MCHB Research Roundtable – May 13, 2003

>>KISHENA WADHWANI: Hello.
Welcome to the 34th Research Roundtable live webcast.
My name is Kishena Wadhwani and on my right and left are the presenters.
We'll introduce the presenter to you.
Before that, let me go over some logistic as well as the housekeeping matters.
First, for the participants sitting in this room, we have the handouts for you.
In the handouts are the slide presentations of the speakers and we will go over those handouts as the speaker presents their slide presentation.

For those who are on the Internet.
Some of you, you will see the slides on the screen and it will be live.
The slides will be change automatically.
And if you follow the sequence from the presenters.
Now, if you have questions, you may want to type in your question on the screen and we will convey those questions to the presenters.
We will have first to present, each presenter will present about 30 to 40 minutes and after that there will be a question and answer from five to ten minutes before we go to the second presenter.
With that, I would like to yield my chair to Dr. Phyllis Stubbs to do the introduction and to direct the seminar today.

>>PHYLLIS STUBBS: Thank you, and good afternoon.
It's my pleasure to be here this afternoon to talk about and moderate this panel.
But also in my role as infants and early childhood branch chief it is also a pleasure to moderate these two particular papers.
As you know, our hope is the Maternal and Child Health Bureau we have an initiative in early childhood health and within that initiative we're looking at access to care, supporting the social and emotional development of young children, early care and education, parent support and family health.
And part of our interest in getting involved in this has been very much a part of the tremendous amount of evidence-based research that has been done within the last 10 to 12 to 20 years on the whole issue of early childhood and supporting families.
I believe today's papers are very much in that category of evidence-based research that help to direct the field in early childhood health.

So with that, I would like to introduce the first paper and the three presenters for that paper.
The program is entitled, predicting African-American children school success.
The role of the child, the family, childcare and school factors.
This paper will describe the role of a child family, childcare and school factors in affecting the growth and development of African-American children and the school achievements of African-American children.

These studies follows a group of 74 African-American children primarily from low income families whose development, family and school environment have been prospectively documented since infancy through funding from the Maternal and Child Health Bureau.
There are three presenters for this paper.
The first will be Dr. Joanne Roberts.
She's a senior scientist at the child development institute at the University of North Carolina at Chapel Hill.
And a professor of pediatrics and speech and hearing sciences also at UNC.
She's published over 60 articles and book chapters on the language and development of at-risk children and children with disabilities in pediatric, speech and language and early childhood journals and books.
The second presenter is Dr. Margaret Burchinal.
She's a senior scientist and director of the design and statistical computing union at the child development institute and a research professor of psychology at UNC.
She has published over 90 articles and book chapters on quantitative methods and cognitive and social development of children with the focus on identifying intervention and family factors associated with development among at-risk children.
Our third presenter for this paper is Dr. Stephanie Rowley.
She's from the University of Michigan.
She's published several articles and book chapters on issues related to racial identity and academic achievement in African-American children and families.
I will now turn the presentation over to Dr. Roberts and following this presentation we will take the question and answer session.
Dr. Roberts.

>>JOANNE ROBERTS: Thank you.
Thank you for the lovely introduction.
Before I begin, I want to say thank you so much to the Maternal and Child Health Bureau.
We appreciate your continued support.
It's important to our research and the findings that we're finding are due to your support and we greatly appreciate that funding.
Thank you for that.
Before I begin, I want to first begin to thank the co-authors, Margaret and Stephanie.
And there are many people who also contributed to this work and we appreciate that, and to our families and children, too.
We're greatly indebted to many people.
To provide an outline so the next slide, please.
We're going to be -- let's see -- oh, will we see the slide?
We won't see it, okay.
This is my first audio video teleconference.
That's great.

Okay.

First what we're going to do is going to be talking about what factors predict children's readiness for school success and there are several factors we're going to look at.
One is ear infections.
The second is the family literacy environment and parenting.
The third is quality childcare and the fourth is risk factors during the infancy and pre-school years.
Then we'll change our focus to say okay, what affects children's competence in school?
What factors predict how children and youth are doing in school?
We're going to look at entry language skills.
Family environment, quality of school and school characteristics, ethnic socialization and racial beliefs and in the end some implications and our direction.
That is our plan.
First I would like to do is talk about our study population.
The children that participated.
We had 83 African-American children who were recruited into this study.
44 of the children were female, 39 were male.
These children were chosen from community childcare programs in two small southern Cities.
They were in the study between six and 12 months of age at a mean age of 8.1 months.
Approximately 74% of the families live in the range of poverty.
When we saw the children in kindergarten, 60% of the families lived in poverty.
Some of the families are moving out of poverty.
As far as the education, we looked at the mother's education, when children entered the study, which was about six months of age.
And the mean maternal education was 12.5 years.
At kindergarten it was 13 years.
Some of our mothers are getting more education.
For this first part which we call ready for school success, we're going to go to the first factor we're interested in studying which is ear infection.

Why is that a concern?
And the reason why we're interested, first of all what is OTITIS media?
It's an ear infection.
It's the most frequent physician diagnosis made in young children.
It's very, very common.
In fact, about one-third of children have at least one ear infection and about two-thirds of children have ear infections below three years.
It's very common.
Tube insertions which are put in the ear to get rid of the fluid is the most common minor surgical procedure done on young children.

So consequently ear infections are a major health care cost to our country.
Estimated at about $6 billion in 1998.
It would be considerably higher now.

Why we're concerned about ear infections in young children is when a child has an ear infection they typically have a mild hearing loss.
It lasts as long as there is fluid in the child's ear.
Children may be experiencing this hearing loss due to the ear infection.
It occurs during the first three years of life and that's the time period that is critical for language learning.

The question comes on the next slide, does ear infection cause language and learning sequelae.
Do children who have chronic ear infections and hearing loss during the first three years of life do they have later language and learning difficulties?
The reason why that's of concern.
Children with modern and is severe hearing loss, it affects their learning.
These are newspaper clippings I've collected.
You can see there has been a lot of controversy over whether ear infections cause later learning and language difficulties or not.

Moving to the next slide call the Carolina ear infection project.
We initiated this protect in 1990.
We were trying to look at whether an early ear infection history and a hearing loss is whether environmental factors, how does it affect outcomes during the school age years?
We were looking at factors such as children's auditory processing, language and literacy.
I'll talk about some of the information that we've collected related to children's ear infection, hearing loss and the outcomes.
The first question we asked is how much ear infection do our children have in this chart shows the mean percentage of time with OME per child.
And on average children had between six months, when they beard the study and four years of age.
We were looking in their ears approximately every other week trying to see if they had any fluid in their ear.
This chart shows the percent of the time with ear infection during different age periods from six months to one year.
From one year to two years.
Two years to three years, three years to four years and four years to five years.
Children who were attending childcare.
Over 80% of the time they have fluid in their ears between six months and one year.
It drops to 50% of the time between one and two years and then drops substantially after two years.

