PUBLIC HEALTH INSTITUTE
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>> Dave Clark: Greetings and welcome to today's Dialoge4Health on Community Wide Health Interventions brought to you by the National Network of Public Health Institutes and sponsored by the Centers for Disease Control and Prevention. My name is Dave Clark. I will be your host for today's event.

Before we get started, there are a couple of things I'd like you to know about. First of all, realtime captioning is provided by Home Team Captions. The caption window is located on the panel on the right side of your screen. Click on the Media Viewer icon on the top right of your screen. If you're on a Mac, you'll see it on the bottom right of your screen.

If you would like to use captioning, you'll see a link in the captioning panel that says Show/Hide Header and another link that says Show/Hide Chat. If you click both of those links, you'll be able to see the captioning more easily. And if the captioning window ever disappears, click the Media Viewer icon that I mentioned to bring it back again.

Concerning the audio, today's Web Forum is listen only. That means that you can hear us but we can't hear you. That doesn't mean, though, that today's event won't be interactive. We'll be taking your questions during the Web Forum and you can type those questions at any time into the Q&A panel. The Q&A panel is also located on the right side of your screen and it also can be toggled on and off by clicking the Q&A icon that you'll see on the top right of your screen. Again, if you're on a Mac, you'll see that icon on the bottom right of your screen. Now, in the Q&A panel, it's very important that All Panelists is selected. If it doesn't say All Panelists, please make sure to choose that option so that your question gets sent to the right place.

By the way, you can also use the Q&A panel to communicate with me and my colleague, Laura Burr, if you're having any technical problems, audio issues. Just let us know it and we'll help you out.

We're really interested in your thoughts and questions so be sure to get them in the queue and we'll try to answer as many of them today as we can; I promise. In fact, why don't we get interactive right now. We thought you may be interested in seeing who you are attending this event with today. Why don't we bring up a quick poll so you can tell us whether you're attending alone or whether you're in a group.

And you'll see that poll appear on the right side of your screen, right about now. You'll be able to select from one of the four choices. And when you've made your selection, just click the submit button. So let us know. Are you attending alone? Are you attending maybe in a small group of two to five people, maybe you're in a larger group of six to 10 people, or perhaps you're in a large room today with all of your colleagues, more than 10 people? Let us know who you're attending today's event with.

All right. If you're not seeing the results appear right away, give them a few moments to tabulate. If you made a choice and didn't click the submit button, you'll see an option now to submit your answers. So go ahead and do that.

I can tell you that not surprisingly a good percentage of you are attending alone today. A very high percentage, about 89%; 9% of you are attending in a group of two to five people.

Well, if you are attending alone, we don't want you to feel like you're by yourself. We want this to be an interactive group event. Make sure to get your questions into the Q&A panel and join in on the conversation.

All right. Let's get started with today's presentation. Our moderator today is Lolita Ross, Chief Program Officer of the National Network of Public Health Institutes, a trusted advisor and implementation strategist for community, business, and nonprofit leaders. Lolita Ross has applied equity strategies and community development. Her work includes achievements in the implementation of multi-sector strategies in rural, coastal, and urban communities leading to the development of sustainable models for systems change work to address social determinants of health.

Lolita will be leading us through the rest of today's event. So, Lolita, over to you.

>> Lolita Ross: Great. Thank you, Dave. And welcome to today's Web Forum. In this forum our panelists will provide an overview of HI-5 and also go into a deeper dive in the early childhood education as a first intervention in this Web Forum series. We'll look at data on the impact of early childhood education and state level examples of implementing in universal pre-K and without universal pre-K.

Here's a little bit about our forum registrants. We have over 1,700 registrants for this Web Forum, so there is strong interest in early childhood education as an intervention across the country. Drilling down a little bit further, we had a high level of participation. Of course, as you can see, from city and county government and then nonprofit sectors, healthcare. So the multi-sector representation is very strong and promising when we look at early childhood education.

We have such great presenters that we want to jump right into it. So before I introduce the panel, I'd like to acknowledge the Web Forum team behind the scenes. Laura Burr with Dialoge4Health and Adam with the National Network of Public Health Institutes. We are fortunate to have a knowledgeable panel of thought leaders and practitioners to give the high level and practical experience on early childhood education as a health intervention. The full bios for each of our panelists will be available in the final slide deck posted on the Dialoge4Health website following the forum. I'll go into introductions briefly.

Our first panelist is John Auerbach. John Auerbach is the Associate Director for Policy at the Centers for Disease Control and Prevention and the Acting Director of the Office of State Tribal, Local, and Territorial Support. He oversees the Office of the Associate Director for Policy which focuses on the promotion of public health and prevention as components of healthcare and payment reform and health systems transformation. As acting Director of OSTLTS, he oversees key activities and assistance that supports the nation's health departments and the public health system.

Our next panelist is Elizabeth Skillen, with the Office of the Associate Director for Policy, Centers for Disease Control and Prevention, providing advice on the development of evidence-based approaches to accelerate the best prevention and prevention science into policy.

We also have on our panel today, Steven Barnett. Steven is a Board of Governor's Professor and Director of the National Institute for Early Education Research at Rutgers University. His research includes studies of the economics of early care and education including costs and benefits, the long-term effects of preschool programs on children's learning and development, and the distribution of educational opportunities.

We'll also welcome to the panel Susan Adams. Susan joined Georgia Department of Early Care and Learning in 2007 of January. Since joining the department she has worked in the Pre-K Division coordinating numerous initiatives that have improved the quality and increased the access to Georgia's nationally recognized pre-K programs.

Our last panelist for today is Natalie Renew. Natalie oversees -- I'm going to read the acronym. Natalie is with PHMC, which is the Public Health Management Corporation located in Pennsylvania. PHMC's Early Childhood Portfolio is what Natalie oversees, and that's including the Southeast Regional Key and the Philadelphia Head Start program.

I'd like to thank all of our panelists today. We're going to start off with John Auerbach and Elizabeth Skillen with the Centers for Disease Control and Prevention.

John, I'll turn it over to you.

