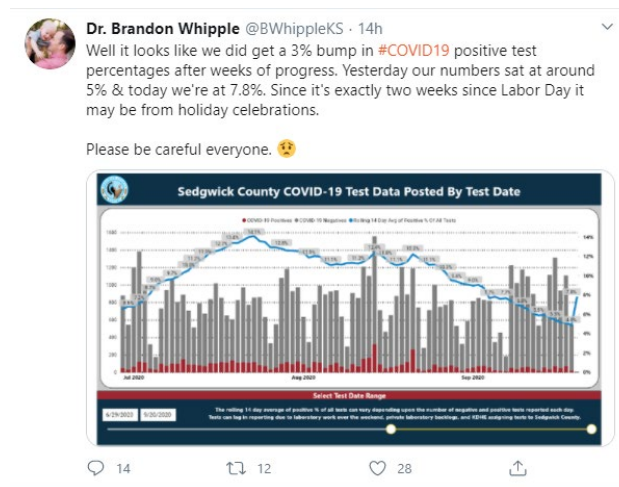


Wise Decision Making in a Pandemic Requires Data Maturity

Monday's alarmist tweet by Mayor Brandon Whipple of Wichita, KS stated that positive test rates in Sedgwick County had a 3% bump, implying it was due to Labor Day and admonishing citizens to be careful.



But the context behind the number is important – and one that Mayor Whipple, City Council, County Commissioners, and School Board members should understand before tweeting, retweeting, or making decisions that affect residents, businesses, and school children.

Each week, Sedgwick County updates their data with the number of positive and negative tests per day. The percent positive rate is calculated and then an average of the last 14 days is taken to come up with this figure. For the 14 days in question in his tweet, the data shown was:

	Positive Tests	Negative Tests	Percent Positive
Sep 07	11	175	5.9%
Sep 08	52	1178	4.2%
Sep 09	35	989	3.4%
Sep 10	56	1123	4.8%
Sep 11	64	1035	5.8%
Sep 12	41	858	4.6%
Sep 13	21	516	3.9%
Sep 14	57	678	7.8%
Sep 15	35	1083	3.1%
Sep 16	71	1243	5.4%
Sep 17	49	890	5.2%
Sep 18	71	1040	6.4%
Sep 19	21	529	3.8%
Sep 20	4	5	44.4%

If you average the percent positives for these 14 days, you will get the 7.8% shown in Whipple's tweet.

Notice the percent positive on that last day is 44.4% - but only 9 tests are reported on September 20. That small outlier day with only 9 tests causes the bump of 3 percent.



Sedgwick County is using standard definitions for rolling averages to calculate this percent positive. The problem with using rolling average in this dashboard is that each day in the 14-day period “weighs” the same – even when all tests results are not back. An alternative method to describe percent positives would be to take the sum of all positives over 14 days and divide by all the tests taken in that same 14 days. This approach would weigh every test equally instead of weighing each day equally. Using this method, the result would have been 4.9% positive.

Another issue that all our local leaders need to understand is something we have noted since the beginning of the pandemic - **the report of negative test results lags positive test results.** Sedgwick County Health Department officials have addressed this in multiple Commission meetings. With limited resources, their goal is to notify positive citizens first to limit spread and perform contact tracing. But this means that it takes longer to post the negative test results for the public.

Here is an example we noted to county commissioners in July.

We pulled the positive and negative data on July 20th and July 28th for test dates from June 25 to July 7.

You can see for yourself that the negative test results were entered much later and at higher rates than the positive test results.

In this example, for the period up to 33 days prior, 206 positive results were added and 1,596 negative results were added.

Report Date	Positive Counts			Negative Counts			Days Later
	20-Jul	28-Jul	Diff	20-Jul	28-Jul	Diff	
6/25/2020	53	53	0	653	668	15	33
6/26/2020	98	99	1	881	881	0	32
6/27/2020	40	43	3	436	438	2	31
6/28/2020	18	19	1	261	270	9	30
6/29/2020	35	45	10	560	832	272	29
6/30/2020	20	21	1	510	517	7	28
7/1/2020	51	65	14	914	1135	221	27
7/2/2020	77	124	47	1046	1260	214	26
7/3/2020	104	113	9	648	881	233	25
7/4/2020	24	41	17	234	281	47	24
7/5/2020	23	30	7	116	147	31	23
7/6/2020	36	100	64	343	635	292	22
7/7/2020	46	75	29	618	871	253	21
Totals		203		1596			

The County has done a good job communicating this information to Commissioners over the last 2 months. But perhaps they can find a way to incorporate this context into the dashboard to educate citizens and other leaders in the community. Along with descriptions of the context, the County might consider showing all but the last 2 or 3 days of data until a certain minimum threshold of results is received.

Regardless of whether the County changes their dashboard, elected leaders should show restraint. When wise leaders see a major change in a trendline, they stop to ask questions about what caused it before taking to Twitter. We ask our government officials to be wise.

UPDATE: As of September 22, 2020, the test results on the Sedgwick County dashboard show that on 9/20 there were 16 positives and 237 negatives, making a 14-day rolling average of 5.16%. This is a decrease of 2.6% in the percent positive calculation overnight. In response to a critic of his tweet, Mayor Whipple initially shared the following message indicating that he was only sharing the County's data.



SOURCES:

Sedgwick County COVID-19 Dashboard: <https://www.sedgwickcounty.org/covid-19/data-dashboard/>