



WIG Summer Summit Series

Tuesday, June 22, 2021

Looking Back: The Ultimate Stress Test For FirstNet and Getting Routine Immunizations Back On Track

Segment 1: *Looking Back: The Ultimate Stress Test for FirstNet*

Introductions:

Former Colorado State Senator Nancy Todd, WIG Interim Executive Director

Moderator:

Washington State Representative Cindy Ryu, Chair, WIG Board of Directors

Featuring:

Carrie Johnson, Director of Strategy & Policy/ Rural & Tribal Affairs Specialist, FirstNet Program, AT&T
Christopher Becenti, Executive Director, Navajo Nation Telecommunications, Regulatory Commission

Segment 2: *Getting Routine Immunizations Back on Track*

Moderator:

Washington State Representative Cindy Ryu, Chair, WIG Board of Directors

Featuring:

Christine Liow, Associate Principal, Avalere Health
Dr. Thomas A. Clark, MD MPH; Supervisory Medical Officer, Centers for Disease Control and Prevention

Senator Nancy Todd: Welcome, and thank you for joining us today for the first session of Women In Government's [Summer Summit Series](#) – 2021. I'm former Colorado Senator Nancy Todd, now serving as Interim Executive Director at WIG.

[Women In Government](#) is a nonprofit, nonpartisan organization guided by an all-legislator Board of Directors. I encourage legislators to join WIG leadership by applying for a State Director vacancy in your state!

Now, I'm delighted to introduce our moderator for today's session, my good friend Washington State Representative and WIG Board Chair Cindy Ryu. Please take a moment to see Cindy's bio in the Chat Box and learn a little bit more about the expertise she brings to [Women In Government](#) and the Washington State Legislature. Cindy, the floor is now yours, so take it away!

Representative Cindy Ryu: Thank you so very much Nancy! I'm happy to see you and everyone else here for today's double-header program. Before we get started, please introduce yourselves in the Chat Box on the Zoom Toolbar. If you have questions or comments, please write them in the Chat Box at any time, selecting "To: Everyone." For optimized viewing, please select "Speaker View" from the Zoom View Options. And we'd love to see you [Tweeting](#) using the event hashtag: #WIGSummerSummit.

We look forward to seeing everyone throughout the Summer Session. Check out the link in the Chat to view the [full agenda](#). And thank you so very much to our Summer Summit Sponsors—we really appreciate your support for our programs over the next two weeks! Also, special thanks to our [Business Council Members](#) and Associate Members for your engagement with Women In Government!

Now, on to today's first program *The Ultimate Stress Test for FirstNet*. Please join me in welcoming our two panelists and we'll post their full bios into the Chat Box. First up is Carrie Johnson, Director of Strategy & Policy and Rural and Tribal Affairs Specialist for the [FirstNet Program at AT&T](#). And then we'll hear



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from Christopher Becenti who serves as Executive Director for the [Navajo Nation Telecommunications Regulatory Commission](#). Carrie, the floor is all yours.

Carrie Johnson: Wonderful! Thank you all very much for the invitation to join you today, I appreciate it. So we can dive in, next slide.

So, my name is Carrie Johnson, and I serve as our Director of Strategy and Policy for the FirstNet program AT&T. One of my other primary areas of focus is our build-out of FirstNet in rural and tribal areas and making sure that we are designing the network and solutions to meet the unique needs of first responders in rural and tribal communities.

Today, we will be looking back at 2020, including the pandemic, a record wildfire season, hurricane season, tornadoes, and touching on how FirstNet was able to support public safety, in response to these major events. Chris, do you want to do your introduction now?

Christopher Becenti: Absolutely, and thank you Carrie and, most importantly, thank you for extending the invite as well for myself. I wanted to go ahead and introduce myself really quickly. Christopher Becenti with the Navajo Nation Telecommunications Regulatory Commission. And again, so excited to be here. I'm going to go ahead and **introduce myself in Navajo.**

So, I wanted to go ahead and quickly introduce myself. I'm currently serving under the [Nez-Lizer Administration](#) as the Executive Director for the Telecommunications Regulatory Commission. I started my role in 2019 and kind have been taking on a couple different roles within the Navajo Nation. And, of course, one of them and, again, is going to be the with what's up for discussion right now, it's going to be the FirstNet.

So currently we are working through the phase of the deployment of the network throughout the Navajo Nation. I know we're definitely going to be touching base on this as we get through these slides but thank you so much Carrie.

Carrie Johnson: Wonderful. So, before we dive in, I wanted to make sure that we level-set on FirstNet and really, what was the impetus behind the creation of this dedicated network for public safety. And it stems from the communication failures that occurred during the 9/11 terrorist attack, where you had the numerous responding agencies that were going to the World Trade Center towers, as well as the Pentagon. And they were using disparate land mobile radio networks that could not communicate across networks and so that created a major challenge with being able to communicate and coordinate the response.

