

THE WHITE HOUSE CONFERENCE ON
EARLY CHILDHOOD DEVELOPMENT AND LEARNING:
WHAT NEW RESEARCH ON THE BRAIN TELLS US
ABOUT OUR YOUNGEST CHILDREN

Morning Session

The East Room

Thursday, April 17, 1997
10:45 A.M. EDT

PARTICIPANTS:

THE PRESIDENT
MRS. CLINTON

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DR. DONALD COHEN, Yale University, New Haven, Connecticut

DR. CARLA SHATZ, University of California, Berkeley

DR. PATRICIA KUHL, University of Washington, Seattle, Washington

DR. EZRA DAVIDSON, Charles R. Drew University of Medicine and Science, Los Angeles, California

DR. T. BERRY BRAZELTON, Harvard Medical School, Cambridge, Massachusetts

DR. DEBORAH PHILLIPS, Institute of Medicine, Washington, D.C.

P R O C E E D I N G S

MRS. CLINTON: Please be seated. Welcome to the White House and to this very special White House Conference on Early Childhood Development and Learning. We are delighted that you can join us today not only here in the East Room, but I want to give a special welcome to the thousands of people who are joining this conference via satellite from universities, hospitals and schools around the country. There are nearly 100 sites in 37 states.

Now, at first glance, it may seem odd to hold a conference here at the White House devoted to talking about baby talk. But that discussion has never been more important, because science, as we will hear from the experts who are with us today, has now confirmed what many parents have instinctively known all along, that the song a father sings to his child in the morning, or a story that a mother reads to her child before bed help lay the foundation for a child's life, and in turn, for our nation's future.

So the President has convened this conference with a clear mission: to give the leading experts in the field of early childhood development, the scientists and pediatricians, the researchers and all of the others, the

opportunity to explain their discoveries and to put this invaluable body of knowledge at the service of America's families.

But this is not just for America's families. This information is crucial for anyone in the position of leaving an impression on a young child's growing mind -- day-care workers, teachers, doctors and nurses, television writers and producers, business leaders, government policy-makers, all of us.

It is astonishing what we now know about the young brain and about how children develop. Just how far we have come is chronicled in a report being issued today by the Families and Work Institute, entitled, "Rethinking the Brain." Fifteen years ago, we thought that a baby's brain structure was virtually complete at birth. Now, we understand that it is a work in progress, and that everything we do with a child has some kind of potential physical influence on that rapidly-forming brain.

A child's earliest experiences, their relationships with parents and care-givers, the sights and sounds and smells and feelings they encounter, the challenges they meet determine how their brains are wired. And that brain shapes itself

through repeated experiences. The more something is repeated, the stronger the neuro-circuitry becomes, and those connections, in turn, can be permanent. In this way, the seemingly trivial events of our earliest months that we cannot even later recall -- hearing a song, getting a hug after falling down, knowing when to expect a smile -- those are anything but trivial.

And as we now know, for the first three years of their life, so much is happening in the baby's brain. They will learn to soothe themselves when they're upset, to empathize to get along. These experiences can determine whether children will grow up to be peaceful or violent citizens, focused or undisciplined workers, attentive or detached parents themselves.

We now have reached the point of understanding that a child's mind and a child's body must be nourished. During the first part of the 20th century, science built a strong foundation for the physical health of our children -- clean water and safe food, vaccines for preventable diseases, a knowledge of nutrition, a score of other remarkable other lifesaving achievements. The last years of this century are yielding similar breakthroughs for the brain. We are

completing the job of primary prevention, and coming closer to the day when we should be able to ensure the well-being of children in every domain -- physical, social, intellectual, and emotional.

I have very high hopes not only for this conference, but for what I hope will come from it. But there are, however, two things I hope this conference will not do. The first is I hope this information will not burden or overwhelm parents. Parenting is the hardest job in the world, and the information we offer today is meant to help parents, not to make them anxious or imprison them in a set of rules. If you forget to read to your child one night, please, that's okay. (Laughter.)

Think of this conference as a map. And like any good map, it shows you a lot of different ways to get where you need to go. Many American parents have been asking for just such a map. A new survey, "From Zero to Three," the National Center for Infants, Toddlers and Families shows a real hunger on the part of parents for knowledge on how they can play a positive role in their child's early development. And I hope this conference in one of the ways we answer that call.

The second thing I hope does not happen is to create the

impression that once a child's third birthday rolls around, the important work is over. The early years are not the only years. The brain is the last organ to become fully mature anatomically. Neurological circuitry for many emotions isn't completed until a child reaches 15. So there is always room for appropriate stimulation, loving and nurturing care by adults who are invested in a child. There's always something that concerned adults can do. And that has special relevance for adoption. Adoptive parents can make an enormous difference for a child at any time, and especially for older children.

That said, here is what I hope the conference will accomplish. I hope it will get across the revolutionary idea that the activities that are the easiest, cheapest and most fun to do with your child are also the best for his or her development -- singing, playing games, reading, story-telling, just talking and listening. Some of my best memories are reading to our daughter, even if I fell asleep in the nine hundredth reading of "Goodnight, Moon." But reading to her when she was young was a joy for Bill and me, and we think also a joy for her. But we had no idea 15, 16, 17 years ago that what we were doing was literally turning on

the power in her brain, firing up the connections that would enable her to speak and read at as high a level as she possibly could reach.

I hope that the science presented in this conference will drive home a simple message, one supported in great detail by a report being issued today by the President's Council of Economic Advisors. If we, as a nation, commit ourselves now to modest investments in the sound development of our children, including especially our very youngest children, we will lay the groundwork for an American future with increased prosperity, better health, fewer social ills and ever greater opportunities for our citizens to lead fulfilling lives in a strong country in the next century.