After two years of age children had it about 18 percent and a little under 10% four to five.
It shows us that fluid in children's ears is highly prevalent their first two years of life for children in childcare.

The next slide shows a picture of our mobile testing van.
We went around to different childcare sites and did hearing testing in this mobile test van.
We knew the sound room where it was very quiet.
We used this van to do our hearing testing.

The next slide shows mean percentage of time, with the mean percentage of time with hearing loss.
And we tested children's hearing routinely every three months and when a new ear infection began, as well as routinely during when the children had an ear infection.
On average, children had 22.1 hearing tests between six months and four years of age.
And what you can do if you look at the figure, you can see children had hearing loss and we defined hearing loss using what is typically used for hearing loss.
We said for children who are under two years of age it was if they had thresholds over 25.
For children who are above two years we used a threshold over 20 on a mean average.
So hearing loss occurred over 40% of the time between six months and one year.
Dropping to about 22% of the time one to two.
And dropping considerably about 11%, just under 10% three to four.
We still found, particularly between six months and two years of age, children were experiencing hearing loss some amounts of the time.
So with that in mind, we then moved to look at our outcomes.
We did tests of language and test con -- cognitive skills.
Was there any history of ear infection and their cognitive skills in later development.

In this slide it summarizes the information we found for the infancy pre-school years.
I'll talk about the school age years later.
What we found is we did not find an association between ear infection, hearing loss and language and cognitive skills between one and four years of age.
We did find an indirect association between ear infection and hearing loss and language at one an two years of age, but not for three and four years of age.
It was a mediating relationship.
What we found is that children with more ear infections and hearing loss during the first two years of life had less responsive home and childcare environments

and the home and childcare environments were linked to lower language skills at one and two years of age.
The home and childcare environment were mediating factors between ear infection, hearing loss and later language skills.
The home and childcare were very important factors.

Then what I want to show you actually if you skip a slide and go to the one that says measures, if you go to the slide it says we have 75 children and we administered a battery of language tests.
These tests were given from kindergarten entry through second grade.
We gave tests -- one test was called the clinical evaluation of language functioning and we looked at receptive language and expressive language.
What we wanted to see what was the relationship between ear infection or expressive language and also looked at school achievement in letter/word identification.
What we were thinking is that it may be, if a child has a hearing loss, that they're missing certain sounds and they may have more difficulty in these early literacy skills.
As far as language if they're missing sounds and a missing words they may have trouble with vocabulary, grammar or syntax.
It says self-receptive language for children with high and low levels of OME.
This shows a figure of children's course on a language test that is a standard score that a language test would -- the score between 80 and 105.
That's not what the children scored.
This shows age on the -- it shows age between 5 and 8.
There are two lines.
One is high OME and low OME.
For those that can see it on the computer you can see the different colors in the high and low.
For those of us who have the hard copy they all look the same.
Regardless of how you look at it, I can tell you there is no difference between children who had high OME versus low MOE.
We did not find a relationship between ear infection history and children's receptive language during the elementary school years.

Turn to the next slide.
Children with high and low OME we next looked at whether there was a difference between high and low during the first four years of life and children's scores on the letter word identification test and we did not find a relationship between ear infection history or children with hearing loss and their reading skills during elementary school years.
If you go to the next slide now, we next looked at the relationship between ear infection hearing loss and children's expressive language between five and eight years of age.
What we found here is we found that expressive language over time related to children's earlier ear infection.

Interestingly by second grade by age eight children caught up.
We looked at the correlation and the partial correlations between children's ear infection history and their expressive language skills.
We partialed out the mother's education as well as the child's gender.
The degree of the correlation is mild.
You can see the degree.
It ranged from minus.02 to.05.
Only a few of them were significant.
We found a mild association between previous ear infection history and expressive language over time.
Children caught up by second grade.
I want you to contrast that to the next slide for high expressive language with children of high and low level of homes.
The top line shows children that are in a very stimulating home environment.
We were using the called well home inventory.
The bottom one shows a less responsive environment.
The home environment more strongly related to children's language develop than did ear infection or hearing loss.
The partial are range from .24 with an average of .32.
The correlations are much stronger.
You can look at the degree of correlation between the home environment compared to OME and hearing loss.

The next slide shows the summary of this particular section.
What we can say is children in childcare experienced a considerable amount of ear infection.
They did have lots of fluid in their ears.
However, we didn't find an association between OME and hearing loss and receptive language or reading.
We did find that expressive language over time did relate to early OME.
It was a very mild relationship.
The children caught up by second grade.
By second grade they looked just like their peers in expressive language.
The home environment was more strongly related to language than was OME or hearing loss.
What we concluded from this study is that OME is very prevalent in childcare.
However, there is -- we found that OME has a limited impact on children's development.
The home environment is much more important than how much OME or fluid a child has.
So with that I would like to switch to another factor that we've been studying.
How it relates to children's readiness for school.
And that relates to the home literacy environment and children's entry language and literacy.
So I'm going to focus on that information.
There were two questions that we asked.

We wanted to know whether the home literacy environment predicted children's language or literacy skills at kindergarten entry.
What a mother does, what children are exposed to as far as book reading we wanted to know, does it affect children's literacy skills at entry to kindergarten.
Of those variables we studied, are there some variables which are better predictors of children's language and early literacy skills.

If you turn to the next slide, it shows maternal reading strategies.
I wanted to give you an idea the variables that we looked at.
This shows reading strategies that have been believed in the literature to be very good strategies and importance for children's literacy development.
Things like describing like there is a doggy and he's barking.
That dog is just like your dog.
That dog looks sad, the concepts that relate to things like oh, that doggy looks use like the doggy on that page.
The doggy that starts with a D or reciting text.
It says here the doggy is barking.
We were interested in those strategies versus other strategies labeling than dog and cat.
So we looked at them across time.
At two years we had moms read to their children.
They came into sometimes in our mobile test van and sometimes they would come into our center and that we gave them a few books.
They read to their child and then we looked at two, three and four years of age, how often these strategies occurred.
They occurred approximately about 60 times across two and three and 63 -- it was very consistent.
Three, three and four.
We computed a key relative means for the number of strategies that parents use, when moms used when they read to their child.
If you go to the next slide, what we did is we looked at certain -- we looked at other literacy measures.
So I'm going to go through them.
I won't show you the histograms.
We look at them repeatedly three times between the ages of two and four and they were all consistent, interestingly.
The first thing we looked at was book reading frequency.
We asked the moms how many times a week do you read to your child?
The range went from no, I never read to my child, to I read to my child every day.
On average parents said they read to their child about 4.2 times across three different time periods.
Then we said to them, this is longitude perspective.
At two, three and four years of age, how much does your child enjoy reading?
The scores ranged from one being no, they don't enjoy it at all to five, they really like it.
The mean rating was 4.2.