The other issue was that public safety was needing to rely on commercial wireless networks, and so they would have to compete with commercial users who are also doing voice calls data. And we've all experienced the frustration of trying to send a text or make a call in a large event or during an emergency and that same issue was hindering communication for public safety. And so, as part of the



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thorough review that the 911 Commission did about the September 11 attack, one of the recommendations was the creation of FirstNet, a dedicated nationwide wireless broadband network for public safety. So public safety disciplines then called for Congress to [take action](#), and Congress did pass legislation in 2012 that created the federal first responder network authority and set aside a band of spectrum—20 MHz of band spectrum specifically—for public safety use.

The FirstNet authority then proceeded with doing extensive engagement—four years of engagement with state, local, tribal stakeholders—to really understand what the needs of public safety was for their network and that informed the creation of an RFP.

Ultimately, after this competitive RFP process, AT&T was selected as the private partner, and we are now about four years into a 25-year public-private partnership to build out FirstNet across the country, including all 50 states, DC, and the five territories. Every single one of those jurisdictions had the opportunity to either opt into FirstNet or they could have opted out and built their own network, but fortunately all 56 (states, DC, and the five territories) ultimately chose to opt into to FirstNet, so we are looking today at truly a nationwide network.

You know, no one could have predicted the COVID-19 crisis, but the timing really was critical, and FirstNet has played an essential role in meeting the connectivity needs of healthcare workers, first responders, and other first net users in the face of this this nationwide and global health crisis. So, next slide.

So, as far as those who are eligible for FirstNet, we have two different categories. There's primary users, and that includes police, fire, EMS, 911 centers as well as emergency department health care staff. And then—recognizing there's a broader community of key folks who support emergency response—there are extended primary users. So those would be the broader healthcare community, utilities, transit, public works, public health workers. So those are examples of some of that category of user who are also on the network. Next slide.

And so, this just touches on kind of the commitments that the contractual obligation as the private partner. So, you can kind of look at it in three key categories: there's the obligation to build out the network, meet the coverage objectives, and also drive innovation for first responders. Then make sure that we're designing and offering a solution that first responders want to sign up for. We do face adoption targets, and that makes sure that it's a quality service and at a cost-competitive price. Next slide.

So, this just gives a snapshot of where we are today. There are more than 2.2 million connections on the network and that represents more than 16,000 public safety agencies across the country and organizations. And with our [Band 14 buildout](#) (the public safety spectrum) we are more than 90% complete with our initial build plan, so making great progress. Next slide.

And one of the really exciting parts of FirstNet is that every single phase of the buildout of this network for this initial five-year build, there are rural coverage benchmarks that need to be met. And the key focus on not only serving urban, suburban first responders, but that rural and tribal first responders are



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all are also essential priority (for serving first responders) and really meeting and fulfilling the mission of FirstNet. Next slide.

After a conversation with the WIG staff last week and just recognizing the emphasis on rural broadband and the Federal stimulus we decided that, in addition to touching on some of the emergency responses that we'd also take a deeper dive into talking rural broadband and the build out of FirstNet. To do that, I think it's important to look at the building, sort of three key areas. The first is deploying the public safety spectrum to tens of thousands of existing sites across the country. The second category is that during that opt-in process—where all states were evaluating the custom FirstNet state plan for their state—they actually got to look at the map and pinpoint where they had additional coverage needs. And so, as part of this public-private partnership, more than 1000 new cell sites are being deployed across the country in areas that were identified as a public safety coverage priority. We are more than halfway complete—so making really great progress—and that full build based on our contract needs to be completed by March of 2023. Lastly, the third category is that in rural and remote areas, we are working with rural wireless providers to further extend the reach of the Band 14 as well as the AT&T commercial spectrum. Next slide.

And then I wanted to show a couple pictures. So, these are all pictures from pre-COVID-19, but they were in-person events that we had held to celebrate some of this new infrastructure. And we're really excited that now that there is a vaccine and it's safer to get together in person, and that we can resume some of these events. But the picture on the upper left-hand side shows an event that we did at Tilghman Island, Maryland and actually with some state legislators in Maryland to celebrate the expansion of rural coverage and FirstNet's expanded reach for Tilghman Island.

The photo right below with shovels and ground actually being moved is of the Red Cliff Band of Lake Superior Chippewa in Northern Wisconsin, so celebrating a site that is improving the FirstNet coverage and has the secondary benefits of expanding AT&T commercial service in that area that tribal community that previously really had very limited broadband connectivity. Next slide.

And I would also say that anyone here that's interested in hosting or participating in a kind of similar event we'd love to work with you and highlight the benefit of this Federal public-private partnership.