>> John Auerbach: Thank you very much, Lolita. And on behalf of the Centers for Disease Control, let me also welcome you to today's webinar. We are delighted to unveil this noteworthy and long-awaited initiative, Health Impact in 5 years, or HI-5. HI-5 is an important contribution to the work throughout the country on linking the efforts between the public health and the healthcare sectors. I'm going to start by giving you some background to the HI-5 initiative and then I'm going to turn things over to Dr. Skillen who is going to talk about the specifics of HI-5.

HI-5 fits into the CDC strategic directions that are shown on this slide. And in particular, it fits with the direction that is listed at the bottom of the slide, namely strengthening the public health and healthcare collaboration. We believe that we are in a uniquely fortunate period of time to develop this collaboration given the dramatic increase and the percentage and number of people who have health insurance and the significant changes that are taking place around the country with regard to Healthcare Reform and the provision of primary care.

CDC has thought about how to best make progress during this period of time. We've developed what we referred to as the three buckets of prevention framework. Briefly, this refers to an approach that suggests that we should be working in a variety of different arenas as we emphasize the importance of prevention and the linkage between public health and the healthcare sectors.

The first bucket refers to the activities that take place to support traditional clinical prevention work. These are activities that have long been paid for by fee-for-service insurance, and they include such things as immunization, screening for diseases, counseling on high-risk behaviors. But even though they've been available, they haven't always been utilized or offered as much as we would like them to be.

The second bucket also refers to clinical care. It refers to innovative clinical preventive activities. These are activities that in the past have been largely paid for by the public health sector or by foundations and they include such activities as the Diabetes Prevention Program or home visits for people that have asthma. And we have an opportunity now with the changes that are taking place to have these services covered by the insurance providers, if we pay attention to those that are evidence-based and would be beneficial for the larger population.

And our third bucket moves away from the clinical arena and focuses more on population-wide prevention. Here we're talking about policy changes, the changed laws, regulations, administrative policies, and have an impact on the entire population, the neighborhood, city, county or estate.

It's CDC's belief that we should be working simultaneously in all three of these buckets in a complementary way in order to optimize the health of the population. In order to work in these different buckets, CDC has developed different tools that we hope will be helpful for people in cities and states around country.

One of those tools with which you may be familiar is the 6/18 initiative. If you're not familiar with the 6/18 initiative, you may want to go to the website that is shown on this slide and look at the materials that are there. The 6/18 initiative refers to activities that occur within buckets one and two, about traditional and innovative clinical services. And it refers to those services we know to be effective in improving health and controlling costs within a five-year period or less. We've had great success in terms of the rollout of 6/18 over the last year.

We now are focused on what we can do in bucket three, the community-wide prevention efforts. Here what we're responding to is questions that we've received over the last few years from

local and state, health officials who have said to us, our mayors or governors or county commissioners sometimes say to us:

Is there anything that can you share with us that you're certain is going to have a positive impact on the health of the residents of our community in a relatively short amount of time? We'd like to be able to have confidence that if we implement something, we're going to see results soon.

We've also heard from community groups, community health centers, and community activists who have said to us:

We sometimes also need to have a tool that we can refer to which guarantees that when we say something is effective, there's solid evidence that shows that this is an approach that works, works quickly, and also has a positive impact on costs. We believe it's important for people in the public health arena to establish their credibility as we are promoting different activities by being able to point to the evidence and not only paying attention to what improves health but also being sensitive to costs.

Why does this matter? Well, it might make sense for us to take a minute just to think about how this affects an individual person. In this case, Miss Fran Edwards, she's one of those newly insured people. And in the last couple of years, as a result of gaining health insurance for the first in a long time, she's able to get high-quality care and that's helped her in terms of taking her medications, getting good counseling about the behavior change that's necessary in order for her to optimize her health. And that's really made a difference in terms of her addressing some of her health issues such as her asthma or high blood pressure. But even though her health has improved, it hasn't optimized her health. There are still issues in her life that prevent her from being in the best health she can be.

This slide states what some of those obstacles are. Miss Edwards has low income. She lives in a neighborhood where it isn't so easy for her to exercise outside. There's no recreation center nearby. And she also doesn't have in her neighborhood stores that sell affordable healthy foods. On top of that, she lives in what might be referred to as sub-par housing and she has mold in her housing. And that exacerbates her asthma. So even though she's taking medication from her high-quality clinical provider, she still has trouble with asthma.

So this is a reminder that we need to think about working across the three bucket approach. You can't simply just work in one arena around, for example, good clinical care. We have to think about what can happen at the community level to improve health and make the conditions under which Miss Edwards and her neighbors and her family members live and work so that they are in the best possible health. This is the goal of the HI-5 initiative.

It is worth noting, though, that there are some caveats to our unveiling the HI-5 initiative. The first that I would suggest is that the CDC has a particular role in terms of the unveiling of this initiative. And that role is summarizing the existing evidence, the evidence-base that is, for these intervention, and offering a tool that others can use at the local, state, territorial or tribal level. These are available for you. We are not promoting these. We are not actively involved in attempting to change policy. People who make policy, make that policy at the local and state level. This is a tool for those of you who have asked for the evidence. It is now available in a format that we hope will be useful.

Secondly, we want to make clear that while we think these 14 interventions in HI-5 are noteworthy and effective, they are, by far, not the only worthwhile efforts that can take place throughout the country. There are many other population-wide health initiatives that are worth supporting. Some of them simply don't meet the criteria that we've established for HI-5, which is focused on a certain time limit, health outcomes, as well as costs and a solid evidence base.

With that in mind, let me turn things over now to Dr. Elizabeth Skillen who is going to walk you through the specifics of the HI-5 initiative.

Dr. Skillen?

>> Elizabeth Skillen: Thank you, John. Today I am pleased to introduce the Health Impact in 5 years initiative and share our work here at CDC on identifying evidence-based community-wide intervention.

What is the HI-5 initiative? In response to requests from state and local health officials, CDC developed evidence-based for community wide interventions similar to what we've done for the first two buckets mentioned under the 6/18 initiative.

HI-5 provides evidence on 14 evidence-based community-wide interventions that are aimed at improving health in a larger community and not focused on just individual patients. Each of the interventions on the list have evidence of positive health impact in five years or less and evidence of cost effectiveness.

