

Michigan Heat-Related Illness, Emergency Department Visits: July 18, 2013

Executive Summary

There were a total of 218 visits due to dehydration, sun-associated complaints, and heat-associated complaints that occurred during the week of July 7 to July 13, 2013, for an average of 31.1 visits per day. This represents a 17.84% increase from the previous week. All regions in Michigan experienced an increase in visits due to dehydration, sun-associated complaints, and heat-associated complaints with the exception of Regions 1 and 8 (see Figure 6). As Michigan enters mid-summer, increasing temperatures have not yet produced a significant increase in overall heat-related illnesses (see Figures 1, 2). Heat-associated and sun-associated complaints remain elevated but are slightly higher this week compared to the previous week (see Figures 4, 5, 7). The weekly age-distribution of heat-related illnesses indicated all age groups were within normal variation during the week of July 7 to July 13, 2013 (see figure 3).

Description of the Data

Heat-related emergency department (ED) visits were identified using the Michigan Syndromic Surveillance System which gathers data from participating hospital emergency departments across the state. "Heat-related illness" complaints are defined as daily ED visits with the primary complaints of: "hyperthermia" "heat", "sun", "prostration", or "dehydration" (including word derivatives and misspellings). Terms that have been identified in the search, but do not indicate heat-related illness, such as "wheat", are excluded.

Heat-related illness complaints were categorized into one of three syndromes based on the chief complaint.

- Sun-associated: sunburn, sun poisoning, sunscreen reactions
- Heat-associated: heat exhaustion, heat stroke, heat reaction
- Dehydration

Note: Due to the nature of categorizing ED complaint data, these visits do not represent all potential cases of heat-related illness. These data may also represent non-heat-related illnesses, i.e. dehydration due to other causes. However, the data can be used to describe trends in illness presentations over time.

Figure 1: Daily Counts of Statewide Heat-Related ED Visits (April 1 – July 17, 2013)

