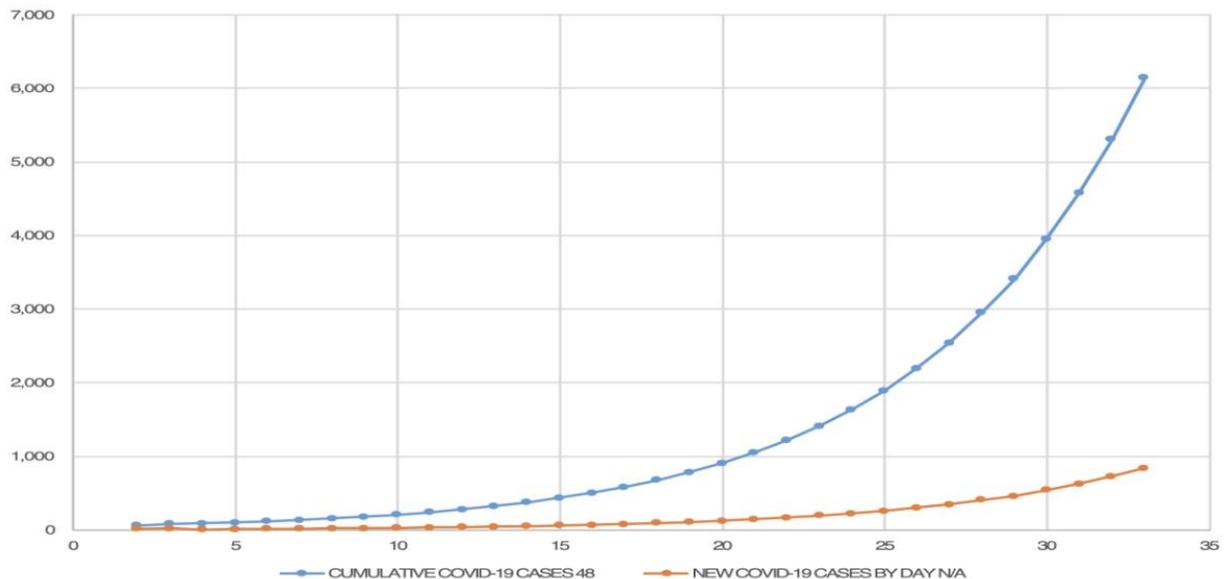


WHATCOM COUNTY COVID-19 : CUMULATIVE & DAILY NEW CASES
TO 25 APRIL 2020



Forecasting the COVID-19 Surge Peak in Whatcom County

By **David A. Swanson** • On Mar 30, 2020
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Without fast action and unified leadership to acquire necessary resources for Whatcom County’s fight against Covid-19, the disease will surge to a devastating peak by April 25th and overwhelm our local health care systems.

The preceding recommendation is based on a “surge peak” forecast of the likely number of confirmed COVID-19 cases for Whatcom County that I developed using data on daily “confirmed” cases from the [COVID-19 website set up at Johns Hopkins University](#).

With these data, I constructed a simple, extrapolative geometric model that is used to forecast confirmed cumulative and new COVID-19 cases by day to April 25th. The forecast shows an expected peak with 6,151 total confirmed cases. Whatcom County's population is approximately 225,000. If this forecast comes to pass, nearly 3 percent of Whatcom County's population will have been confirmed as being infected by April 25th. The forecast goes out to April 25th because that is approximately when this initial surge will likely peak.

The forecast reflects the social distancing and other conditions that were in place during the period, March 24th (48 confirmed cases) to 29th (116 confirmed cases). Keep in mind that this period partially incorporates the outbreak at the Shuksan Healthcare Center, which was announced on March 22nd, but its effects have yet to fully play out.

The graph shows the forecast, which includes both the cumulative and daily number of new cases. The model used to create the forecast is based on the calculated rate of change found using the number of cases reported on March 24th (48) and 29th (116), which is 1.1584, where $1.1584 = (116/48)^{(1/6)}$. The forecast is done by multiplying the most recent reported number of cases (116 on March 29th) by the rate of change (1.1584) taken to the power of the number of days since the most reported cases. For example, the forecast for April 1st is $180 = 116 * [(1.1584)^3]$ and the forecast for April 25th is $6,151 = 116 * [(1.1584)^{27}]$. The daily number of cases is found by calculating the difference between the forecasted total cases each day. For example, the daily number of cases expected on April 25th is 841, which is found by subtracting the forecasted total on April 24th (5,310) from the forecasted total on April 25th (6,151).

Unless the containment measures put into effect by Governor Inslee and others are able to substantially reduce the expected number of COVID-19 cases, our forecast suggests that Whatcom County's health care facilities will be in turmoil by April 25th if 841 new cases come in that day to add to the 5,310 already confirmed as infected.

Clearly, fast action and resources are needed to avoid the severe triaging taking place now in France and Italy whereby the infected elderly and others are denied treatment. Perhaps even tighter containment measures should be enacted aimed at "flattening the curve" shown in the graph. They may be needed to give our health care system the critical time it needs to prepare for this unprecedented possibility.