So next, in addition to the permanent infrastructure one other unique distinction with FirstNet is that there are temporary assets, so a fleet of dedicated FirstNet deployable assets. These are essentially mobile cell sites that can be called upon during emergency events or during planned events. The two pictures at the bottom (you can tell they're very smoky) these are some of what we call a SatCOLT—a cell on light truck—that was deployed to provide connectivity for a command post for fire response in both the Black Hills. So, we saw fire season starting earlier and earlier this year, and that was certainly true for 2021 in the Black Hills of South Dakota my home state and we deployed a couple assets to meet the first responder needs. And then we saw a really very, very dramatic fire season last year in the Pacific Northwest. This asset is an example of one of those many, many assets—dozens and dozens of assets—that was deployed to the western United States last year to boost the coverage for the fire response.



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Then Hurricane Laura, we also saw last year, a very, very active hurricane season with more than 30 named storms. One of the largest was Hurricane Laura and we did deploy this FirstNet Aerostat, so essentially a blimp that can fly at 1000 feet and really provide a much larger coverage footprint. And that flew over Cameron Parish to support first responders on FirstNet. Then that smaller little drone type asset that we call a “Cell On Wings”—a Flying COW—and the first time we deployed that was for Hurricane Michael over Mexico Beach, Florida. and that asset can fly at about 300 feet and again, providing that larger coverage footprint than one of those on ground assets can provide.

But last year, looking back, we actually responded to more than 750 deployable requests from FirstNet users. FirstNet users can make these requests free of charge and that's just a benefit of being on this federal public-private partnership network. And this year, we really have not seen any pause in those requests. We've continued to see very active user use with more than 100 requests so far this year. Next slide.

And this highlights some of the COVID-19 response. And as we shift now to vaccination, we have seen many vaccination centers that not only are there a lot of healthcare and first responders on the scene, but you're seeing a flood of community members who need to wait in line, wait their 15 minutes for monitoring before they can leave—and what are most folks doing? They're on their phones!

One example of one of these mass vaccination sites was in Arizona. And when they first launched the massive vaccination site, they were having real issues with their situational awareness tools—all of the comms, and any kind of telehealth tools that were being used by the healthcare workers—and that was because they were on a commercial network, and it was facing real traffic congestion and slow speeds. They were eligible for FirstNet, so they were able to migrate to FirstNet, and because of the priority and preemption on FirstNet, they were able to have that reliable connectivity.

In locations where they had a need for boosted coverage or boosted capacity, FirstNet users were able to request some of these temporary assets and we deployed them at some of the naval ships that were serving as field hospitals or quarantine sites, state emergency operation centers, tribal emergency operation centers, testing sites, and so this is kind of a sampling of that.

The picture of all of the ambulances, that's from New York. And at the peak of their outbreak, hundreds of ambulances came into New York City to provide mutual aid and to support the transport of patients throughout the city and in the metro area. And FirstNet served as that common platform for communication, so kind of that single network to be able to allow that communication across these various agencies that were coming into the city. And similarly at that staging ground, we were able to also deploy some of these assets to add capacity to meet the huge data demands that these first responders and healthcare workers were having.

So, with that, I'll shift to the next slide and hand it over to Mr. Becenti to share how the Navajo Nation has leveraged FirstNet in response to the COVID pandemic facing their people.



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Christopher Becenti: Thank you once again, Carrie, I really do appreciate it. And once again so with the Navajo Nation COVID-19 response: that in itself at the peak during the months of February and March of last year, we proved that our infrastructure in terms of telecommunications was definitely challenged.

So, during that time, State of Emergencies were declared and Stay-At-Home orders were requested. One of the things that we have to keep in mind—and this is at the top of my head—is we have folks that are going to be required to work from home, students that are going to be sent home and try and find the creative solution for distant learning. How's this going to tax the networks and how are we still going to be able to communicate?

So, of course, back then, again just working with our service providers and partners: what did we need to do to try and get our students through the finish line for the semester? Because again, what's threatened on the line is scholarships and then potential opportunities for seniors graduating and looking towards universities and colleges.

So that was at the top of the mind and one of the other things that came up is the [HCOC](#) (the Health Command Operation Center). How are they going to get Internet, especially when they have government agencies that are going to be providing support? So, one of the examples—and these two pictures kind of show what FirstNet was able to provide. Since FEMA has some FirstNet users, we made the request for FirstNet for two locations: one at Window Rock and one at Tse Bonito because we needed a redundancy and offsite location in the event of a COVID exposure.

So, again, with the networks all being challenged, Band 14 was able to at least keep FEMA and some of the FirstNet users with the Navajo Nation, because we had a couple users that were early adopters of FirstNet because we're actually still in the middle of deploying the FirstNet network throughout the Navajo Nation. So again, we can't thank FirstNet enough, especially our partners. Which leads me to thank you again, Miss Carrie, and there's a couple of other people I just want to say thank you to all that are actually part of the [FirstNet Authority](#), and actually first and foremost is Margaret Gutierrez with the FirstNet Tribal Liaison Group who is able to get us on with the FirstNet Tribal Working Group. And, of course, [Miss Jackie Miller-Waring](#). Again, these folks just made things a lot simpler during that time, especially with the challenges we are facing with telecommunications. So, I guess let's go and switch over to the next slide and I can provide some dialogue on that one.

