

The West Nile Weekly

How's the weather?

The major weather story in 2016 is the heat; average temperatures have exceeded historical temperatures by 1 to 4°F. This is mostly due to a warm stretch in mid-February to late March, which pushed the state above freezing far sooner than usual, and will accelerate WNV transmission. The past few months have been closer to historical averages, and were low as often as they were high (Figure 1).

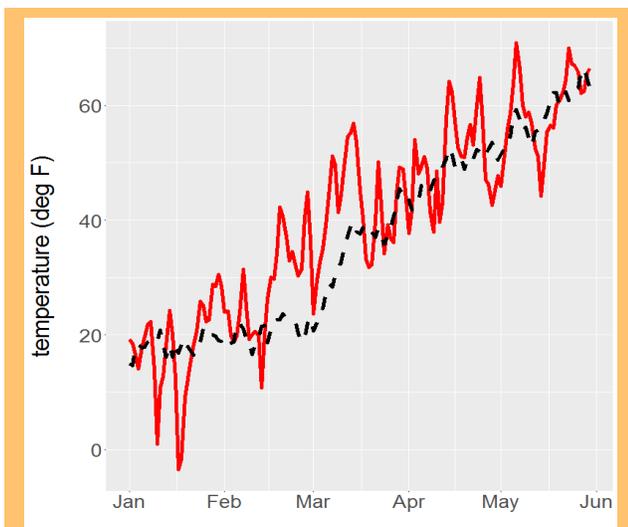


Figure 1: Daily statewide average temperature in 2016 (red, solid) compared to the average over the past decade (black, dashed).

It is unclear whether we will see warmer-than-usual weather again in the summer. The Great Plains region is predicted by some to have normal temperatures [over the long term](#).

[Precipitation in April](#) was well above normal in our region and [total precipitation since February](#) was above normal. This, along with hotter weather, will cause an earlier start to the WNV season.

What's going on elsewhere?

The first human WNV laboratory-confirmed case of 2016 was reported in [Mississippi](#) in mid-May. Two probable febrile cases have been reported by [Arizona](#). It is not unusual to see the first handful of cases beginning in early April, but national reports are sporadic until mid-June onward.

What to expect?

In Figure 2 we show the *estimated statewide risk*, which is the proportion of counties reporting at least one new case in a week beginning on that date. Estimated statewide risk in the week beginning June 13th is near 0.01, so that 1% of our 66 counties are expected to report any cases in that week. This is less than one county, and no cases are expected before June 19th.

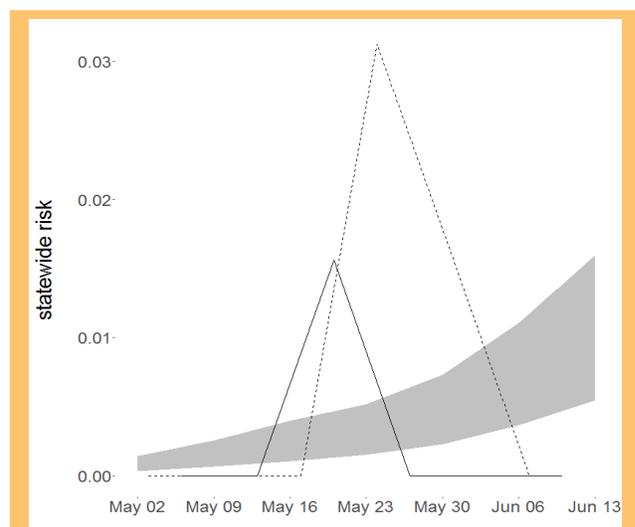


Figure 2: Estimated statewide risk (band) compared to actual risk in 2012 (solid) and 2015 (dashed).

There is no single way to view the risk of this disease on a map. Counties with larger populations are more likely to report human cases, because having more humans means more opportunities for disease.

Yet, the risk to individual persons is generally higher outside of urbanized population centers, in rural or agricultural areas where the environment is more suitable for the cycle of disease transmission. We present two maps to address the per-county and per-person perspectives.

First, the *estimated per-county risk* is displayed in Figure 3; this is the estimated probability of observing at least one new human case in the week of June 13th - 19th. All the following estimates concern new human cases in this early week of the season.

Brown County, which includes Aberdeen, has an estimated 7% chance of reporting at least one case. All other counties are less likely to report cases; no cases are expected even in the most populated counties.

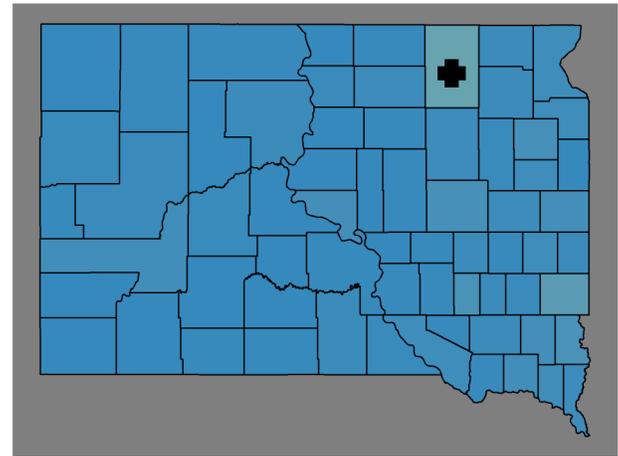
Second, the *estimated per-person risk* is displayed in Figure 4; this is the expected number of new cases per individuals living in a county. All per-person risk is low and no cases are expected, but we have used the entire spectrum from blue to red to emphasize that per-person risk is higher in some counties than others.

Red here does not mean high per-county or per-person risk, but higher per-person risk when compared to other counties in this week.

Sanborn County, for example has the highest estimated per-person risk. This county's per-person risk is approximately 3 times than Brown County's, and 22 times higher when compared to Minnehaha County.

This spatial pattern is similar to the pattern discovered in [previous work](#) and is reinforced by slightly warmer weather in the eastern half of the state.

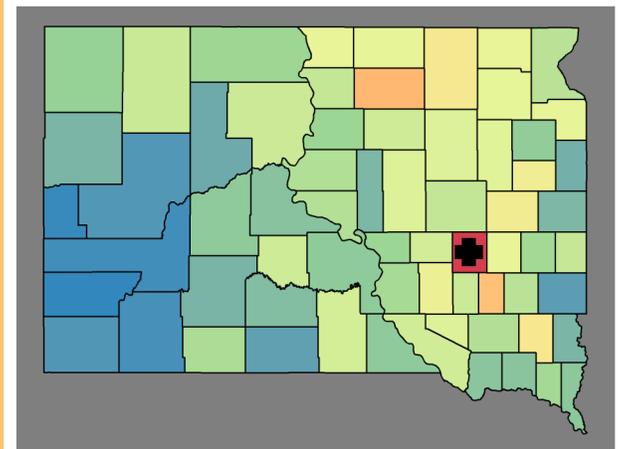
No county is expected to report cases in this week; the state is still almost uniformly blue in Figure 3. However, the risk to individuals in Figure 4 will become important when transmission does begin.



will definitely not report any cases

will definitely report some cases

Figure 3: Estimated per-county risk for the week of June 13th—19th. The + indicates Brown County, with the highest risk.



lowest per-person risk this week

highest per-person risk this week

Figure 4: Estimated per-person risk for the week of June 13th—19th. The + indicates Sanborn County, with the highest risk.



SUMMARY: We are still too early in the season to see substantial numbers of cases. Temperatures have returned to normal in the past few months, but the state may be warmer than usual over the next weeks. Precipitation is above normal. When the season does begin, we expect that there will be more cases than usual.