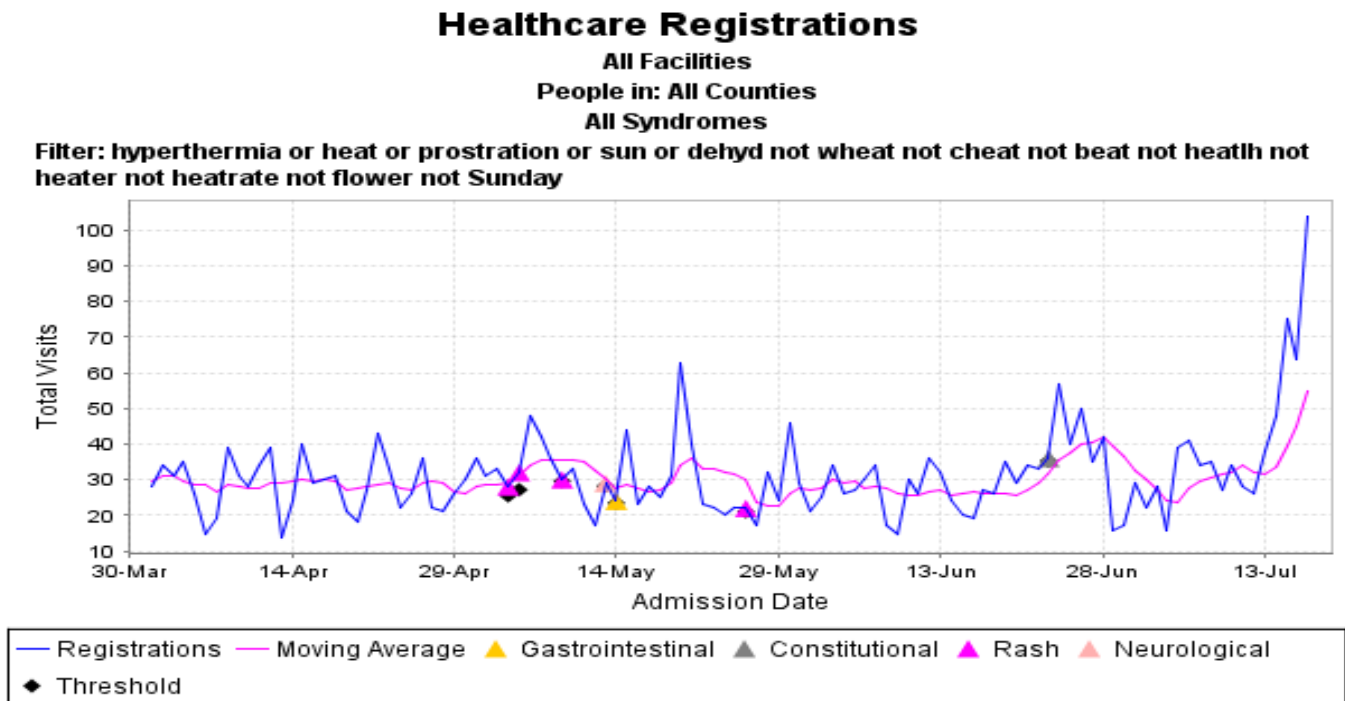


Figure 2: Statewide Heat-Related ED Visits and National Oceanic and Atmospheric Administration (NOAA) maximum daily temperature averages for 6 select cities (April 1 – July 17, 2013)

