

Covid-19 US cases by counties following political rallies

The list of rallies is from https://en.wikipedia.org/wiki/List_of_post-election_Donald_Trump_rallies where I have added the county, its population, **plots of the daily confirmed cases on the host and adjacent counties, and some observations.**

Method

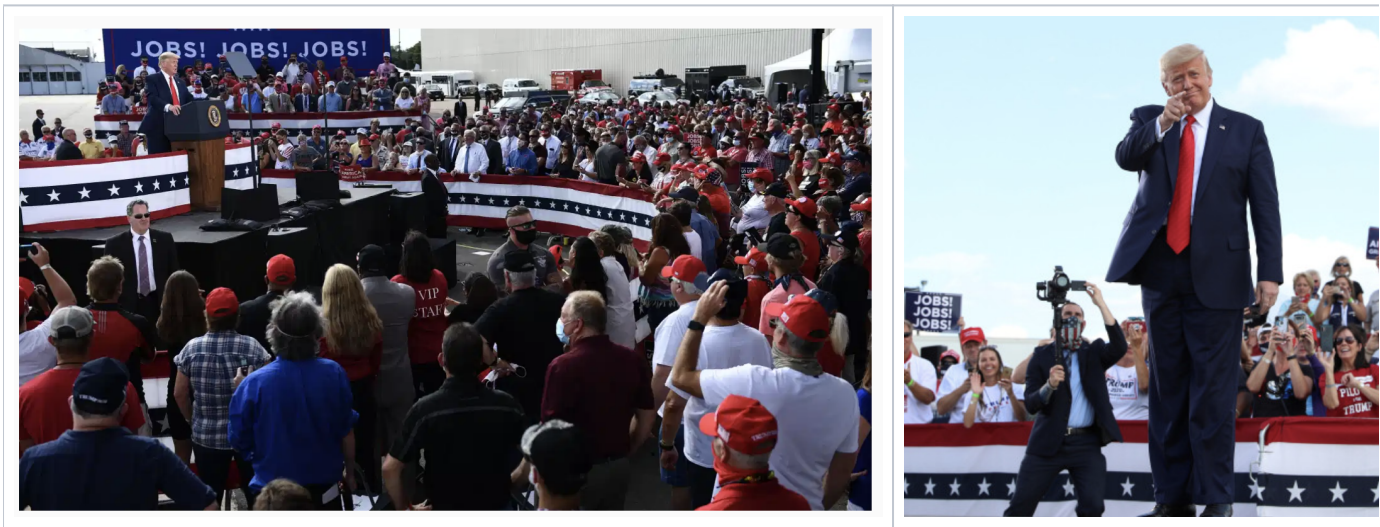
We are interested in whether some of these events may have served as 'super-spreader' events.

The raw data we analyze is the Johns Hopkins University daily confirmed cases data for the US available at: https://raw.githubusercontent.com/CSSEGISandData/COVID-19/master/csse_covid_19_data/csse_covid_19_time_series/time_series_covid19_confirmed_US.csv

The question is whether there was a significant rise in daily confirmed Covid-19 cases after the rally, in particular in the 2-14 days following the rally (according to the CDC, Sep 18, 2020: "Symptoms may appear 2-14 days after you were exposed to COVID-19").

We have not analyzed the more recent rallies following President Trump's experimental treatment at the Walter Reed hospital for the virus, since there is insufficient delay compared to the 14 day incubation period, to clearly identify a rally's impact.

The social distancing at the rallies was minimal, and not everyone wore masks, see for example, the photos below taken at the Oshkosh rally.