There's a quote I particularly like from the Chilean poet, Gabriela Mistral, that reminds us, "Many things we need can wait; the child cannot. Now is the time his bones are being formed, his blood being made, his mind being developed. To him, we cannot say, tomorrow. His name is today." We have known this instinctively, even poetically; now we know it scientifically.

And I'm pleased to introduce someone who has been saying

this and practicing it for a long time -- maybe not in poetry, but certainly in the countless stories and books and songs that he has shared not only with our daughter, but with our nephews and, really, any small child who ever crosses his path. As the President of the United States and as a father, he has acted on these beliefs, putting the well-being of children at the very center of national policy. So it pleases me greatly to introduce my fellow reader of "Good Night, Moon," the President, Bill Clinton. (Applause.)

THE PRESIDENT: Thank you. Thank you very much. Thank you very much, and welcome to the White House. I was relieved to hear Hillary say that the brain is the last organ to fully develop. It may yet not be too late for me to learn how to walk down steps. (Laughter.) Or maybe I was thinking it was because I was always hugged when I fell down as a child, I did this subconsciously on purpose. (Laughter.)

Let me begin by thanking the members of the Cabinet who are here. I see Secretary Riley and Secretary Glickman. I thank Governor Romer and Governor Chiles for being here. I think Governor Miller is coming. There are many others who are here. Congresswoman De Lauro is either here or coming.

Thank you, Governor Miller. I see I was looking to the left there. (Laughter.) He's from Nevada -- he just went up five points in the polls when I said that. (Laughter.)

Let me say, first of all, the first time I met Hillary, she was not only a law student, she was working with the Yale Child Study Center, and she began my education in these issues. And for that, I am profoundly grateful. And I thank her for bringing the scientists, the doctors, the sociologists, the others whose work is the basis for our discussion today here. And I, too, want to thank the thousands of others who are joining us by satellite.

This unique conference is a part of our constant effort to give our children the opportunity to make the most of their God-given potential and to help their parents lead the way, and to remind everyone in America that this must always be part of the public's business because we all have a common interest in our children's future.

We have begun the job here over the last four years by making education our top domestic priority, by passing the Family Leave act and now trying to expand it and enact a form of flex time which will give parents more options in how they take their overtime in pay or in time with their children, by

the work we have done to expand the Family and Medical Leave Act and by the work we've tried to do to give parents more tools with the v-chip and the television rating system, and the work we are still carrying on to try to stop the advertising and marketing and distribution of tobacco to our children, and other work we've done in juvenile justice and trying to keep our kids away from the dangers of alcohol and drugs.

All these are designed to help our parents succeed in doing their most important job. Now it seems to me maybe the most important thing we can actually do is to share with every parent in America the absolutely stunning things we are learning from new scientific research about how very young children learn and develop. In that regard, I'd like to thank Rob Reiner and others who are committed to distributing this information, and I'd like to thank the media here in our Nation's Capital and throughout the country for the genuine interest that they have shown in this conference.

I think there is an instinctive understanding here that this is a very, very big issue that embraces all of us as Americans, and that if we learn our lessons well and if we're patient in carrying them out, as Hillary said, knowing that

there is no perfect way to raise a child, we are likely to have a very positive and profound impact on future generations in this country. So I want to thank, again, all of you for that.

Let me say there are some public programs that bear directly on early childhood development -- the Head Start program, which we've expanded by 43 percent over the last four years; the WIC program, which we've expanded by nearly 2 million participants. I have to say that I was a little disappointed -- or a lot disappointed to see a congressional committee yesterday vote to underfund the WIC program. I hope that if nothing else happens out of this conference, the results of the conference will reach the members of that congressional committee and we can reverse that before the budget finally comes to my desk.

I would also like to remind all of you that this conference is literally just a start. We have to look at the practical implications of this research for parents, for care-givers, for policy-makers, but we also know that we're looking at years and years of work in order to make the findings of this conference real and positive in the lives of

all of our children. But this is a very exciting and enormous undertaking.

This research has opened a new frontier. Great exploration is, of course, not new to this country. We have gone across the land, we have gone across the globe, we have gone into the skies, and now we are going deep into ourselves and into our children. In some ways, this may be the most exiting and important exploration of all.

I'm proud of the role that federally-funded research has played in these findings in discovering that the earliest years of life are critical for developing intellectual, emotional and social potential. We all know that every child needs proper nutrition and access to health care, a safe home and an environment; and we know every child needs teaching and touching, reading and playing, singing and talking.

It is true that Chelsea is about to go off to college, but Hillary and I have been blessed by having two young nephews now -- one is about two and one is about three -- and we're learning things all over again that, I must say, corroborate what the scientists are telling us.

We are going to continue to work on this, and I know that you will help us, too. Let me just mention two or three

things that we want to work on that we think are important. We've got to do a lot more to improve the quality, the availability and the affordability of child care. Many experts consider our military's child care system to be the best in our country. I'm very proud of that, and not surprised.

The man responsible for administering the Navy's child care system, Rear Admiral Larry Marsh, is here with us today. He leads a system that has high standards, including a high percentage of accredited centers, a strong enforcement system with unannounced inspections, parents have a toll-free number to call and report whatever concerns they may have, training is mandatory and wages and benefits are good, so, staff tends to stay on.

I am proud that the military places such importance on helping the families of the men and women who serve our country in uniform. But it's really rather elementary to know that they're going to do a lot better on the ships, in the skies, in faraway lands if they're not worried about how their children are faring while they're at work serving America.