So what's on the list? This slide here shows the 14 interventions. On the left you'll see public health intervention that you may recognize including school-based programs to increase school activity and tobacco control intervention. On the right-hand side we're pleased to include interventions that address social determinants of health such as poverty reduction through earned income tax credits or improved education for early childhood education that we'll hear about today.

Another way to think about the HI-5 interventions is using the health impact pyramid that may be familiar to some of you. At the top of the pyramid are interventions designed to help individuals rather than entire populations. So these include long-lasting protective interventions such as vaccines or ongoing direct clinical care and health education counseling.

HI-5 interventions address the bottom of the pyramid which tend to be more effective because they reach a broader segment of society and require less individual effort.

Let me back up.

First group, at the bottom of the pyramid are interventions that directly address conditions in which people live, learn, work and play, the social determinants of health, and the second group of interventions includes policy systems and environmental changes that influence behaviors of those that are aimed at changing the context to make the healthier choice easier choice such as tobacco control intervention.

Some of you may be wondering why a particular intervention that you consider critically important is not included on the list. As John mentioned, these are not intended to represent all of the beneficial community-wide interventions. There are many public health interventions that are still foreign to us. Rather, this list is a resource that highlights the community-wide interventions with evidence of health impact and cost effectiveness.

One important thing about HI-5 is that many of the interventions address multiple health outcomes. On this slide is a list of health outcomes that are reported in the evidence in the HI-5 initiative.

Community-wide interventions like those in HI-5 help us move upstream. They are intended as primary prevention measures to protect total populations before individuals get sick and need access to healthcare.

So just to reiterate, what makes this list different, a list that highlights the community-wide interventions with evidence of health impact in five years and evidence of cost effectiveness.

How do we get here? How do we develop a list? We started with the evidence. In step one, we went systematic reviews and the community guide of preventive service and also consulted the Robert Wood Johnson Foundation, University of Wisconsin, county health rankings and road maps what works for health, and consulted experts for interventions that had associated systematic reviews.

That was a long list of interventions recommended on the community guide or scientifically supported. So we then went through a series of a criteria. We excluded those included in picture one and two and de duplicated those within the two databases. And in step three, we applied a set of criteria to assess measurable health impact within five years, cost effectiveness data, and those that were not implemented in more than 85% of the states. We talked about this as our saturation criteria. So, for example, interventions that have been implemented in all 50 states such as blood alcohol, are important to do but would not be include in the list.

Lastly, we looked for evidence of potential harm or interventions that were distinctly programmed and not implemented at the policy level. By applying these criteria, we arrived at the list of 14 community-wide interventions. Let's take a moment to dive deep into a couple of interventions seen here.

Tobacco is the single most preventable cause of death and disability in the United States, killing more than 480,000 Americans each year. Both individually and alone, tobacco control measures

such as increasing the price of tobacco, mass media campaigns, and comprehensive smoke-free policies can result in health impact. We see less tobacco use, more tobacco cessation, and reduced numbers of hospitalization for asthma and heart attacks. This has economic impact including smoke-free indoor air qualities that can reduce hospital admissions, mass media campaigns with benefit-to-cost ratios of 74-1, and raising the price of -- by 20% of tobacco products results in healthcare savings as well.

Early childhood education comes under the HI-5 setting for social determinants of health. You may be wondering how education is related to health. Childhood development is an important determinant of health over the life course. Early development opportunities establish a critical foundation for children's academic success, health, and general well-being. Early childhood education programs teach literacy, numeracy, cognitive development, social economic development and motor skills to children ages 3 to 4. Some of these programs also offer recreational meals healthcare, and social services critically important for those in poverty as well.

We see health benefits for children in terms of increased cognitive development, emotional development, healthier weight, reduced child maltreatment, and there's also protections against adult disease and disability. The economic impacts of these, there's evidence of these programs as well, with benefits cost to ratio 3-1 to 5-1.

Bringing us back to Mrs. Edwards that John introduced, how can this three-bucket approach help Mrs. Edwards? Bucket one and two addresses Mrs. Edwards' clinical needs yet achieving the lasting impact we're going have to do more, focus not just on those clinical care but on community-wide approaches like those in the HI-5 initiative. Several of the HI-5 initiatives will help Mrs. Edwards, including reduce exposure to smoke through community-wide tobacco control interventions to improve her high blood pressure or increase physical activity or work site to improve her health.

I'm pleased to announce the launching of our website that's gone live today. To learn more about these interventions, please visit our website to learn details on all 14 of the interventions. The site includes evidence summaries, frequently asked questions, a HI-5 overview, and more details on how we got to the list. So please visit the website, tell us what you think, and spread the word.

I'd like to pause for a minute to say that this work would not be possible without an incredible team effort. So a very special thanks to my colleagues here in the Policy Office, Sonya, Vicki Booth, Jared Fox, Wendy Holmes, and Kristin McCaul for helping make this come together, and to the leadership of Rich Petty, Von Lynn and John Auerbach and to many, many of the CDC experts that have provided guidance along the way.

What next? We will be having additional webinars to highlight future interventions and we'll be evaluating our efforts to spread the word. We'd like to learn from you how the evidence is important to your work, so please e-mail us at healthpolicynews@cdc.gov and visit our website.

I think that I give it back to you, Lolita.

>> Lolita Ross: Great. Thank you, John and Elizabeth.

So we have now reached the time for the next poll question. It's a lengthy one so we will give you an opportunity to respond.

[Reading poll question from the presentation.]

It seems like the responses are coming in. I'll read the question again to give it time to populate.

[Reading poll question from the presentation.]

Because we have so many responses this may take a little while for us to see the poll results.

So I'm not sure, Dave -- perfect. They're coming up now. Thank you all for your patience. So it looks like we have a heavy response, if you can't see it, for school-based programs it seems like 20%, tobacco control interventions also 20%, 15% for early childhood education, 13% for work site obesity programs.

So somewhat spread across the 14 interventions with a few of them, four or five, having a few more responses than the other.

Thank you for your responses and participation in that.

We'll also go to a couple of our questions that have been submitted by our participants. Just as a reminder, you do have the opportunity to submit a question. And if would use the chat feature, we'll go ahead and make sure to get those questions through our Q&A.

Let's see. We do have quite a few comments here.

