Chris Taggart

From:	Kierstin Schmitt <montanaks@gmail.com>
Sent:	Thursday, October 22, 2020 11:17 AM
To:	Ravalli County Commissioners Office
Subject:	[EXTERNAL] Fwd: Ravalli County Covid data modeling
Attachments:	Ravalli Co Covid-19 Model updated 10-22-20.pdf

Ha! Too rushed this morning apparently. Document is attached.

Begin forwarded message:

From: Kierstin Schmitt <montanaks@gmail.com>
Subject: Ravalli County Covid data modeling
Date: October 22, 2020 at 11:04:40 AM MDT
To: commissioners@rc.mt.gov

Hello Commissioners,

I'm planning to join you today for the public meeting about messaging about Covid-19 and maybe voting to sign on the Board of Health statement, I believe, though I haven't seen any detailed information about the scope of this meeting.

Attached is a copy of the information I'll be providing. I won't have a way to show the graphs show in this document so I wanted to sent them for your viewing during or after the meeting. Seth Galewyrick is the author and his credentials are at the bottom of the last page.

Thanks,
Kierstin Schmitt

If you live in Ravalli Co. please read this and pass it on. We all know that our number of confirmed Covid-19 cases has skyrocketed recently. As of 10/21 we have had 228 confirmed positives in the past two weeks* and our test positivity rate is on the order of 15-20% meaning that the actual number of positives is higher. We understand, in principal, that things are headed in a bad direction. But some of us need hard numbers and visuals to really understand so I've complied the following for reference.

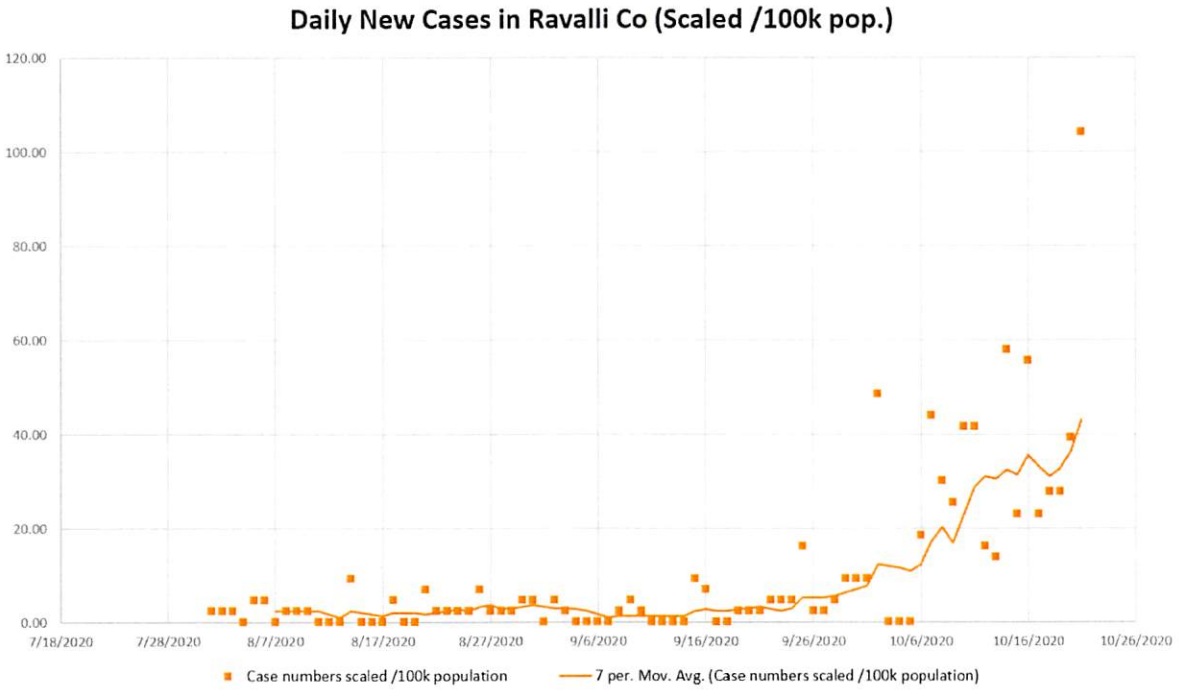
The first image below is our daily new case scaled for a population of 100k and shown with a 7 day moving average because that's what everyone is using for metrics. As of today, we're at 43 new cases per day per 100k people. The second image is the Harvard recommendations based on these numbers* which say that above 25 you need a mandatory stay at home order. Now that sounds severe, why would they say that you might ask?