To extend that kind of quality beyond the military, I am

issuing today an executive memorandum asking the Department of Defense to share its success. I want the military to partner with civilian child care centers to help them improve quality, to help them become accredited, to provide training to civilian child care providers, to share information on how to operate successfully, and to work with state and local governments to give on-the-job training and child care to people moving from welfare to work.

I think this is especially important. Let me say in the welfare reform bill, we put another \$4 billion in for child care. In addition to that, because the states are getting money for welfare reform based on the peak case load in welfare in 1994, and we've reduced the welfare rolls by 2.8 million since then, most states, for a period of time until an extra session comes along, will have some extra funds that they can put into more child care. This gives states the opportunity they have never had before to train more child care workers, to use funds to help even more people move from welfare to work and perhaps even to provide more discounts to low-income workers to make child care affordable for them.

This welfare reform effort, if focused on child care, can train lots of people on welfare to be accredited child

care workers and expand the availability of welfare in most of the states of the country. It's not true for every state, because some of them have had smaller drops in the case load and three have had no drops. But, by and large, the welfare reform bill, because of the way it's structured, gives all of you who care about child care about a year or two to make strenuous efforts, state by state, to create a more comprehensive quality system of child care than we have ever had before. And I certainly hope that what we can do here, plus the support of the military, we'll see dramatic advances in that regard.

I'd like to thank the people here who have done that work. And I'd like to say that we are going to hold a second conference, this one devoted exclusively to the child care issue here at the White House in Washington this fall. And I hope all of you who care about that will come back.

The second thing we want to do is to extend health care coverage to uncovered children. The budget I have submitted will extend coverage to as many as 5 million children by the year 2000 with the children's health initiative in the budget proposal -- to strengthen Medicaid for poor children and children with disabilities, to provide coverage for working

families through innovative state programs, to continue health care coverage for children of workers who are between jobs. There is an enormous amount of interest in this issue in both parties, I'm happy to say, in the Congress in this session. And I quite confident that if we'll all work together, we can get an impressive expansion in health care coverage for children in this congressional session.

I'm pleased that Dr. Jordan Cohen, the President and CEO of the Association of American Medical Colleges is with us today to lend his association's strong support to these efforts. With the support of leaders in medicine, again I say, I am convinced we'll have a bipartisan consensus that will extend coverage to millions more uninsured children.

The third thing we want to do is this: Because we know the great importance of early education, we're going to expand Early Head Start enrollment by at least one-third next year. Early Head Start was created in 1994. It's been a great success in bringing the nutritional, educational and other services of Head Start to children aged three and younger and to pregnant women. It has been a real success and we need to expand it.

Today we are requesting new applications for early Head

Start programs to accomplish the expansion. And to help parents to teach the very young, we developed a tool kit called, "Ready, Set, Read," part of our America Reads challenge, designed to make sure that every child can read independently by the 3rd grade. This kit gives tips on activities for young children. It's going out to early childhood programs all across the country along with a hotline number for anyone else who wants the kit.

The fourth thing we're going to do is to protect the safety of our children more. In particular, we have to help young children more who are exposed to abuse and violence. Let me tell you, as you might imagine, I get letters all the time from very young children. And my staff provides a significant number of them for me to read. The Secretary of Education not very long ago gave me a set of letters from children who were quite young, a couple of years ago gave me a set of letters from children who were in the 3rd grade. But sometimes I get them from kindergarten children and 1st grade children, talking about what they want America to look like. And it is appalling the number of letters I get from five- and six-year-olds who simply want me to make their lives safe; who don't want to worry about being shot; who

don't want anymore violence in their homes; who want their schools and the streets they walk on to be free of terror.

So, today the Department of Justice is establishing a new initiative called "Safe Start," based on efforts in New Haven, Connecticut, which you will hear about this afternoon. The program will train police officers, prosecutors, probation and parole officers in child development so that they'll actually be equipped to handle situations involving young children. And I believe if we can put this initiative into effect all across America, it will make our children safer. And I'm glad we're announcing it today during Victims of Crime Week. We all know that it's going to take a partnership across America to help our children reach their full potential. But the toughest job will always belong to our parents -- first teachers, main nurturers. Being a parent is a joy and a challenge. But it's not a job you can walk away from, take a vacation from, or even apply for family leave from. (Laughter.) The world moves too fast, and today, parents have more worries than ever. Work does compete with family demands, and finding a balance is more difficult than before. That's why this must always be part of the public's business.

Let me come now to the bottom line. The more we focus on early years, the more important they become. We know that these investments of time and money will yield us the highest return in healthier children, stronger families and better communities.

Now, let me say, finally, I know that none of us who are in politics, none of us who are just parents, will ever know as much as the experts we're about to hear from today. But what they're going to tell us is the most encouraging thing of all, which is, they have found out that we can all do the job. No matter how young, a child does understand a gentle touch or a smile or a loving voice. Babies understand more than we have understood about them. Now we can begin to close the gap and to make sure that all children in this country do have that chance to live up to the fullest of their God-given potential.

Again, I thank you all for being here. I thank our experts, I thank the First Lady. And I'd like to ask Dr. David Hamburg to come up and sit there and take over the program.

David?

Thank you. (Applause.)

MRS. CLINTON: I wanted to add to the President's introduction. Dr. Hamburg brings to this position a lifetime of commitment, improving the quality of life of Americans and people around the world; and in his latest incarnation as the President of the Carnegie Corporation, has overseen the production of a series of reports about our children. And the one that is most relevant for today is a report called "Starting Points," that really was, in many of our eyes, the seminal report on early childhood development, and out of which has sprung much of the public attention over the past three years to the issues we're going to discuss today.

Dr. Hamburg.