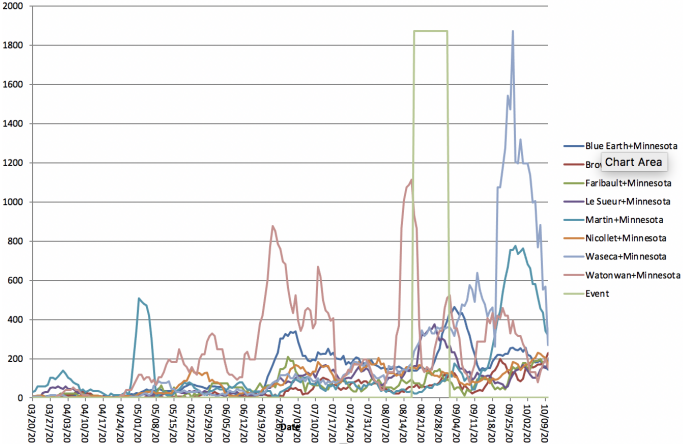
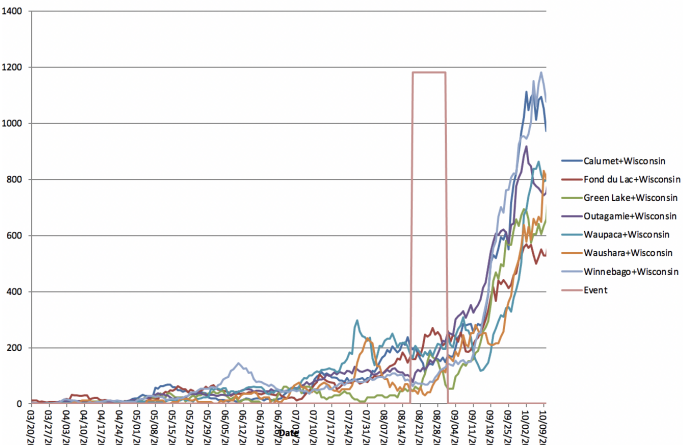


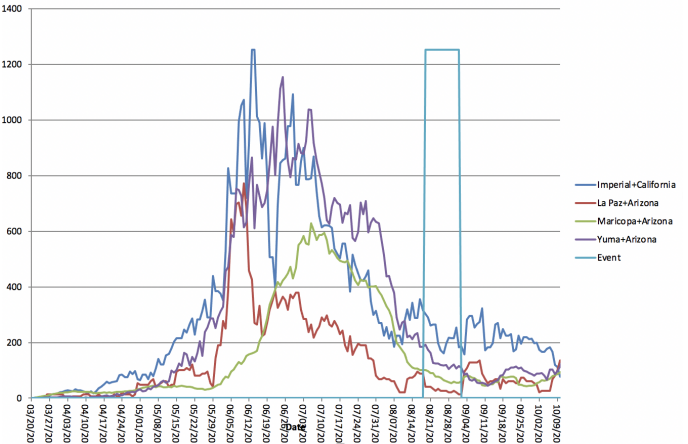
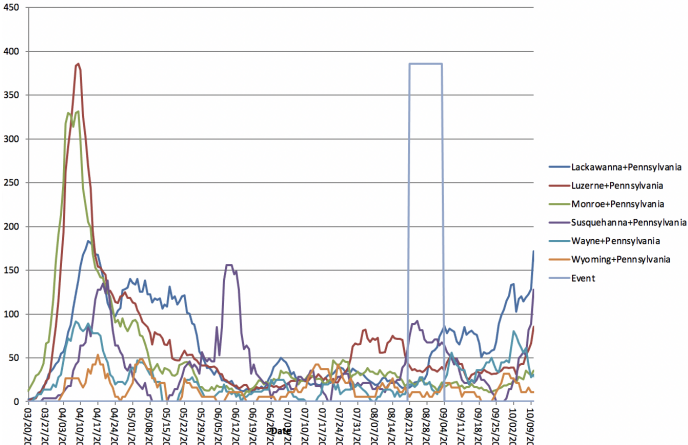
Results

The links "**Details in Excel file**" in the table below (derived from https://en.wikipedia.org/wiki/List_of_post-election_Donald_Trump_rallies), provide access to Excel worksheets and charts of daily confirmed cases for each county plus identification of the event's starting date followed by a 14 day incubation period.

