

## Michigan Heat-Related Illness, Emergency Department Visits: July 2, 2013

### **Executive Summary**

There were a total of 272 visits due to dehydration, sun-associated complaints, and heat-associated complaints that occurred during the week of June 23 to June 29, 2013, for an average of 38.9 visits per day. This represents a 33.02% 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 Region 5 (see Figure 6). To date in 2013, Michigan has not experienced a significant increase in overall heat-related illnesses as temperatures have gradually increased (see Figures 1, 2). Increases continue to be observed among heat-associated and sun-associated complaints (see Figures 4, 5, 7). The weekly age-distribution of heat-related illnesses indicated that the 18-34 year old age group experienced a spike in illnesses during the week of June 23 to June 29 while heat-related illnesses among all other age groups have remained within normal variation so far this season.

### **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.

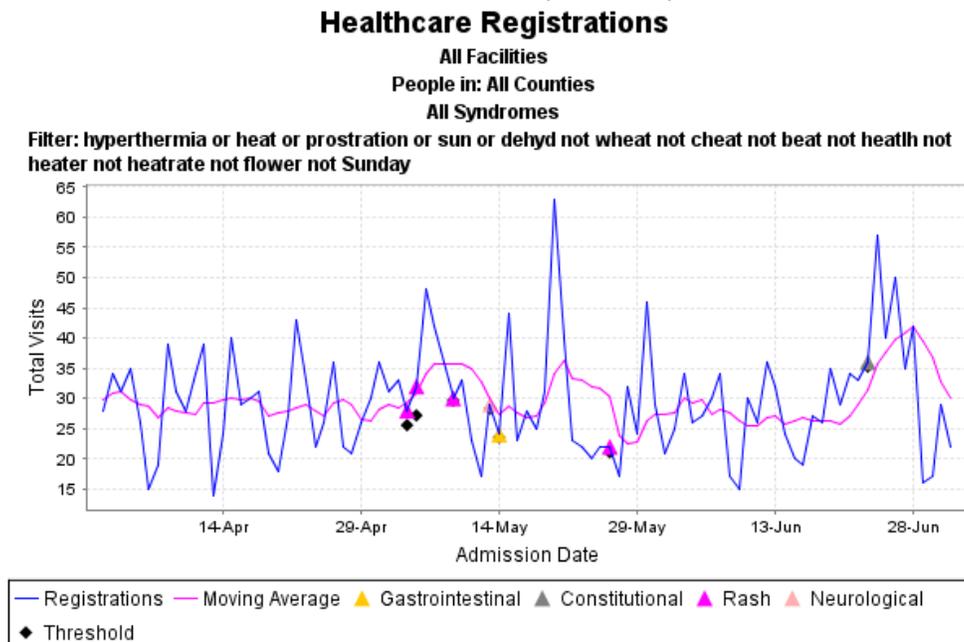
Heat-related illness complaints were categorized into one of three syndromes based on the chief complaint.