DR. HAMBURG: Thank you very much, indeed. I know I speak for everyone in thanking the President and the First Lady for outstanding leadership on this vital issue, which is simply the fundamental building blocks of every human life. That's what this is about. This month is a historic one in the annals of disease prevention. Do you remember infantile paralysis, we used to call it? In April, 1995 -- in April, the Salk Polio Vaccine first became available.

It so happens that the late Jonas Salk was a member of the task force that prepared Starting Points, and he said,

about that report when it came out, "The encouraging news in Starting Points, that there is a way to prevent the crippling of the minds of infants and children, may be a similar historic opportunity. I think today's White House Conference does indeed signify historic opportunity, the nation coming together on behalf of all our children, our most precious assets.

Now, the fact is that our nation's infants and toddlers are in trouble. Compared with most other established democracies, the United States has more casualties and more risk factors, more serious risk factors, than the other democracies. For example, a higher mortality rate, a higher proportion of low birth-weight babies, a smaller proportion of toddlers immunized against childhood diseases, and a much higher rate of babies born to adolescent mothers.

Now, if a poor start leaves an enduring legacy of impairment, then high costs follow. Now, it's quite true, as the First Lady just said, it doesn't necessarily follow that bad experiences in the first few years doom a person for the rest of their lifespan, but such bad experiences do change the odds in a negative way. And, when there is an enduring legacy of impairment, then it may show up in different

systems: in health, in education, in justice. We call them by a lot of different names: disease, disability, incompetence, ignorance, hatred, violence. But, by whatever name, these outcomes involve severe economic and social penalties for the entire society.

During the 1990s, an important consensus has emerged within the scientific and professional communities, on ways that parents and others can cooperate in meeting the developmental needs of very young children. Our aim at this meeting is to clarify that scientific and professional consensus as far as we can, and to make it widely understood throughout country. The President referred to Rob Reiner's initiative, which is a major thrust toward fostering public understanding, which is so vital in a democracy, and this meeting gives a very big boost to that effort.

Our report, to which the First Lady referred, Starting Points, published the three years ago this month, in 1994, formulated four main approaches to preventing damage to the youngest children and provided a solid basis for hope, as the President said. Those four thrusts were: first, preparation for responsible and competent parenthood; second, health care; third, child care; and fourth, community

mobilization. You will hear at least samples of each of those approaches in today's program, partly this morning, partly this afternoon.

Now, when Starting Points was released, we were somewhat surprised by the extraordinary positive, constructive, extensive media attention that focused on the strong evidence from research on brain and behavior development, indicating the long-term effects of early experience. Starting Points also noted the wide gap between scientific research and public knowledge, between what is known and what we do about that knowledge, what we do to meet the essential requirements for healthy child development in the earliest years, so today's meeting is a major step in filling that dangerous gap.

In the morning session, we will first hear from three distinguished scientists about highlights of basic research in the biological and behavioral sciences. These are important samples of emerging knowledge, only samples. Because of the time constraints, we cannot possibly be comprehensive. This field is simply flourishing beyond any prior expectation. But they will be sufficient to suggest the profound importance of early development.

Then we will hear from three highly respected scholars on professional services. How can the powerful advances in fundamental knowledge be put to work for the wellbeing of all our children and for the strengthening of their families? I think the President himself will guide that part of the discussion. In essence, that part of the discussion will focus on a developmental sequence of valuable services that starts with early prenatal care and goes on to preventive pediatric care, to parent education, social supports for young families, high-quality child care and early childhood education which, as you heard, will be the focus of a conference in the White House this fall, a vitally significant subject. A new Rand cost/benefit study shows that, for every dollar spent on such early opportunities, many dollars are saved in later years.

It is important to note, and I want to reinforce what the President said, that most of the research in this field, and almost all of the basic research -- the basic research -- has been supported by the United States Government, primarily by the National Institutes of Health, and also by the National Science Foundation. These institutions are highly respected throughout the world. Wherever there is

serious interest in science, or medicine, or public health, the NIH and the NSF are well known and deeply respected.

Now, let me briefly introduce the speakers, and I will do them in turn. To save time, I will do the whole batch together and then they will speak: Dr. Donald Cohen is director of the Yale Child Studies Center and Irving B. Harris Professor of Child Psychiatry, Pediatrics, and Psychology at the Yale University School of Medicine in New Haven. The Center is internationally recognized for its multidisciplinary research and its clinical programs, its professional education, its services, and its advocacy for children and families. You also heard that Mrs. Clinton had one of her very first jobs in that Center. Dr. Cohen is deeply involved in ways of coping with the problems of urban child development.

Then, we'll have Dr. Carla Shatz, who received her Ph.D. in neurobiology at the Harvard Medical School, working with David Hubel and Tostan Viesel, Nobelists who really opened up this crucial line of inquiry with respect to the development of the nervous system. She is now professor of neurobiology at the University of California at Berkeley. Her ongoing studies of how the orderly sets of connections present in the

adult brain are actually wired up during development -- these studies have gained her great respect in the international scientific community. She is immediate past president of the Society for Neuroscience, which is the umbrella organization in this field. Her research has broad implications for our understanding of the normal development of the human brain, including learning and memory, but it also has implications for neurological birth defects.

Then, we will hear from Dr. Patricia Kuhl, who is the current chair of the Speech and Hearing Sciences at the University of Washington in Seattle. Her research interests focus on the development of language and speech and how language information is stored in the brain. Her studies have illustrated how infants' early auditory experience plays a critical role in the acquisition of language in the first year of life. This work has broad implications for the identification of crucial periods in development and also in respect to bilingual education.

Then, we will hear from, in the second half of this session on professional services, we will hear from Dr. Ezra Davidson, who is Professor and past Chairman of the Department of Obstetrics and Gynecology of the Charles Drew

University of Medicine and Science in Los Angeles, where he headed, for many years, one of the largest obstetrical services in the country. He was an early contributor to our understanding of fetal development, and he has been at the forefront of efforts to improve maternal and child health.