Most of the time the parents are saying my child does enjoy it.
We looked at their videotape and warmth and sensitivity and we came up with an overall rating that ranked from not being very sensitive to five being very sensitive.
The mean rating was 3.8.
It was on the high scale.
We looked at maternal intonation.
We want to see how comfortable the mother was during reading.
Whether they are intonation seemed to reflect ease or comfort level or being nervous.
The range was from one to actually five, although our -- our range was from one to four.
The mean rating was 2.5 so right in the middle.
Then we did this maternal reading strategies which I mentioned before.
Our mean was 63.
It ranged from 14 to 196.
How did they relate to children's language at kindergarten entry?
We used a standard measure, the receptive language, the measure the same part to look at expressive language.
How you say things.
Words and sentences.
Receptive language is your comprehension.
Show me the dog and there are four different pictures.
It is looking at receptive vocabulary and the test of early reading ability which is the test of emergent literacy.
What literacy measures relate to the outcomes.

If you go to the next slide it shows the partial correlations between the home literacy environment and language and literacy skills at kindergarten entries.
There is a lot on the slide.
To walk you through it on the left side shows a different parent, family, maternal measures and the top shows our outcomes.
Basically what we first did is we ran four progressions to see if our overall model was significant.
Interestingly we found that self-receptive language and self-expressive languages and the Peabody picture vocabulary test all predictors predicted -- the models predicted these three variables.
It was not significant for the test of early reading ability.
It predicted all the language measures.
It shows our individual partial correlations and after we -- during the mothers maternal education as well as the mother's reading level.
And what you can see is that for self-receptive language maternal intonation was predictive.
Self-expressive language the child's reading enjoyment predicted self-expressive language.
Maternal reading strategies predicted the Peabody test.

What we were interested and surprised.
We thought we would see one variable.
Maternal reading was going to be predictive across all the outcome measures.
We didn't find one particular measure that would consistently predict all the outcomes.
It seems to suggest some of these measures were easy to do.
Does your child enjoy reading?
The other measures where we did this extensive coding and took us six hours per child was very costly so it was interesting that we didn't get better power from a very precise predictor versus one that was more of a global rating.
It was also interesting that we didn't see anything on the literacy outcomes being predicted.
One other analysis we did, when all of these predictors are in the model, is there one variable that seems to be one outcome that seems to be better predicted.
We found that maternal reading strategies predicted Peabody picture vocabulary tests.
If we had to take the best predictor that was the best.
If you go to the summary, it summarizes what I said about the home environment and later language and literacy.
Overall it predicted children's vocabulary skills and their receptive skills at kindergarten entry.
It didn't predict children's literacy skills.
We were surprised but we see the prediction of the language skills but not the early literacy.
We used the standardized test and it may be a test that focuses more on specific phonic awareness.
This test included different measures.
The other point we found is specific reading strategies were not more predictive than global reading measures such as mother's intonation.
When all the home literacy environments were considered.
Maternal reading strategies seems to be the best predictor of receptive vocabulary.
We can conclude that increases in children's home literacy environment relates to language outcomes so what the mom or what the family does in the home literacy environment seems to be very important for children's language outcomes in our children.
The association was mild.
What I would like to do now is turn the presentation over to Margaret, who is going to talk about childcare quality.

>>MARGARET BURCHINAL: Thank you very much.
This study provided a really nice opportunity to look at the issue of childcare, which is an important issue.
Especially for children.
Because they are at the most likely children to be in childcare.

African-American children have been cared for outside of the family more often than any other group in this country.
It is also important just in general because in today's world, many mothers are working.
Childcare now is a very common experience for young children.
In fact, over half of the children in our nation now begin childcare before the age of six months.
The reason it was so nice to look at it in our sample was because in our study we told the Childcare Program, we wanted to go to their programs because we wanted to look at ear infections.
So we were able to get into a wide variety of programs, including some not so great programs.
We were able to look at the whole spectrum of quality.
Where in most childcare studies, those programs are smart enough to not be too willing to participate.
In our study we were very interested in looking at what we call in our jargon, how does the teacher interact with the child.
What kind of experiences is the child having in the childcare setting and we wanted to look at relevant factors that we call structural measures, the things that the states would often regulate to try to make sure that children are receiving good quality care.
These include things like the ratio of the number of children to the number of adults in the classroom.
As well as teacher education.
We went in and looked at the childcare settings every year.
One, two, three and four years of age.

The next slide shows you the kind of ratios we observed in our classroom.
The professional organization such as the national association for the education of young children recommends that for infants the ratio be four to one.
For toddlers it should be five to one.
For two year oldest, it should be five to one.
Three year olds six to one.

If you go on to the next slide we looked at what kinds of experiences these children were having.
Using a standard measure of quality.
Infant toddler environment rating cool and the early childhood environment rating scale.
On this measure a score of 3 and lower indicates poor quality.
A score of 5 and higher indicates good quality.
Most of our children as babies were in what has been characterized as rather poor quality care.
By the time they were three years of age many of them were in more medium quality care.
A few of them actually were in good quality care.

This was a wonderful opportunity to look at the relationship between quality of care and child outcomes because we had a good range on both.
We looked at language and cognitive outcomes using the measures that Joanne just talked about.

The next slide shows you a figure that describes the relationship between competent skills as measured by the Bailey developmental index.
We wanted to show this relationship for children at three years of age.
As you can see, the solid line going through the plot as well as from the individual points which show individual children's scores.
Children who are in higher quality care tended to have higher skills.
We looked at language development on the next slide.
Where we were looking at expressive language here and our outcome measure was measured in terms of an age -- we expect at 12 months he'll have a 12 month language score on average.
Our children are learning language.
The children in the highest quality care are learning language at a more rapid rate than the children who are in the lowest quality care.
So language we not only saw that children were in higher quality care, the scores were higher but we saw evidence that children who are in higher quality care were learning language at a faster rate.
So in summary, these analysis led us to conclude that we see higher cognitive and language development, better language and cognitive development for children who experienced higher quality of care.
And then we also looked at whether the childcare met professional regulations.
We saw better language skills when children were in classes where the adults -- the child/adult ratio met the professional regulations.
And we saw some evidence with regard to teacher education but it was not robust.

In conclusion, we -- this study, in addition to almost all other studies, suggest that quality childcare can enhance children's early development.
So it was very nice to be able to add to that literature.
This study also provided a nice opportunity to look at an issue that psychologists have been very interested in, looking at the relationship between protective and risk factors and how children develop.
Especially during infancy.
And so within our sample, we used an approach that was counting how many risk factors each of our families experienced.
And then looking at the relationship between risk factors and outcomes.
The flip side of risk factors are strengths.
This isn't just a deficit model.
It can be looked at also as a strength model.
The -- it was named kind of a risk factor approach.
So we looked at nine factors ranging from having a mother whose education is less than high school, whether the parent was a single parent.

Whether the family's income was in the poverty threshold.
Whether the household was large.
Whether the mother seemed to be experiencing depression, not very responsive in playing with her child.
The overall family environment was rated as not being very stimulating and the quality of childcare.