Awesome! So, this kind of leads me into the next thing and, of course, Women In Government—what else could this lead to besides a recent visit from First Lady Dr. Jill Biden on the Navajo Nation? She wanted to do some tours throughout the Navajo Nation, again, we had to make a request because since we're still in the middle of deploying the network with FirstNet throughout the Navajo Nation. Our FirstNet partners did not hesitate at all, especially when Dr. Jill Biden wanted to visit one of the schools that hasn't had the Band 14 build-out yet. And on the left side of the picture, we have the two vehicles (as well as the SatCOLT) that provided support for that area. So again, the partnerships with FirstNet have already been beneficial. We have a couple different offices that are actually already encouraged on using FirstNet.



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So of course, we're looking at funding opportunities on how we can simply deploy FirstNet among first responders throughout Navajo Nation. One of the other things that I'd also like to mention is FirstNet definitely for sure for first responders, there's multiple levels of FirstNet. This also gives utility workers security guards. Basically, in the event of an emergency if there's multiple departments and people playing roles that are that are critical to this. So again, it expands well beyond public safety in different levels, if you will.

So, one of the other things that I wanted to mention is, we have our CHRs—our Chapter Health Officials. Basically, they're out in the field during the peak of the pandemic and they needed Internet connection because they're trying to provide telehealth back to the hospitals with their patients in the field. So again, this also falls on the FirstNet usage as well. So, we're actually coordinating to see how we can look at grant opportunities to try and close the digital divide with our departments and DOH within the Navajo Nation. So definitely wanted to share that with everyone and that's what I have for this slide.

So, I'm going to touch base on the [American Rescue Plan](#). This is a huge and an amazing opportunity to try and address so many different infrastructure challenges, especially with Navajo Nation. So, investing in broadband—the State of New Mexico, State of Arizona, and State of Utah are taking initiatives to try and close the gap as much as they can, because, I think, with the challenges they were able to see in rural communities and tribal communities throughout the entire country. They understood that we still have some gaps, but again, that's where the concentration is headed right now because it's proved critical how wide the gap is for infrastructure throughout the entire country for rural communities. So the American Rescue Plan is definitely something that's going to help close the digital divide throughout the entire country.

And of course, there's also grant opportunities as well, so that there's so many different things coming out. One of the things I'd like to mention is the [NTIA funding opportunities](#) that are coming out. One of them in particular that Navajo Nation is definitely looking at is the \$1 billion for tribes for broadband infrastructure. So that again, there's multiple avenues and there's also companies that are actually willing to help provide some guidance and even just making sure that public safety is aware of future grant opportunities. So, I just want to touch base on that and that's what I have, for my part. Thank you again Miss Carrie.

Carrie Johnson: Yes, alright so just in wrap-up and then we can jump to questions. Next slide and we can piggy-back to that next slide. So, right now, one of the things that we're hearing from a lot of entities—state, local, or tribal—is just trying to navigate the many grant programs and opportunities that are out there, and I just wanted to flag one useful resource. There is [All Things FirstNet](#) that does provide free grant assistance for state/local/tribal agencies that are looking to expand their utilization of FirstNet, so just wanted to flag that as an opportunity. I will put it in the Chat Box—this link to [grant assistance](#) where it can be requested—but this is just a really helpful tool for folks who are looking to navigate either expanding their use of FirstNet, and then even looking at potentially leveraging some of these dollars to make investments in infrastructure that could even support the expansion in their area. So with that, I will now, I guess, I'll hand it over to represent Representative Ryu and look forward to your questions!



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Representative Cindy Ryu: Thank you so very much, Carrie and Christopher. We do have about three minutes, I don't see any questions in the Chat the last time I checked. Christopher, I know that there's been an unprecedented heatwave in the Southwest recently. Given how quickly seasonal challenges like these become emergencies, can you give us an example of how Navajo Nation's emergency planning has adapted as a result of FirstNet implementation?

Christopher Becenti: That's a fun question and the best thing that I can actually respond to, first and foremost. Another thing, that's a really good question because my sister is actually part of the Helitech Crew with [BIA Wildland Forestry](#) and so I often hear some of the challenges that she often brings up, and of course it's always communications/Internet access. So I think with planning and just with the current challenges as far as the infrastructure—again with the buildout of FirstNet the grant opportunities is probably going to be key to help us provide the tools and resources that we have and need for the folks in the field that's going to be responding to this. One of the things that we're definitely looking at in the event of a forest fire is the CRD, the [Compact Rapid Deployable](#), that just recently came out from FirstNet. The topography around Navajo Nation, we're not able to get cellular coverage in every possible direction. So again, if emergency management needs to deploy and they're in an area where there's limited cell phone access, there's tools and resources that that are definitely coming out to help address these gaps. One of the things that we're definitely trying to look at is Internet in vehicle Internet solutions for all public safety (as well as, again, DOH) that's going to be key and critical. If there's a way some of these devices and technology can provide location-based information, it'll give leadership an idea of where everyone is that just as an example.