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

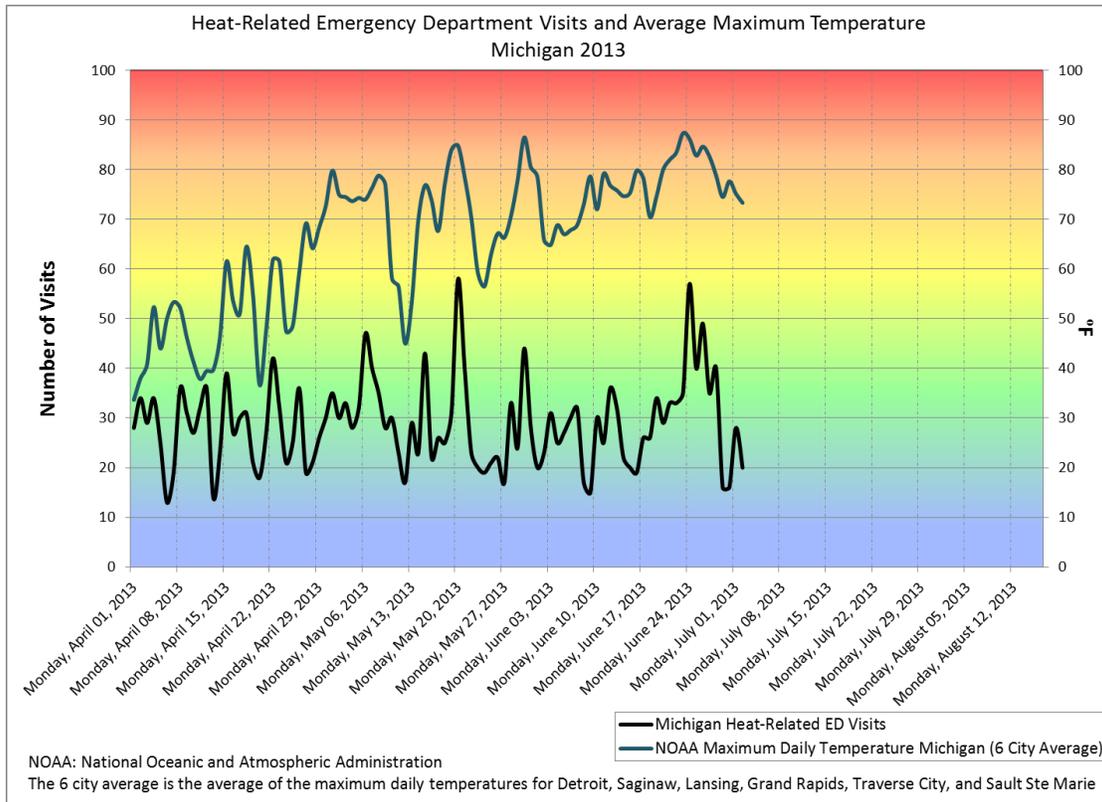
**Note:** Due to the nature of categorizing ED complaint data, these visits do not represent all potential cases of heat-related illness. These data may also represent non-heat-related illnesses, i.e. dehydration due to other causes. However, the data can be used to describe trends in illness presentations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

### **Data as of July 2, 2013**

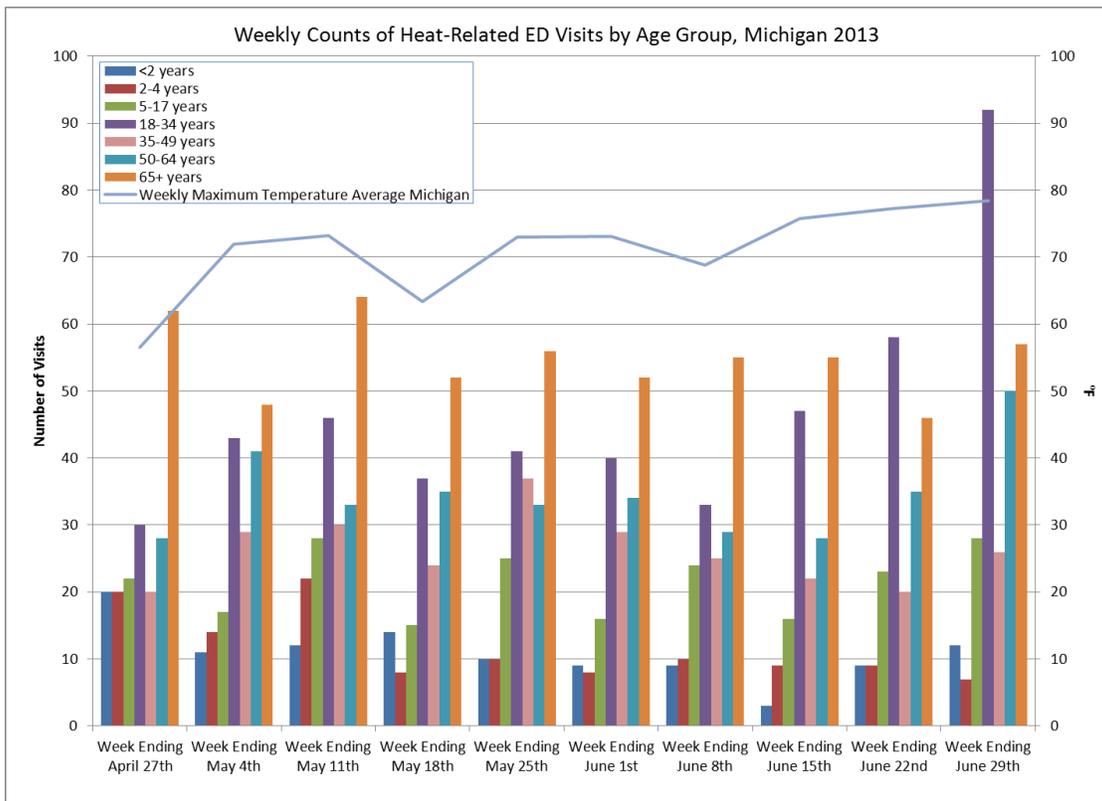
**Figure 1:** Daily Counts of Statewide Heat-Related ED Visits (April 1 – July 2, 2013)