The first thing I would like to do is out of these nine risk factors we see our families reported an average of four of them at 12 months the number of risk factors goes down slightly over time.
So these families were moving out of the extremely risky and moving more toward being more advantaged during the children's early childhood period.
We did find that we then asked the question, how does the number of risk factors relate to children's outcomes?
We looked first at cognitive development.
And so we found that children whose parents reported more risk factors had children whose cognitive scores on this standardized test showed declines over time.
Whereas the children whose parents reported the fewest risk factors actually showed stable scores over time.
It shows that a child who is growing up in an environment where there were multiple risk factors is at risk for having less than optimal cognitive development.
We saw similar findings when we looked at language skills as well.
So in conclusion, we just -- we, along with everybody else who looked at this issue find that children with fewer risk factors acquire language skills and cognitive skills more quickly during the pre-school years.
Follow-up analysis that the most influential risk factors were how -- the quality of the family environment.
How responsive mothers were interacting with their children.
The children's experiences in childcare were important similar to what I reported earlier and that household size was an important risk factor.

So in summary, we looked at a lot of different things in the first phase of our study that is funded, what helps kids get ready to do well in school?
We looked at factors such as health looking at ear infections, and our results lead us to conclude that this has a very limited impact on development.
We looked at the family literacy environment and parenting and found that this is a very important factor with the parenting in particular really making a difference in terms of how well children are ready to learn when they enter school.
Childcare quality was an influential.
It was an accumulation of risk factors, in particular that really made it difficult for children to enter school ready.
So then our children entered school and we followed them and then we wanted to say, given we know what the families looked like before they entered school, we know what the children looked like when they entered school.

How does it predict how well they're going to learn to read, do math, what kind of social skills they show in their classroom?

So we conducted an analysis where we entered all these different things into a single model and asked about their relative importance.
We looked family risk factors.
The child's language skills that were measured in the summer before they started kindergarten.
Their social skills as rated by their four-year-old -- the teacher of the four-year-old class in which they were enrolled.
The last teacher before they entered school rated the child's social skills.
Then we looked at different characteristics of the school and the classroom and looked at issues of ethnic socialization and racial beliefs.
We had various outcomes.
How well are they learning to sound out words and letters?
Passage comprehension which is how well can they really -- once they're reading, can we understand it?
We looked at math skills and we looked at teachers rating of social skills and behavior problems.
We did this all within the same analysis but we'll present our results in terms of the predictor variables.

First in terms of family risk.
What we saw when we looked at family risk was that it was a very consistent predictor of how well children do in school.
Even after you consider what kinds of language skills they enter with and what kinds of school experiences they have all they get to school.
We see that children who had more risk tended to do less well in reading, math and social skills and behavior problems.
The affect sizes were in the moderate range.
One additional risk factor in the child's life which related to scoring about 1/5 to 1/3 of his standard deviation lower on reading and math.
What I've displayed is the relationship between factor risk factors and behavior problems as rated by the teacher.
As you can see here, especially after first grade, so in his second and third grade, children who have more risk factors would be rated by their teachers as showing more behavior problems.
Children who have fewer risk factors were actually show less behavior problems as rated by their teachers.
And then on the next slide we look at the relationship between family risk factors and academic achievement.
Our measure of academic achievement is another age equivalent scores.
I've chosen the average age to present this at.
In second grade you can see that the children whose families were in the low risk category, whose risk factors were one standard deviation below the mean which

is probably no risk factors in our sample, those children have better reading skills in terms of decoding and comprehension and better math skills.
The children in the high risk category.
Children whose risk factors -- children who have four or more risk factors are in the -- are showing the lowest levels of academic skills.
So in conclusion, with the risk factors, not only do the risk factors as they were experienced during early childhood impact the -- how children enter school, they also seem to make a difference in terms of how well they're learning math and reading and acquiring social skills during the first four years of school.
Now Stephanie is going to talk about the remainder of our analysis of the early -- how children are doing in their first four years of school.

>>STEPHANIE ROWLEY: One of the issues that we wanted to address was how the children's language skill at the point just before they started kindergarten affected their later academic achievement.
We used some of the same standard language measures and split the sample into three different groups so the low language group, low language skill group, one standard deviation below the mean.
High language skill group which was one standard deviation or more above the mean and everyone else was in the average group.
What you can see here is that language skill before the beginning of kindergarten predicts academic achievement both reading and math skills in second grade.

So the next slide is just a summary of our analyses with the language skills.
Children who entered school with higher language skills showed higher levels of math and reading skill consistently across time.
Interestingly, more children who started with lower language skills did not appear to catch up over time.
So school didn't act as an equalizer for these children in terms of their academic achievement.
The next set of variables that we considered were school characteristics and in particular we looked at the effects of five types of school characteristics.
The first was instructional and emotional climate of the school.
Second was teacher reported a closeness of his or her relationship with the child.
And then the last three were all sort of demographic variables.
One was whether the student's classroom was more than 50% African-American.
Second was whether the teacher was African-American.
And third, whether the school itself had more than 50% of its students receiving free or reduced lunch.
An indicator of the economics of the school overall.
The teacher/child closeness.
There were only three of these factors that predicted either social skills or academic achievement.
The teacher/child closeness, the race of the teacher and whether or not the school serviced low income families.

So in terms of the social skills and teacher -- you can see here when we split the sample into three different groups, again using the same method, those children who had a close relationship or whose teachers reported a close relationship also tended to have the highest social skills.
You can see that as the level of closeness decreases, so does the teacher-reported level of social skills.

The -- just to summarize, we found that more social skills and fewer behavior problems were reported when the teacher reported a closer relationship with the child.
In addition, higher reading, in particular reading comprehension was reported when teachers reported that they had a closer relationship with the child.
In addition to the teacher/child closeness we also looked at these sort of larger school demographic variables.
In particular, children with an African-American teacher showed fewer behavior problems.
However, teachers also -- they also had lower decoding skills.
And secondly, children who attended schools with higher levels of poverty, so who attended schools where more than 50% of the students received free or reduced lunch, had more problem behaviors over time according to teachers.
The final set of variables that I wanted to talk about and that we considered in these studies were a rather large group of variables related to racial identity of both the children and the parents.
And to the racial socialization of the parents and we examined interrelations among these variables and looked at how they predicted academic achievement.
Several measures that we used first were parent racial socialization of children.
We asked parents how often they talked about a variety of race-related topics with their children or encouraged their children to participate in a variety of race-related events like holidays and festivals.
We asked parents about discrimination in their life.
The extent to which they perceived a variety of mundane, everyday discriminatory experiences.
We also used a similar format to ask parents and children about their racial identity.
One of the exciting things about this project, I think, is that we have some of these racial identity measures are really the youngest sample that I'm familiar with.
At the time these children were in third grade.
So it's interesting to see what is happening early on in this process.
We also asked the children about their racial expectations and racial coping strategies using a series of things asking the children what they would expect to happen in these sort of ambiguous, yet racially loaded, situations.
In one of the situations we tell the child that there was a same age, same sex, same race child, African-American child like them in a classroom that was all white and the white teacher.
And that child and a white child both new the answer.

