Health Systems Strategies that Prioritize Children with Health Complexity
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Hello and welcome to the Health Systems Strategies that Prioritize Children with Health Complexity webinar. My name is Colleen Reuland and I am the director of the Oregon pediatric improvement ship. I will be presenting and moderating today's discussion. Joining today is Lydia Chiang, a pediatrician and medical director of the Oregon pediatric improvement partnership. We are recording this webinar and it will be available on the Lucile Packard foundation for children's health website. We are also offering live captioning for this webinar. You can access the captions by selecting the closed captioning button at the bottom of your zoom screen. Or, click the link in the chat view captions. If you are having any technical issues, please enter them in the Q&A and we will try to assist you. Questions. We are intentionally giving a very high level overview of the information covered in the health system strategies to ensure a focus on children with health complexities. We did that because we hope we can prioritize time to hear from you about questions you have and to be able to answer them. We will do our best to answer them at the end of the section, Lydia and I have agreed to stay later if we don't get through them all and then if there are too many we will provide a written summary to the questions. All right, here is our agenda for the day. First we are going to set the context. About our organization. The grant funding that supported this work. And why it's important, integral as part of health equity efforts for health systems to identify and then implement strategies that focus on children with health complexity. Then we will review the recommendation provided in the brief that I hope you read before hand. Then we are fortunate to hear from three different health system leaders that have provided technical assistance in the reflection, some successes they have had, and input to those of you who may be starting on this journey. And then we will end with a question and answer session. First, our organization that we are fortunate to work with? The Oregon pediatric improvement partnership is one of many improvement partnerships across the country. Our mission is to support meaningful and lungs long-term collaboration of stakeholders invested in child healthcare quality, with the common purpose of improving the health of all children and youth in Oregon. We are primarily funded and fortunate enough to be based in the pediatrics department at Oregon health and science University. The summary brief you read before hand and that we are covering in this webinar would be possible through a grant from the Lucile Packard Foundation for Childrens' Health that we are incredibly grateful for. This grant helped to provide support to OPIP to help provide technical assistance. To the Oregon health Authority, are Medicaid and CHIP program here in Oregon. And to the contracted corrugated care organizations in our state. You can learn more about that grant and a number of the products developed through that grant if you go through the OPIP website. Let's first start with the concept of health complexity and why health systems should focus on children with health complexities.

Sorry, Colleen. We talked about health complexity and what that means. I wanted to show this simple and high-level presentation of the concept of health complexity. When we first developed this framework included paint cans with blue representing medical complexity. Yellow paint representing social complexity that could potentially impact health. The mixing of those paint colors to make health complexity shown in green. We have since then evolved to talking about these as puzzle pieces with the blue and yellow piece just being part of the picture of each patient and the combination we now call health complexity represent in the interplay. We will share later how these can be operationalized. Throughout this work this color coding your seeing has been intentionally aligned with these puzzle pieces.

You all joined because the title of the webinar was, why Health Systems Strategies that Prioritize Children with Health Complexity. Why should you? The first is that children are incredibly important population the health systems, particularly Medicaid and CHIP agencies, often the largest population in terms of age demographic that is covered by Medicaid and CHIP. Secondly, the role that health systems play is population management and ensuring quality of care. In order to do that you need to be able to focus on the population. Make sure you're anchoring your population needs to measurement that guides that. So you can't focus on and ensure quality for a population of children with health complexity if you can't identify them. Later on we're going to talk about the importance of collective implant models and community based models. The value of standardized language to define what it means and definitions for that population really can be helpful in terms of galvanizing and stimulating conversation. Probably most importantly in terms of why we should be focusing on these children is the importance of how health is really established and starts in childhood. We know that lifelong health and well-being often starts in early childhood. The indicators we're going to present in the strategies we're going to present are associated with cost and associated with poorer health outcomes. We know child health and development is particularly impacted by social determinants of health and equity. So the value of incorporating indicators that relate to those helps to strategize and develop momentum for action to focus on those. And lastly you will see that a lot of the indicators are presented include factors based on the parent or caregiver. Is a health system, one interesting strategy to consider is the parent or caregiver normally impacts the child's health and well-being, but they are often also within your system.