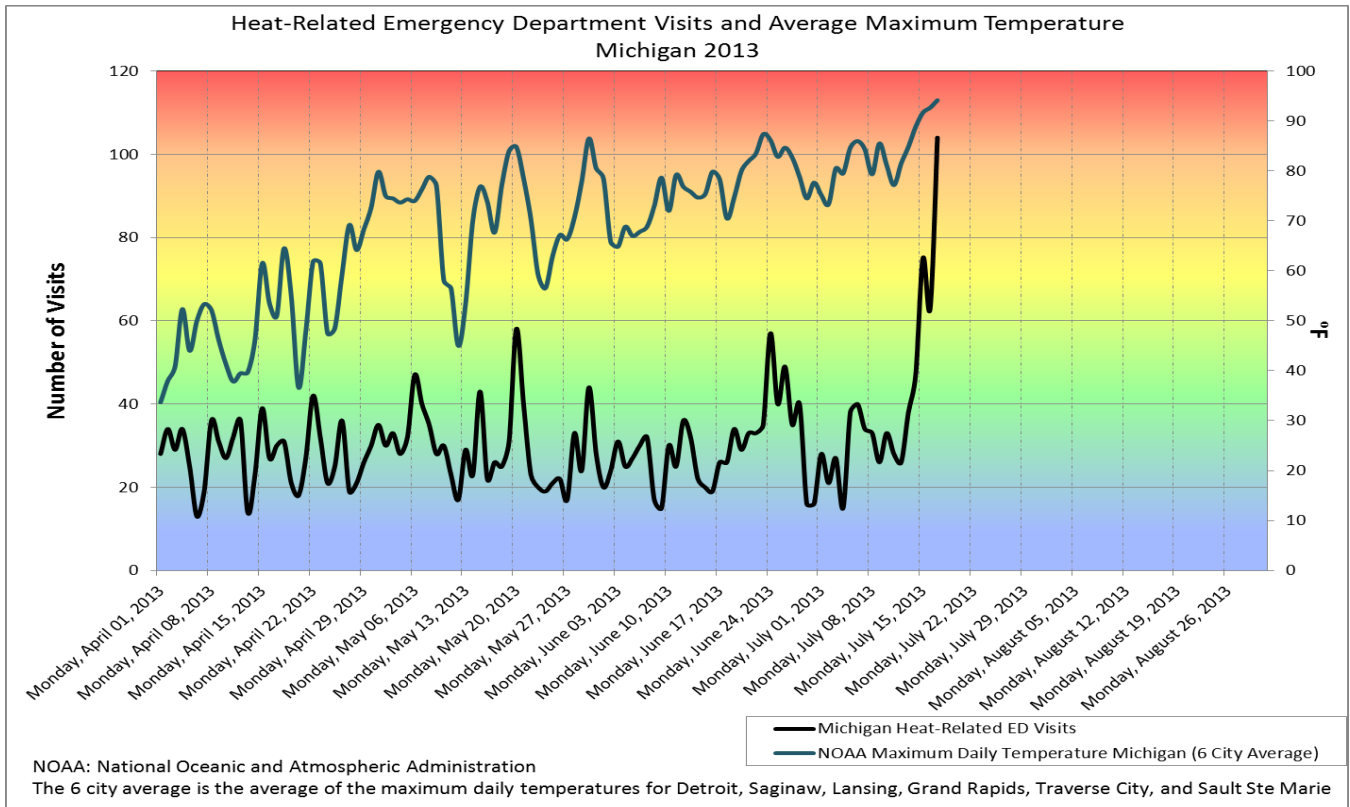


Figure 3: Age Distribution of Heat-Related ED Visits by Week (May 5 – July 13, 2013)