And, of course, you have IOT [Internet of Things], so you have the weather stations, you have a plethora of different devices. So thankfully we've had minor naturally-started forest fires that haven't been too wild. Our neighbors such as Payson and, unfortunately, I know that they've been facing the challenges, so our best is with them definitely. But as far as providing response to that it's just coordinating and planning at this point just because we're early adopters. But FirstNet network is still continuing to be built out on the Navajo Nation, thank you.

Representative Cindy Ryu: Yes, thank you and Carrie, I did have a question about how AT&T is working to ensure the integrity of the FirstNet system. But we are out of time, so I'll follow up with you and hopefully we can post that answer.

Carrie Johnson: Yeah, I can provide a quick-quick response like 15 seconds, but that was really one of the core components of the contract with the Federal government, so there's strict accountability and scrutiny from the Federal government on that and through the FirstNet authority. But there is a physically separate dedicated network core and encryption. And then, a dedicated security operations center, so those are some of the things. But really cybersecurity and security in general, are central components of FirstNet and the contract commitments that we are subject to and held accountable by the federal first responder network authority.



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Representative Cindy Ryu: Yes, thank you for that reassurance. Thank you so very much Carrie Johnson from AT&T and Christopher Becenti from the Navajo Nation for this really, really informative session on FirstNet.

As you know, all summer summit resources will be posted to the WIG website following each day's program. So hopefully by tomorrow, so I can share. I also encourage everyone to check out the [Policy Library](#) featuring WIG's newest [toolkit on malnutrition](#).

Representative Cindy Ryu: Now we will jump right into our next session: *Getting Routine Immunizations Back On Track*.

And with us today is Christine Liow, Associate Principal at [Avalere Health](#) and Dr. Thomas Clark, Supervisory Medical Officer with the [CDC](#). Welcome, Christine and Dr. Clark and welcome to anyone who may have just joined us recently. And just as a reminder, please write your questions and comments in the Chat Box, including introducing yourself, especially which state you're dialing in from. So, Christine with that, the floor is now yours.

Christine Liow: Thank you, thank you Representative Ryu. Good afternoon everyone, my name is Christine Liow and I'm an associate principal at [Avalere Health](#). We are an advisory services firm based in Washington DC.

I am one of the leads on our vaccines team, which is a cross-functional team here at Avalere that focuses on a broad range of complex vaccine policy and market access issues. Today I'll be sharing some results from an analysis that we conducted to try to gain an understanding of the impact of COVID-19 on adolescent and adult vaccination in the U.S.

Just to set the stage a little bit, as everyone is well aware, COVID has had a profound impact on daily lives and, by extension, people's ability to access health care and routine preventive services, including vaccinations. While intense focus has really been placed on getting individuals vaccinated against COVID—especially within the past six months or so—an emerging but growing body of evidence is starting to show how routine vaccinations, that is non-COVID vaccinations, have declined significantly as a result of the pandemic.

And it's also notable that these trends don't appear to be limited to any one age group. For children and adolescents, getting caught up on routine vaccinations will likely be a growing focus as schools look to re-open in the coming months, but adults too (particularly older adults) are also at potential increased risk for vaccine-preventable diseases. Even prior to the emergence of COVID-19, we were seeing trends that vaccination coverage was beginning to stagnate globally, and the COVID-19 pandemic response and related disruptions have potentially exacerbated this issue. So that's really what brings us to this analysis



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that we have conducted, which aims to compare claim submissions for CDC-recommended vaccines in 2019 to claims over the same time period in 2020.

And I did want to note that we conducted an initial version of this analysis early in the year with data earlier from January-July of 2020 and the results of that analysis are included in a [white paper](#) that was published back in February. [This analysis](#) goes through data through November, so it has a little bit more of a complete view of 2020. And as part of this update of the analysis, we also conducted what we're calling a "missed dose analysis", which was our attempt to quantify the impact of routine immunizations that we're seeing in terms of number of missed doses. And I'll go over the methodology about that a little bit later as well. Next slide please.

So, I'll start by sharing some high-level findings from the analysis and then I'll back up a bit and I'll provide a bit more information on the data sources that we used before reviewing some of the results in a little bit more detail. And to provide a brief overview of our approach, we conducted a claims-based analysis looking at the percent difference in monthly billing patterns for routine CDC-recommended vaccinations in 2020 compared to vaccine billing patterns during the same month in 2019. As I mentioned, specifically, our analysis included claims from commercial, Medicaid managed care, Medicare Advantage, and Medicare fee-for-service markets.