As a pediatrician, I've always had a strong bias that we must focus on children and do everything we can to set them up for success. As crucial discussions about addressing health disparities in equities have come to the forefront, I feel even more urgency and raising our voices that we must address inequities expensed early in life because the impact and predict future health and have multigenerational effects. To achieve health equity we have to focus on children and their needs because intervening early can actually change the trajectory. So this is why this work has been so near and dear to my heart. Identifying supporting children with health complexity so those with physical disabilities, complex, systemic racism, historical inequities or combination of all of these directly aligns with efforts to eliminate health disparities by focusing on the most formal. This focus allows us to identify families who are likely to face significant barriers to care, to fast-track these families into programs and services to address their needs before the increased complexity. And to build dyadic or family-based health models that support a generational healing.

Let's start with providing a high level overview of the information you likely read in the briefing. If you're going to focus on children with health complexity, your first priority is to identify them. In the brief we talk about the importance of identifying children using data

available at the child level so you can then aggregate it and summarize it to look at the group level or the population. So what we are going to describe is how you may use data at the child level that identifies children with medical, the blue piece of the puzzle, and social complexity. In order to create a composite variable around health complexity at the child level that summarizes both the medical and social complexity. Let's dive into a high level summary of each of those pieces of the puzzle. The blue and yellow, in order to create the green.

I'm going to go through those pieces with you all. For medical complexity we use the pediatric medical complicity algorithm. Which assigns kids in one of three categories. Complex with chronic conditions. Noncomplex with chronic conditions and healthy. Is was developed at Seattle Children's and validated the center for excellence. The algorithm uses data from health system databases and look that utilization of services, diagnoses and number of body systems affected to place kids into the three categories. Capturing codes specific for children. What the PMCA shows us is children are actually more medically complex and they look with adult centric algorithms generally used. And we will provide examples later. Defining social complexity, it's inherently challenging. We based our social complex the component on the definition provided by the center of excellence on poly of care measures which is here. A set of co-occurring individual community characteristics that can have a direct impact on health outcomes or indirect impact by affecting a child's access to care and or a family's ability to engage in recommended treatments. A list of social indicators were identified and validated and have been shown in the literature to be predictive of a high cost healthcare event to be associated with poor outcomes. As you will see on the next slide many are also aligned with adverse child experiences

As you look through this list of social indicators they are likely not surprising. We know many impacted primary care home, stable housing and food, education and job security, and all of that can impact health and how people utilize the healthcare system. For children the impacts last into adulthood and increase medical and social complexity as they get older. Once you have the medical at a child level indicated and the social complex of the at a child level you can do the innovative work of combining those variables to create a health complexity. The reason this is important, we know what you might do for a child who is medically complex and socially complex is going to be very different than what you might do for a child who has social complexity that don't intervene early that might lead to medical complexity.

In the brief we spotlight an example of a nine part health complexity variable or index that summarizes both the medical and social complexity of the child. What you see are the nine different indicators that were created in Oregon. On the left in terms of the row, those are the three categories the pediatric to complexity. The first row being children with the highest level of medical complexity. The second probing children with noncomplex critical conditions in the third row being children with no to complexity. In terms of the column in creating the three columns, in Oregon we identify 12 social complexity indicators aligned with the definition that Lydia just shared and then aligned with the specific indicators associated with poor health outcomes and cost. We created a category of those 12 variables that summarize them as three or more, the first column. 1-2, the second column. And none, according to what is in the system level data. That is how we created the nine part variable. The value of what this shows you is a helps you identify children who have health complexity, shaded in green, meaning they have both medical and social complexity. If you look here at Oregon's data in terms of children enrolled in Medicaid and CHIP, you will see

25% of children, we add up the four columns, have both medical and social complexity. Were only 3% of children in Medicaid have just medical complexity. If you look at the bottom row, you will see that 23.9% of children, 120,764 have three or more social complexity indicators meaning if we don't intervene, the literature would show us they are likely going to move up that column into medical complexity. In the brief we made sure to share innovation examples that have been identified across various settings through our technical assistance. In terms of on page 5 of the brief, we summarize how other states have implemented this health complexity model. You will see in Oregon we have been implementing the child health complexity model since 2018. The way we operationalize the PMCA is using the medical complexity, and the way we operationalize the social complexity is doing the Oregon integrated client data warehouse. In the brief there is a link that provides a summary to another brief that provides a lot of detailed descriptions around the methodology used in Oregon. And we also will be sending, after this webinar, a link to our website and two articles that provide more descriptive information if you're interested in learning more. We are really fortunate today to have Elizabeth from Colorado who is going to be sharing how she thought about incorporating components of the health complexity model in Colorado. In terms of operationalizing the medical complexity, they use the pediatric medical complexity. In terms of operationalizing the social complexity, you will see they identified a number of factors associated with the definition for social complexity that Lydia shared. And associated with health systems not working well for these populations. Lastly in the briefly summarized work with the Kaiser Permanente Northwest system. Where they too implemented a model to yield a health complexity index. For the medical complexity they too use the PMCA. For social complexity they utilized data in the electronic health records and implemented new screenings at well visits that aligned with the social health complexity indicators that Lydia shared. That is that priorities that. You first need to have child level data so you can then think about how you might do strategies that ensure a focus and quality for these children with health complexity. Let's talk about the four option strategies we described in the brief. In the brief we provided four different options. First, enhancing awareness, analysis, refinements and use of data to galvanize, guide and improve in care. The second option was ensuring the needs of children with health complexity are met. Kind of the basics of the health system for making sure those children we serve are getting their needs met. The third is assessing for quality for children with health complexity and how these indicators may be a useful strategy. And the fourth is, prioritizing investments that build health and resilience and family-based approaches. Let's go through a high-level summary of these four strategy summary options presented in the brief.