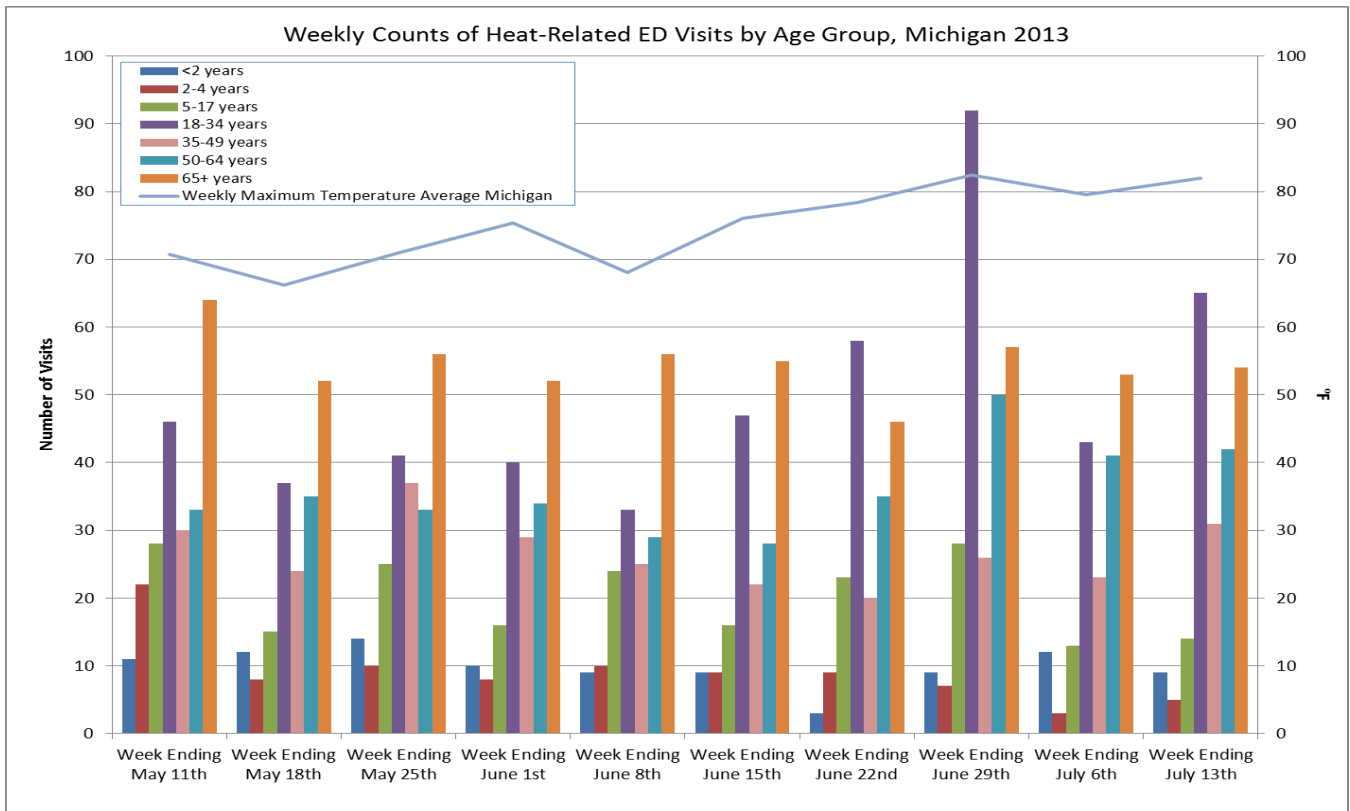


Figure 4: Statewide Heat-Related ED Visits by syndrome (April 1 – July 17, 2013)