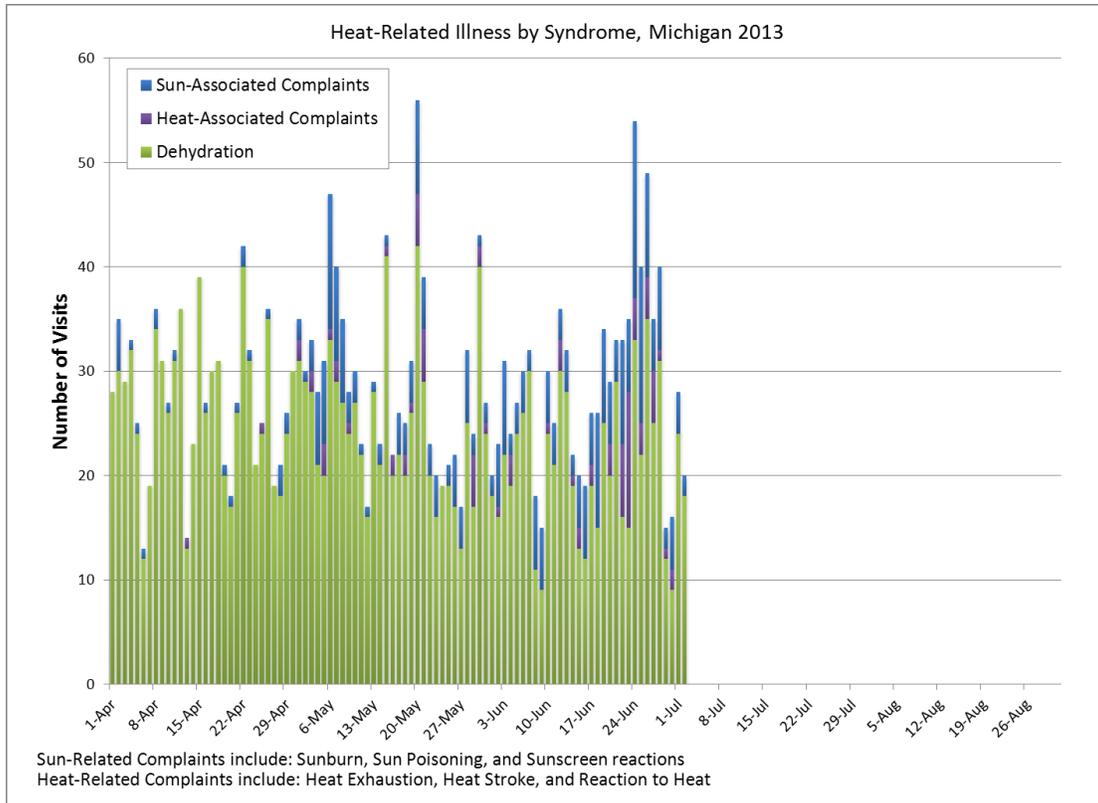
**Figure 2: Statewide Heat-Related ED Visits and National Oceanic and Atmospheric Administration (NOAA) maximum daily temperature averages for 6 select cities (April 1 – July 2, 2013)**