The first option, once we have this child level health complexity data, one key strategy that could unlock potential impact is to ensure that all those who support children with health complexity are aware of the data. And understand what it represents. The data can be shared with providers, public health, community partners. This sharing serves several important purposes. Having leaders in communities understand the data can create opportunities to use the data to improve care and the understanding of the data allows partners to give input on refinements or creative analyses of the data to meet their individual priorities. Some potential analyses include, stratifying the data into subpopulations to ensure a lens on specific groups of children. And include segmentation by age group, race and ethnicity, primary care sites, and specific regions. Finally the data can be shared alongside the voices of families with lived experience. Those who have children with health complexity. So everyone who sees and uses the data understands the individuals represented by it and recognizes the strengths and limitations of the data as well as some of the real-life barriers we are trying to address.

In the brief we spotlighted a number of strategies used here in Oregon. You can click on the brief to the Oregon health authorities website to see the data provided to each of the core dated care organizations. We spotlighted an example in Douglas County, a private funder, before family foundation supported an impact in Douglas County to galvanize action for children with health complexities. I'm going to share a community driven call to action developed based on the data that was presented. Lastly in Marion County here in Oregon the data was used by a collective impact effort called the community, business and education leaders. They analyzed the data by ZIP Code in order to prioritize where they may investments for housing. And based on the social complexity finding, ensured the housing included dyadic behavioral health support so they can better meet the need of the children supported in those housing structures. One of the links we provided in the brief is to this call to action that was developed at the community level in Douglas County. What you can see in the action brief is that the data was used to spotlight the need. We have parent voices there to strategize with the input they had in terms of the system and how they could be improved. And the community identified a number of priorities for collective in plaque impact work identified by the data and parents quantitatively.

The second option we highlighted is to use the data to ensure the healthcare needs of children with varying levels of health complexity are being met. With the data we can look at children with different levels of medical and social complexity and evaluate whether they are receiving routine recommended care. This could allow for targeted improvement efforts, to address access to care for different groups. Having the data can also help prioritize children with health complexity for care coronation support. Once health systems can identify a population of children with high health complexity they can create family centered strategies and provide supports and costs cross-section care. Knowing the magnitude of children with health complexity can help with investments. It provides a lot of information to better care for this population. Finally, the data can be used in conjunction with individual assessments of a family's strength and priorities to tailor supports based on the degree of health complexity. For example, the approach for families of children with chronic, complex chronic conditions and high social complexity will likely be very different than the supports for children who have noncomplex chronic conditions and one or two social conditions. A targeted approach based on knowing the individuals health approach and having a direct assessment of the family situation could significantly improve their care experience and help allocate resources better. Colleen is going to go from here are some examples.

As a health system you do a lot of different things to ensure the basic needs of your children are met. You are probably examining well-child care and immunization. One exciting applied use of this data is to actually look the data like immunization and well-child visits for children with medical and social complexity. The value of being able to illuminate the data for the subpopulations is it gives a clue as to the root cause and root solutions you can take to better support targeted outreach in families through strength-based approaches to ensure those children get those needs met.