Both put up their hands and asked the children to report who would get called on. And why.

And similarly we asked children in this situation how would they cope with that? What would they do if this situation happened to them?
We were particularly interested in finding out how often the children expected a negative outcome, meaning they didn't get chosen or called on.
We used similar social situations.
And whether or not they expected to be discriminated against in these sort of ambiguous kinds of situations.
In terms of coping strategies we also coded whether or not they were using race-related coping strategies.
For the parent/child cultural beliefs and practices we won't talk about those results today but we asked both the parents and children about the characteristics of the home.
These are related to some work that shows that oftentimes there is a discontinuity between the home and school and it can effect achievement in well-integrated or predominantly white school settings.
In terms of racial identity and ethnic socialization.

This is interesting given that the children are relatively young and the research on racial identity suggests they are beginning to pick up on different ideas.
When parents talked more about race at home with their children, the children were more aware that others viewed African-Americans negatively.
So that first negative correlation there is referring to -- lower scores mean they're more aware that they view Blacks negatively as the children's expectations.
Parents who talked about race more often had children who expected more negative outcomes and more race-related social outcomes in these ambiguous situations.
Secondly, children's racial identity and in particular their belief that others view African-Americans negatively was also related to the social expectations.
So again, children who perceive that others viewed African-Americans negatively also expected more discrimination and more negative outcomes.
Finally we related these predictors to academic competence.
Children who reported -- expected this outcome of prejudice and discrimination actually ended up having higher reading and math skills.
We thought that was somewhat ironic except it fits well with a lot of the literature that suggests that middle class parents are more likely to do this kind of ethnic socialization.
Middle class families are living in diverse neighborhoods where they would come into contact and more discriminatory situations as well as having higher education makes people more aware of discrimination on a whole host of different lines.

So we think this fits with the other literature on the subject.
But again, very little of this work is being done with children who are so young.

So what we've learned so far is that family and childcare experiences are related to the acquisition of language skills.
And then these family and childcare variables are related to language skills.
And as I mentioned earlier, language skills are really the best predictors of school competence.
These early language skills that children are acquiring before they enter school seem to be a big predictor of school competence and maintain their effect over the first few years of elementary school.
We're continuing to explore other factors including school quality and characteristics and this ethnic socialization and racial identity connections.

Where we're going with this.
We have a new project funded through the maternal and child health care called teens in school.
We have our recruitment brochure for those here.
We're happy to share with anybody else.
If they want to email me I can send them a brochure.
We're going to follow our children through 8th grade.
We're calling our children youth and trying to understand the cultural and social factors that affect their school success.
We've been following our children since six months of age.
So we know considerable amount about their home environment, their childcare environment, about their language skills and other social skills since they were infants.
What we want to look at is as children go through school what are the important child factors, the important school factors and family factors that predict success in school.
A new part we're working on is peer relationships.
We know as youth are in middle school, peers become very important influences both positively and negatively.
We're really interested in the relationships we're looking at friendship patterns, loneliness, bullying.
We want to see what role do peers play in youth success in school?

Another aspect of this is building on our project that Stephanie has been working on.
Where we're looking at racial and ethnic similarities and differences in trying to understand what the role of ethnic and racial factors that affect who is doing well in school, who is lonely and who is not lonely.
Who is making it in school and who is not making it in school and what are the role of family factors, peer factors, school factors.
We're real thankful for maternal and child health for all their funding so we could do this research.
We're excited about this new project.
We're done with our presentation and ready for questions and comments.

>>PHYLLIS STUBBS: I think we are ready for questions and answers.
First in the room are there any questions for either of our people?

(Inaudible)

>>JOANNE ROBERTS: That's a good question.
We talked about it.
Initially about when the children were recruited, about half of our families had the father present and half did not.
We made the decision to only focus on the mothers.
So we have not been collecting information, except for demographic information so we know whether a father was there, the education of the father, the -- you know, the job, the income.
So we have that.
We didn't look at anything about responsiveness or sensitivity.
These are really important to look at, I agree.

>>PHYLLIS STUBBS: Other questions from the table?
I think we're ready.

(Inaudible question)

>>JOANNE ROBERTS: That's an excellent question.
We are now down to 73 children.
What we are doing -- I think the study sample definitely, you know, we are restricted because of our small sample size.
For every one of our youth we're recruiting a friend.
So we'll have now 146 individuals participating in the project.
For those additional 73 youth we're only starting to follow them in 6th grade so we'll have data on those youth from 6th grade to 8th grade.
We do have a limited sample but yet we've been able to do analyses.
We try to make our analyses very focused.
We use appropriate at that time -- statistical analysis and have had our information published in good journals.

>> I think that there is some studies where you have a lot of -- a lot of subjects and not a lot of depth.
This study is using the opposite.
We started measuring these kids early and the strength of this study is we can really describe the trajectory starting at a very early age and look all the way back to infants.

>> I think if you have a very large study it's almost impossible to do because it's so expensive to collect this comprehensive data.

>>PHYLLIS STUBBS: We have a request from the field that you repeat the question before you give the answer.

>> Great idea.

>> Should we say what the question -- move on?
Sure.

>>PHYLLIS STUBBS: Questions from the field?
Are there any other questions?
Okay.
Well, I think if additional questions come in as we move on we'll take the opportunity to come back to them.
I would like to thank our first three panelists for their excellent presentations.
We're ready to move on to the next study.
And that is entitled, intergenerational factors -- at the end we'll go back to all of our questions.
Our presenter for this study is Dr. Frances Campbell, the principal investigator.
It is to learn the extent to which intensive early childhood education may make a lasting positive difference in the adult lives of individuals raised in poverty and to identify mechanisms through which such benefits accrue.
Study participants are the adults who took part in two randomized trials of early childhood educational intervention in the 1970's and 1980's.
Participants from one study were followed up as young adults in the late 1990's.
A major goal of the present study is to expand that young adult follow-up by conducting a similar assessment for participants in the other study.
Data collection for this phase of the work is 2/3 complete.
The purpose of the current study is to learn whether the effects of early childhood intervention are to be seen in the ways that these adults parent their own children and in the academic achievements and social/emotional adjustment of their children.
It's set to begin in a few weeks.
The methods will be described and the major hypotheses explained.
A word about our presenter.
She's a senior scientist at the child development center at the University of North Carolina at Chapel Hill.
She received a Ph.D. in clinical psychology in 1963 and became associated with the institute in 1972 when she accepted a position as the study's evaluator.
She has remained and been involved with the study since that time.
She served as the co-principal investigator for the adolescent follow-up phases of the research and as special investigator for the adult follow-up studies.
Her other research interests have been in studying how children make the transition from head start to public school and in studying ways to improve the consent process for parents whose children are recruited for research studies.
With that I would like to turn it over to her.

