Howard Bauchner, MD, discusses infection control and the effectiveness of masks

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Featured topic and speakers

In this episode of the AMA’s COVID-19 update, Todd Unger, AMA chief experience officer and Howard Bauchner, MD, JAMA editor-in-chief discuss the latest research on COVID-19, looking at infection control and spread, record cases in many parts of the U.S. and the effectiveness of using masks.

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Speakers

- Howard Bauchner, MD, editor-in-chief, JAMA scientific publications

Transcript

Todd Unger: Hello, this is the American Medical Association's COVID-19 update. Today, we're discussing the latest research on COVID-19 with Dr. Howard Bauchner from his vantage point as editor-in-chief of JAMA in Chicago. Dr. Bauchner prefers I address him as Howard. I'm Todd Unger, AMA's chief experience officer in Chicago.

Howard, it's been two months since we last talked, and a lot’s gone on since then. Let's start by discussing infection control and spread. We're seeing record cases in many parts of the country. Are these numbers capturing the extent of the spread and what is research telling us?

Dr. Bauchner: Well, it has become much more difficult and challenging the last two weeks. I think everyone is knowing the numbers. We’re consistently above 60,000 cases a day, above a thousand
deaths. It was just reported that we hit 150,000 deaths.

We published two papers, one in *JAMA*, one in *JAMA Internal Medicine* that suggest that undercounts the number of COVID-related deaths by about 50%. So the totality of the number of deaths related to the pandemic is probably substantially above 200,000.

**Todd Unger:** Why is that, Howard?

**Dr. Bauchner:** It's probably because coding of death is actually much more complicated than one thing. So, the first is that we know that oftentimes people are coded and it's linked to COVID.

However, the best way to compare the effect on overall mortality is to look at the average number of deaths in the first six months of the last five years, and look at the number of deaths this year, so there'll be some offset. So it's likely that motor vehicle accidents have gone down because there's less driving. But if people haven't come to the hospital because they have a heart attack, a myocardial infarction, or if they've had a stroke, they may be more likely to die. Also there's likely been numerous deaths, particularly of the elderly that wasn't coded as COVID-19. So the easiest thing to do is just to compare the average number of deaths over the first six months this year to the number of deaths last year.

Now there's a delay in reporting it, so the two reports were based upon data, I think, from February, March and April. But they suggested at that point that the count was about 50% less, so I suspect the number of deaths related to the pandemic is much closer to 200,000 or 225,000.

**Todd Unger:** All right. Let's get back to the infection control and spread. Certain areas seem to be getting hit a lot harder than others. Any insight into why that's happening?

**Dr. Bauchner:** Yeah. I think everyone knows that it's likely that some states opened up before, opened up before they had reached a level that people think would maintain the amount of disease, so that if you're below, say, 10 cases per a hundred thousand or 10 new cases per a hundred thousand, you can risk opening up if people will socially-distance and mask. So two things have happened. One, states opened up before they reached that level that people think is best, and then people have not socially-distanced or masked.

Now I was pleased we had published a paper in *JAMA* about masking, a research letter. MMWR had published two reports about the absolute effectiveness of masking. I don't think there's any doubt any longer. So Robert Redfield and two other people from the CDC had written an editorial for us just 10 days ago, and I was pleased to finally see the Republican leadership and the president acknowledging importance of masking. I can't emphasize that enough.

The most recent data, and I haven't seen the actual original reports, have suggested if I mask, not only am I helping you, which has always been the case, but by masking, I may get a lower dose of
virus and have more mild illness. So it also appears as though masking is actually helping the individual who's masking.

**Todd Unger:** The infection being spread by younger groups than had been seen previously, where's the research on that?

**Dr. Bauchner:** The story around children—and, Todd, you know I'm a pediatrician—the story around children has been very interesting. Early on, there was this assumption that either children weren't infected or if they became infected, they were asymptomatic.

A lot of things have evolved over the last two months, so it does appear as though children, young children under the age of eight, 10 or 12, are less likely to become infected and are less likely, if they become infected, spread the infection. But children, when we say zero to 19, puberty happens around 10, 11, or 12 and a lot of things change after an individual goes through puberty, and the most recent data suggest that 15, 16, and 17 year-olds are more likely spread disease and become symptomatic as do young adults, 20, 25 and 30.

Now the remaining good news is that very few of those people are becoming either seriously ill or dying, so the mortality rate remains incredibly low in children and young adults.

**Todd Unger:** Now those numbers have some implications around school openings. I believe there's some new research from *JAMA* on that topic. Can you tell us about that?

**Dr. Bauchner:** Yeah. Well, this has now become the educational challenge of this generation and our generation. I don't think we've faced a greater challenge in understanding if schools should open for in-person education.

We just published a paper an hour ago, entitled Association Between Statewide School Closure and COVID-19 Incidents and Mortality in the United States, and it's accompanied by a very important editorial by Julie Donohue, entitled COVID-19 and School Closure. Everyone has thought that school closures may have contributed, may have contributed to a reduction in the spread of disease and then, obviously, mortality. This is the best analysis done today to suggest that that's true. There's a very substantial relative reduction. The absolute reduction is smaller.

Now part of the struggle, this is not a clinical trial, so you didn't have school closures randomized from community to community, and many other things happen simultaneously, so social distancing, people may have masked. So the data suggests a strong association between school closure and a reduction in both incidents of new disease, as well as mortality.

The most important part of the analysis suggests that if you're in a state and you're beginning to see an increase, it's very important to close schools early in the upswing, that once there's a lot of disease in the community, closing schools was not nearly as effective. This obviously has implications for the...
fall around how communities that do open their schools for in-person learning, how they should think about responding if they're beginning to see an uptick in disease within their community.