The original analysis focused on January through June, and this most recent update includes data from August through November. For the purposes of this analysis, adolescents were defined as ages 7-18 to capture catch-up vaccination of the routine childhood schedule and early vaccination against TDAP and HPV. And adults are defined as greater than 19 years of age.

So at the top line, we saw that there was a sustained drop in immunizations among adults and adolescents through November 2020. Among adolescents and adults, our analysis found that routinely recommended vaccines declined anywhere from 26-46% depending on which market you're looking at. The ranges for these differences can vary depending on which month and which vaccines.

We see that the greatest single drop in immunizations occurred in April 2020 around when COVID cases were beginning to rise in the U.S. There was not quite as precipitous of a decline in 2020 as after that initial drop, but vaccination levels did remain below 2019 levels for the remainder of 2020. The one partial exception to that is flu vaccinations which I will also talk about a little bit more later on.

And finally, as I mentioned earlier, as part of this analysis, we aimed to estimate the number of doses of routine vaccinations that were missed in 2020. So using the same data set, we extrapolated out monthly vaccination rates within each of the markets we were analyzing and found that the gaps we're seeing between 2019 and 2020 were translating into approximately 26 million doses of missed vaccines which obviously has long-term implications for vaccine coverage and public health. Next slide please.

So just to provide a little bit more information about the study populations and the datasets that we use for this analysis. As I mentioned, the study focused on claims across Medicare fee-for-service, Medicare



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Advantage, managed Medicaid, and commercial markets, the Medicare fee-for-service data comes from a provider clearinghouse dataset maintained by Avalere's parent company, Inovalon, and it also contains a 5-7% sample of fee-for-service claims. The Medicare Advantage, managed Medicaid, and commercial data come from [Inovalon's MORE² Registry](#), which contain varying but nationally representative samples of their respective markets.

I've also already described the high-level approach we took of comparing claims for routine immunizations across 2020 and 2019, so the last thing I'll touch on this slide is just a few of the limitations of our analysis. One of the key things to know is that claims data is not necessarily a true representation of vaccination coverage. There are vaccination events that may not appear in claims data and that can happen for a number of reasons, such as varying billing requirements across states. We know that this can sometimes be the case for programs like [Vaccines for Children](#). So, while we strive to account for some of these limitations by being as inclusive as possible with the [codes](#) that we are capturing, if a claim was never submitted either by accident or by design, that is a related limitation of the data.

Also, this data doesn't include Medicare Part D data and the fee-for-service population. As [CMS's](#) Part D enrollment data is not yet available for 2020, this means that vaccines that are traditionally covered and paid for under Part D are not officially part of the data. We do have some Part D vaccination data for Medicare Advantage which was included in the analysis, but if you're looking at pure claims volumes, there will be a chunk of routine vaccines missing from the Medicare fee-for-service population. Next slide please.

So here is the first graph we have, and this shows the results for the adolescent population. I want to call out that this graph excludes flu vaccines. We did that intentionally because flu vaccines kind of ebb and flow based on the seasonality of that particular vaccine, which can really mask the overall monthly trends we're seeing in the rest of the data. We do have a separate graph in a few slides that will show the month-to-month trends in flu vaccination.

As you can see April was when we experienced the largest drop in claims for routine immunizations. And while claims do continue to pick back up throughout the rest of the year, particularly around the fall when some states and some schools are trying to plan for in-person schooling, they still remain below 2019 levels for the remainder of the year. The blue bars across the bottom represent new COVID-19 cases, so you can see when COVID-19 cases really started to emerge and how vaccinations were trending relative to those numbers. The orange shading in this graph is also intended to highlight the volume or deficit of routine vaccinations in 2020. Next slide please.

Here we have a similar chart showing the results for the adult population. Essentially, we see the same big drop in April followed by some recovery over the rest of the year, but in all markets, vaccination claims remain below 2019 levels across all markets. The commercial market in particular lags pretty significantly for most of the spring and summer months with some modest gains right around the end of the year. The rest of the markets—MA/managed Medicaid and commercial markets—don't experience quite as large of a gap between 2020 and 2019 but recovery does stagnate and remain below 2019



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levels for the rest of the year. Separately, we also did see a slight dip in adults across markets in the fall months so around the September to November timeframe. It's not a huge decrease, relatively speaking, but it's notable since that's when we know COVID cases were really starting to surge starting around November-December and then into 2021. Next slide please.

Here is a graph showing the monthly difference in flu vaccination levels from 2019 to 2020. The notable thing here is that we saw flu vaccination levels exceed that of 2019 levels in August and September which is depicted by the percent change in claims peaking above zero temporarily around the August-September timeframe. This was really very early in the flu season, which suggests that there was probably greater awareness of respiratory illness and may have driven influenza vaccination uptake earlier in the season than in previous seasons. But we do see that those numbers drop back down below 2019 levels later on in the fall, and, when looking at flu vaccinations over the course of the year through November, the overall levels were still netting below 2019. Next slide please.