As Lydia mentioned, one of the values of this data is you can also use it to target the investments and programs you are doing to support care coordination. For example, it may be really useful to look at those 25% of children I just showed you that have medical complexity and social complexity, how many of them are receiving care coordination or wraparound services? And when you see a gap in those services, how might you target the services to address the root causes? Care coordination for child has both medical and social complexity will need to look different than the kinds of care coordination for children the have just

medical complexity. The third option is assessing for healthcare quality for children with health complexity. Obviously this overlaps and integrates and relates a bit, but the second option as well. The first thing you can do is assess for quality of care by their health complexity indicators. You can use the health complexity indicators to create that population. The subpopulation could be children with medical complexity, subpopulation two could be children with social complexity, and three could be children with both medical and social complexity. It's valuable to look at the nine port category and to examine the traditional of quality of care metrics by different population. Again, because each one has a different answer in terms of better meeting the needs of children. The second is once you have populations we can stratify and create subpopulations for, you can create incentives for the populations. What would it look like to create incentives for children who have medical complexity to ensure that they have preventive services? What would it look like for children who have social complexity to create incentives around the behavioral health metrics for example? And lastly, because the health complexity to finish and is aligned with a number of factors that are associated with health equity, the indicators can be used as a way to strategize and incentivize and focus on populations as part of your health equity effort. In Oregon this is particularly important because in Oregon, there is currently really high rates of data missing when we try to look at data by race and ethnicity. But the rates of data missing when we look at the health complexity data are much less. This is a great strategy to kind of look at factors that impact health, and are associated in order to move that ball forward will we implement strategies to better the quality of data by race and ethnicity. Some examples we share, we know Medicaid and CHIP agencies are currently focused on the child course that which will go mandatory in terms of reporting. Reporting those metrics, there is great opportunities to head to stratify the metrics by children with health complexity in order to form a gap analysis and ensure the efforts conducted as part of that work around the child course set includes an equity focus. It's a really great way to make sure targeted improvement efforts not only a breath in terms of improving quality of care overall but how do we ensure depth? Another set of metrics you can use and stratify the data by that we highlight in the brief are metrics associated with cost. For example, there are ways you can examine avoidable emergency department use by children with health complexity. One of the things we found in Oregon is that the rates of avoidable ED use for children with only social complexity were just as high, and in fact some regions higher as children with medical complexity. Why is this important? When we think about the root causes of the avoidable ED and we think about the strategy to reduce the avoidable emergency room department, we understand one of the drivers of social complexity and that's going to help health systems design better health strategies to meet the need of children. And lastly, any of you health systems are looking at prolonged hospitalizations. Lasting more than 30 days. Or repeat hospitalizations. Again, we found children with health complexity are more likely to have prolonged and repeat hospitalizations. These data can be a helpful guide of the kinds of improvements that will be needed specifically to the type of complexity that child has. The last option presented in the brief is how you may use the data to prioritize investments the build health and resilience, and incorporate a family-based approach to care, which is so important to children. So, one of the strategies is to develop payment models to incentivize and compensate for high-quality care. One of the phrases that OPIP uses in our work, we know what is measured and focused on and paid for is really focused on. How you think about the value of the child level indicators and the payment model? Models applied at the front level in terms of looking at the aggregate population attributed to the primary care in determining rates steady processes that could actually cover the care coordination and other supports needed. For children with health complexity. The data could be used to look at behavioral health and investments needed. When you look at the social complexity variables and alignment with adverse