Next will come Dr. Barry Brazelton, one of the best-known child health specialists in the world, a distinguished scholar and tireless advocate for children. One of Dr. Brazelton's foremost achievements in pediatrics is his behavioral assessment scale, which is used worldwide to assess neurological responses of newborns, their emotional wellbeing, and their individual differences. He is Clinical Professor of Pediatrics Emeritus at Harvard Medical School. His Touchpoints Project at Boston Children's Hospital formulates curricula for use in outreach programs across the nation to bring high-risk children into the preventive primary health care system.

And, finally, Dr. Deborah Phillips. She is a distinguished child development psychologist. She is Executive Director of the Board on Children, Youth, and Families of the National Academy of Sciences, the National Research Council.

She has done highly illuminating research and analysis on child care, most recently serving on the group responsible for the National Institute of Child Health and Human Development Longitudinal Study of Child Care Outcomes that was reported two weeks ago at the Society for Research and Child Development.

So it's a wonderful panel on a sampling of absolutely crucial topics for the future of our children and, thereby, for the nation's future.

Dr. Cohen, please start us off.

DR. COHEN: Thank you very much, Dr. Hamburg.

Mr. President, Mrs. Clinton, we are all very grateful, indeed, for your focusing national attention on children's development and on the implications of research for the lives of children and families.

As you have pointed out, research reveals that babies are born with remarkable abilities and potential. Their experiences during the first years and months of life will either facilitate this potential or blunt it. These early experiences have an enduring impact on children's behavior and also, as you know, on the maturation of their brains.

While there is far more to learn about young children, scientific knowledge already can and should be used to help assure that children receive the care that will move them forward. Available knowledge also can help families, teachers, and clinicians recognize when a child is first starting to have problems and to provide effective treatment to help move development back on course.

Much that science has learned confirms the truths that our grandparents took for granted -- that babies need devoted care of adults who love them, protection from harm, a chance to play, to feel proud of their achievements, and to be comforted when they are upset.

Our grandparents also knew that children need to be treated fairly and provided with moral examples to develop their own inner sense of values.

Science has confirmed these beliefs, but we have also learned some things about the first years of life that would have surprised our parents. Researchers have discovered that the minds of infants are active from the time they are born, and are shaped by experience.

Infants see and hear and taste, and they try actively to make sense of these impressions. They recognize patterns and

are interested in shapes, and they remember what they have heard and what they have felt. Babies, in short, are smarter, more competent, more curious and eager than ever was suspected.

Most importantly, we have learned that social relations are central to every aspect of a child's development. Active and engaged care is essential for children's brain maturation and for the social, emotional intellectual development.

Ordinary devoted parents are what makes development go forward because their care provides the basic ingredients for brain maturation. However, it's artificial to distinguish brain and behavior. Everything that the baby thinks or feels or does is the result of brain activity. In turn, the baby's experiences actually changes the way the brain works.

As the child looks at the mobile above his crib or later as the child and father play blocks and talk about what they're doing, specific groups of brain cells are activated and connections between parts of the brain are formed and strengthened.

A baby comes into the world ready to adapt. On the first day of life, a baby can search the room with his eyes, can visually trace the edges of the triangle, and look

intently at his mother's eyes during a feeding. During nursing, a baby exercises every sense, vision, touch, taste, temperature, smell, and organizes these perceptions as he learns about his mother's appearance and her style of giving care.

When parents and other care givers take care of a child, they're doing a lot more than just feeding or bathing or comforting. They're helping the child's brain to develop, shaping his temperament and teaching the child about the world.

These social interactions are the building blocks for a young child's mental and emotional abilities. When the child plays with his parents or care givers or listens to them talk and babbles back, he learns to focus and to concentrate, to recognize the familiar and to study the unfamiliar, to communicate and to take pleasure in learning. These same processes later allow a first grader to focus on a book, quiet down, filter out the noise in the classroom and feel good about learning to read.

Children who are provided with warm care and attention become attached to their parents and then to the one or two or even three other adults who take care of them on a regular

basis. They build up an internal emotional portrait of their parents. When the parent isn't there, when she's at work or busy with something else, when the child is upset, the baby remembers the internal portrait and comforts himself.

The more securely attached a child is, the more easily she can cope with new experiences, including out-of-home child care or recovering from illnesses or brief separations.

The experiences during the first years of life at home, in child care, in the community are especially important because they lay down the patterns for all future development. A fortunate child who has been loved and stimulated, talked with, comforted, given predictable care, will see the world as basically safe and secure, will feel valued and effective, will have trust in himself and others and will be able to use his intellectual potentials to his limits.

The nation has far too many children who are not so fortunate. Children who have had difficult experiences in one area or another are likely to have problems. In subsequent years, there may be opportunities for earlier brain and behavioral patterns to be reshaped. A child with low self esteem from repeated failures and neglect can

blossom with a mentor and an opportunity for success. An anxious child can be helped with therapy and emotional support. Over-active children can learn how to calm down in kindergarten and first and second grades.

No child's potential for recovery and achievement should ever be written off, but we can't count on the success of such renovation when early maladaptive patterns have been too severe and have gone on for too long.

There are important lessons from research on early care and stimulation for the lives of the most vulnerable young children, such as those who have been abused or neglected or moved from one foster home to another.

Mrs. Clinton, your teacher and mine, Sally Province, was among the very first researchers to show that children who are deprived of the continuity of individualized, active attention and care are at great risk to fail emotionally and physically. They're at jeopardy of ever forming secure, stable attachments and trust in others.

