While homeless counts occur each year, the total number of persons homeless is not accurate enough to provide rates to compare to other demographics. Overall, the number of homeless individuals experiencing cold related illness was likely undercounted, as a homeless designation for patients may not be standardized for individual emergency departments and urgent care clinics.

Summary

Marion County has seen a varying number of low temperature days (40°F or lower), very low temperature days (32°F or lower), and extreme low temperature days (25°F or lower) in recent years. Seasonally, cold related illness increases during the winter and subsides during the summer. However, yearly trends in low temperature days do not correlate to cold related illness as Marion County has seen an increase in cold related illness emergency visits (emergency department and urgent care visits), severe cold related illness (in the hospital for over 24 hours), and cold related death.

Cold related illness does not affect all people and communities the same. The data shows that some people and communities experience cold related illness more and are therefore more vulnerable to cold weather than others. Males had higher rates of emergency visits and hospitalizations than females. Emergency visits and hospitalizations increased with age, especially severe cold related illness for 65 years old or older. Residents who identified as American Indian/Alaska Native had the highest rates of emergency visits, while residents who identify as African American/Black had the highest rates of hospitalizations. Residents who did not identify as Hispanic or Latino had significantly higher rates of emergency visits and hospitalizations than residents of Hispanic or Latino identifying residents.

Geographically, urban geographies had significantly higher rates of cold related illness and hospitalizations than rural geographies. This trend indicates urban areas may have more cold sensitivity (vulnerable people) than rural areas, such as unsheltered or homeless populations, populations with lower incomes who cannot properly heat their home, and concentration of older adults. Zip codes with the highest cold related illness emergency visit rate include Central Salem (97301), Northeast Salem (97305), and Keizer (97303).

Residents identified as homeless, houseless, unsheltered, or unhoused were disproportionately affected by cold related illness emergency visits. Individuals identified as homeless made up 38.4% of total emergency visits and 26% of all hospitalizations. Demographically, homeless men, adults 45-64, and urban areas had the highest rates of cold related illness emergency visits. Overall, the numbers of homelessness were likely undercounted, as a homeless designation for patients may not be standardized for individual emergency department and urgent care clinics.

This report and its associated indicators provide timely information that can detect trends and groups disproportionately affected by cold related 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. Other limitations include errors in medical coding, or incomplete notes, which may influence results.

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

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