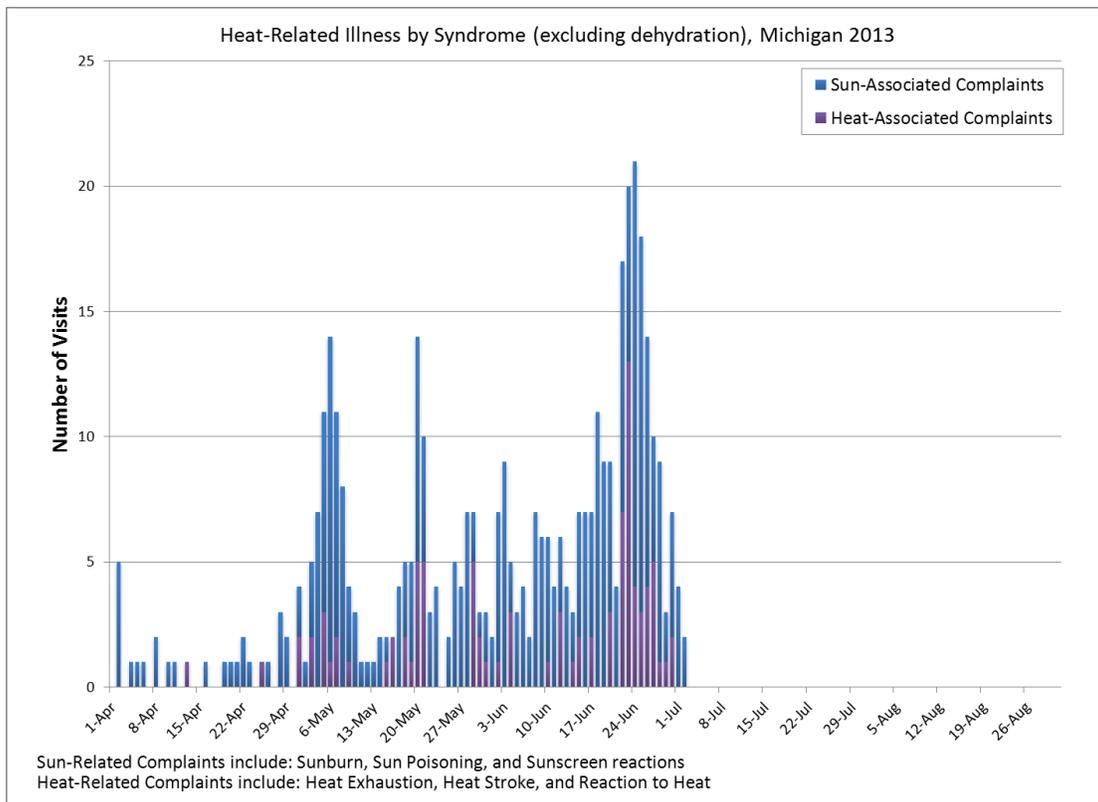
**Figure 3: Age Distribution of Heat-Related ED Visits by Week (April 9 – June 29, 2013)**