Dr. Province used these insights to create one of the first early intervention programs for infants and children. She demonstrated that sensitive child care and family support can lead to long-term gains in children's development.

We need to make this advanced developmental knowledge and training and resources available to those providing care and security for the most vulnerable traumatized children.

Scientific research also provides important new information about children from loving and devoted families who are born with constitutional vulnerabilities such as autistic children. These children are unable to communicate or participate in social relations because of inborn dysfunctions in brain maturation that no amount of loving, devoted care can really reverse. They benefit from education and treatment, but the ultimate hope lies with the type of behavioral and brain research that you are encouraging today.

Scientific research on healthy children and on vulnerable children pass new light on the many factors that go into normal development and the many ways in which development may become derailed. This research helps to define what children and families need to develop their fullest potential. We must strive to meet these needs.

We thank you, Mr. President, Mrs. Clinton, for your making the future of children a shared national concern.

Thank you.

(Applause.)

DR. HAMBURG: Dr. Shatz?

DR. SHATZ: Well, I'd first like to echo that thanks for focusing this day and also future events on the importance of knowing about child development and brain development.

Dr. Cohen began his talk by mentioning that the baby is born ready to go, ready to adapt to the world, and I would like to talk about what's going on in the brain during those times and even earlier in development.

The brain after all is the most incredible computational machine imaginable and its precision of circuitry really underlies our abilities to see, to talk to fee and in fact to be human, so a huge question that neuroscientists have spent the last 25 years addressing is how in the world is this incredible machine assembled during development.

I am very happy to say that the last 25 years of research have yielded a huge amount of new and important insights and I want to try to fill you in on some of those in the next few minutes.

First, I want to talk to you about the magnitude of the problem: The brain actually consists of nerve cells and neuroscientists argue about how many there are but there are probably something like a trillion nerve cells. And I know

those of you who are dealing with the budget deficit understand that number.

Now, a nerve cell consists, you could think of a nerve cell kind of like a telephone, but, unlike a phone, it communicates with other nerve cells by a combination of chemical and electrical signalling.

Now, like a phone, a nerve cell gets inputs, gets signals from other cells and it sends signals through a very long fiber or process called an axon. And the axon itself connects with maybe up to anywhere from 10 to even 10,000 other nerve cells, so when you place a phone call, maybe one or maybe even 10,000 other phones will ring.

Now, that means there's something like over a hundred trillion connections that the brain has to form during development and yet the precision of those connections is such that it's almost as if nothing has been left to chance.

Now, another amazing problem that the brain has to solve during development is that none of these connections are there to start out with. Nothing is connected to anything else in the brain. In fact, the way things work is that individual nerve cells come from dividing cells that divide like mad, produce progenitors. Those cells then have to spin

out, they're very long axons, to reach the appropriate parts of the brain. So nothing is connected at first.

And you could make the analogy that the problem of brain wiring is kind of like the problem of stringing telephone wires from one city to another in the brain, from New York to Washington, D.C., and there are sort of two levels of problem that have to be solved.

The first is you have to string the trunk lines, so you have to connect up New York to D.C. and not to Providence, Rhode Island. And what I mean by that is in the brain connections from the eye have to grow to the visual part of the brain. Connections from the ear have to grow to the auditory part of the brain and so on. All these things have to happen de novo.

But then the problem of wiring isn't over once that happens. The trunk lines are formed and then within the cities the connections have to go to the right address, so when your grandmother calls you up in Washington that your phone rings and the phone at the White House doesn't ring. So there is this problem of address selection as well.

It's not a trivial problem. The connections from the eye to the brain, there are about a million connections from

each eye and there are about two million possible phones that each one of these connections could make in the target. And yet only something like 10 or 20 or 100 connections are selected from this huge subset and that's just in the visual system.

Now, what I want to talk about is the solution here, how this works. Well, one idea is that the brain could be wired like a computer, so, like a computer, take all the component parts, solder them all together, flip the switch and, voila, it works. But, actually, the brain solution is much more adaptive and elegant than that and the bottom line is the solution involves starting out by doing the gross wiring of the brain and then halfway through, before all the wiring is complete, just flip the switch, and then actually the wiring continues the process. the functioning of the brain continues the wiring process. So the brain is on from early times in development helping in this wiring process.

Now, research all the way from flies to mammals have shown that this wiring occurs, then, in two broad phases. There's a basic framework of brain wiring, these would be the trunk lines, that are laid down through following a strict genetic blueprint that sets down very clear molecular clues

allowing axons to grow along the right roadways and select the right targets within the brain, so laying down connections from New York to Washington, D.C.

But those connections, when they first form within the target structure, are not in the adult precision. In fact, the phones, when you place a phone call in development from New York to Washington, phones ring all over Washington, so not only your phone rings, but the White House phone rings, too.

Then there is a second phase of development in which brain function is required and it's actually as if the brain is placing phone calls and using those phone calls to correct the initial errors that have been formed in the addressing that occurs early in development. So the brain is almost running test patterns on all these connections, phoning home, essentially, to figure out which are the right phones to ring and which are the wrong and the incorrect connections are eliminated and the correct ones are actually strengthened and grow like mad.

So the baby's brain is actually not just a miniature version of an adult brain. It's a dynamic evolving structure that requires its own function to wire itself in the second

phase, this kind of phoning home.

Now, I want to give you a famous example of this. In the last 20 years or so, many people have looked at vision and development of visual connections and I want to ask you a question and see if you can answer this.

When your grandmother gets a cataract as an adult, she cannot see out of that eye, but if she has that cataract for five years and then a surgeon comes and corrects the optics of the eye and replaces the lens and the cornea, she has good vision again, no problem.