childhood events, we know behavioral health is important. Examining population rates by what provision of services being provided and thinking about payment models that support that gap. It's an interesting strategy. When you look at the root causes, some of the solutions to the root causes will be supports like traditional health workers and community health workers. How can you use the data to make a business case around supporting those kinds of services that really need family. When you look at the data it's hard to not deny a very important group of children that need us to develop best match care coordination reference services. How can the data be used to not only understand what is the magnitude of children likely with those services but how do we ensure those services are provided in a way that aligns. One of the really important parts of being able to have the child level data is that we found that many families have multiple children that have health complexity. When you talk to a parent of a child, children, who have health complexity, they ask you to take a family-based approach. That parent managing the child's needs, individual needs, they are also managing their family. The value of having a child level indicator is you can then grow it up at the family level. Then you can think about ways in which you might create a family-based model of care coordination that really takes into account the balancing act that families with young children are taking. The other advantage of having it edit child level and understanding a number of indicators are based on the parent or caregiver, you might also think about approaches the dig into account the dyad. What does that parent need in order to be successful in their health and support impacting that child. The value of the child level data is potentially linked to the adult also in your system. Think about payment models let me support that dyadic care coordination. In the brief we provided three examples of ways in which you might use the data to really think about how to build health and resilience in models around health and resilience that really support a family-based approach to care. One of the first examples we provided is here in Oregon, we currently have a focused effort on ensuring social emotional health provided to young children. The court needed care organizations that provide services to children are looking at their rates of social and emotional services overall. But they are also looking at the rate for children by health complexity. Looking at children that have multiple adverse childhood experiences, and how many of them receive social/emotional services. And then thinking about what it would look like to target social/emotional services for those families who've experienced trauma and for which we might think intentionally about building health and resilience in the first five years of life. Another example we provided is the value of looking at the data by primary care. In Oregon a number of children are treated to primary care homes who then receive value-based payments. How we think through how the data could be used to inform those value-based payments and support the kinds of services that children with health complexity need? Another strategy to examine the data, to think about how you might invest in community-based care coordination support, integrated behavioral health, or other support by ZIP Code. An example of this we provided in the brief is in central Oregon the data was analyzed by ZIP Code and disparity in access and availability of behavioral health services was identified by ZIP Code as compared to the prevalence of the need ZIP Code. This was help to inform better support where the children with health complexity exist. That is an overview of the four option strategies we presented for how you might use the data. Again, in the issue brief you see a lot of examples. But I want to do now is actually transition to hearing from people, health system leaders that provide technical assistance as part of our grant funding from the Lucile Packard foundation. I'm excited to have three different health system leaders on a webinar today. They are going to share a little bit about, after receiving technical assistance, what did they learn, what were places they were excited about. What is the momentum they have been able to achieve. And then, recognizing that there are hundreds of people on this webinar today, you may be starting on this journey, what areas of input do they have for you?

We are fortunate to have three system leaders, the first is Dr. Breena Holmes, the second is Elizabeth Baskett and the third is Dr. Steven Kairys. What I would like to do, I like to stop the slide so we can see our wonderful reactions. And going to start first with you, Rina, in Vermont, I'm curious to hear your reflections. You been able to see the recommendations, what your reflections and things you're trying to move forward.

First of all, thank you for having me. As always, when you present this with Lydia, I learn something new every time. I do think one reflection is just slowing down, and the repetition of how we are using this incredible groundbreaking work, and how we can continue to use it. The Vermont reflection is, we have a single state accountable care organization with great leaders. But, they were in a very traditional space of using medical complexity for risk stratification for determining how to give resources to people to deliver healthcare. It was incredibly straightforward that if you had more medically complex patients in adult or pediatric care you received more resource. Human resource for care coordination, but also financial resource. When they first did the stratification of risk for children in Vermont about medical complexity, it was a single digit percentage point of children who would fall into the highest risk category for receiving the most support in primary care. Which stopped us dead in our tracks. Because it just felt again, those of us that work in the pediatric space, here we go again. Resources being allocated to adults with chronic disease when we need it in child health. We were so lucky and grateful that we knew Colleen through our national improvement partnership network and we had this inkling that there was something going on around social complexity and accessing what I call human service data. Because I just left state government after 12 years to join the Vermont child health and welfare program. I could stop there is the first reflection. I don't know if you want everything in my brain or you want to alternate reactions. I will go back on mute.

I will pass to Elizabeth and if we have time we will pass back. We will make sure to get to the questions and then react. Elizabeth, do you want to share about your journey in Colorado and successes?

We had a similar experience to Breena where are Medicaid agency was highly focused on medical complexity. But, not even on children. Or so on adults and almost trying to apply their methodology and thinking towards two children which we all know here does not work. We were able to work with the agency to think more, about from the child perspective, the medical complexity, but also introduce the social complexity. We were so thankful for you, Colleen, and the work you have done to build to share, during the data is what I might recommendations to the group. To the agency, to show the research of how social determinants of health impact the child and the family. And, with that work, sharing that information, model as well as the data with her state agency, we were able to get them to move toward eight child risk stratification. And to look at data that they already have at their fingertips, data on ethnicity and race, citizenship, and limited English proficiency is where we started. I am happy to report that since then the state has started to reach out beyond its four walls at the agency, talk to other agencies, try and pull other social health information, and even outside the state agency level they are now building a social health information exchange and working to build infrastructure so that hopefully this data can be used within Medicaid agencies by our organization. But also to be used by community partners like we have been able to do in Oregon, and by providers. We have made some progress. There is still so much work to do, but being able to have the health complexity model and bring it to the department with the data and the impact in Oregon is really pivotal in our efforts to get the agency to think about children. And how to approach them from a Medicaid perspective.

Thank you so much, Elizabeth. I want to make sure each of you share and hopefully we can collaboratively answer some of the questions. Steve, I would love to hear from you about your experience and what you are learning and some opportunities and input you have for other health systems as they start their journey. I think you are on mute.