And lastly, these are the estimates coming out of what we're calling our "missed dose analysis". These are not straight claims counts as we only have samples of data across those markets, but as part of our methodology, we extrapolated the numbers derived from our data out to the expected populations within each of the markets to obtain estimates of missed doses within each of these markets at a national level. Again, the purpose of this exercise was to try to provide some sense of the magnitude of missed vaccinations we're dealing with, which can be difficult to comprehend when you're just looking at percentages. So, from January-November in 2020, it's estimated that adolescents in the commercial and managed Medicaid markets may have missed a combined 8.8 million doses of recommended vaccines. In adults, we estimate that number is more around 17.2 million doses of missed vaccines. So together, this amounts to a little over 26 million doses of vaccines across these populations. And you can also note that the largest number of missed doses in each population is coming from the commercial markets.

When you consider the other markets and populations not included in this analysis and the fact of this data only goes out to November 2020—and doesn't account for the winter months and the post-holiday months where we saw even greater surges of COVID cases, a continuation of shutdowns and more restrictions—it's not really out of the realm of possibility to assume that this number may have continued to grow as we moved into 2021. And it will also be important to continue to monitor how trends continue to evolve, especially in response to environmental shifts like the implementation and lifting of certain policies and restrictions, the availability of COVID 19 vaccines and a whole host of other factors. So, all these will likely continue to have an effect on routine immunizations in adults and adolescents moving forward. That is the last slide I believe.

Dr. Thomas Clark: Great, thank you and thanks to the organizers for allowing us to come present on this important topic. I'd like to convey my regards from Dr. Melinda Wharton, our Division Director at CDC who was originally invited, but not able to attend. Next slide please.

It feels like forever ago, but it probably doesn't take much to transport you back to the spring of 2020 when cases of COVID were increasing and community transmission was recognized and really



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aggressive measures were taken in many communities to disrupt or interrupt social interactions and limit person-to-person transmission of COVID. And that had ripple effects through our communities in many ways, and so this quote sort of sums it up from one pediatrician, that “our waiting rooms are like ghost towns.” Next slide.

A lot was done to try to improve access to medical care, even as measures were put in place to social distance and limit person-to-person interaction but, ultimately, you can’t vaccinate or conduct other important screening measures and anticipatory guidance very well for kids through telemedicine. It really requires in-person visits and, as a result, kids have gotten way behind on their vaccines. Next slide.

As you've heard, it's kids and adults (and adolescents as well) have gotten behind on their vaccines. Sort of quickly, these are Medicare beneficiary data on adult immunizations recommended and delivered in the first six months of 2020 and you'll sort of see when national emergency was declared and social distancing measures put in place and really dramatic declines in receipt of the pneumococcal vaccines recommended to prevent pneumonia and other serious bacterial infections, as well as tetanus, diphtheria, whooping cough, booster dose, and the shingles vaccine. You will see some degree of recovery, though, for these various vaccines, but the amount of recovery has been variable. Next slide.

The same experiences observed for our childhood vaccinations. So these are VFC orders, so our Vaccines For Children program the publicly funded program for immunization delivery vaccinates about half the children in the United States. The blue bars are weekly orders in 2019 and the orange bars are weekly orders in 2020 through recurrent in 2021 and you see again a dramatic decline in ordering of vaccine for kids with the onset of the pandemic.

The orders have largely rebounded, but on the next slide you'll see that were still in quite a hole. So it's a bit of a complicated slide: the green line is the VFC childhood doses (excluding flu vaccine) and the blue line is measles-containing vaccines, so we're about 12 million doses behind for kids for all the childhood vaccines and about 1.6 million doses behind—still—for measles-containing vaccines and we'll talk about on the next slide a little bit about why measles is so important. Next slide.

There is a relationship between the age at which these vaccines are recommended and delivered and how far behind we are and how big a gap there is in number of doses given. So, rotavirus vaccine, to protect against diarrhea, is down 5.6%. Those doses are given in the first year of life. The pneumococcal vaccine, the final doses given in the second year of life, and those are down 8%. And our diphtheria, tetanus, and whooping cough (DTaP) vaccine where the final dose is given before school entry is down 9%. But a particular concern are our preteen vaccines. So, another diphtheria, tetanus and pertussis booster dose and the HPV cervical cancer vaccine are both down about 18% and meningitis vaccine about 14%.

Notably measles-containing vaccine orders are down 19%. Measles was eliminated in the United States, so there's no endemic measles, so every case of measles that occurs in this country really is the result of some of the traveling to the U.S. with measles, whether they're traveling to the U.S. or traveling back to the U.S. And anytime someone with measles comes into contact with someone who's not vaccinated,



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outbreaks can occur. And so, we've largely been protected by the degree to which travel has declined and so we're very concerned about travel picking up before measles catch-up happens. Next slide.