>>FRANCES CAMPBELL: Thank you very much.
I have slightly altered the focus of this presentation because I thought possibly you would rather hear more about the work with the data that we do have.
I think she admirably summarized for you what we're currently funded to do and I want to start out by acknowledging the key role played by this bureau in permitting us to do long-term work.
You'll see on the acknowledgement slide the people who funded the early phases of this research.
As you heard, it goes back 30 years.
It's different from the research that you've been hearing about.
This is an intervention study.
A lot of what we've learned is the long-term effect by early childhood intervention.
It was primarily funded by NICHB.

Long term follow-ups have been funded by the Maternal and Child Health Bureau and also received support from the Packer Foundation and the Office of Educational Research and Improvement.
I want to acknowledge the original investigators because that's important.
As you heard, I was the evaluator.
Craig was the original principal investigator and you'll see other investigators that were involved.

You have to remember the context in which this research started 30 years ago.
A lot was known about children who grew up in poverty didn't do well when they got to school.
They were at high risk.
That they were at risk for school failure.
That they were at risk for acting out and getting in trouble.
And so a lot of people decided that we should do things to enhance their early environment to see if we couldn't improve the odds for their development.
To state the problem as it seemed back then, because we knew that children arrived at school already behind and they didn't catch up.
And that the first attempts to try and help them primarily head start, were disappointing in the sense that the effects didn't seem to last very long at all.
And so the question became, given that early development appears to be the most -- what could you do if you started early, that is, if you started in infancy?
That was the question that the study set out to address.
We're going to be talking about two studies.
As you heard, they were contiguous for randomized trials.
Both were conducted at UNC.
The one study happened first.
And four cohorts of infants were admitted to that study born between 1972 and 1977.

As soon as that last group of babies moved out of the nursery, the second study started called the Carolina Approach to Responsive Education shortened to CARE.
There were two big differences.
In the first early childhood program, all the children were from similar homes and all high risk.
Some people thought that was not the best way to do it.
And so half the care infancy program and early childhood program were reserved for low risk children.
And the other way that care differed is that CARE had two treatment models.
One was childcare.
But it added to it what was called family education, which meant that the child's childcare teacher went to the home once a week, talked to the parents, showed the same curriculum.
That was one major difference.

The second major difference was that care added a whole different treatment model which was family focused.
Called family education.
A different educator went to the homes once a week.
Took the first curriculum and showed it to the parents.
This time it was to be provided by the family at home.
CARE admitted two cohorts.
They were born between 1978 and 1980.
The next slide shows the study design.
I'm not good enough at Power Point to have gotten the childcare -- treated in childcare plus family education in my care top box there.
Both groups have a randomly assigned control group and that's important.

The next slide shows important features of the study.
I go back to random assignment, which minimizes the self-selection that you would have any time you admitted people to your study who came asking to get in.
Now, these families had to agree that they were interested in participating and taking a chance in being in the treatment program or not.
But it was not their choice.
The assignment was random.

>>QUESTION: What do you mean by randomized assignment?

>>FRANCES CAMPBELL: Before anybody knew whether there infant was going to be assigned to an early childhood education program we had to have a pool of applicants to qualify to get in.
We matched those people with one another as closely as we could.

>> You matched them--

>> We matched pairs.
Pairs.
Within that pool of people, looking for similar people.
And then through a table of random numbers saying you are offered to have your child come to this childcare program.
You will be in the control group.
It isn't easy to do in human terms and that's what happened in both studies.

>> You tried to find like--

>> Yes.
We had a high risk index.
And everybody qualified.
They all came from the same community.
Everybody had to quality on the high risk index before any of that took place.
What you got were the most high risk families in the area.
And you can see that the demographic and social factors is what we were looking at.
Some of the infants weren't born yet and you couldn't necessarily match the child.

The next slide shows the number of the participants in the CARE study.
And again you see the numbers are not huge.
When the dust settled, they had 111 infants.
CARE has 65.
You can see how they distribute themselves.
The reason I said that half the childcare slots were allotted to kids who were low risk.
The family demographics are shown on the next slide.
The mothers tended to be young mothers, most of them had less than a high school education.
Most of them were not married or not living with a father of their child.
100% of the other study the families lived in poverty.
96% of the families were African-Americans.
The description of the studies, I will go through this very quickly.
The childcare treatment was full day-care year round.
So it was best quality childcare that you had to give.
We had a curriculum designed for infants called learning games and then the curriculum grew up with children so that in the end there were learning games all the way up through three and four.
I have explained a lot of what's on this slide.

So I will go quickly to the next slide, except to say one thing about the control group, which is that those children were not necessarily raised at home by their mothers.

They were raised in whatever circumstances the local ecology provided and that their family needed.
Some of them attended other childcare centers.
Let's talk about over the years our attrition rate has been quite low.
We've been able to follow up the children over the years.
And you have heard a lot about this.
I'm going to skip the next two slides because you'll learn those as we go along.
As I said, Maternal and Child Health did a lot to help us collect young adult data.
I think it's the most informative for us today.
We do have longitudinal data on the cognitive development of these people from infancy until they're 21 years old.
And we also know how they did on the academic tests from the age of eight to the age of 21.

Now, I'm talking about the first study here.
And so this gives us a chance, because we've known them all their lives, it gives us a chance to see how they developed over time and what mediates the effects of the treatment.
The first study I want to talk about is to show you the long-term effect as the early childhood intervention on intellectual development in this sample.
Remember what we're comparing here are randomly assigned people from very similar backgrounds who did and did not have the early childhood program.
We have the scores on them.
I'll be showing you the scores from 2 to 21.
Examiners were always independent of the treatment program.

From the age of eight forward they are blinds.
They don't know whether the people had early intervention or not.
I'm going to be showing you a two-group model.
Those with pre-school treatment and those with not.
CARE kids are not in here.
The rule for analysis here was once randomized, always analyzed.
Even though we might have had missing data Peg has a way that you can estimate what that might have been as long as you have two points.
So the next slide shows you that the cognitive development looks like.
The top line is the people with pre-school treatment and the bottom line is the pre-school control group.
The point to notice here that those with pre-school treatment always, on average, outscore those without.
That never goes away.
The treatment control difference is obviously much greater during the early treatment years.
The slopes differ in the pre-school treatment and post-treatment phases.
Treated children differ from controlled children in rights of change during the early years but not after that.

Both groups showed upward trends in the early years and both groups, after treatment, are showing some decline over time.
But again, notice that the groups never overlap.
And if you test that age 21 mean difference by itself it is significantly different.
The difference isn't large, but significantly different.
Well, you might say there had to be other things going on that influenced that.
What might have moderated the development?
Certainly the child and the family brought something to the table.
So the first thing we looked at was whether or not this functions differed according to the gender of the child.
A lot of people think that girls do better in this kind of program than boys do.
We tested for the effect of gender.
We did not find it.
No significant mean effect for gender here.
There is a gender by time square interaction.
I'm running short so I'm going to not explain a lot of this.

The next slide goes into some detail about that age by gender interaction but I will jump over that.
There is a main effect for the maternal I.Q.
We measured that for every child admitted to the study.
The mother was given a test.
We do find that there is a maternal I.Q. by age squared interaction in these data.
You find different slopes at different ages.