One of the questions here, John and Elizabeth, I'm looking -- we have a question regarding data. Is there data relating to a child's predisposition to chronic disease risk behaviors? So looking at early childhood education can we tie it to chronic disease?

That's one question. I'll open that to you or if you would like to wait until Steven comes up with his presentation, I know that he's going to mention a few things about that.

John or Elizabeth, any comment there?

>> John Auerbach: I think we're going to let Steven answer that because he has the expertise in this particular area and we're going to focus a good deal of time on that.

>> Susan Adams: Perfect. Another question is what role is CDC playing in the health and all policies context at the national level. So looking at this HI-5, is there a place for health in all policies context?

>> John Auerbach: Absolutely. We believe it's important for people in public health at the federal, state, and local level to take an approach that looks at the potential for public health to link up with other sectors and a partnership and to consider the ways that approaches that are taken in other sectors can promote better health. So we work on that issue in a number of different ways, in coalitions and partnerships. And we think that HI-5 fits into that overall approach; in particular, by illustrating that there are six different sectors. Those interventions suggest a way that by partnering with other sectors and focusing on issues other than those that are the more conventional, strictly health-oriented approaches, we can make a meaningful difference in terms of promoting the health of the population.

>> Lolita Ross: Great. Thank you for that. We're receiving great questions here. This is the last one until we bring out our next presenter.

They have they are concerned about small populations. Will there be any tools or resources shared to help with calculating cost savings?

>> John Auerbach: Certainly. If I start by saying that HI-5 is one approach and the approach with HI-5 is one that looks at the relatively short-term impact. And, again, that's five years or less approach. But we also believe that it's important to look at the cost effectiveness and health impact over the course of a lifetime. And our health economic team at CDC has been developing a number of approach that help to have that perspective.

Increasingly, we are posting those tools and those educational materials on our website. So those of you who are interested in looking at those, please go to the CDC.gov/policy website where you will see a variety of those different approaches.

>> Lolita Ross: Great. Thank you for your responses.

For the participants in the Web Forum, you'll have another opportunity to submit questions through the Q&A as we continue on with the forum.

Our next presenter is Steven Barnett, Director of the National Institute for Early Education Research.

Welcome, Steve.

>> Dave Clark: Steve, it looks like you're muted. Can you go ahead and unmute yourself?

>> Steven Barnett: Thank you. I kept trying to unmute myself but it wasn't happening. Alright. Thank you.

It's a pleasure to be here today speaking with you all. I'm going to talk about the importance of quality preschool programs as an investment in equality and growth that impacts health. To do that I'm going to answer several questions, beginning with an overview of how is it that quality early education can improve health, provide some examples of that from specific studies, and then come back out to large-scale public programs and what we need to do in order to produce the kinds of programs that would produce community-wide health impacts.

We have more than 50 years of research on the impacts of early care and education on children's learning and development. I started in this field more than 30 years ago at the age 19

follow-up of a study that is now working on the age 50 follow-up. So we actually know quite a bit. We know something about the mechanisms, although the precise pathways are difficult to isolate in the case of early education, because there are so many of them.

Among the most obvious, if children are outside of a home environment in a better environment, physically, for most of the day, you decrease their exposure to environmental toxins such as second-hand smoke. If you work with their parents, you can actually decrease their exposure in utero and decrease their exposure in the home by providing parents with information about how to lower the risk from environmental toxins.

You decrease exposure to maltreatment and other stresses. This is especially important for children growing up in poverty as are most of these outcomes. But I will note that in the United States today, nearly half of all children are in low-income households and we depend very heavily for the maintenance of our fertility rate on low-income and immigrant families.

Not to be neglected is the importance of increasing exposure to rich educational content and stimulation. I don't mean necessarily didactically but teacher-induced play, other activities, child guided as well as teacher informed, as well as the development of positive relationships, positive relationships with adults, with peers, and also with institutions such as the school.

These things we need to better biological development, better development of the child's brain, better development actually at the level of DNA, which is affected by exposure to stress, better cognitive abilities, improved executive functions, improved social and emotional development.

The connections of these things, just to illustrate some of the pathways, are through -- for example, stress in early childhood is associated with health disease in adults. Improved executive function is associated with reduced teen pregnancy, smoking, and other risky behaviors. All of these improvements in cognitive abilities, executive function, social developmental function can be linked to decreases in crime and delinquency which decrease the experience of violence as both a victim and as a perpetrator.

This next slide gives you some sense of the complexity of these pathways, although I will caution even this slide is a simplified version. If you can see that early childhood programs operate both through direct impacts on the child, through impacts on the family, these impact children's cognitive, social development and their health directly and indirectly through this set of relationships that are self-reinforcing among cognitive, social, and health characteristics of the child. All of these affect things like educational attainment, whether a child needs special education, how quickly a child progresses through school. And in turn the constellation of children's physical and mental abilities in health and educational attainment impact, their adult employment in income, their involvement in risky behaviors, in crime and violence. And all of these things are associated with both the quality of healthcare and health.

Now, just to provide some specific examples, we have longitudinal follow-up of the Chicago Child Parent Centers in which children in similar neighborhoods in Chicago were compared to those -- children in similar neighborhoods with and without this program were compared going forward. You can see very early on, in the first years, preschool into early elementary school, there were differences in rates of identified child maltreatment and out of home placement as a result of abuse and neglect, as well as rates of abuse and neglect. Later on there are clear differences on the rates at which children have been arrested. As adolescents or adults have been found guilty, incarcerated and sent to jail. And there are academic and social benefits. So we see increased graduation rates, decreased special education rates, decreased rates of repeating grades. And here, again, decreases in arrest rates this time strictly for juveniles.

I want to show you similar results from another study, the Perry Preschool, which was a true randomized trial in which beginning in the early 1960s, children in the same neighborhood were randomly assigned to a preschool program at 3 and 4. It had strong impacts on their cognitive development. These lasted not just through the early years but into adolescents where children who went to the preschool program are doing more homework, have higher rates of achievement, have been less likely to need special education and more likely to graduate from high school on time, and

somewhat more likely to get a high school degree overall. The children with controlled group catch up a little bit because they get GEDs and finish that way.