Unfortunately, you know, existing racial and ethnic disparities in coverage have been exacerbated for kids getting behind. So, these are influenza doses, and you'll see that from 2019 season to 2020 season coverage dropped just a little bit, but much more for Black non-Hispanic kids or Hispanic kids than for white or other non-Hispanics, unfortunately. Next slide.

These are not CDC data, but come from a University of Oregon survey, but kind of convey the same point and further, that the degree of under-vaccination among racial and ethnic groups is not solely related to social or economic status, so these are middle-upper income households that were surveyed. 30% of Black families report missing well-child visits, 30% of Latinx families report missing well-child visits compared to 23% of White families. The reasons differ. So, Black families are more likely to report missing well-child visits due to other caregiving responsibilities whereas Latinx families report missing due to fear of catching COVID. Next slide.

We asked a lot of our schools last year to provide education for kids that was effective and safe. So, this is just a [story from the Washington Post](#) about one school's efforts to work individually with families to make them comfortable sending their kids back to in-person learning. And then, when they did, they realized many kids were ineligible to go to school because they were behind on their vaccines and so also found themselves working with local providers to make sure kids got caught up. And this is probably what a lot of schools will find themselves doing this summer and into the fall. Next slide.

So, as you can tell, the need to catch kids up is really urgent, especially as we plan for safe in-person return to school. A lot of kids missed doses over the last year due to the disruptions caused by COVID mitigation measures and we're especially concerned about how far behind we are for preteen vaccines and for measles vaccine. Many schools—even if they provided in person education—didn't focus on ensuring compliance with school vaccination requirements. But this is not an enforcement issue, it's a tool to catch kids up where they need to be. And it's important to know that even as we are vaccinating adolescents against COVID, the COVID vaccines are not the only vaccines that are going to be needed to make sure kids go can go to school safely. Next slide.

So how can you help? Really, one important thing to know about is immunization information systems or, what we used to call immunization registries, states have and used to track doses of vaccine given. Many of these systems allow for reminder recall. They can send personalized notes to parents (sometimes they can look like it's coming from their pediatrician) telling them what doses they're due for and behind, and so we know that reminder recall works to keep kids up-to-date and catch kids up who have fallen behind. It's also important that parents know about the vaccine doses and schedule that are recommended and so schools and health departments can send this information broadly to parents and then work with families who are not caught up to get them caught up.

Unfortunately, we're also learning that many local health departments in federally-qualified health centers were more deeply affected by the slowdown in health visits and well-child visits than some



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private providers, and so, knowing that your state has the capacity to do this work when it comes time to getting all these kids vaccinated will be important. And every chance we take, we talk about the importance of making sure well-child visits are kept and that kids are up to date on their immunizations. That's all I have for prepared remarks but I'm happy to answer questions.

Representative Cindy Ryu: Great, thank you so very much, Christine, and Dr. Clark, for laying it all out for us. Definitely want to take time for any questions, but I think we have time for just one and I'll make it into one. Of the estimated 26 million plus doses (these are from Representative Marie Woodson) that were missed, do we have a breakdown by which state that missed the most? And what are your suggestions or advice to address this issue of vaccine rates dropping to get them vaccinated—especially since kids have to get back and obviously public health funding is one of the recommendations—do you have brief remarks on those in the next minute and a half?

Christine Liow: I can answer the first question and then I'll turn it over to Dr Clark, to address the second one, since I believe that one was directed toward him. We did not do a state-by-state breakdown, largely because in this analysis, we just looked at kind of national samples. The dataset that we're working from is just that, a sample, so we have kind of uneven graphic distributions in our claims, and so we were just looking at the aggregate and then extrapolating out to national levels. There is definitely opportunity to do some more modeling to try to get to that state-by-state level breakdown, but that's not something we've done yet, and it is something that we are paying very close attention to as Dr Clark mentioned. Health, equity, and regional state level differences still continue to be a priority and a big public health problem, so it is certainly something that's top of mind, for us, and something we may consider trying to do in the future.

Dr. Thomas Clark: The data that I talked about in kids come from ordering through our Vaccines For Children system. So, states can break down which individual providers are ordering or not, and how far behind, so we're working with them so they understand. Public health is all local and so a lot of funds have been moved to states to work on COVID vaccination and we've taken the approach that if that can benefit routine immunization as well, that can be used. We're just getting our survey data on actual vaccine administration to learn more about which kids are more likely to be behind. But it really will take sort of local efforts and thankfully all states have school entry requirements which are important. They really do help to catch kids up and it'll take a lot of effort, though, to identify and get those kids vaccinated.

Representative Cindy Ryu: Thank you so very much again, Christine Liow and Dr Thomas Clark. This is truly timely information for our communities as we reopen. And I encourage everyone here to check out the event resources at womeningovernment.org.

Thank you everyone here today for joining us and we will see you tomorrow at 3:00pm ET for our second Summer Summit series session. Bye! Thank you.

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