Now, an unfortunate situation is that sometimes children are born with congenital cataracts and they might not be operated on for about five years. So let's say a five-year-old is then operated. The optics of the eye are corrected, yet tragically the child is blind in the eye that has the cataract.

What's the difference?

Well, Hubel and Viesel who were Nobel laureates in 1981 set out to make an animal model to answer this question and what they discovered is that the eye that wasn't used because it had the cataract actually lost many of its connections with the brain. They withered away and that

actually accounted for the blindness in that eye. So this is a classic example of use it or lose it. And Hubel and Viesel could look right in the brain of the animal models and see that those connections had actually gone away.

So this idea, then, gave rise to the whole concept of the importance of early experience in brain wiring and it's still one of our best examples of how early experience is needed for the proper wiring of connections and how abnormal experience can literally lead to a loss of connections in the brain.

Now, don't worry, grandma was fine because once the connections are formed, in most cases, they don't go away again. So once formed, the connections are there. And this then means that there must be early periods of development, windows of opportunity or critical periods, as scientists call them, during which time experience is essential for brain wiring.

Now, because the brain and different parts of the brain develop at different rates, scientists think that there probably are different critical periods or different windows for different parts of the brain, so it's not just as if there is one critical period for vision. It's very likely

that there are many different critical periods and you're actually going to hear about another nice example from Dr. Kuhl in the next talk, language development.

Now, you can ask how early do these periods begin?

Well, we know now that this phoning process is going on even before birth. In fact, even before babies can see, their eyes are running test patterns on their connections in the brain and they do this, actually, starting out by a kind of automatic, auto-dialing process. And then, of course, after birth, this auto-dialing process is superimposed by vision. Vision takes over and vision places the phone calls. So in a way, even in utero the brain is in training for experience and it's using its activity in order to help refine connections that are formed.

So what I've told you, then, is that there is actually a two-step process to brain wiring and this is actually an extremely elegant solution. If after all things were just hard wired, if everything in the brain were just strictly programmed genetically by molecules that wired everything up, A to B, C to D and so on, then of course we wouldn't be nearly as adaptable as we are as organisms.

Brain function selects and refines. The second step is

actually very prolonged in humans. As I've said, it begins in utero and it persists all the way through puberty and, actually, in the spirit of Mrs. Clinton's remarks earlier, I have to just remind you that it doesn't just stop there, in fact, it's going on right now and I can guarantee you that after today your brain is going to be different in structure from what it was before.

Now, this is a risky process, of course, this process of allowing experience to sculpt connections, but it allows adaptability. And just think of one example here and that is you don't know if you're going to be born in Japan or in the United States and you don't know which language you're going to have to learn. Well, what's elegant about the superb flexibility is that the brain lays down a basic circuit that's designed to learn language and then experience essentially makes decisions about which connections to keep and which ones to eliminate. And without this superb flexibility, of course, we couldn't do anything. We couldn't learn, remember, change, in short, we wouldn't have those properties that make us uniquely human.

Thank you.

(Applause.)

DR. HAMBURG: Thank you very much indeed.

Dr. Kuhl?

DR. KUHL: Thank you. I also want to thank the President and Mrs. Clinton for putting the spotlight on infants and children and their development.

Today I want to describe a specific instance of how the brain wires itself up for a specific and complex activity like language. We want to talk about what those phone lines that Carla Shatz described are transmitting.

Over the past 25 years, we've learned a tremendous amount about the child's acquisition of language. We previously thought that language began when first words appeared, at about one year of age, and when kids started talking to us. The new research shows that this is incorrect in that infants are mapping the sound structure of language in the first six and 12 months of life. There's always something going into the brain mapping the elementary building blocks of language that infants will use to communicate with in the next year.

What I'll tell you today is that by six months of age, infants are well on their way to cracking the language code. Let me unpack this a little bit.

It takes both nature and nurture or, to say it another way, both biology and culture, to bring this about. Infants are very well prepared for the acquisition of language. At birth, infants across the world can discriminate all of the sound contrasts that are used in any language of the world. I like to refer to them as citizens of the world.

As Carla said, they don't know what language they're going to have to acquire, whether it's Japanese, Spanish, Swedish or English, they're prepared for anything. This is quite a feat because the acoustic events they have to pay attention to are very, very minute. But it's not finished yet. The fact that they're citizens of the world doesn't make them a speaker of a particular language. The job is yet to be done.

Infants have to change from their citizen of the world status to a culture-bound language specialist and, again, the news is that there is concrete evidence that by 12 months of age infants are well on their way to mapping the sound structure of their particular language. We know this because we've been doing studies in all parts of the world. We're observing the results of nature's experiments. Nature constructs life such that babies being reared in these

different countries are all listening to a separate language and so we have studied infants at various phases in their development to see when they diverge from their citizen of the world beginning to the culture bound citizens that we all become as adults.

In studies conducted, for example, in Sweden and in Stockholm and in Seattle, Washington, we observed that by six months of age, babies are already focused on the particular language sounds that their language uses contrastively rather than the sounds of all languages. So by six months of age, they have already moved from the citizen of the world status to their culture-bound language specialist status.

For example, by 12 months of age, we've just learned from studies in Japan, infants who originally at six months in Japan were able to hear the distinction between R and L no longer do so. They don't respond to the difference between R and L at 12 months. This is very good for Japanese because it doesn't contain those two sounds, just R. So babies have begun to ignore the variations that are not critical to their language and pay attention to just that set of sounds that are critical for distinguishing words in their particular language.

So what this research is showing is that by six months of age, infants' perceptual systems have been altered simply by listening to us speak.

Now, I don't know when the last time is that those of you in the audience have looked at a six-monther. They're very little babies. They have yet to produce a single word, they're yet to understand a single word, and yet the lesson from the research is that they are listening to us speak and their brains are busy coding the sound structure of the language they're going to have to master in order to be able to talk back.