If we look at behavior and crime, we see -- what I think having been part of this study is a clear pathway. So that from the very beginning, teachers notice differences in children's behavior when they enter kindergarten, first, second, third grade. They report fewer problems. This is called discipline problems. But it's really the teachers' rating of the extent to which children get in fights, steal, lie, get into other kinds of troubles. Mostly with your peers rather than in terms of behaving the way the teacher wants you in the classroom, per se. As they get a little older, they're more likely to have been arrested multiple times. They're more likely to have been involved in violent crime, more likely to have been involved in drug crime. Those involved in drug crime are typically -- these are typically drug use offenses. So that's an indicator of another kind of health problem.

And moving on to a third study, Abecedarian, which comes along a couple of decades later, after the Perry Preschool study so in a very different social context. In this case, birth to 5 full day year-around childcare program that provides education. We see here direct evidence in adults of increasing hypertension or the former preschool attendees who were males. The other way of looking at it is much lower rate, much reduced rate of hypertension for males who attended the program, decreases in rates of smoking, increases, marginal increase in employment. A big increase in higher education which at the time of this study follow-up at age 21, one of the reasons you don't see a full increase in employment because many of the former preschool group are still in higher ed. They are more likely to have a skilled job or be in education.

My job as an economist has largely been to put the dollar values on. As you can see from this chart, both the distribution of where the economic returns come from and the overall amount. This is a preschool program that costs roughly $15,000 per child and is returning nearly a -- a quarter of a million dollars in discounted value over the lifetime. That's a very impressive result. It's important to understand that only high-quality pre-K produces those kinds of results. And we haven't been providing children with high-quality pre-K.

Very quickly I'll note some of the characteristics of high quality, high expectations, adequate funding. The preschool program that costs 15,000 per child, most states spend about $4,500. Strong policies with respect to teachers, class size, length of day. And the continuous improvement system, everybody in healthcare I think understands the importance of continuous improvement.

We have one such program in my state of New Jersey as a result of a court order as much as legislative initiative. We followed kids from that program, compared the kids who didn't. Through grade 5 now, you can see substantial reductions in special education and grade repetition. These are very strong markers of the other outcomes. We have also have big impacts on achievement, test scores, especially for kids who went two years rather than one.

So, I'd just like to sum up by saying if we want to produce these kinds of community-wide health impacts, that last program I showed you was universal in 31 cities with high concentrations of poverty, a quarter of the kids in New Jersey. We have to choose this road to high quality. The typical kinds of programs provided simply don't produce these results. But if we invest in quality, we can improve early learning and healthy development for all children.

Thank you.

>> Lolita Ross: Thank you, Steven.

We've reached our next poll question.

[Reading poll question from the presentation.]

Again, please rate your familiarity with the health impacts of early childhood education. The poll question is located to the right of your screen. Select the best answer that applies.

As Dave mentioned, it will take a couple of seconds for the results to populate. So we'll give an opportunity for that to occur and you'll see it on your screen. We'll also try to, if we can, fit in one or two questions as well. So I'll go to the chat board now to see if we have any questions in the Q&A.

It looks like we've gotten our poll results back in. A pretty good number of us seem to be somewhat familiar or familiar with early childhood education, the health impacts of early childhood education.

Thank you for your participation in that poll. This helps us to be able to make sure that we give content that is applicable and beneficial to you.

I'll go to the Q&A to see if we have a couple of questions that we can ask.

This seems to be a question for -- we have quite a few still for CDC regarding the HI-5 and will there be a press kit available to help promote HI-5 in states.

John or Elizabeth, any response there?

>> John Auerbach: We're not providing a press kit, per se, but we are providing on the website a number of different materials which are all downloadable. They will, I believe, provide states and locals with the kind of information they need in order better understand all aspects of HI-5.

Again, the website to go to is www.cdc.gov/hi5. If you go to that website, I think you'll see the kind of materials that will be very beneficial in terms of spreading the word about this initiative.

>> Lolita Ross: Great. Thank you for that response, John.

I'll pull up another question here. We have a comment about the overlap of the correlation between the 6/18 initiative and HI-5. So the comment reads: The only overlap that I observed between 6/18 initiative and HI-5 is with tobacco control. Can you explain the reason behind this? And the thought was that they were interrelated.

So any thoughts around that overlap?

>> John Auerbach: Certainly. We developed the HI-5 initiative simply by looking at the research literature that existed. We didn't start with any predetermined priorities related to health. We simply looked at what did the literature say, the research literature, that is, say about those interventions with the solid evidence base for health improvement in five years or less and costs over a longer period of time. So we did note -- there were some of those 14 interventions that did complement the 6/18 initiative which was focused intentionally on high burden, high cost health conditions.

We do think that there is a good deal of overlap, however; in part because improving the conditions in one arena, for example, early education, as Steven was just remarking, often results in improved health in a number of different conditions. Such things as high blood pressure, for example, may be related to an intervention with regard to changing conditions in the community in a way that that might initially not seem to be connected. So we do think that there's good overlap in some areas even though the labeling may not be as clear as it is with the example of tobacco that was cited.

>> Lolita Ross: Great. Thank you for that.

I want to make sure we got one or two comments, Steven, for you and then we'll transition to our next speaker. One of the participants did comment to please include the cited research on the impact of health approaches among African American and Latino populations. I think you mentioned in your presentation.

All of the presentations, for the participants, they will be made available on the Dialoge4Health website under the resources following the Web Forum. So, Steven, I'm sure you have that cited in your slide. And then the question for you is: Please briefly discuss the importance of trauma informed policies in delivering effective high-quality education.

>> Steven Barnett: Well, there is on our website an extended policy brief that would be informative on both of these topics. So I don't want to take the time now to do that but if you'll go to nieer.org and search for the health policy brief, you'll see that information.

>> Lolita Ross: Great. Thank you, Steven.

And thank you to all of our participants that submitted questions. If we've not gotten to your question, we'll try to get to it in the next round of Q&A. All questions asked today, we will have an opportunity to review those questions with panelists following the forum.

We'll shift now to looking at early childhood education implementation in states. Our next presenter is Susan Adams, Assistant Commissioner for Georgia's pre-K and instructional supports.