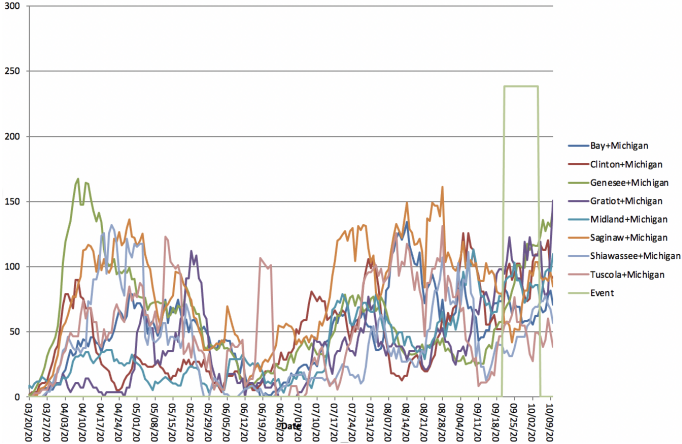
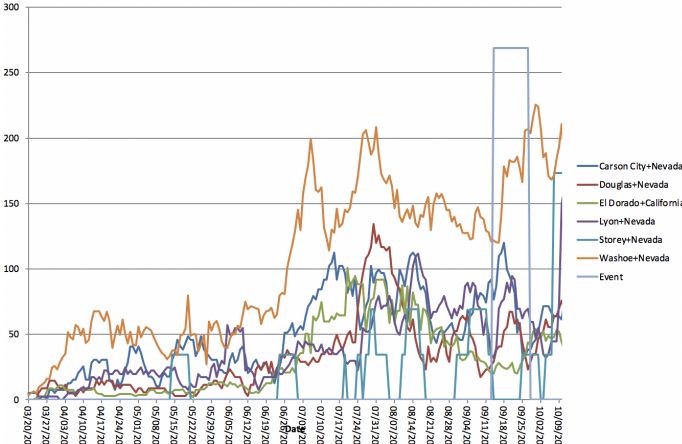
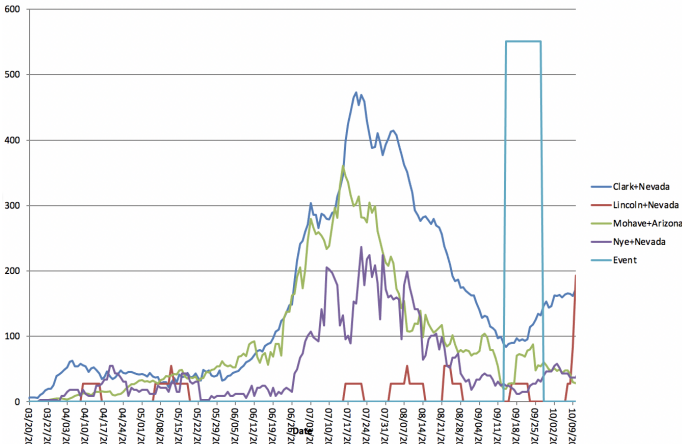
On clicking the "Details in Excel file" link it will provide access to the Excel workbook. On opening the workbook, open the Chart1 tab. You can move the mouse over a chart's line to get the date, value and county for the line.