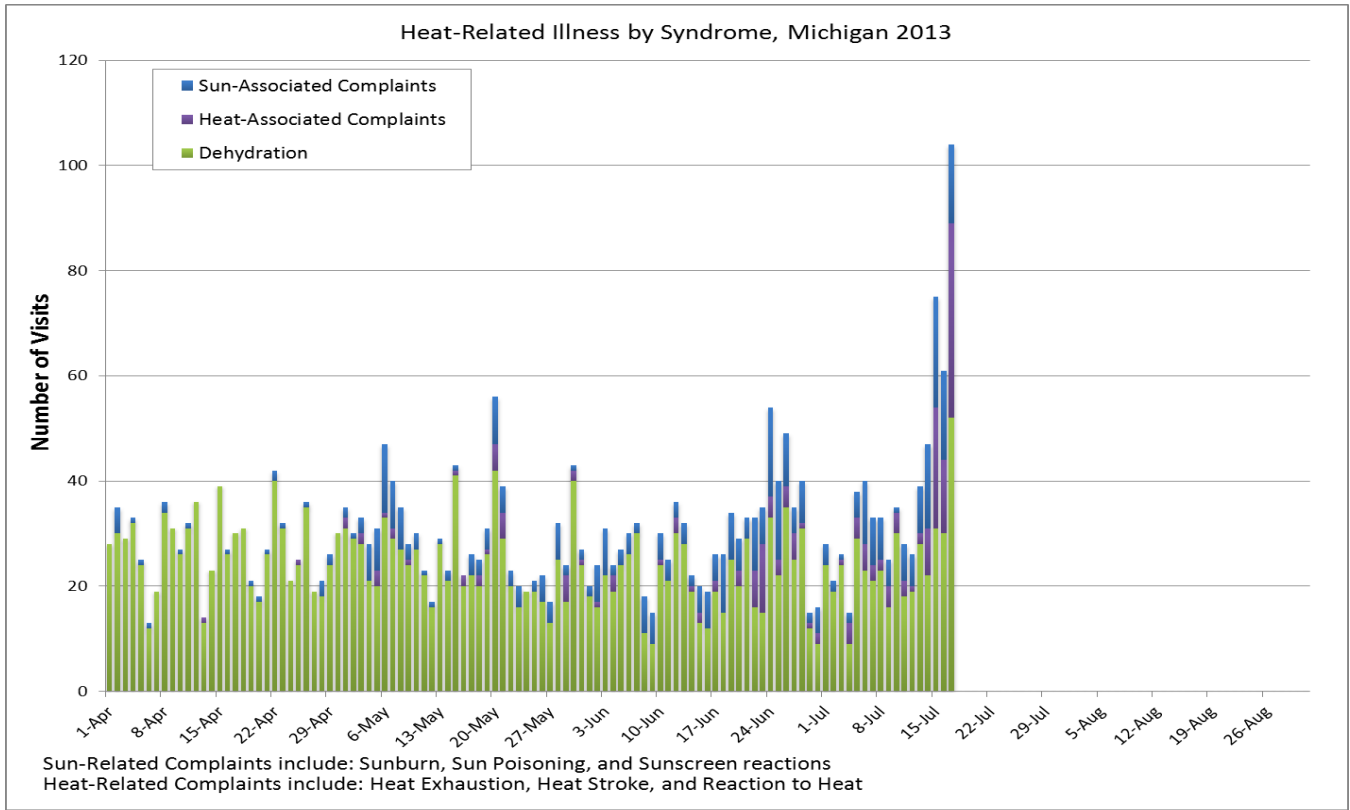


Figure 5: Statewide Heat-Related ED Visits by syndrome excluding dehydration (April 1 – July 17, 2013)