>> Susan Adams: Hi, everyone. I'm Susan Adams. Like Lolita told you earlier, I work at the Georgia Department of Early Care Learning. I'm an assistant commissioner here. I've been here about 10 years now.

If you are not familiar with Georgia, I want to talk to you a little bit about the structure of this state and how our Georgia's pre-K program is managed. In Georgia we do have a separate educational agency that does services for kids and families, children who are aged 0 to 5. We're one of three states that has two separate educational agencies. One is the department I work with, the Georgia Department of Early Care and Learning. And then, of course, our State Department of Education that looks at education services for families and children who are in kindergarten through 12th grade. Today I'm specifically going to talk to you about our Georgia's pre-K program and give you some information about that program and then also talk about some of the health connections that we see and health benefits with this program.

So Georgia's pre-K program is what we call a voluntary universal program for 4-year-olds. Georgia's pre-K is just for 4-year-olds. And it is universal. And what that means is that the program is open to all children regardless of income. So as long as the child meets the age eligibility, they're able to attend our program. And it's voluntary. Children don't have to attend.

We currently serve about 60% of the 4-year-olds in Georgia. In Georgia, the program is funded entirely through our Georgia lottery for education. It was founded in 1992. So Georgia has been doing pre-K a long time. We are actually in our 24th school year.

To give you a few statistics about our program, like I said, we serve about 60% of the 4-year-olds across the state. And that translates to 84,000 slots. A slot is a space for a child. Classes, we have about 3,900 classes. And in Georgia, school starts early so most of our kids went back to school either last week or the beginning of this week.

We have a waiting list of about 5,000 children. These are families that are interested in their child attending pre-K and they have made application to a program but we don't have enough slots in their area to serve them. We brought down that waiting list in the last probably about five years from about 10,000 kids to 500.

Our approximate costs for a -- per child is about $4,260 per child. That is on the lower end of what a pre-K program will cost. Georgia's pre-K program, because it's a universal program and serves children from all kinds of families' backgrounds, is primarily an instructional program. It does not provide some of the wraparound services you might see with programs like Head Start.

So to give you a little more information about the program, one of the things Steve talked about in his presentation was about the importance of quality. You don't want to just offer a slot for a child to attend a program. You really want to make sure that that program is of high quality. A couple of things that we feel are important about Georgia's program and make a difference is that in order to have access for those 84,000 kids, we have a public-private partnership across the state which allows us to serve children both in elementary schools or in public school programs but also in private childcare programs, nonprofit and for profit centers.

We also serve children in early childhood centers that may be on military bases or at colleges or universities. About 50% of our children are served in a public entity like a school. And about 50% of our children are served in a private childcare program.

One of the things that's key to quality of our program is that we have credential requirements for all of our teaching staff. All of our lead teachers must have a four-year degree, Bachelor's degree, in early childhood education. And all of our assistant teachers must have at least a Child Development Associate. About 80% of our teachers hold a Georgia teaching certification, which would be what our teachers in k-12 have to have.

We do have approved curriculum that's based on the early learning and development standards. Standards are developed to help teachers understand what children should be able to know and do at specific ages, very much like developmental milestones for the classroom. About 10 approved curriculums that are appropriate for young children and teach these standards that must be used in our classrooms.

Our program is a school year program. So we serve kids 180 days. That's typically aligned with the local school system calendar. And we serve kids for 6 1/2 hours a day. So our program matches and looks like what you may see in an elementary school program for kids around the length of day.

We also have a partnership with our childcare subsidy program to offer before and after care through a childcare subsidy for children that are eligible.

We do have an ongoing longitudinal study of our pre-K program. In Steve's presentation, he talked a lot about longitudinal studies for pre-K programs to look at a lot of outcomes for children. Some of them health outcomes.

Georgia has a much shorter study that's going on that looks at primarily academic outcomes for children. This study is done by the Frank Porter Graham Child Development Institute of the University of North Carolina. What this study is going to show us is that children that participate in Georgia's pre-K significantly improve their readiness skills across most domains of learning. And it really shows that pre-K has a positive impact and that especially in the areas of literacy it shows that children get those foundational skills that are needed to be ready to be readers in early elementary school.

Our longitudinal study results show us that there's a real positive impact of Georgia's pre-K program and that it's a part of our K-12 education system. So it connects well with that and is well aligned. And children arrive for kindergarten ready to learn.

We also offer a smaller summer transition program. This is a companion program to our school year program. And the summer program -- it's a targeted six-week summer program to elicit school readiness. A targeted program means the children who attend this program, their families must meet specific income eligibility requirements. These would be aligned with the requirement for Head Start or possibly for a childcare subsidy, families that are eligible for that.

There are two types of programs that we offer. In the summer there's the Rising Kindergarten program. This focuses on children who didn't get a slot into pre-K. So those 5,000 children that are on a waiting list or they didn't attend Head Start or it might be children that were shown that they need add decisional support before entering kindergarten the next year.

Then we also have another component of that program that looks at children that would be entering pre-K in the upcoming year. And this program, the Rising pre-K program focuses on children whose home language is Spanish. And it's a bilingual program. So both -- so instruction is done in both English and in Spanish. It allows an opportunity to look at the impact that the program has on these children. It also allows us as an agency to learn more about thousand provide professional development to teachers teaching in bilingual programs and working with dual language learners and for us to better understand how to support families of d all language learners.

We serve a much smaller number of children in our summer transition program, about 3,000 kids. What we do know is we are able to look at the outcomes for your children in the Rising Kindergarten program and we are able to show an increase, a significant increase, in skills and literacy, in math, over that six-week program showing that children are better ready to enter kindergarten.

So I'm going to send a few -- spend a few minutes talking about health connections which I'm sure you're most interested in. Having a program that's serving a large number of our 4-year-olds, allows for the state to look at connections between health outcomes and educational outcomes and also looking at initiatives that support not only educational goals but health goals for those children and families. Some of them are very easy things like looking at immunizations. All of our children are required to have their 4-year-old shots. They have to show proof of those shots within 30 days of enrolling in the program. Many of our programs offer on-site immunizations, either through their local Health Department or through other community programs so that children are getting those immunizations on time so that they can attend the program.