Thank you, Colleen. I want to say, I always learn something when I listen. What I learned today as I want to move to Oregon. So, New Jersey, we are involved, we are one of seven states involved with the CMMI integrated care for kids project which if you don't what that is, hopefully many do, it's a really good transformative approach by Medicaid to try to impose population base and be able to identify and provide additional services for kids with complex needs. The definition being, I, behavioral and social just as Colleen and you were describing in part. So we have been on this journey for about three years. New Jersey was a state pretty much mired in the 1950s in terms of being a fee-for-service state not based on population health. As you can expect there have been a lot of areas along the way. We developed a comprehensive needs assessment to include the social determinants. We decided to do it as an app so we would not overwhelm physician offices. With this process we see the results and get paid for the results, as an alternative payment model for Medicaid to pay for community based services. Community health workers. Family support people, social workers. Really a very transformative process. The state is not used to getting involved in these fields. I would say it's been very exciting, and exciting journey. We still have a few more years to try to see how this is all going to work. We are still in the early phases of spreading this to two counties, 145,000 kids who receive Medicaid in those two counties. I think some of the barriers, quickly, state government has to be invested in it. So far it has been somewhat of a passive-aggressive interaction with the state systems. Being supported by them, they are not really -- during COVID et cetera, it put a damper on their engagement. The other thing for this to work, I think the patient's, providers have to be not just understand what it is but fully incorporate it and change the way they provide care to incorporate the community based aspects, the social determinate work, the more global population-based approach. Is the old saying, every system is ideally organized to get what it gets. That is pretty much what you see in a fee-for-service state. Making that move has been slow at best. We are making progress and we are still optimistic. Thank you, Colleen.

I think the strategy, when I looked through some of the questions already identified, going to pivot to some of the questions but I know some ways you, Breena, Steve and Elizabeth could help illuminate a bit more of the questions. One of the questions I see, the first question I see is can you talk about the difference between the pediatric medical complicity algorithm versus predictive modeling programs like Johns Hopkins. I will add in, because I see other questions that are about payment. And so what I'm going to do is pull up the slide that Lydia actually covered and go through it a little bit slower. Lydia, is this the right one I am re-sharing? It is, okay. The pediatric medical complexity, almost all systems, in terms of input in this brief, pretty much anybody that has administrative claim data and run the pediatric medical complexity algorithm. I would highly recommend that those of you who are advocating for Alf health systems do so. A lot of agencies when they are determining their rates and determining the level of medical complexity do something called the chronic disability and payment system. The reason it was developed in Seattle Children's, the pediatric medical complexity algorithm, to identify the blind spots in the chronic disability and payment system in identifying children with medical complexity. I think that is part of the reason we have underinvestment in children is because we are using a model to establish rates that does not identify their medical complexity. And so, if you do a literature review on

pediatric medical complexity algorithm, the group has published a lot of research around how they developed the pediatric medical complexity algorithm and why they developed at the way they did. The basic question was can you tell us more about the categories in the pediatric medical complexity algorithm? The first category is children with complex chronic conditions. An easy way to think through how those algorithms define the definition between complex versus noncomplex, in order for a child to go into the complex chronic condition, the algorithm takes into account that will triple body systems have to be impacted in order for the child to be categorized into PMCA 1. Lydia gave a great example of a child with cystic fibrosis, for example. A child that would fall into complex chronic conditions because of the multiple body systems impacted. Noncomplex chronic our children who have more easier chronic conditions in terms of not multiple body systems impacted. The example given was asthma. What we all know is that a child with asthma who is in a highly socially complex environment can be extremely high cost because the social complexity impacts their ability to access care and follow through with care. That is why that added element of social complexity and medical complexity was so important. The basics of the pediatric medical complexity algorithm is that it looks that administrative claims data, and then it looks at the services utilized. It looks at the diagnosis utilized and then it looks at the number of body systems impacted and based on that algorithm categorizes children into one of the three categories. Lydia, is there anything else you want to share before I go to the next question?

Just that a lot of the traditional algorithms are very adult focused in the diagnoses that will trigger the algorithm to run. So the PMCA does include an it's been updated many times to include lots of pediatric specific conditions given that kids don't have the top five heart adult conditions but have a lot of different conditions that could fall into their medical complexity. I think that is one of the things that adds to the value of the PMCA.

