

What does COVID-19 data mean? Is the situation improving in Arizona?

Musical interlude

Kaila: Welcome to Valley 101, a podcast from The Arizona Republic and azcentral.com where we answer the questions you ask about metro Phoenix. I'm your host, Kaila White.

Kaila: A few weeks ago, our producer Taylor Seely got a push notification on her phone from azcentral.

Taylor: I thought it said something like, "Arizona hits record high number of COVID-19 cases." Which confused me. Because I thought, "Wait ... the number of cases won't go down. It's cumulative. So why would we say 'record high.'"

Kaila: Turns out, she misread it.

Taylor: Yup, I got it all wrong.

Kaila: Happens to the best of us.

Taylor: But, it gave me the idea to do this episode. I don't think I'm the only one who is confused by the deluge of numbers around COVID-19. I'm not sure which ones to pay attention to. Or what they all mean.

Kaila: So, that's what we'll be talking about today. Taylor, take it away.

Musical fades out

Taylor: I knew I'd need help to parse through all of the numbers in today's episode. So, I turned to two experts.

Taylor Seely: All right, you guys good? Yes. Perfect. OK, so first, thank you guys very much for taking some time, I know you're really, really busy. Can I have you guys start with your introducing yourself with your name and your title, OK?

Stephanie Innes: I'm Stephanie Innes, and I am the healthcare reporter for the Arizona Republic.

Alison Steinbach: I am Alison Steinbach. I cover Mesa and Gilbert for the Arizona Republic, and I've been helping out with coronavirus and health coverage.

TAYLOR: Before we can understand what the data says, we need to talk about what we're measuring. What data is being collected? What measurements are being used? Turns out, there are A LOT of metrics. But we're going to focus on the eight that are most commonly talked about.

musical interlude: "Ambience" by Stephan Sechi

Stephanie Innes: I know some of the measurements that we've been looking at and that the epidemiologists are looking at are the percent of positive cases. So the percent of all the tests taken - what percent of those are positive? We've also been looking at the number of positive cases and also COVID-like illness reported at hospitals.

TAYLOR: Most of the data comes from the state, meaning the Arizona Department of Health Services. Or it comes from Arizona State University.

Stephanie Innes: The other ones are the hospital data, which are hospitalizations of people with suspected and confirmed COVID, And then we also have been looking at emergency department visits by people with suspected and confirmed COVID and also ventilator use and ICU bed use.

TAYLOR: Finally...

Alison Steinbach: Something that I've also been looking at is kind of deaths based on date of death that they occurred.

TAYLOR: So to reiterate, the measurements being taken right now in regards to COVID-19 in Arizona are as follows:

- The number of positive cases - both cumulatively and by day.
- The percentage of positive cases, which means we're also measuring the # of tests being taken.
- The number of hospitalizations of people with suspected and confirmed COVID-19 illness
- The number of emergency visits
- The number of ventilators being used
- The number of ICU beds being used
- The number of deaths due to COVID

- And deaths based on date

music ends

TAYLOR: So, where does Arizona stand? if we're gathering data on 8 different metrics, what is that data showing us?

TAYLOR: First up, let's talk about the metric you probably hear about the most: cumulative cases and deaths.

TAYLOR: As of June 4th, there were **1,012 deaths** and about **24,000** positive cases of COVID-19. That 24,000 figure is a cumulative number that accounts for *every* case of COVID-19 that's been *tested* and *confirmed* in Arizona since the start. Now that **doesn't** mean all those cases are active. There are certainly many people who have gotten better. But we don't have numbers for that. Alison said readers ask her about that a lot.

Alison Steinbach: The number of cases and deaths is kind of not very hopeful to look at. And people really want to know how many people are getting better from this. And the state has not yet provided that information. They consistently say it's something that they're working on.

TAYLOR: Now here's another thing you need to take into consideration with that 24,000 figure. That's the number of cases we know about because those 24,000 cases were confirmed through **testing**. There could be more people who have COVID-19 or have had COVID-19 but have not been tested..

music "Directions" by Stephan Sechi

Taylor Seely: Are those numbers the over 20000 cases in Arizona as of June 1st? Is that a surprise or is that what we expected?

Stephanie Innes: I don't know what we expected. To be honest. I mean, I think we thought that we would reach a peak in late April, but that hasn't happened. Is that right, Alison?

Alison Steinbach: I think, yeah. It looks like things aren't exactly slowing down. And now it's obviously well after late April. But I'm not sure if we even know yet when our peak was or whether we haven't yet reached it.

Stephanie Innes: But I do think it's clear that we haven't reached what the state had prepared for being a worst case scenario. We have not reached that level.

let music fade out

TAYLOR: The other similar measurement you probably hear a lot about is the number of new COVID cases by day. For example, remember in the beginning when I said I misread a headline about record breaking covid cases? Turns out, it was actually a recording breaking number of new COVID-cases in a single day.