We also look at screening follow-up and referral. All of our children are required to show proof of an eye, ear, dental, and body density. The body density is the newest one, screening. And show how those children are doing.

And then our programs that we work with are required to do follow-up and referrals if those children need additional services, whether it may be, you know a child that needs glasses or has been identified as having a hearing loss.

Our program also connects with programs that are ensuring children are receiving healthy meals during the day. There are several USDA programs that we partnered with, both the free and reduced lunch program for our program that are serving children in school-based classrooms. But then also for programs that are incentive-based programs, they can use what's called the Child and Adult Food Care program which allows for children to have healthy meals, both breakfast and lunch, and then also snacks during the day.

There are also several healthy eating programs that we do in our pre-K program, both with our nutritionist working within the schools but also programs that teachers do with children. And we're really pleased with the opportunities that children have to have those healthy meals every day.

There's a strong connection with our preschool special education services, of course, which come from IDEA Part B. We look at offering on-site services for kids. There are inclusive classrooms or push-in service that are done with children within the classroom. We also work with our local educational agencies to look at referring and screening services that kids need.

We offer in our pre-K classrooms about 200 fully inclusive classrooms where children are served in classrooms with children that are typically developing, also with children with disabilities. In these classrooms, these children would be served full-time, both by general education preschool teachers and also special education teachers.

And then we have a big initiative in Georgia, Supports for Social Emotional Development. So social emotional development of course is included in our Georgia early learning and development standards and all of our teachers are working with kids on how to develop those skills. But we're also working with our Department of Public Health to look at things like the pyramid training that's going on and look at mental health services that are going to be push the into schools, especially into childcare. So we're very excited about some of those initiatives there.

As we think about Georgia's program specifically, and connections with health connections, we're really able to see how both at a state agency level but also at a community level that people can partner to make sure that both of these educational goals and also how outcomes are met.

I'll be happy to take any questions anyone has.

>> Lolita Ross: Great. Thank you, Susan.

It looks like we're at our final poll question.

[Reading poll question from the presentation.]

It will take a couple of seconds for them to populate.

I'm going to do a quick little time check here. Just to make sure that we are on target, to end on time. We probably have enough time for one question. I'll go ahead and read the question and then we'll come back to the poll and see how we populated -- oh, ok. It's come up already. It looks like most of the folks are not -- we have a few somewhat, familiar, 41%. So there is some familiarity there. We have about 25% that are not familiar at all. So definitely something that we can think about or consider for future Web Forum topics.

I'll transition to one question for you, Susan. One question is regarding: Has any research in your programs looked at the impact of access to healthy meals, so early on upon eating habits later in childhood? So they're saying it looks like basically wanting to see if there's any research on the impact of early eating habits on childhood or eating habits later in life. So this is for any of your programs, Susan. Don't know if you all collect that data.

>> Susan Adams: You know, we don't specifically have that data that our department has collected. So I don't know that there is -- that we have the research that would show the impact later on in life.

>> Lolita Ross: Ok. And we may have a few minutes at the end of the Web Forum for a few more questions for you, Susan.

I'm going to transition to allow -- bring up our next presenter, Natalie. Welcome, Natalie. Natalie is our final presenter, she's Managing Director of Early Childhood Education with the Public Health Management Corporation in Pennsylvania.

Natalie?

>> Natalie Renew: Thank you, Lolita.

My name is Natalie Renew. I oversee the early childhood education work at PHMC, a large public health nonprofit. We are the Public Health Institute for Pennsylvania and Delaware. And we really do a lot of different things, including our work in early childhood education. Within our work in early childhood education we support the quality rating and improvement system in Pennsylvania, working in our five local counties. We do a lot of teacher training and on-site technical assistance and work like that, as well as a lot of capacity building and physical expansion of early childhood programs. Recently we became a directorate provider in the early care sector. We launched our Head Start program in 2014.

That's really what I'm going to talk today about. Again, it was sort of a natural extension of the work that we had begun within the early childhood sector and it really developed a team that had a lot of expertise. We currently have about 100 early childhood education professionals on our staff, about 30 expert subcontractors that are doing training and technical assistance and a variety of other services. So it was really a natural next step for us to really get into the work of demonstrating high quality programming and implementing services for family.

The Head Start program, we sort of thought, again, that it was a really good match given our extensive background in public health. Head Start is really both a high-quality early learning intervention as well as a comprehensive services for children and their families and helping them access health, mental health, dental health, and social services supports, really using the early learning program as the hub.

So that made a lot of sense for us. But we also identified other strengths within the organization that made this a good fit. We have developed our own early childhood data management system that we customized for the use in Head Start to really track all of the outcomes and the requirements associated with Head Start around immunizations and screenings and a lot of the compliance data that's required within Head Start. But then also sort of looking internally at our strength around HR, finance, IS, really sort of supported our decision to become involved in the Head Start program.

With our interest in getting involved in Head Start, we really, you know, we had a really rich understanding of the sector. Our quality improvement efforts were working with about 1,200 providers across the region of all different sizes, for profit, nonprofit, school-based, non-school-based. So had a good understanding of some of the systemic needs within the system.

So as we looked to become a provider and a participant in Head Start, really wanted to understand how we could support some of those systemic issues and really recognize that within Head Start we could offer some scaling opportunities, acting both as a service provider, intermediary. And I'll talk a little bit more about our program design. We really saw the role as the intermediary for Head Start as an opportunity to reinforce some of the business systems within smaller, both for and nonprofit childcare centers.

We were very attracted to the two generational aspects within Head Start and really the opportunity to work very intensively and directly with the young child but to also know and support their families around them and a lot of the issues that their families were encountering and to leverage many of the other programs within PHMC to both the child, their parents, and their families.

And we're really interested in really supporting the replication of high-quality models. Maybe you all know this. Philadelphia just passed a soda tax to fund universal pre-K and really want to participate in the conversation around what universal pre-K should look like to move the needle on the bigger social and health issues. So we were very excited about that.

When we became involved in Head Start, we really identified some specific core principles that would guide the selection of our partners and sort of provide a framework for our work and really

saw this alignment between Head Start and public health framework which, you know, from our perspective really speaks to the conversation we've been having today, which is that the issues we see with young children and their families are ecological. There are independent risks, multiple and associated issues within families. We are really interested in meeting the needs of those families and not just providing a service to them. We really wanted partners that were involved with us to sort of work from that perspective.