Colleen, I can see from the questions too that, as Steve and I said, probably Elizabeth feels too, you have to hear this several times to get it into what you know and what this is and what you're learning. That is all medical complexity. I am glad we are talking about it, there's a lot of specificity the comes with talking just about children. But the innovation here is you have to have friends in state government that will allow access to social complexity data in order to do this analysis that brings you to the true health complexity of the children in your state. Those friendships, Steve said something sort of funny, I think you said passive-aggressive, you really have to cultivate, and Colleen can help. That's what I wanted to say when I was on the Vermont team they heard from Colleen, it opened up their brain that parental incarceration data, as an example, could be released to health systems to think about the children we serve. It is really interesting, there is a lot of concern and fear about privacy and who gets what data, and Colleen and Lydia have worked out beautifully the parent voice in this and the representation and how much people want this type of sharing to actually get a real picture of the expense of being a family in a state. Back on mute.

I just wanted to add that in addition to traditional medical and social, I think behavioral aspect is a critically important. I also wanted to, again, probably not new to anybody, this is a two generational business. We are not just talking about the child, clearly the family matters a lot. We look up her mental health a tremendous Decatur on how well the children are doing with their complexity.

I have to say to this power of getting people in a shared room to work together, and how do you get people to be nice and start to talk nicely, usually the silos are caring deeply about the silo they focus on. And so, when you bring together multisystem data, you show the data and

they see their services represented there. But then when you parent that with parent voices at the meeting, it's hard to look at the magnitude and hear the story and walk away. That is why, in option number four we talked about that power of pulling that chair or table and then having the quantitative data because it's hard to deny it. And the qualitative data of the parent voice because I've just noticed a shift in the room and that happens. Chris, I saw you said that rate of medical complexity is higher than we have seen. I wanted to address your comment in terms of methodology. And note, I actually do think it's a lot higher than people think. I think this is on us to better articulate for children. Most children bash most people think children are healthy and that is why we have the systems we have. We use the all pear and all claims database which means for children in Medicaid and CHIP, Medicaid and CHIP as a secondary insurance, we were only capturing their secondary claims. A lot of children, the reason they are eligible for Medicaid and CHIP and Oregon is because of their special healthcare needs. Originally rates were still about 19% with about 7% and that complex chronic. When we added in the all pear/all claims rates went up to 30% because they were actually capturing all the services children receive. States that have a much more restrictive eligibility to query a criteria will find that their rates will be high. You are correct we are finding about 30% of children, when you look at medical claims, the kids were able to access healthcare and services, had a medical complexity. About 10% to 11% work complex chronic. Are partners in Vermont have found similar rates and New Jersey has actually found similar rates. I think there is this opportunity to raise awareness around the actual proportion of children with medical complexity when you look at claims within the system. When we think about what are our systems doing to be designed for children, that is an important part. We had another question about, can you again describe how you developed or defined medical or health complexity? Again, health complexity is the green. I'm going to use this table to describe it. Health complicit bash the yellow is looking at the definition of social complexity and here in Oregon for example we use a database that captures different data sources you can look at. And health complexity is combining the two variables creating a similar, integrating something that describes both of them. In the table you're seeing, the health complexity indicator, 5.1% that you see and the 3.7% and 9.2% and 7%, the reason it is shaded in green is those are kids who we would say are health complex. The reason is they have both the blue on the left, medical complexity, and one or more of the social complexity indicators. For example 5.1%, 26,650 kids in Oregon, they are highly medically complex. Multiple body systems impacted and they have three or more social complexity indicators. Okay. There are some questions around, I'm going to stop sharing now. There are some questions around, how do you get people to look at children with complex medical complexity when both of their costs are an adult with complex needs? I think the first one is particularly around quality requirements. To actually stratify the quality requirements around them. There are basics around quality reporting. That is one of the first places you can start. I'm actually really interested, as a person only focused on children for the 24 years of my career, great, let's play the adult game. The interesting part is, in Oregon we've actually look at the children that have the most medically and socially complex needs in Medicaid and CHIP. And those kids who have parental incarceration, substance use, mental health, three factors highly associated with higher healthcare costs have extreme child welfare involvement, the adult was on the same health system. One of the strategies we have been thinking about is how we actually say yes, you do need to focus on adults. You are currently rationing your support systems for adults. What we are asking you to do is ration your support systems for adults with children. You might actually have a return on investment that if you actually think about that dyad you might create better systems that will support that adult because you are thinking about their North Star. And create the kinds of support and care coordination that address what happened for that adult and that her than impacting that

child. I think it is a way we can start to get health systems to focus on children by actually connecting them to their adult and saying, we too agree you need a family and dyadic based approach. Do any of my commenters want to comment on that loaded question?