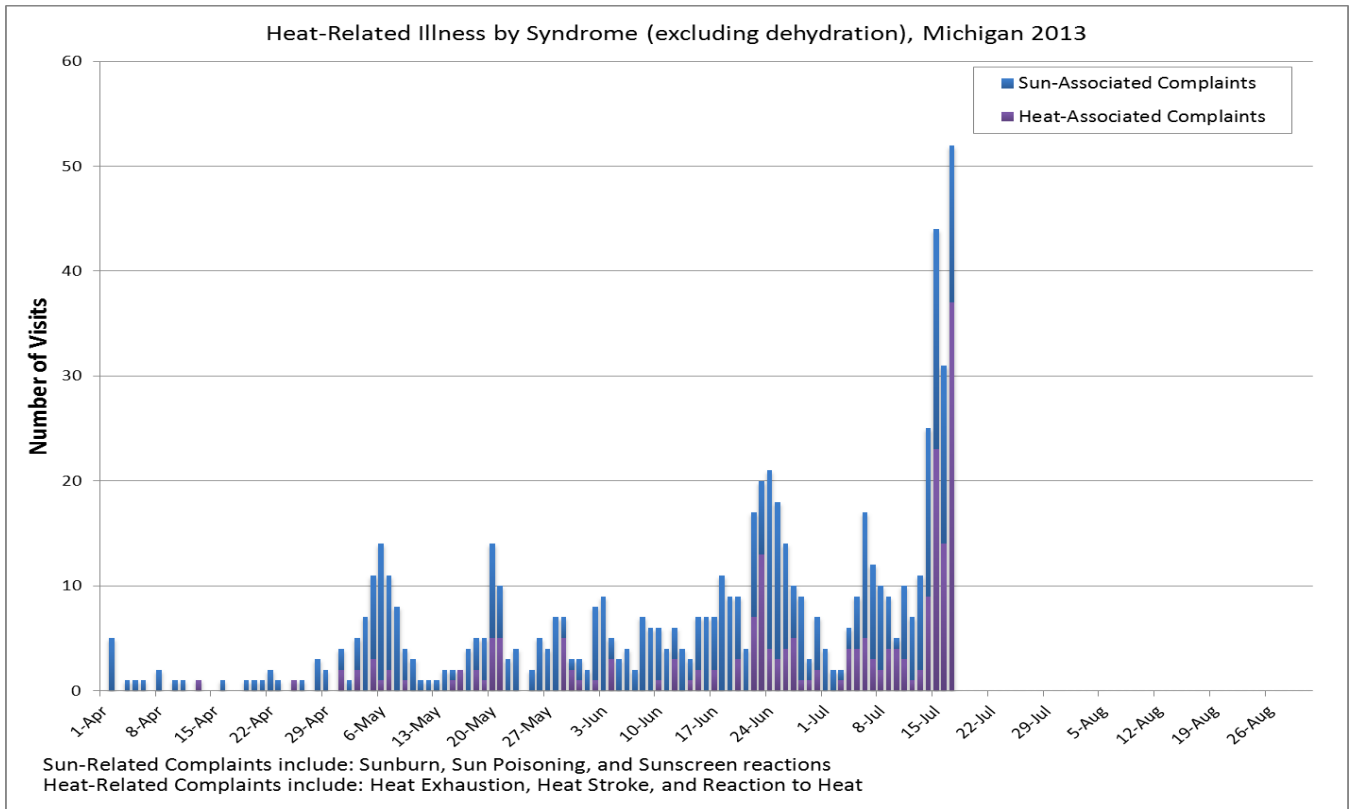
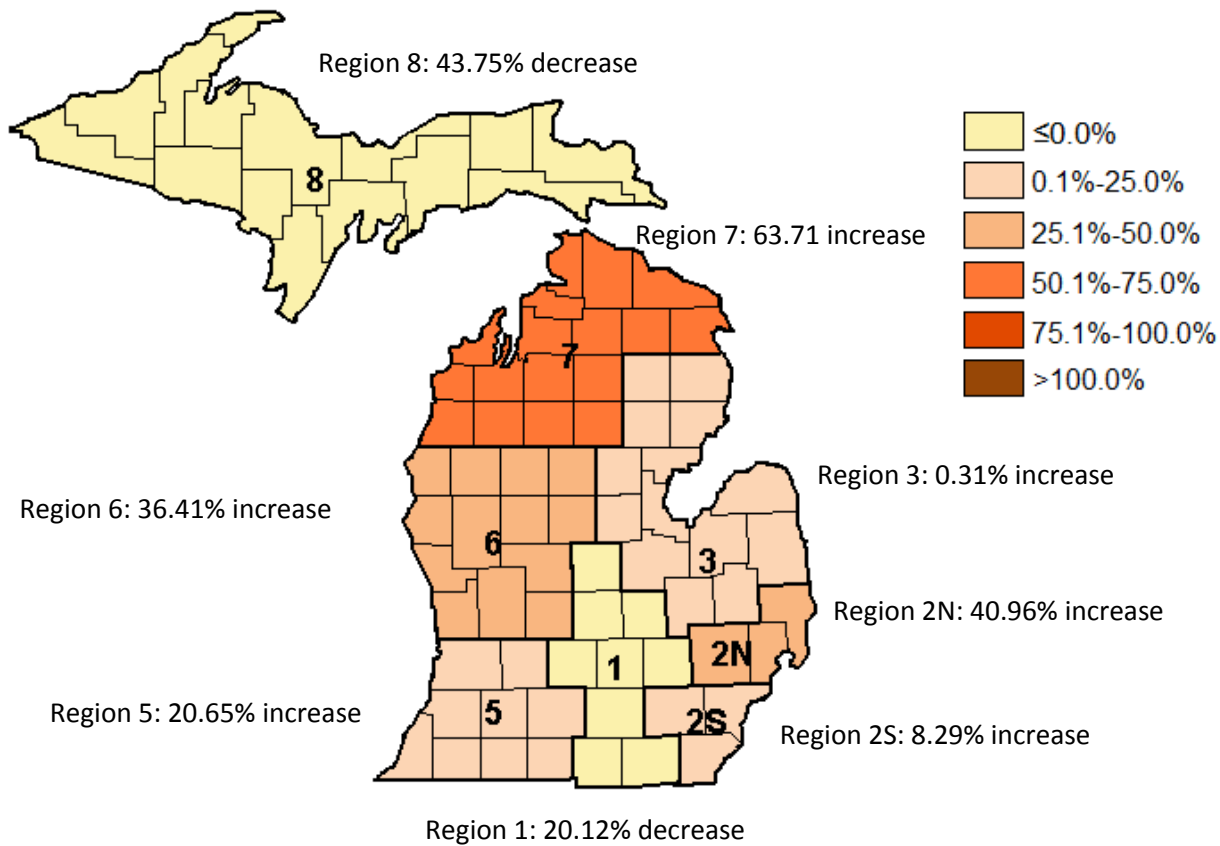