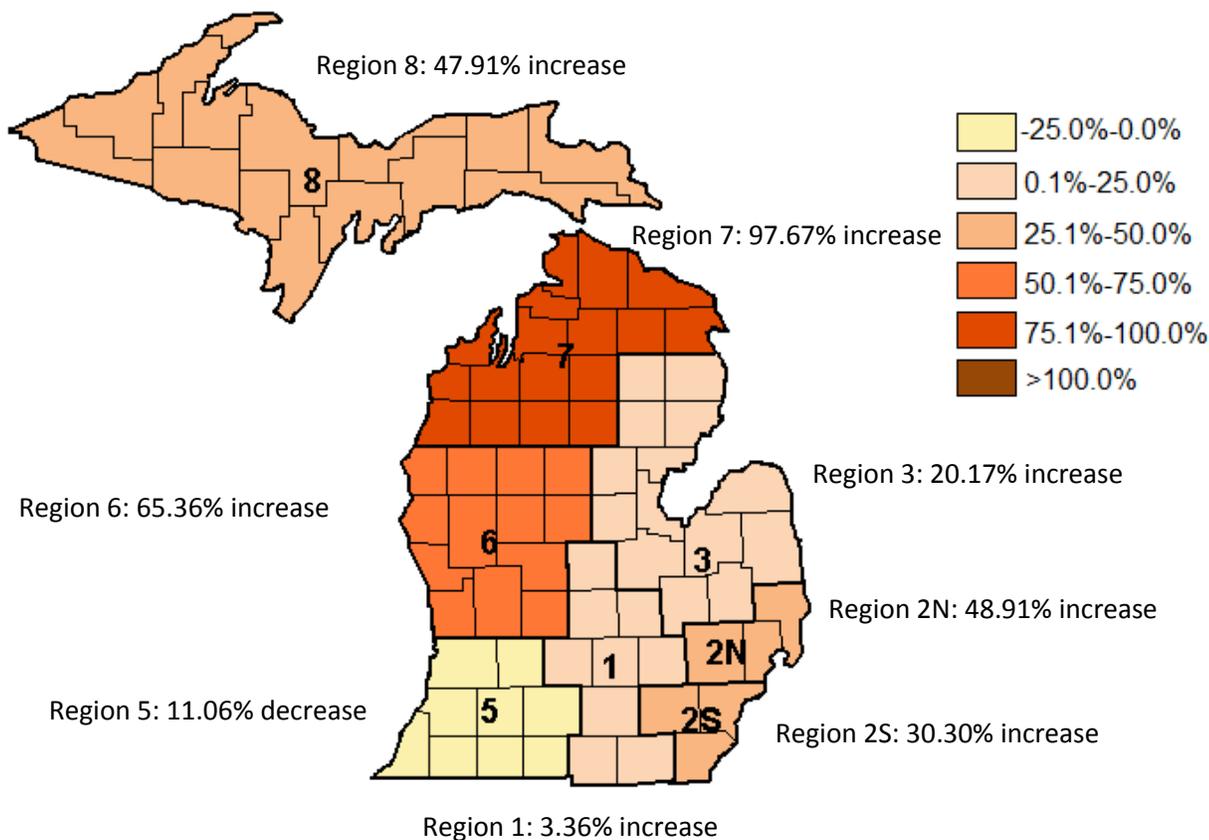
**Figure 4: Statewide Heat-Related ED Visits by syndrome (April 1 – July 2, 2013)**



**Figure 5: Statewide Heat-Related ED Visits by syndrome excluding dehydration (April 1 – July 2, 2013)**



**Figure 6: Percent Change of Heat-Related Emergency Department Visits by Region: Week Ending June 29, 2013 Compared to Week Ending June 22, 2013**