We also wanted to sort of leverage the strength of our partners and support reduction of risk as we selected partners. So understanding that we had partners who had great relationships with communities that maybe did not have a sophisticated business structure or sophisticated contract compliance structures so that we could really leverage the trust and the relationship that they had in communities with our more sophisticated business structures and support around compliance activities and really the sort of support, existing providers that were doing the work.

Something that we really think about a lot in terms of the early childhood work is that providers are businesses. We really wanted to create relationships that built capacity and supported the businesses in being successful but also that early childhood education providers. And I would say particularly the family childhood providers that we work with, are community anchors. So while they're anchoring communities in lots of different ways as employers, as a critical service to working adults and communities, but we also see more informal sort of relationships where providers are mentoring the parents who are using their facilities and really a place where families go for support, whether there's support around understanding what's happening with their child developmentally or whether they need access to other resources to support their child. We really think there's a lot of strength that is there and wanted to really harness that as a part of our program model.

So in our program we have 631 slots. We're servicing them in the congressional District 2 which is really the western area of Philadelphia with kind of a concentration in southwest. And we have three service models within our program. So one is a direct service model where we operate directly in community-based locations. We have a model where we partner with high-quality center-based childcare facilities. And then we have a third model where we're partnering with high-quality family childcare homes to implement the Head Start model.

This is just a look at kind of our distribution across the types of models. We depend really heavily on our center-based providers, our high quality childcare centers to support the implementation of our Head Start program.

Again, we're working on a lot of different kinds of settings, with different types of providers. In terms of what we've learned, we just finished our second year of implementing the program. We feel like we've had a lot of success and we've learned a lot about implementation. We were able to get this program up and running really quickly. At this point we've really been successful in our federal reviews of our health and safety environment, of our fiscal and enrollment procedures, our compliance around the comprehensive services model and things like that.

For us the key to making this successful is really the partnership that we have developed both with the childcare partners that are implementing the educational component but also with the other community partners that are supporting the comprehensive services component. So we're working with a lot of institutions of higher education, with community behavioral health, with our early intervention, both kind of intermediary agencies as well as service providers and really drawing a very broad group of service providers with a similar mission to support the 631 children and their families that we're serving.

Another important component for us was understanding the importance of dosage and recognize really that the support that we received for Head Start was only able to provide for a part day. And our families both needed and wanted more. And we understood that we could have a better impact if we could extend services. So we were successful in securing state pre-K dollars that were able to combine with federal dollars to expand the dosage of the program and provide additional services to the families in the program.

We've had a lot of challenges. I would say that as a very large sophisticated public health organization there's been a lot of sort of right fitting to meet the federal performance standards for Head Start. There are very vigorous expectations around governance and compliance. And I think for us it's required, really, a very -- a deep look at how we do business as an entire organization. We are a very large organization. So that has taken some time and really kind of working through a lot of different organizational structure issues to support this.

One of the really big challenges with Head Start is that contract requires a 20% non-federal match. And there are a lot of criteria around what does and does not count as match. We found that to be particularly difficult to identify in a heavily urban environment where most Head Start providers are able to access below market rents of their facilities that can be counted as match or they're able to really tap into significant hours of parent volunteerism which we don't have because a lot of our families are working. So identifying it has been a significant challenge. Identifying these -- the state pre-K dollars has helped that a lot.

Access to high-quality facilities is, again, a really, really significant challenge, particularly in a heavily urban environment where there is not really availability of high quality or affordable space. So that's also a place where our partners have been, you know, particularly important in terms of identifying space.

And then I think, you know, what we have found is that, you know, we need significant additional dollars to really build out the strategy and to really get great resources to parents and to meet their needs. So that's been a place where we have really struggled to identify additional funding beyond the Head Start program. We have been successful in doing some parent training. Because of the infrastructure, we have within our department, have been able to offer some opportunities for parents who want to take courses and things like that. However, that has really been a significant challenge. There are a couple of considerations for other programs here that you all can take a look at in the slide.

I will turn it back over. Thank you.

>> Lolita Ross: Great. Thank you, Natalie.

We want to make sure to do a quick time check. We have about three minutes left for this scheduled webinar. I know we had a couple of questions. Natalie I'll just mention to you we can definitely follow-up and post any responses to the website resources page. There were questions around parent engagement, Natalie, related to the pre-K program. So I know Head Start has special parent engagement requirements. So anything maybe in the couple seconds that you would want to add regarding parent engagement?

>> Natalie Renew: Yeah. I mean, I think -- the Head Start has a very robust set of expectations around parent engagement. I would say that the most successful strategy for us has been to be extremely local in determining what the needs of families are, and both creating opportunities to be engaged and leadership opportunities but really understanding at the center level and not at the program level has been critical to meeting their needs.

>> Lolita Ross: Great. Thank you for that. I know it was pushing you on time.

I'm going to transition back to Elizabeth Skillen for final recap comments on HI-5.

>> Elizabeth Skillen: Yes, thank you so much, Lolita, Natalie, and the other presenters.

Today we did a deep dive into early childhood education. I want to call your attention to the HI-5 initiative and the other 13 interventions that you can find on our website. So we look forward to additional webinars to highlight these other interventions.

So I'll close on our website and turn it back to Dave, I believe.

Thank you, everyone, for joining.

>> Dave Clark: Thanks so much, Elizabeth and Lolita. And thanks to all of our presenters today for their insights into community-wide health interventions. Thanks, also, to our partner, the National Network of Public Health Institutes and today's sponsor, the Centers for Disease Control and Prevention.

A recording of today's presentation and slides will be available shortly at Dialogue4Health.org. You'll also receive an e-mail with a link to the recording and the slides. So check your in-boxes for that.

That e-mail will also include a link to a brief survey we hope you will take. We'd really like to know your thoughts concerning this Web Forum today and especially what topics you would be interested in for future Dialoge4Health web forums. We really are interested in your thoughts and your feedback. So be sure to take a couple of moments to complete that survey. We'd really like to hear from you.

Thanks so much for being with us today that does conclude today's Web Forum. Have a great day.