Figure 6: Percent Change of Heat-Related Emergency Department Visits by Region: Week Ending July 13, 2013 Compared to Week Ending July 6, 2013



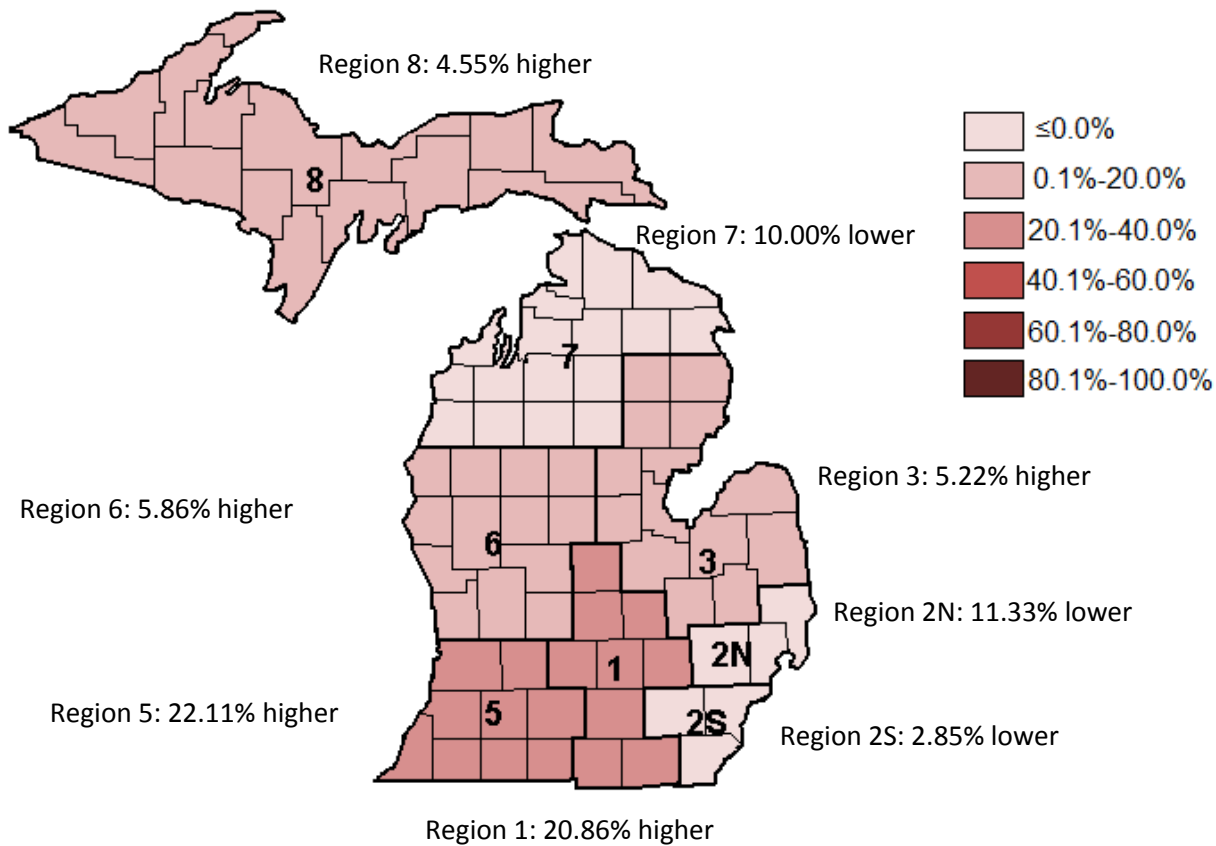
This regional map indicates the percent change in the normalized values of heat-related emergency department complaints from the previous week ending July 6, 2013, to the current week ending July 13, 2013.

Table 1: Number and percent of heat-related visits by region

Region	Week Ending July 6		Week Ending July 13		% Change
	# of Visits	% of All ED Visit	# of Visits	% of All ED Visit	
1	28	0.276%	25	0.221%	-20.12%
2N	25	0.172%	36	0.243%	40.96%
2S	43	0.195%	49	0.211%	8.29%
3	23	0.233%	25	0.234%	0.31%
5	15	0.156%	19	0.189%	20.65%
6	30	0.221%	43	0.301%	36.41%
7	10	0.233%	15	0.381%	63.41%
8	11	0.564%	6	0.317%	-43.75%

Note: Very low rates are sensitive to small changes in the numerator (heat-related illness visits) and dramatic rate movements should be expected. Fluctuations in the total number of ED visits (denominator) unrelated to heat illnesses can also strongly impact rate comparisons and introduce bias.

Figure 7: Risk Difference of Heat-Related Emergency Department Visits Due to Heat-Associated and Sun-Associated complaints by Region: Week Ending July 13, 2013 Compared to Week Ending July 6, 2013



The regional map indicates the weekly difference in the proportion of sun/heat-associated ED visits out of all heat-related visits (sun/heat-associated and dehydration) from the previous week ending July 6, 2013 to the current week ending July 13, 2013.

Table 2: Number and percent of heat-associated and sun-associated visits by region

Region	Week Ending July 6		Week Ending July 13		Risk Difference
	# of Heat-Associated and Sun-Associated Visits	Proportion of All Heat-Related Visits	# of Heat-Associated and Sun-Associated Visits	Proportion of All Heat-Related Visits	
1	2	7.14%	7	28.00%	20.86%
2N	7	28.00%	6	16.67%	-11.33%
2S	10	23.26%	10	20.41%	-2.85%
3	8	34.78%	10	40.00%	5.22%
5	3	20.00%	8	42.11%	22.11%
6	8	26.67%	14	32.56%	5.89%
7	5	50.00%	6	40.00%	-10.00%
8	5	45.45%	3	50.00%	4.55%

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