Date of rally	City	County	State	Venue	Possible impact of rally on daily Confirmed cases in adjacent counties	Observations
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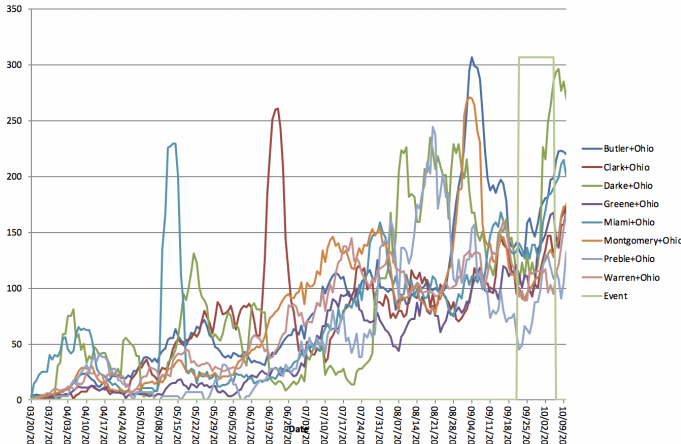
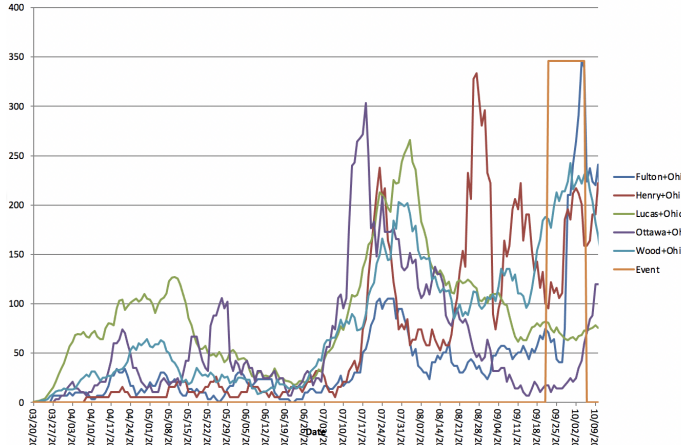
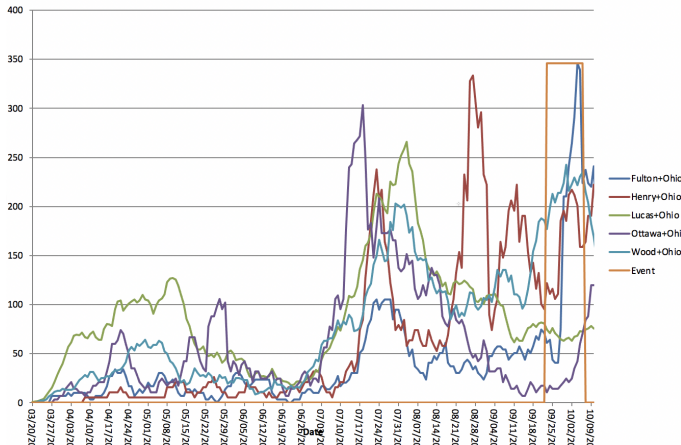
<p>Monday, August 17, 2020^[110]</p>	<p>Mankato</p>	<p>Blue Earth County</p>	<p>MN</p>	<p>Mankato Regional Airport</p>	<p>US Political rally in Mankato Blue earth county MN 8/17/2020: - Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>Blue Earth sees a rise in cases 10 days after the rally. Brown sees a rise in cases 26 days after the rally. Faribault sees a rise in cases around 12-14 days after the rally. Le Sueur sees a rise in cases 3-4 days after the rally that rises to a peak after 11-12 days after the rally and then falls. We assume this not likely to be associated with the rally. Martin sees a rise in cases 12 days after the rally with a peak at 17 days, followed by a dip and then a larger rise in cases. Nicollet sees no apparent rise in cases. Waseca cases are on a rising slope when the rally occurs, this plateaus after 4 days until day 17 when it again rises. Watonwan is very variable so no conclusions are made</p>
<p>Monday, August 17, 2020^[111]</p>	<p>Oshkosh</p>	<p>Winnebago County</p>	<p>WI</p>	<p>Oshkosh airport</p>	<p>US Political rally in Oshkosh Winnebago county WI 8/17/2020: - Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>Fond Du Lac, Outagamie and Winnebago's daily confirmed cases roughly doubled 12 days after the rally, and continued to rise. Following the end of the 14 day incubation period there is a pronounced rise in daily confirmed cases for all counties.</p>

<p>Tuesday, August 18, 2020^[112]</p>	<p>Yuma</p>	<p>Yuma County</p>	<p>AZ</p>	<p>Joe Foss Hangar</p>	<p>US Political rally in Yuma in Yuma county AZ 8/18/2020: -Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>No apparent impact.</p>
<p>Thursday, August 20, 2020^[113]</p>	<p>Old Forge</p>	<p>Lackawan na County</p>	<p>PA</p>	<p>Mariotti Building Products</p>	<p>US Political rally in Old Forge Lakawana county PA 8/2/2020: -Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>There are significant rises in the number of cases in the 2-14 days after the event on 8/20/20.</p> <ul style="list-style-type: none"> • In particular for Lackawana county 10 days after the rally. • There is a rise for Susquehanna county starting just before the rally. • Also, Wayne county sees a rise about 14 days after the rally. • On the other hand, Luzerne county sees a similar rise two weeks before the rally.

