Date : 7/20/2021 3:31:21 PM
From : "[redacted]
To : "Ice, Gillian" iceg@ohio.edu
Subject : Re: bobcats get vaxxed

Oops, I forgot to include a link to the website about the delta variant. Here it is:

https://unchartedterritories.tomaspueyo.com/p/delta-variant-everything-you-need?utm_source=substack&utm_medium=email&utm_content=share

I could of course write a letter to the ANews. The only purpose this might serve if I do it right now would be to tell my fellow faculty members: "You better be serious about preparing your courses for FS so that you can switch to online any time." Perhaps that would be worthwhile though.

Best,

[redacted]

On Tue, Jul 20, 2021 at 2:54 PM Ice, Gillian <iceg@ohio.edu> wrote:

> Thanks, I've read the CDC ones. One thought, what about writing a letter to editor to ANews? They seem to like interviewing you.
>
> Gillian H. Ice, Ph.D., M.P.H.
>
> Special Assistant to the President for Public Health Operations
>
> Professor Social Medicine
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> Office of the President
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> 207 Cutler Hall
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> Athens, OH 45701
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> 740-593-2128
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> iceg@ohio.edu
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> COVIDoperations@ohio.edu
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> https://www.researchgate.net/profile/Gillian_Ice
>
> ---
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Sent: Tuesday, July 20, 2021 2:20 PM
To: Ice, Gillian <iceg@ohio.edu>
Subject: Re: bobcats get vaxxed

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Here is a good article that is at the same time scientifically sound, simple and appealing; perhaps this can be shared as is via social media.

I could think about a visualization, ideally an animation (if I get some help) that would be suitable for distribution via social media. I don't think we would need to wait until students will actually be back. If we want them to be fully vaccinated when classes start, they need to get the first shot right now.

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> **Sent:** Monday, July 19, 2021 5:48 PM
> **To:** Ice, Gillian <iceg@ohio.edu>
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When you look at these numbers, October 12 looks really a long way off. We may all find ourselves online again before that date.

I keep thinking that if I can make a meaningful contribution, it really would be through visualizing the consequences of such ``trivial'' (to me) calculations. I believe some among our vaccine-hesitant students are really sitting on the fence and driven mainly by inertia. Others may just think they will be better off getting infected than getting vaccinated and don't care. But I bet none of them wants to be sent home again after a couple of weeks on campus, so this may open up some avenues for effective peer pressure.

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[redacted]

Date : 8/11/2021 4:17:18 PM
From : [redacted]
To : "Ice, Gillian" iceg@ohio.edu
Subject : Re: bobcats get vaxxed

Hi Gillian,

hard for me to imagine what it really feels to you, the captain of our ship, when the iceberg gets closer and closer and your hands are partially tied. And I'm not particularly good at convincing irrational people. But the metaphor you used is a brilliant one and perhaps has the potential to convince some. Ships hit icebergs when they still seem to be far from them. That's like incidence and hospitalization data; even if all transmissions were to stop today; these would keep increasing for a week or two while they start accounting for the currently invisible part of the iceberg. It takes many miles for a large ship to actually change course; this is like the mask wearing, immunizations, etc. only gradually decreasing incidence. And the captain has to make decisions based both on distance from the iceberg and speed of approach (unfortunately, the latest CDC recommendations seem to be based only on incidence levels, not also on rates of increase).

I guess with all the irrationality going around, some big ships will hit some nasty icebergs pretty soon, and I feel very sorry for the passengers. But it may concentrate minds elsewhere. You are responsible only for our little OU ship, and I believe there is substantial cause for optimism that we might be able to steer clear of the worst. This is based on the calculations below; just skip their details if you already know all of this.

Hang in there!

[redacted]

Some calculations:

Rough estimate of recent effective reproduction numbers in and at Ohio:

Today the NYT gives a 141% increase, or increase by a factor of 2.41 of cases, for the state of Ohio over the last 2 weeks.
They also give a 42% increase in tests over the same period of time. Estimates of the length of the serial interval that I have seen in the recent literature are 3.8 days on the low end and 5.5 days on the high end. Thus R_e in the state of Ohio would be roughly between (2.42/1.42)^(3.8/14) = 1.15 (if we go with the shorter serial interval) and (2.42/1.42)^(5.5/14) = 1.23 (if we assume the longer serial interval).
When students come back, these numbers might be substantially larger on OU campus and in the town of Athens; between R_e = 1.3 and R_e = 1.5 may be realistic (I'm using the same hunch for estimating the latter as I did for the modeling last year).
So to get these numbers below 1, indoor masking of all + weekly testing of unvaccinated + some spontaneous behavior change induced by the local and

national news should be sufficient. Btw, the higher estimates of R_e come from assuming the longer serial interval. The longer the serial interval; the more benefit we are going to get out of weekly asymptomatic testing of the unvaccinated.

How does this square with current estimates of R_0 for the delta variant?