I think one thing we talked to Breena about is in Vermont there is a big focus on identifying vulnerable individuals and sometimes they are not utilizing the system and we are trying to figure out who they are. In a lot of ways we felt identifying children that may be complex we may actually capture some of the adults who aren't necessarily taking care of themselves potentially because of a love social challenges and the focus on the children. Being able to identify them is actually a benefit of knowing which kids are complex.

In Colorado, we continually face the challenge of a focus only on high-cost patients. But, because there are quality expectations from the federal level, and their advocates and there are some people who see the long-term impact of kids not being taken care of, we do get some focus on children. One of the things we were able to get our Medicaid agency to do is start to work on tying the parent to the child in the system. In their data system. That is much harder than you would imagine. Just getting to that step has been huge for us. We call it two Jen, two generation looking at the whole family. And your point, Colleen is a good one that if the child is unhealthy because of the different risk factors, the parent likely is as well. Why not treat the entire family? We have a care coordination model where our care coordinators go to people's homes, so it just makes sense to serve the entire family and it would be so nice to see our Medicaid system move more in that direction.

I would add that I think the wheels are little greased in this direction with the work of [Indiscernible] on the huge impact of trauma on adult health. I think really for the first time in many states people are recognizing that money put into earlier solutions would save a lot of downstream pain and costs.

I will just add that because the system changes are so significant and we need to talk about it over and over again, there are actually adult data sets that exist that we don't know if it impacts children. What Colleen in Oregon has been able to do actually has been driving change in Vermont about parental incarceration. Sometimes when someone is incarcerated don't know if they are parenting. Actually it's a meta-thing that is really powerful. Also in some of our substance use treatment work and mental health treatment for adults, we weren't actually checking boxes or even checking if there were children involved. We can go many levels on the impact of this work, that is important as well.

I'm going to take one more question during the regular time. I'm going to show where people can go to access information. Everyone who registered will get a follow-up email. But then Lydia and I are happy to stay. I won't ask my co-presenters, to want to stay you can. I think the questions I won't get to. If you can stay we are happy to stay and answer them. There are couple of questions about this idea of, how do you use the data at the primary care level in terms of patients that her primary care homes? Can you give examples of what would it look like to do value-based payments in patient centered primary care homes? One is, right now, as I am aware in our state, I am the on the collaborative which is a legislative committee in our state, currently there is great work happening in our state around payment models that support PMCA for primary care homes who are patient centered medical homes. And the PMCA are hired based on the two level of medical home. They don't take into account the patient demographic of who that practice serves. We have done analysis that shows, we worked with a practice that 40% of the children had medical complexity. One third had social

complexity that was parental incarceration, parental substance use, parental little health. When you think about, what would it take that patient centered medical home to do a tier five survey, a 40% had medical complexity and 30% had social complexity, what it would take. And if there is one rate established across all patient centered medical homes, everyone gets one dollar A.M. P.M. based on your tier, we are not incentivizing for the very population it was developed for. So one way is to actually adjust your payment rate, your P.M. P.M., not only based on tier, but also based on demographic characteristics. To increase the behavioral health PMPM for a population whose socially complex. If we only use medically complex we actually distance advise the system that see highly complex socially complex children. I agree. It is why you have to have data at the system level, you can't do payment reports unless you have data for the whole population. Another way, the last example I will share just to make a stay on time, every value-based payment methodology IC has quality metrics tied to it. You have to meet this metric. I've never seen those rates be for a certain population. So what would like to say, you have to meet this well-child visit rate, this core measure for children with health complexity. At the full population, but how do you create an incentive for them to focus on equity first? Or how do you create an enhanced bonus if they achieve an overall rate plus they receive that rate for children socially complex. That is how we start to turn the gears to support the kind of payment methodologies needed for them to have the resources in place. You will be receiving the slides in an email. If you want more information about this work you can find a bunch of resources on the Oregon pediatric partnership website. Lydia and I are more than happy to answer any email you send us. We would love to help any and all children. We have a very vested interest in children. Anyway we can support systems across the country focusing on children, we will do our best to support. I really want to think Breena, Elizabeth and Steve for joining us. Thank all of you for attending. Again, we will stay on for those of you entered questions. If you can stay on, apologies we didn't fully get to them. Thank you for your time. And thank you to the Lucile Packard Foundation for Childrens' Health for incredible support.