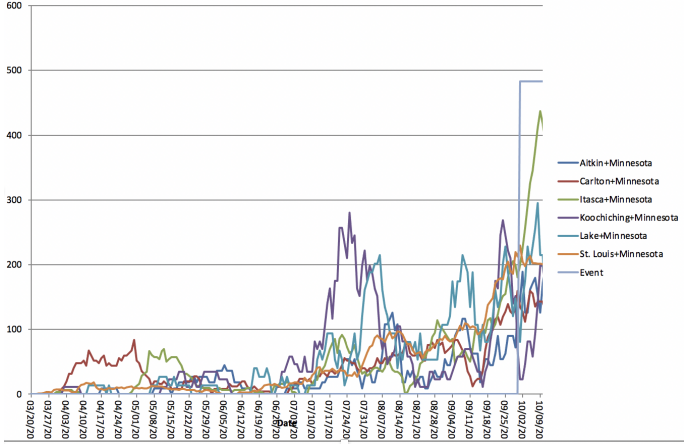
Friday, August 28, 2020 ^[114]	Londonderry	Rockingham County	NH	Pro Star Aviation	<p>US Political rally in Londonderry Rockingham county NH 8/28/2020: - Confirmed cases -daily per million population</p> <p>Details in Excel file</p>	There is a rise in confirmed cases for all counties except Essex, 5-14 days following the rally. Essex starts to climb 22 days after the rally.
Thursday, September 3, 2020 ^[115]	Latrobe	Westmoreland County	PA	Arnold Palmer Regional Airport	<p>US Political rally in Latrobe Westmoreland PA 9/3/2020: -Confirmed cases -daily per million population</p> <p>Details in Excel file</p>	Steep rise of cases in Indiana county, no apparent increase in other counties.
Tuesday, September 8, 2020 ^[116]	Winston-Salem	Forsyth County	NC	Smith Reynolds Airport	<p>US Political rally in Winston Salem Forsyth county NC 9/8/2020: - Confirmed cases -daily per million population</p> <p>Details in Excel file, Zoom in on event chart</p>	There is a steep rise in daily confirmed cases following the 14 day incubation period.

<p>Thursday, September 10, 2020 [117]</p>	<p>Freeland</p>	<p>Saginaw County</p>	<p>MI</p>	<p>Avflight Saginaw</p>	<p>US Political rally in Freeland Saginaw county MI 9/1/2020: -Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>There is a slow rise in daily confirmed cases starting in the 14 day incubation period and continuing afterwards</p>
<p>Saturday, September 12, 2020 [118]</p>	<p>Minden Indoors</p>	<p>Douglas County</p>	<p>NV</p>	<p>Minden- Tahoe Airport</p>	<p>US Political rally in Minden Douglas County NV 9/13/2020: -Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>There is a rise in cases in 4 of the 5 counties starting a few days after the rally.</p>
<p>Sunday, September 13, 2020 [119]</p>	<p>Henderson</p>	<p>Clark County</p>	<p>NV</p>	<p>Xtreme Manufacturing</p>	<p>US Political rally in Henderson in Clark county NV 9/13/2020: -Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>Clark, Mohave, and Nye counties all see a rise in confirmed cases starting between the 17th and 20th of September.</p>

Friday, September 18, 2020 [120]	Bemidji	Beltrami County	MN	Bemidji Aviation Services	<p>US Political rally in Bemidji in Beltrami county MN 9/18/2020: - Confirmed cases -daily per million population</p> <p>Details in Excel file</p>	There is a pronounced rise in the daily confirmed cases that starts in the incubation period and continues afterwards.
Friday, September 18, 2020 [121]	Mosinee	Marathon County	WI	Central Wisconsin Aviation	<p>US Political rally in Mosinee Marathon county WI 9/18/2020: - Confirmed cases -daily per million population</p> <p>Details in Excel file</p>	In this case, the rise in cases starts before the rally.
Date of Rally	City	County	State	Venue	Possible impact of rally on daily Confirmed cases in adjacent counties	Observations
Saturday, September 19, 2020 [123]	Fayetteville	Cumberland	NC	Fayetteville Regional Airport	<p>US Political rally in Fayetteville Cumberland county NC 9/19/2020: - Confirmed cases -daily per million population</p> <p>Details in Excel file</p>	Several counties such as Hoke, Simpson, Hartnett, Moore and especially Robeson have an uptick of confirmed cases around the end of the incubation period.