This is where the predictive model comes in. The model was created and distributed by the CDC* as a planning tool to help communities and hospitals plan for surges in case numbers. You plug in your current caseloads, transmission rate and hospital resources and it tells you where you're headed. As nerds like me like to say, all models are wrong, and some are useful. The details of this prediction are certainly wrong, but the big picture is a decent idea of where we are currently going. The third image is an output from the model showing how many non-ICU hospital beds we will need in an optimistic scenario. The fourth image is how many ICU beds we will need. Blue is if we keep doing what we're currently doing, and the other colors are a few options for how we can flatten the curve if we as a community have the will to do it (more on that later). That blue curve says we need 119 non-ICU beds and 53 ICU beds at the peak around the end of the year. Marcus Daly has 25 total beds at the hospital of which it's not uncommon for ½ to be occupied with non Covid-19 patients. The same model says we will need 42 ventilators at the peak, and we have 7. This is with optimistic input numbers for the transmission rate, obviously if we use more realistic numbers the results are much worse.

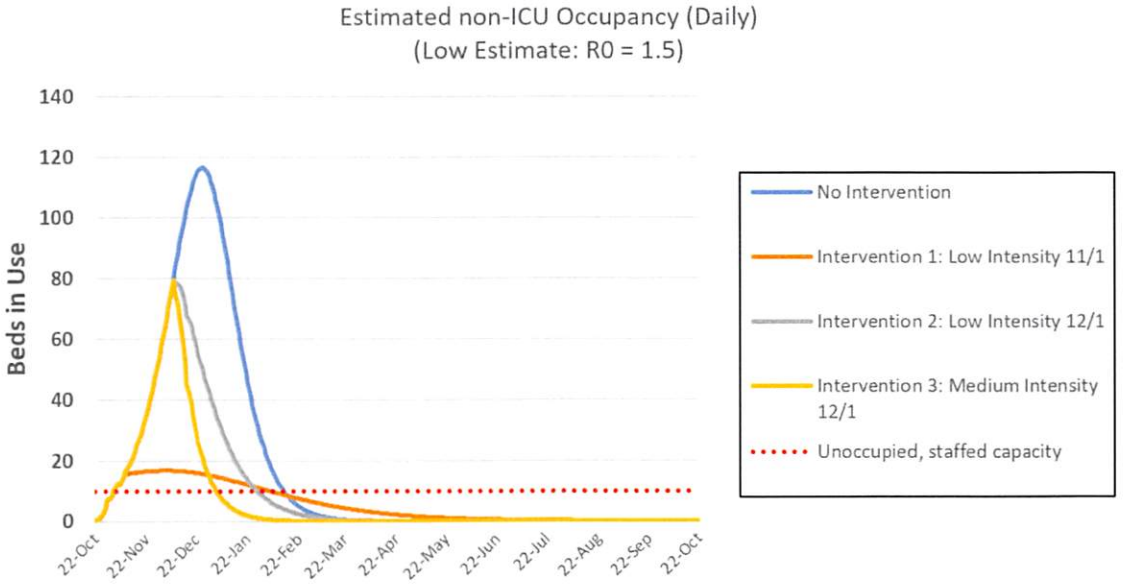
All the tragic stuff that you have read about in bigger cities is coming to Ravalli Co. Our little hospital will be totally overrun, older patients will die because the limited resources available will be used to treat the most likely patients to survive. If you or a loved one are one of the 42 people who need ventilation at the peak 35 of you will die. Our neighbors with heart attacks or car accidents or any of the other countless things that send people to the hospital will find no available beds and a staff and system already stretched to the breaking point. The rest of the hospitals that we transfer critically ill patients to are already denying or restricting transfers because they are also almost full and we are still a couple months away from it getting really bad. As I write this, I know that it sounds extreme and alarmist, but we have seen it happen all over the country already. We can learn from what they have been through.