TAYLOR: When I followed up with Stephanie about it, she said that metric can get really tricky. She said you HAVE to be careful not to put too much emphasis on a single day's numbers. And that's because it varies based on how many tests are available. Since the beginning of May, the state has been conducting what they're calling "testing blitzes" where they're trying to test more people than they were previously. So when we look at spikes in new cases by day, you have to consider whether it's perhaps just a matter of more people getting tested.

TAYLOR: The other smaller issue is that sometimes the state backfills the data. Meaning: You might see a spike one day NOT because there actually were more cases that day - though it's certainly possible - but it could also be the case that laboratories went back and added more cases from prior days, weeks or even months. They also backfill data on the number of deaths by day.

TAYLOR: So that's the data that people often talk about. Cumulative cases and deaths, and daily new cases and deaths.

Musicv fades out

TAYLOR: But the metric that the state usually focuses on is the percentage of positive cases. The percentage of positive cases is supposed to give us an accurate picture of the level of disease in the community. That state also focuses on it because it's in the White House's criteria for reopening

TAYLOR: Remember for the percentage of positive cases, you can visualize in your head a fraction. On top is the number of positive cases. On bottom is the number of tests that have been completed. The calculation is the percent positive. The state, meaning the department of health services, likes to calculate this weekly.

Alison Steinbach: What the state does is they report the total percent positive. So out of all of the tests completed in Arizona, what percentage of those have come back positive? And then they also do it based on week by week. So in terms of last week, out of all the tests performed last week, how many are positive? And then you can sort of trace it week on week.

TAYLOR: Calculating it weekly as opposed to daily like some university researchers do helps to iron out any daily irregularities. For example, Mondays there are usually fewer tests because

people get it done over the weekend. So where's Arizona at with percentage positives? It's hard to say.

Alison Steinbach: It's sort of jumped around. It was decreasing for a while. But in the past couple weeks, it's been increasing a little bit. And it's unclear kind of whether opening up played a role in that or whether it's something else going on.

slight pause

TAYLOR: I want you to picture a timeline. **music "Impressions" by Stephan Sechi** On the left is March. On the right is June. The weekly percent positives went UP from March through Mid-April. Then, from Mid-April, they go down until you hit early May. In May, you see an increase in weekly percent positives from 5% one week to 6% the next week, 9% the next and then 8% the next.

Alison Steinbach: *So over the past three weeks or so, the percent positive for tests performed that week has been increasing slightly, which is not really the trend that the state is hoping, hoping to see.*

TAYLOR: So it might seem like we were getting worse, then getting better, and now we're getting worse. And maybe, that's actually the case. But it's hard to know for sure. **music fade out**

Stephanie Innes: *One thing we do have now is that we are two weeks, a little more than two weeks out from the expiration of the stay at home order. So I know a lot of the people watching these graphs are looking to see whether that results in any kind of a spike.*

Taylor Seely: *And are we seeing anything so far? Or are we just out from knowing?*

Stephanie Innes: *We're just out from knowing? I think it's hard to say that it's a trend or that's what I'm told.*

TAYLOR: The other thing is, it takes time to know whether any one event has had an impact on the spread of the coronavirus.

Alison Steinbach: Yeah, I think there is a delay in terms of when infection happens to when it's reported as a case, because if you think about it, if I were to go out and get infected, I would be asymptomatic for a while as the virus kind of I don't know, the scientific term moves inside me. Incubates, I guess. And then eventually I'll get symptoms and then I'll wait around a little more. And then if it gets worse, I'll go get tested. And at that point I'll

be a case. So all those days have passed. So you have to kind of wait all that time to know when an event had an impact, if it did in transmission.

TAYLOR: If we DO have an upward trend in percent positives, that could indicate an increase in community spread. Community spread means basically: the infection is so widespread that we can't trace where it came from, which would mean it would be harder to eradicate.

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TAYLOR: So, to recap: Our cumulative number of cases and deaths continue to rise. That's what you'd expect. Our percentage of positive cases has changed course over time. Right now, we're on an upward trend, though it's hard to say what that means. Let's turn to another data point for some help here. Let's look at the data that's coming from our hospitals.

*Music fades out

Stephanie Innes: You want to look at hospital data because it's not sullied by the testing data. So because we've had ups and downs and the number of tests available and the way we're testing people hospitalizations are what some public health officials think are a better measure because they see, you know, it looks at who is the most sick with COVID-19 and they're going to end up in the hospital, whether, you know, regardless of the level of testing that's available in the community.

TAYLOR: So what does the hospital data say.

Alison Steinbach: Inpatient beds, ICU beds, ventilators and emergency department visits with people who either have COVID 19 or are suspected to have it. All of those have been kind of record high numbers over the past five or six days, which is kind of late, late May into the beginning of June.

TAYLOR: Understanding the capacity of our hospitals is vital to ensuring we don't overwhelm them. If we were to run out of ICU beds or ventilators, doctors would have to start making difficult decisions about who gets what resources, which could mean choosing between life or death for some patients.

Stephanie Innes: We are seeing definitely, you know, with six days in a row of hospitalizations, more than 900, which is more than we'd had since they began reporting the date on April 9th, it looks like it could be a spike in communities spread. But I don't think anyone

knows for certain at this point because there are other factors that could be at play.