<p>Monday, September 21, 2020^[124]</p>	<p>Van dalia</p>	<p>Montgomery</p>	<p>OH Dayton International Airport</p>	<p>US Political rally in Montgomery OH 9/21/2020: -Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>All counties experience an uptick in daily confirmed cases during the incubation period.</p>
	<p>Swanton</p>	<p>Fulton & Lucas</p>	<p>OH Toledo Express Airport</p>	<p>US Political rally in Swanton Fulton and Lucas counties OH 9/21/2020: -Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>Most counties experience an uptick in confirmed daily cases during the incubation period.</p>
<p>Tuesday, September 22, 2020^[125]</p>	<p>Pittsburgh</p>	<p>Allegheny</p>	<p>PA Pittsburgh International Airport</p>	<p>US Political rally in Pittsburgh Allegheny county PA 9/22/2020: -Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	<p>Most counties experience an uptick in confirmed daily cases during the incubation period.</p>

Thursday, September 24, 2020 ^[126]	Jacksonville	Duval	FL	Cecil Airport	<div><div>US Political rally in Jacksonville Duval county FL 9/24/2020: -Confirmed cases -daily per million population</div><div>Details in Excel file</div></div>	There is no noticeable impact.
Friday, September 25, 2020 ^[127]	Newport News	Warwick	VA	Newport News /Williamsburg International Airport	<div><div>US Political rally in Newport News VA 9/25/2020: -Confirmed cases - daily per million population</div><div>Cases start to rise in all counties during and after the 14 day quarantine period following the rally.</div></div>	
Saturday, September 26, 2020 ^[128]	Middleton	Dauphin	PA	Harrisburg International Airport	<div><div>"US Political rally in Middleton Dauphin county PA 9/26/2020: - Confirmed cases -daily per million population</div><div>Details in Excel file</div></div>	Most counties experience an uptick in confirmed daily cases during the incubation period.










Wednesday, September 30, 2020 ^[129]	Duluth	St Louis	MN	Duluth International Airport	<p>US Political rally in Duluth St. Louis county MN 9/30/2020,- Confirmed cases -daily per million population</p>  <p>Details in Excel file</p>	Most counties experience an uptick in confirmed daily cases during the incubation period.
Monday, October 12, 2020 ^[130]	Sanford	Seminole	FL	Orlando Sanford International Airport		
Tuesday, October 13, 2020 ^[131]	Johnstown	Cambria	PA	John Murtha Johnstown-Cambria County Airport		
Wednesday, October 14, 2020 ^[131]	Des Moines	Iowa	IA	Des Moines International Airport		
Thursday, October 15, 2020 ^[132]	Greenville	Pitt	NC	Pitt-Greenville Airport		
Friday, October 16, 2020 ^[133]	Ocala	Mari on	FL	Ocala International Airport		
	Mac on	Leon	GA	Middle Georgia Regional Airport		
Saturday, October 17, 2020 ^[134]	Muskegon	Muskegon	MI	Muskegon County Airport		
	Janesville	Rock	WI	Southern Wisconsin Regional Airport		
Sunday, October 18, 2020 ^[135]	Cars on City	Cars on City	NV	Carson City Airport		
Monday, October 19, 2020 ^[136]	Prescott	Yavapai	AZ	Prescott Regional Airport		
	Tucson	Tucson		Tucson International Airport		
Tuesday, October 20, 2020 ^[137]	Erie	Erie	PA	Erie International Airport		
Wednesday, October 21, 2020 ^[138]	Gastonia	Gastonia	NC	Gastonia Municipal Airport		
Friday, October 23, 2020 ^[139]	The Villages	Sumter	FL	The Villages Polo Club		