R_0 for the Delta variant cannot be reliably estimated, because the "64% more infectious than the Alpha variant" from the paper that gets cited all the time cannot be directly translated into a ratio between reproduction numbers (the authors admit as much, but few people would actually read the paper). Most experts would agree though that R_0 for the Delta-variant is likely between 5 and 9. Let's say R_0 = 7 for the sake of argument. If so, for herd immunity through an 85% effective vaccine, we would need to vaccinate 101% of all people, which is plainly impossible. But this calculation assumes an overly simplistic understanding of R_0 and herd immunity. The assumption would be that conditions are comparable to those of the original studies of R_0 for the first variant. These were done for outbreaks in China in winter months with practically entirely susceptible populations who did not have a clue that a new virus was going around. These conditions are irrevocably gone. When we talk today about controlling the virus with vaccinations, we want to bring down R from R_e below 1, not from R_0. Right now in Ohio we have already enough vaccinated + previously infected people to cut R by a factor of about 2 (even if vaccines are not perfect and prior infections confer even less immunity). Some behavior changes appear permanent (almost nobody shakes hands any more, some people voluntarily wear masks, most people keep a larger distance from others than previously). Schools are not yet in session. The weather is nice and meeting others outdoors is actually pleasant (think about those unlucky folks in Florida and Mississippi for contrast). The last 3 factors may together account for another reduction of R by a factor of 3 or so. If that is the case, we end up with R_e = 7/6 = 1.67; closer to the lower bound of our estimates from the Ohio Data.

Are we really that close to getting control over the spread of infections?

I think we are, *right now.* But remember "the last three factors." Schools will hopefully be in session really soon, and the weather may give us a honeymoon for 2 more months. If we don't do anything more than require these masks indoors, cases may soon increase again. So we better make sure at least another 15% to 20% of our overall population get vaccinated over the next 2 months.

On Wed, Aug 11, 2021 at 9:15 AM Ice, Gillian <iceg@ohio.edu> wrote:

> Hi [redacted], thanks for your email. I agree with all that and yes, lots of grumbling from all corners with all different perspectives. It gets to be exhausting. The challenge is that logical arguments do not work with people who are not logical. Hard to counter magical thinking. But I try my best. I feel like I am bracing for the eventual crash into an iceberg. Not a great feeling. Please keep sharing your perspectives and analysis – I really appreciate it.

Thanks, Gillian

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https://www.researchgate.net/profile/Gillian_Ice

From: [redacted]
Sent: Tuesday, August 10, 2021 10:24 PM
To: Ice, Gillian <iceg@ohio.edu>
Subject: Re: bobcats get vaxxed

Hi Gillian,

I think the decision to reinstate an indoor masking policy was the right thing to do. Your e-mail of today sounds like we have to deal with a lot of grumbling among our colleagues about it. Let me share some thoughts of a numbers person; perhaps you can use some of this when you try to sell the policy. I can send you more details of the underlying calculations if you want.

1. *If current trends continue*, the total number of daily reported cases in the U.S. will reach a new record about 2 weeks from now and the number of daily reported cases in Ohio will reach a new record about 4 weeks from now.

2. This might not pose an immediate danger if case-hospitalization rate and case-fatality rate were substantially lower now than 8 month ago, as might be expected in a situation where the vaccination rate among the elderly is as high as it is. Unfortunately, this may be a false assumption, at least for hospitalizations. Florida reached a new record of COVID-19 hospitalizations right after cases in the state surpassed the previous record. This is the most troubling number I have seen. It may indicate that the Delta-varant is even significantly more infectious than we currently know (the CDC hasn't, to my knowledge, yet released definite data on this).

3. If current trends continue and the Delta-variant does turn out to be a lot more infectious than we know so far, then drastic control measures may become necessary within a month or two. Your guess of what "drastic" means is as good as mine.

4. If current trends are not to continue, or if at least we want to buffer our community from these current trends in Ohio, we have several options. Right now the effective reproduction number R_e of the Delta-variant in Ohio is probably between 1.4 and 1.5. If so, preventing 1 in 3 new infections will be enough to prevent further increase of cases. This can presumably be achieved by any of the following:

(a) Voluntary use of masks indoors by all unvaccinated (good luck)

(b) Requiring masks indoors of all unvaccinated (unenforceable)

(c) Vaccinating an additional 20% or so of the population (too slow, even if there were no hesitancy; would take at least 2 months)

(d) Requiring masks indoors of everybody (bothersome and unfair to the vaccinated).

If I were to argue the case, I'd simply let people take their pick.

Btw, it may be too confusing at this point to tell people about reproduction numbers for the Delta-variant. An R_e of around 1.4 is consistent with both the infection data from Ohio and an R_0 of between 5 and 9 (the latest estimates that I have seen), and I would *love* to explain why, and why we cannot currently estimate R_0 any more precisely, but how we could try to anyway. This all gets very interesting, but probably a little too interesting for the purpose at hand.