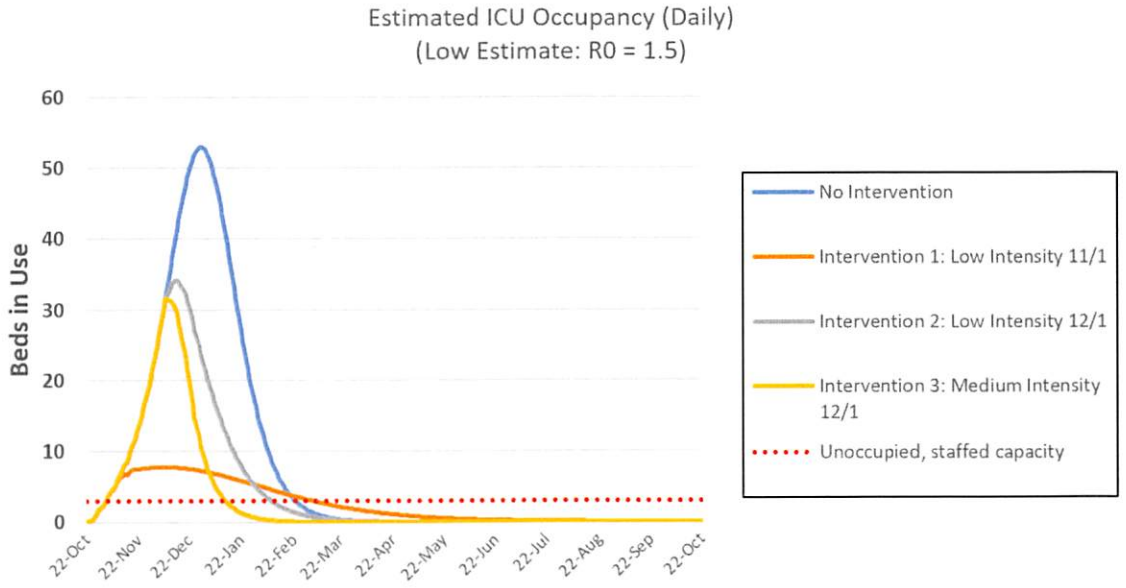
So, what can you do? On the individual level, I know we are all tired of this but we need to stay home, wear your masks, don't congregate in groups, you know the drill, we just need to actually do it. We need to push back against social pressures that say "don't test" out of a misguided belief that it will keep the schools open or make our county numbers look better. But we need more than that. We need local government to step up and put politics aside. We need police and sheriffs who will set an example and enforce the existing mask mandate. We need the Co. Commissioners to fund and staff public health at a level that enables timely contact tracing of all confirmed positives. We need the county board of health to enact stricter restrictions on group size, masking requirements, restaurant capacity etc. and then to actually enforce these rules. These will be unpopular decisions and they will save many lives.

We CAN get through this, but we need to come together as a community and take care of each other. And time is of the essence. The grey and yellow curves on the last two charts represent low and medium intensity changes to our behavior that happen on Dec 1st. They lower the peak, but they don't prevent it. In comparison the orange curve represents low intensity community behavior changes that happen on Nov 1st. That changes the game. It's still a surge but it's a surge that our system is more likely to be able to handle without breaking. Low intensity interventions are things we're already supposed to be doing. Everyone should stay home whenever possible, always wear a mask when in public, limit social distance, restrict group sizes to less than 50 and conduct robust contact tracing on all positive cases. These are things we CAN do, and we can literally save the lives of our neighbors.



Covid Risk Level	Case Incidence		Intensity of Control Effort Needed
Red	**>25**	**daily new cases per 100,000 people**	Stay-at-home orders necessary
Orange	**10<25**	**daily new cases per 100,000 people**	Strategic choices must be made about which package of non-pharmaceutical interventions to use for control. Stay-at-home orders are advised, unless viral testing and contact tracing capacity are implementable at levels meeting surge indicator standards (see KPIs below).
Yellow	**1<10**	**daily new cases per 100,000 people**	Strategic choices must be made about which package of non-pharmaceutical interventions to use for control.
Green	**<1**	**daily new case per 100,000 people**	On track for containment, conditional on continuing use of viral testing and contact tracing for surveillance and to contain spikes and outbreaks.





* Case data is from the Ravalli County Public Health press releases. The metrics for outbreak severity are from the Harvard Global Health Institute and the predictive model is from the CDC. Data compiled by Seth GaleWyrick. It's important to note that none of us (with the exception of some of our neighbors at Rocky Mountain Labs) are experts in virology or epidemiology. I am primarily a concerned community member, a trustee on the Hamilton school board and a husband of a local physician. My degrees are in engineering and applied biology which give me enough expertise in handling data to pull together the information contained here that does come from established experts in these fields. If you have questions or comments or would like copies of the data please contact me at smgalewyrick@hotmail.com or you can download a copy of the empty model for yourself at the CDC link above.