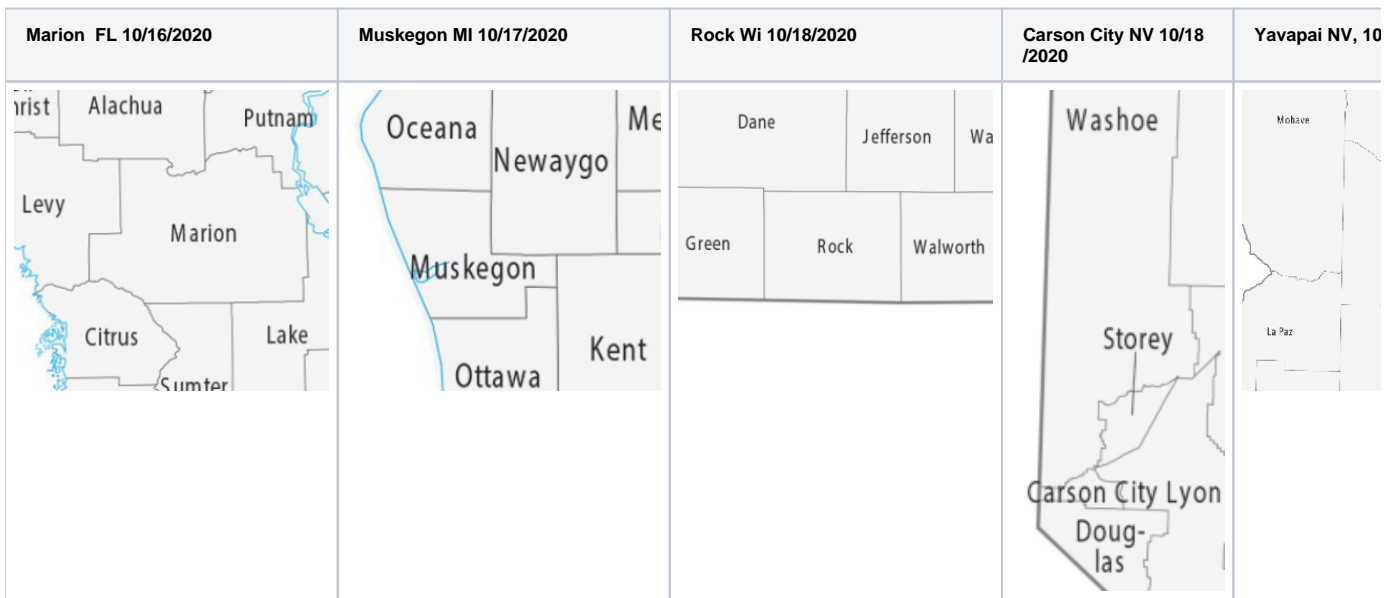
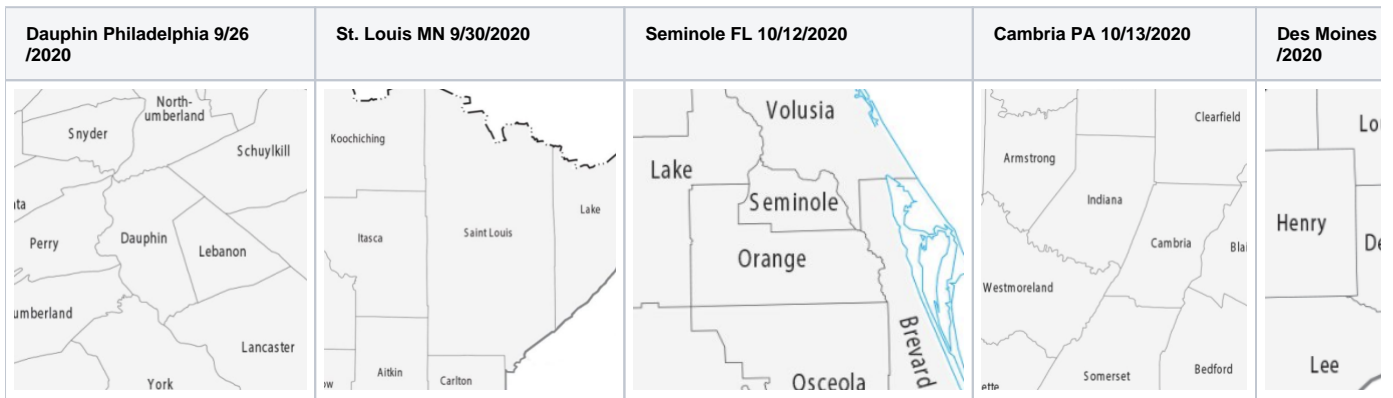
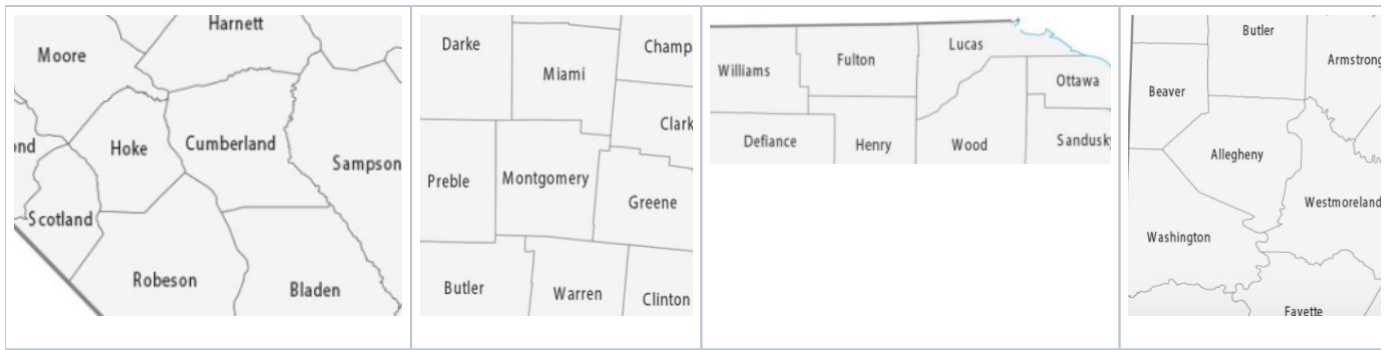
	Pen saco la	Esca mbia		Pensacola International Airport		
Saturday, October 24, 2020	Lum bert on	Rob eson	NC	Robeson County Fairgrounds		
	Circl eville	Pick away	OH	Pickaway Agriculture and Event Center		
	Wau kesha	Wau kesha	WI	Waukesha County Airport		
Sunday, October 25, 2020	Man ches ter	Hillb orou gh	NH	Manchester- Boston Regional Airport		