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I could think about a visualization, ideally an animation (if I get some help) that would be suitable for distribution via social media. I don't think we would need to wait until students will actually be back. If we want them to be fully vaccinated when classes start, they need to get the first shot right now.

Best,

[redacted]

On Mon, Jul 19, 2021 at 6:20 PM Ice, Gillian <iceg@ohio.edu> wrote:

> Hi [redacted], I haven't seen those projections but I would love the visualization of those to use for social media etc. I think we will have greater ability to influence students when they are on campus. It is

challenging to reach them now and many parents have strong opposition. Students may feel differently but can't act on it at home.

Keep thinking! Thanks, Gillian

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From: [redacted]
Sent: Monday, July 19, 2021 5:48 PM
To: Ice, Gillian <iceg@ohio.edu>
Subject: Re: bobcats get vaxxed

Thank you, Gillian, for your reply! You already have a lot of interesting things going along the lines of "encourage peer pressure to get vaccinated."

I'm wondering whether and how I could be of any help. Will keep thinking about it.

What strikes me is how much---even after last year's experience---most people underestimate the threat posed by the delta variant. This actually cuts through the political spectrum. A trivial calculation:

At current rates of spread, (44% weekly increase nationwide, 52% weekly increase in Ohio---data from Worldometer; the NYT data paint an even worse picture),

the 7-day moving average of new infections in the U.S. will surpass its previous peak of January 11 around August 20, and in Ohio it will exceed its previous peak of December 11, 2020 around September 5, 2020. So far, there are no signs that measures will be taken any time soon to slow down this increase. If these predictions come true, then what? On the one hand, we may still have a lot fewer hospitalizations and deaths than in December/January. On the other hand, since the infection will largely spread among the unvaccinated, those will be 2 or 3 times as likely to become infected when these peaks are crossed than they were in December/January.

When you look at these numbers, October 12 looks really a long way off. We may all find ourselves online again before that date.

I keep thinking that if I can make a meaningful contribution, it really would be through visualizing the consequences of such ``trivial'' (to me) calculations. I believe some among our vaccine-hesitant students are really sitting on the fence and driven mainly by inertia. Others may just think they will be better off getting infected than getting vaccinated and don't care. But I bet none of them wants to be sent home again after a couple of weeks on campus, so this may open up some avenues for effective peer pressure.

Best,

On Mon, Jul 19, 2021 at 9:37 AM Ice, Gillian <iceg@ohio.edu> wrote:

Hi [redacted], How can I forget you?! That [redacted] was super helpful. I too am worried about fall.

Thanks for the feedback on Bobcat get vaxxed. Some of the peer pressure I was hoping to use won't be possible due to decisions made by others following the frustrating changes to the CDC guidance. But here are a few things we are trying

-we are working on a campaign using campus influencers (students, faculty, staff). That will include images and quotes on why people got vaccinated for posters and social media.

-We will continue our Bobcat Health Ambassador's program which includes 9 students who roam campus and try to engage students in conversations about COVID and vaccine. We applied for a grant to hire an additional person who would focus on engaging student leaders on campus (and RHE) to get them involved in the vax campaign.

-We plan to initiate a vaccination competition with incentives for the residence halls. We will be posting a leaderboard of vax rate by residence hall.

-We plan a number of pop-up clinics.

-We are asking deans and faculty to talk about vaccines and encourage their students. (and we really need faculty to register their pathway).

We have to do this quickly not only because of spread but because HB244 goes into effect on October 12. This prohibits requiring any vaccine that is not fully FDA approved and "discrimination" against the unvaxed. This means that our Pathways Program and testing plan will have to shift on October 13 if the vaccines are not fully approved by then.

If you have other ideas, I am open to any and all. We could really use some engagement from faculty on this as well.

Thanks, Gillian

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https://www.researchgate.net/profile/Gillian_Ice

From: [redacted]
Sent: Sunday, July 18, 2021 3:21 PM
To: Ice, Gillian <iceg@ohio.edu>
Subject: bobcats get vaxxed

Hi Gillian,

this is [redacted]; I did some [redacted] for you last summer.

Needless to say, I am rather worried about recent developments. Saw your e-mail about the "Bobcats get vaxxed" program and thought it was really cool how you are trying to encourage students to get vaccinated. The following thoughts went through my mind:

-- The best predictor of whether a person x got vaccinated is the proportion of x's friends who got vaccinated.

-- At the beginning of the AY,students will move from one group of friends (at home) to another group of friends (on campus). This will change said proportion for many of our students and provide an opportunity for letting peer pressure operate towards increasing vaccination coverage among our students.

-- Unfortunately, this mechanism may be a bit too slow. Ideally, we want students to already come here vaccinated.

So here is my question: What can be done to facilitate peer pressure towards vaccination? Can anything be done to let the expected peer pressure start operating before students actually come here?

Best,

[redacted]