TAYLOR: To break that down a bit more: toward the end of May, the daily number of people hospitalized due to COVID-19 or COVID-like illnesses was starting to increase. *Music "Directions" by Stephan Sechi* On June 4th, Arizona reached a record high of 1,234 active hospitalizations. As of June 4th, there had not been fewer than 900 hospitalizations per day since May 25th.

Taylor Seely: Can you talk a little bit about the hospital availability and kind of how many beds we have available if we're putting more efforts into increasing the number of beds available?

Stephanie Innes: So hospitals had to increase their bed capacity by 25 percent by the end of the first week of April, I believe, or somewhere around April 10th. And they all complied with that. They were supposed to actually increase by 50 percent by the end of April, but they didn't do that because they weren't seeing the volume that they thought might happen. So the hospitals are operating at 25 percent extra capacity and there is also some contingency sites. So in northern Arizona, there is a Walgreen's distribution center that's been identified. In Phoenix, there's St. Luke's Medical Center, which had closed about a year ago. And then now the the emergency division of the state and the National Guard are refurbishing it for patients if needed.

TAYLOR: So the good news is we haven't run out of beds. As of June 3rd, DHS says 16% of hospital ICU beds are still available and 67% of ventilators are available. And as you heard Stephanie say, there are contingency sites in case hospitals did run out. Those might be necessary if we have a surge or if we experience high numbers of hospitalizations for other illnesses, like the flu.

musical interlude

Taylor Seely: you know, if a family friend just was talking to you casually and just said, you know, like, OK, what's going on with the state in general? Like, is there even an easy way to answer that? Like, yes, we're getting better. No, we're not. Does most data indicate X or. *music fades out slowly*

Stephanie Innes: Well, I. I was actually talking to a friend on Saturday who asked me that very question, and I said I was concerned

that we were having another spike in community spread, but I wasn't sure.

Stephanie Innes: You know, that's my non expert answer.

Stephanie Innes: But based on what I know.

Taylor Seely: And that's because kind of that most recent data continues to show increased hospitalizations.

Stephanie Innes: And one would hope that's not true. You know, I hope that's not true.

Taylor Seely: As a health care reporter, Stephanie, what types of precautions are you still living by?

Stephanie Innes: Well, I still work from home like all of us, and I really haven't changed the way I do anything since the stay at home order expired. I still wear my mask to the grocery store. I still go to the grocery store once a week. And I do not dining in restaurants at this point. I'm not ready to do that. But I am doing takeout. And, you know, there's a lot of new evidence that transmission on surfaces is probably less than what we originally thought. So I'm not really as worried about that. And then outside, we know that transmission is less likely to occur outside. So I'm really not too afraid of, you know, riding my bike and going for walks. I have started going to fitness class, but I feel the most like where I go to Pure Bar there. They've reduced their class sizes and they're taking a lot of precautions.

Stephanie Innes: And nothing is exactly the same as it was used to be like three months ago.

Taylor Seely: I think it's fair to say that Governor Doug Deasy's decision to end the stay at home order on May 15th was controversial. There were a lot of people who disagreed with it. There were a lot of people who agreed with it. Does the data you know, you guys are saying that in the last week, a lot of the hospital data is hitting record highs, that that percentage of positive cases the last three weeks in a row have been increasing. Would this data indicate that that was perhaps the wrong decision in retrospect?

Stephanie Innes: Everything we're being told is that it's too early to say that.

Taylor Seely: Why what makes it too early?

Stephanie Innes: That we don't have the nu-- because the the stay at home order expired two weeks ago or two weeks ago Friday. So we would only just be beginning like around Thursday, Wednesday, Thursday, Friday to see the results of that expiration of the order. So you don't want to just look at a clump of days and say that's a trend like, say, three or four days.

Stephanie Innes: But, you know, I don't know exactly how much one needs to have for a trend. But every time Alison and I last week were talking to experts, they always said, you know, we could be seeing a spike in communities spread, but we're just not ready to say that yet.

musical interlude

Taylor: Thank you guys so much.

Alison: Thank you.

Stephanie: Thanks, Taylor.

music fades into theme music

KAILA: Hey, it's me again, Kaila. Taylor, all this data can feel really complex and convoluted. After clarifying a lot of this, what tips do you have for listeners?

TAYLOR: What I realized from talking to Stephanie and Alison is that so much more context is necessary than you would think to understand data from DHS. I personally was getting very confused at the numbers and percentages displayed on the DHS dashboard because they didn't add up to me. So if you're looking at the DHS data finding yourself confused, I'd recommend signing up for our azcentral coronavirus newsletter. Alison and Stephanie along with a handful of other Republic reporters are amazing at breaking it all down in their articles. And on top of it, they're responsive to questions in their inboxes.

KAILA: If you're interested in this newsletter, sign up at newsletters.azcentral.com/

KAILA: That's it for this week. Remember to send us your questions at valley101.azcentral.com. See you next week.