The Excel files come from a [library of Excel workbooks illustrating the impact of COVID-19 on many different areas](#) of the world.

Possibly Impacted counties

We looked at the adjacent counties in the same state or neighboring state (using <https://gisgeography.com/us-county-map/>) where we see the following counties.

Douglas County NV 9/12/20	Clark County NV 9/13/20	Winnebago WI 8/17/20	Blue Earth MN 8/17/20	Lackawanna PA 8/20/20
				
Marathon County WI 9/17/2020	Yuma county AZ 8/18/2020	Westmoreland PA 9/3/2020	Forsyth NC 9/8/2020	
				
Cumberland NC 9/19/20	Montgomery OH 9/21/20	Fulton & Lucas OH 9/21/2020	Allegheny PA 9/22/2020	



Also see

- <https://time.com/5865890/oklahoma-covid-19-trump-tulsa-rally/>
- <https://www.axios.com/trump-rally-fined-violating-covid-guidelines-1566236b-0177-4407-b139-a7f69c11db66.html>
- <https://thenevadaindependent.com/article/nevada-health-officials-predict-uptick-in-covid-19-cases-following-labor-day-weekend-crowds-trump-rallies>
- <https://www.usatoday.com/story/news/investigations/2020/10/22/trumps-campaign-made-stops-nationwide-then-coronavirus-cases-surged/3679534001/>