**Todd Unger:** Okay. Well, let's turn our attention now to vaccine development and treatments. Let's talk about what is the latest research in this area and are we any further along in understanding antibodies and immunity to COVID-19?

**Dr. Bauchner:** So those are separate questions, I'll take vaccines first. Immunity has become quite confused the way in which it's being reported, so I'll comment on that second.

Now a number of trials have reported what we call phase one and phase two trials, small studies trying to see when a vaccine candidate is given to an individual, are they mounting an immunologic response? We've talked about this in the past, we've published extensively on it. I think Paul Offit's live stream with me and his viewpoint is probably the best read for people who want a quick education on it. There's different vaccine candidates. There's been a number of reports in different journals. *JAMA* is currently considering one, hopefully it'll be published in a week or two, that different vaccine candidates, the good news are showing immunologic response in human beings.

Now showing an immunologic response and ensuring that a vaccine is safe and then will protect against disease, those are slightly different questions. So a number of the studies are now going to go to larger phase three trials. Phase one and phase two can be 10 people, 20 people or a hundred people. Phase three trials are the numbers that you begin to talk about 10,000, 15,000, 20,000, 30,000. There you get a much better understanding about whether or not the vaccine is safe because so many people have been vaccinated. In addition, if those individuals are exposed within the community to the virus, you will understand if it's protective.

Those studies are just starting, they will take months to complete. Much of the results will depend upon whether or not, first, the vaccine is safe, which is critically important and then, secondly, whether or not individuals who are exposed to disease. If they're not exposed to disease, it will be very difficult to know how effective the vaccine is.

Now let's talk about immunity. You or I get infected and then we mount an immunologic response and one of the things we develop are different types of antibodies. There's IgM, which develops early and then IgG and IgA that develop later. People can also develop T and B cell memory so that if I get infected again, a T-cell mounts a response.

We now know, and it's still preliminary, that the vast majority of people are mounting immunologic responses. They're mounting IgG and IgM, not much data on IgA. IgA protects against often respiratory pathogen, so it may be important. The question is whether or not that then wanes over time, and there's been some early reports that some of the IgG and IgM responses are waning in a number of months after you're infected. But that doesn't mean that you're losing immunity.
Those are slightly different questions, and those data are not yet available. So we still don’t really know, if a hundred people are infected, what percent mount an immunologic response, general sense is that it will be over 90%, and then how long immunity lasts. We’re going to need another three, four or five months until we really understand that.

**Todd Unger:** Well then, assuming a vaccine won’t be widely available for months, what does the research tell us in terms of public health preparedness and guidance for our country’s response as we head into the fall?

**Dr. Bauchner:** A few things are really, critically important. It is incredibly important that we really try to drive disease to as low a prevalence as possible in the next six to eight weeks. In his live stream with me, Robert Redfield, who’s head of the CDC, said it's time for America to mask for six weeks. Now he just chose six weeks. It could've been four weeks, six weeks or eight weeks, but you really want to drive it down through the month of August. People may go back to work in September, schools, colleges resume and then the winter months are coming, the flu begins.

Now it usually comes a little later on, but what you don’t want is COVID-19 and flu to come together to create just havoc in the fall. So, first, we really want to drive the rate of disease down over the next six or eight weeks, that's masking and social distancing.

Secondly, there’s a lot of new work ongoing, no reports out, about convalescent titers and monoclonal antibodies as prevention therapy. Now monoclonal antibodies are used in other diseases, so it's kind of an injection once a month or every six weeks, again, we don't know, and that can potentially protect against disease. It's easier to develop, we can mass produce it more quickly, and it's very effective. It would not be considered nearly as experimental as a vaccine, so people would be incredibly surprised if monoclonal antibodies don't work. That could be a bridge to the vaccine as good convalescent titers.

The other thing is just around flu vaccination in the fall, usually it's 50 or 60%. I think everyone who's involved in this would like to see that 90% this year. And then we have learned, and I give a lot of credit to all of the investigators and people who have responded. We know we must protect the elderly. The frail elderly, if they get infected, their mortality rate is much higher. So what we're seeing in Houston and in Florida is far fewer deaths among the elderly and that's, in part, because I think we've really learned that they need to be protected and that has to continue in the fall. So that's protecting the frail elderly, and that's protecting all the people that take care of them, and that's both health care workers and non-health care workers. I think we have learned from January, February and March, how important that is.

**Todd Unger:** Last topic. Correcting misinformation is an ongoing challenge with COVID-19. Any misconceptions you’d like to correct based on the latest research?
Dr. Bauchner: Yes. I think there will be more studies about hydroxychloroquine, but there’s been a number of clinical trials, as well as a number of observational studies, and at this point, there is no evidence that supports its effectiveness in the treatment COVID-19.

I worry about people thinking that it does for two reasons. One, they may not seek care if they need to seek care, so that's important. Secondly, the drug can have side effects. And then, thirdly, if they use it and they would have been candidates for a different therapy, they may not get it. I know over the weekend there were a lot of videos about hydroxychloroquine and that it really does work, and that's simply not what the evidence suggests.

Todd Unger: Well, thank you very much, Howard, for all of your perspectives and thank you to you and the team for just the tremendous amount of research that you're producing to help us understand COVID-19.

That's it for today’s COVID-19 update. We'll be back soon with another update. For resources on COVID-19, visit ama-assn.org/COVID-19, or the JAMA Coronavirus Virus Research Center. Thanks for joining us and please stay safe.


Todd Unger: Thanks, Howard.

Disclaimer: The viewpoints expressed in this video are those of the participants and/or do not necessarily reflect the views and policies of the AMA.