>>QUESTION: With the maternal I.Q. and the effects of maternal I.Q., have you controlled for anything genetic?
How much of the I.Q. effects the child's inherited from the mother genetically during her relationship with the child?

>> Let's repeat the question so others can hear it.
Otherwise let's hold the question.

>>FRANCES CAMPBELL: It is an interesting question and an obvious one to wonder about.
But the other thing that we know over time is the quality of the home environment.
We find a main effect by the quality of the early home environment.
This is moderated by home by age interaction.
The effect of the environment is stronger during the early years and not so strong after that.
The other things we looked at that might have made a difference.
Parental attitudes.
Measures of whether the mother was one who wanted to foster her child's self-expression and give them lots of chance to speak up and be heard in the family

versus whether the mother was a sit down, shut up and do what I tell you kind of mother.
We had some early evidence that that kind of mother tended to have children who didn't develop quite so fast but over the long haul that doesn't predict.
We looked at whether or not there was a father in the home, whether the mother was married or not.
That did not predict long-term intellectual development, either, in our study.
Okay.

The next question is how the children did on academic tests over the years.
We talked about the cognitive test scores.
The more important thing is how did they do in school?
How well did they read?
How well did they do math?
Back up.
Let's talk about the mediators with long term treatment effects on cognitive development.
Peg did some work early on in which she looked at whether or not you could see for stylistic differences early on.
Did they seem a little more on task and eager to find out things?
It looks as if they did when we were trying to predict I.Q. things with the two studies put together and trying to predict I.Q. through age eight.

The other question is we know that many of the cognitive tests we use are highly verbally loaded.
So we wondered if the main thing we had changed may have been the verbal development of these children.
And so we did do this model of seeing whether or not we could show that some of the early orientation or verbal development did perhaps did mediate the effects of early treatment on long-term longitudinal cognitive development.

The next slide shows you the differences.
The control group, we're showing the data when the children are three, six and a half, 12 and 21.
These are limited to the first data.
What you see for treatment alone is a whopping effect.
Huge in the early years.
It is still a moderate effect size and considered important when they're six.
It doesn't strength very much after that when they're 12.
I can tell you when they're 15, too, you don't see that here.
You'll notice it's more modest when they're 21.
You can see that from the trajectory, too.
What happens to this if you put these family factors in there?
What you see is that treatment plus family actually makes it appear that the treatment affect size is even bigger.

And so it looks larger when they're six and a half, it looks about the same when they're 12 and not really different when they're 21.
But then let's look at adding task orientation as a mediator here and see -- cut to the chase and look at age 21.
Does that look really different in terms of effect size?
No, it doesn't help you.
But then let's add verbal development.
We had an independent measure of verbal development during the early years because we gave the children other tests that don't figure in the trajectory I showed you.
What you see here is that your effect size, in essence, is gone.
The treatment effect size is wholly accounted for by verbal development as early as six and a half years of age.
And so what that says is that was apparently a very important component of the early intervention was its effect on the children's verbal normal.

Now, to get to the second study that I wanted to tell you about.
And that is how the children did on academic measures.
These are not school -- school-administered tests but tests that we gave.
We think they're pretty much independent.
They are actively skill demonstration on the part of these students.
And we know what those look like from 8 to 21.
And we wanted to know how the early treatment affected those scores.
And we have Woodcock Johnson scores in reading and math across pages 8, 12, 15 and 21 years.
This shows the effect on reading schools.
What I liked about this slide is that reading score, you can see there is a big effect.
The top line is those who had pre-school treatment.
They always do better.
Once they leave, they sort of maintain their skill levels in reading.
These are standardized course so they're controlled for the age at which it's given.
The person always maintains his ability to read.
But those without pre-school treatment never catch up.
They maintain themselves.
It's not like they drop off.
But they don't ever do as well.
That's one point.
Not so for math.
I don't know what this says about school.
We have the same database here.
These are Woodcock Johnson math scores.
Everybody sort of slides off.
What is interesting is that the trajectory is the same in both groups.
The treated group stays up there but they stall off at the same rate.

They're always doing better, but they're not maintaining their skills.
Now, this is maintenance relative to national.
Neither group maintains in math.
What evidence is there for mediation of the treatment effect on academic achievement?
We tested whether or not what was really accounting for the effective treatment was because we had enhanced cognitive development.
So to do that, what you do is test the model and look at your affect size without I.Q. in the model following there on McKinney.
What you can see is if you use the standard deviation of the sample as your denominator to affect the size, it's huge, 1.4.
If you use the -- you don't get as big an effect eyes but it is still an important effect size.

What happens when you put I.Q. in the model?
You get a hefty effect size for reading but considerably reduced by about 40%.
The same thing happens if you use the other denominator.
In essence you see the same thing for math.
The effect of treatment is mediated by the I.Q. score.
Math outcomes is mediated by the I.Q. scores just as it is for reading.
You get slightly more reduction -- percent reduction for math.
It's in essence the same thing.
We conclude from that that the effect on early treatment on academic test performance is mediated by the effect of treatment on -- and I have one-third study to talk about if I have time.
We just have done this.
This is because -- we were interested in this one because we know that those who had the childcare treatment for the first study, attained more years of education and a better kind of education.
They were more likely to be in some kind of bachelor's program when they were 21.
That was an important finding.
We wanted to know what mediated the effect of treatment on academic attainment or educational attainment.
I'm not talking about test scores now, I'm taking about attainment.
The possible mediators, we can go to the next slide to show you the mediators we thought might make a difference.
We obviously thought that academically demon trait their academic skills would probably go further in school.
There is a lot of theory out there that says early intervention probably effects other things.
It probably affects the self-concept in some way.
Whether you think you're in charge or you can't help it.
Fate is going to decree what happens to you.
We decided to see if we could test that question.
The measures that we have.

Our academic achievement measure is a way of putting reading and math scores together, skills.

So we did that.
We are combining reading and math here.
We have harder scores on scholastic is self-concept.
We took the way the students described themselves when they were 15.
We have two kinds of control measures; one was academic, who is in charge if you do well in school, whose fault if you don't?
More generic control.
We had the 15-year-olds answer that.
You can see how we characterized education levels.

We had eight levels starting with less than nine years and you can look at the next slide -- well, actually I don't think the next slide shows it.
If you skip the slide and go straight to educational attainment by treatment and control groups, what you see is nobody in either group on average had less than nine years.
That was 0% in both groups.
As you go up toward the higher levels of attainment, the green line which is the treated group greatly overtakes the control group and the way most likely thing that a control group person did is graduate from high school.
It seems to be what you do.
So our prediction models are shown in the next slide in the first model we put in child gender and we put in treatment to see how those things predicted.
Educational attainment.
We see -- the reason we put in gender, if you look at girls versus boys it looks like girls were coming out ahead here but gender does not come out in this model.
Early treatment does.
In the second model we put in gender treatment and academic achievement.
This time academic achievement is a predictor.
It doesn't totally account for the effects of treatment.
The other things don't predict.