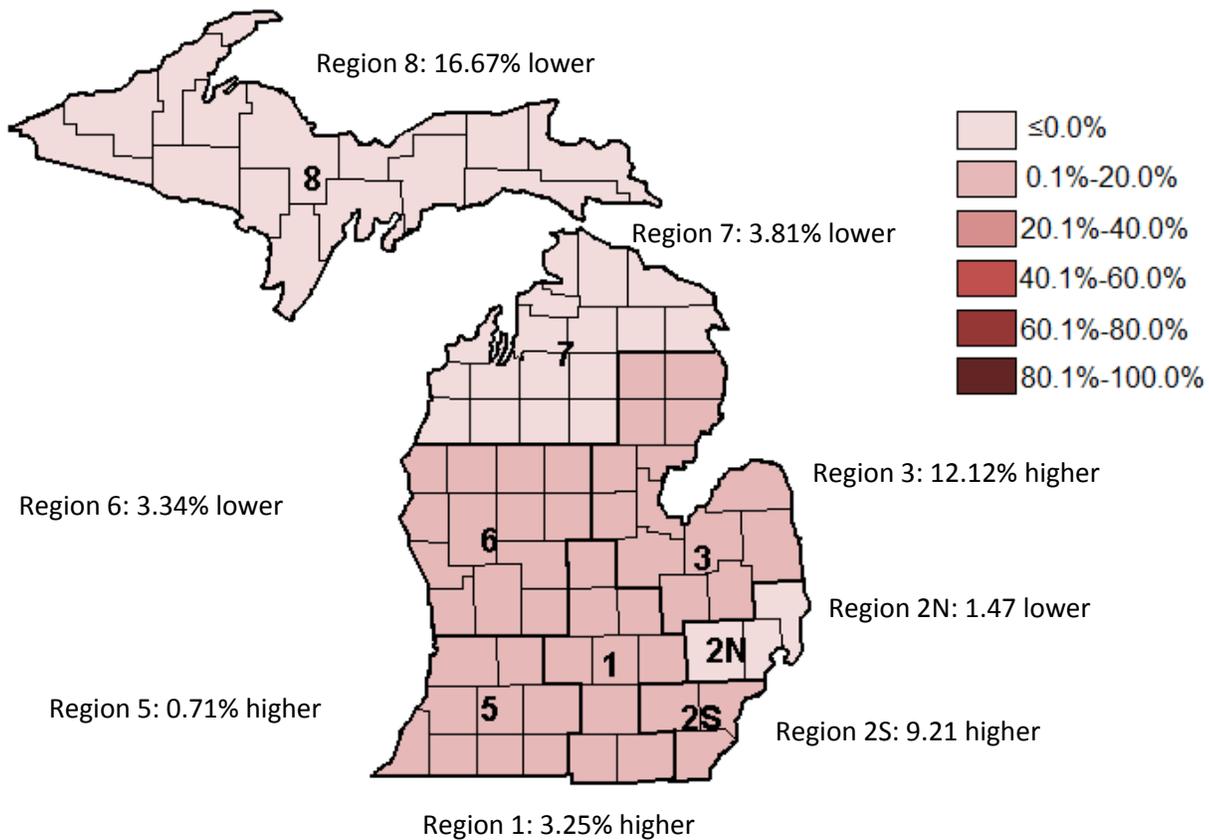
This regional map indicates the percent change in the normalized values of heat-related emergency department complaints from the previous week ending June 22, 2013, to the current week ending June 29, 2013.

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

Region	Week Ending June 22		Week Ending June 29		% Change
	# of Visits	% of All ED Visits	# of Visits	% of All ED Visit	
1	21	0.184%	22	0.190%	3.36%
2N	34	0.236%	52	0.351%	48.91%
2S	54	0.233%	71	0.303%	30.30%
3	18	0.176%	22	0.212%	20.17%
5	28	0.281%	25	0.250%	-11.06%
6	34	0.251%	59	0.416%	65.36%
7	7	0.186%	15	0.368%	97.67%
8	4	0.217%	6	0.321%	47.91%

**Note:** As the percentages are very low, a small number of visits can drastically change the appearance of heat-related illness activity by region. Further, changes in total ED visits due to increases or decreases in presentations unrelated to heat illnesses may impact the comparison and bias the rates due to the small number of heat-related visits.

**Figure 7:** Risk Difference of Heat-Related Emergency Department Visits Due to Heat-Associated and Sun-Associated complaints by Region: Week Ending June 29, 2013 Compared to Week Ending June 22, 2013



This regional map indicates the weekly difference in the proportion of sun-associated and heat-associated visits out of all heat-related visits from the previous week ending June 22, 2013 to the current week ending June 29, 2013.

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

Region	Week Ending June 22		Week Ending June 29		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	6	28.57%	7	31.82%	3.25%
2N	9	26.47%	13	25.00%	-1.47%
2S	11	20.37%	21	29.58%	9.21%
3	6	33.33%	10	45.45%	12.12%
5	11	39.29%	10	40.00%	0.71%
6	15	44.12%	28	47.46%	3.34%
7	4	57.14%	8	53.33%	-3.81%
8	2	50.00%	2	33.33%	-16.67%