I skipped over the slide that shows, but the treatment control differences what you would have predicted you'd see, those with pre-school treatment look a little more internal in their focus of control and they seem a little more to feel like in terms of academic self-concept that they rate themselves a little higher.
Not a lot higher, but a little higher.
So those are the kinds of things we have been doing right now trying to tease out over the long term what it is about early intervention.
How early intervention changes the life trajectory for the people who experience it.

To summarize the main things we saw at age 21, those who had pre-school treatment got more years of treatment, more likely to go to a four-year college or to have a good job.
They delayed child bearing by about a year and a half.
Modest cognitive benefits persisted.
Academic benefits persisted apparently mediated by cognitive benefits.
Academic achievements and the other things we thought would predict it did not.
As we told you at the outset we get to the generational part of the work now.
We don't have data yet to show you.
We're collecting it.
But we're interested in -- the first thing we're doing is we're trying to add to our age 21 database.
These people will be a little older by 21 by the time we got off the ground doing it.
We want to put the care sample for young adult outcome.
We can add them to some of what I've described for you in the young adult findings.
We also want to know if we can see any effects on the children of the people who had this early childhood experience and who we know when they were 21 and we think the care sample is going to reinforce this, are doing better in their own lives.
We also know that by the time the first study were 21 years old.
111 subjects in the study we had over 40 children.
Some of them were born to parents as young as 15.
So we're going to have well over 100 children, I think, to see at this stage in life they'll range in age, the oldest will be about 15.
We decided not to try to deal with children less than 3.
But if they're three years old and older we want to know some things about how they're doing.
And so we plan to give them parts of the Woodcock Johnson.
If they're not in school we want to look at readiness.
If they're in school we want to know how they're doing and how they're adjusting.
We may get a parent view on that.
We'll be getting measures on them.
We hope to ask them some of their opinions about school.
How they like it.
Again, our data is going to be a little funny because it will have such a huge age range.
We hope we can get enough children in a given range that we can put a chunk of them in.
So that is one of the things we want to do.
We're excited about being able to get some adult data on the care samples.
We're wondering if we'll see a sleeper effect for family education.
I didn't go there.
It didn't look as if family education was the way to go in the early years.
And so we are in contact with the care participants and we have seen 2/3 of them.

We know how they're doing.
And we're excited about the chance to carry this study into the future.
We are going to see about end care when they're 30 years old.
The parents who have lots of questions about what kind of parents they are.
Think about parenting.
We want to know something about the quality of the home environment they provide.
We feel very privileged to be able to carry out this work.
We owe a huge debt of thanks to the people who have shared their lives with us over this long haul and we're looking forward to what we can tell you over the years.

>> Thank you, Dr. Campbell.

>> Certainly right in the middle of a very crucial area with the success and the interest now in early childhood development coming from the neighborhoods.

>> Very much so.
Very much so.
We'll ask if they can go in and tell us anything about neuronal development and we say sorry, we can't do that.
At least not with -- not yet.
I imagine in a few years people will have gotten so smart that they'll have non-invasive ways to do that.

>>PHYLLIS STUBBS: In the time remaining we'll allow the time for questions and answers.
On the webcast, if you have questions for either Dr. Campbell or the previous presentation, this is the time to begin sending them in.
And while you're doing that, why don't we open up questions in the room.

>> Would you repeat the question?

>>JOANNE ROBERTS: The question was about how we kept the families with us for such a long period of time.
Did we use incentives?
Yes, we did.
During the treatment-phase many of the families wanted treatment.
So that was an incentive in and of itself.
For those who didn't get it, there were two things that happened.
One was, they got free disposable diapers as long as their child was in diapers or 36 months old, whichever happened first.
But another important benefit we think was that Craig was concerned that if we got a treatment effect during those early years people were going to say yes, but you had those children all day every day.
You gave them a better diet.

Better brain growth.
It is about nutrition and how will you answer that?
To try to keep people from thinking that, the control group got three iron-fortified formula for the first 15 months.
We didn't discourage breastfeeding but it wasn't done in the early 1970's.
It's amazing P. Most of our mothers elected not to do it, of the 109 mothers that I originally admitted, two of them breastfed.

>> I think we had another question from the table.
You had a question earlier?

>> Earlier on the difference -- the affect of the mother's I.Q.
How much of that was the genetic relationship between the mother and the child versus the behavior or the relationship of the mother toward the child in?

>> Can we tell how much of the effect of maternal I.Q. on long term cognitive development is a genetic thing versus behavioral.
I think it's impossible to pull those apart.
We know that maternal I.Q. is mediated through the effect of the home en -- environment.

>> Some analysis through the age of eight.
It was a strong predictor but it had both a direct effect but also an indirect effect through the kind of parenting the mother used.
So I worry that when we use maternal I.Q. for the inheritability of intelligence we're probably underestimating the impact of the family environment.
There was that indirect effect as well.

>> You have to know that what the mother did on the Wechsler scale and what a young adult child and adolescent children are very similar and they do predict.

>> Any other questions from the table?
Discussion points?
Okay.
We're going to turn to our webcast.
Questions from the field.

>> A question for the first presentation.
Are you going to consider the paternal influences?

>>JOANNE ROBERTS: That's a good question.
Right now we continue to collect demographic information about income and job and their living in the household but we don't have any interactional measures planned.
Good question.

>> One more question for the first presenters.
Will you consider looking at the number of grandparents raising grandchildren versus mothers and fathers?

>>JOANNE ROBERTS: We do collect that information as far as who is living in the household and raising the child.
We do collect that, yes.

>>PHYLLIS STUBBS: On behalf of the Maternal and Child Health Bureau I want to thank all of our presenters for coming today and sharing their research.
Especially for those of us involved in early childhood health.
This has been a particularly enjoyable session.
Thanks to all.
And I would like to give the floor back to Kishena Wadhwani for any closing remarks he would like to make.

>>KISHENA WADHWANI: Thank you.
Well, thank you for the exciting presentations.
And for individual who log into the web, we are about to end.
And thank you for listening and react to the presentation.
And we are looking forward to have a continued partnership with you and hopefully by the end of the project there is concrete and indication regarding how to improve the health of children and school competence for this particular population.
You have another question?

>> Is there a significant correlation of grandmother influence with K-2 behavior?
I'm presuming it is for the first presenter.

>>JOANNE ROBERTS: We haven't looked at that.

>>FRANCES CAMPBELL: We did a little bit.
A long time ago there was a graduate student who was very interested in grandmothers.
We did find when we looked at it in that sample that -- that was a CARE study.
We have looked at it in a couple different ways.
Having -- when the grandmother has a good relationship with a mother and child, this is definitely good for children.
However, if the mother doesn't -- if the grandmother is providing her with support, a conflict relationship between the mother and grandmother, that was not good for children.

>>KISHENA WADHWANI: Okay.
With that, I would like to end the Roundtable and thank you, everyone.

>>PRESENTERS: We would like to say thank you to the bureau for funding our research.
We couldn't have done it without them.