So if infants are listening to us at this wee age, who are they listening to? Well, they're listening to us, to you and me, to the speakers of their language and culture. So the language we produce to infants is vital to them and that puts some responsibility on us.

So that brings us to the question what do we know about the language that we produce when we speak to infants and children?

Well, there's plenty of research on what we call parentese, the kind of language we produce when we talk to infants and children. We seem to do this unconsciously.

When you bring a person into the laboratory who has a child, she comes into the laboratory, a mother, and she says, "I'm glad I'm here, the traffic was awful." And then she looks at her two-monther and she says, "Hi. How are you?" So we see there that the grammar is simpler, the vocabulary is simpler, and it has a unique sound. The sound of motherese attracts babies. It's like an acoustic hook that pulls their attention to the speaking adult.

We know from laboratory tests, again, that babies prefer this kind of signal hands down over any other. If you give them a choice between adult-directed speech like I'm producing now and infant-directed speech, there is no contest. A baby will do whatever they have to do to turn that signal on.

The most recent research says that that signal has very well formed phonetic units ideal for the baby's job of learning those particular units, so this motherese, this parentese kind of information, it contains both melody, it has a very good and enticing sound, and meaning. It conveys the warmth and attention we're trying to give to our children, as well as providing a tutorial on language.

So language development is this intricate interplay

between biology and culture. Nature and nurture don't compete, they cooperate. Biology provides a kind of blueprint. The blueprint is that baby's exquisite ability to hear the differences between all sounds, but then culture jumps in and provides this information, the input, language information, that the baby's brain begins to map. This all occurs in a deeply social context.

This is where the village comes in that Mrs. Clinton has written so eloquently about. Language is a social enterprise, one that the community of people surrounding the infant have to help them with. Young infants learn to communicate by watching and listening to us. Again in the laboratory, we can see that if you expose a very young baby, a 20-week-old infant, to a face of a person speaking simple sounds, within about a minute the baby starts to coo back, producing the best instances of those sounds that they can do. So this give and take, this turn-taking, that we do, the communication dance begins very, very early in infancy. By 20 weeks, babies know that they get to have their turn.

So this early learning, this plasticity as scientists refer to it, makes infants both responsive to the environment and vulnerable. Infants' early propensity to learn reminds

us that we have to pay attention to the intactness of their ability to hear and see and process information. It's important to look at early hearing, early speech and early language abilities to that we can jump in with intervention strategies if there is something amiss. Timing is extremely important.

Timing is also important in learning a second language. This propensity to learn means that infants can master a second language quite easily during their pre-school years. It's much more difficult to learn it at the age that we are. The window for language learning is wide open in early infancy. It doesn't shut for we adults, thank goodness, but it does narrow a bit. So if we're going to expose children to second languages, it's best to do it early.

Now, one last point, and it's a caveat. These findings on early learning shouldn't put additional pressure on parents. Research can't tell us yet how much communicative interaction it takes to allow this kind of development to occur. We don't know if it's 30 minutes a day or two hours a day of conversation that's needed to support this kind of learning.

As researchers, we don't advise parents who are

communicating with their children to try and accelerate the normal pattern of development. We don't recommend flash cards to try to teach words to three-monthers. Nature has provided a perfect fit between the parents' desire to communicate with the child and the child's ability to soak this information up.

Parents should take pride in the hard work that they do to develop their baby's mind. They should also understand that while infants are very, very clever, they're not adults, they have a long way to go and that we participate in this developmental process.

Let me sum up with an analogy. When we see a young baby's physical growth, we're very comforted. Seeing the doctor's scale go up one pound when I had a child made me feel very good. We think our child is then healthy. Mental growth is more difficult to see. One day your child produces his or her first word or his first sentence and you say, "Where did that come from? What's going on up there?" Modern behavioral and brain science is providing answers to the questions. When we speak to our children, something is happening. We're bringing about changes in the brain that will allow them to eventually participate in the

communication game.

Infants are born to learn. Our role is to be good partners in this learning process.

(Applause.)

THE PRESIDENT: I'd like to ask one question. You say that, as I think all these presentations that we've heard today, lead a parent to the question that you say there's not exactly an answer to yet, which is you don't know whether you need a half an hour or two hours a day of speaking or if two hours a day makes a lot more difference to a child in the first six months of life, but do we know that there is at least some minimum threshold that has to be crossed and do we know, for example, that there is a big difference between hearing a soothing human voice in motherese, if you will, and just leaving a child with a radio going on or a television going on and do we know anything about what children do with that sort of language if they're exposed to it for hours a day in those early months?

DR. KUHL: Well, first of all, I guess we can say that without language input, language doesn't develop, so if you look at deaf children who do not have the advantage of sign language, they will not learn to map language sounds and

produce the characteristic milestones of language. It takes input to build a language system.

We don't know how much it takes, however, there's just no answer to that question, and we can only guess whether or not language would develop if you hung a tape recorder on the child's crib and said, well, this is going to do it. My guess is, however, that it wouldn't happen, that a disembodied tape hung on the side of an infant's crib is not what it's about.

It is again this social game, this desire to communicate on both individuals' parts. And we're learning a little bit from animal models that in social contexts in which communication occurs, there are all kinds of changes in hormone levels and perhaps the biochemistry of learning will eventually tell us that it's the social context that prompts the kind of neural machinery and chemistry that's needed to lay these memory tracks down.

THE PRESIDENT: Thank you.

David, should we go on to the next panelist?

DR. HAMBURG: Dr. Davidson?

DR. DAVIDSON: Well, I too, want to thank the President and the First Lady for just opening up what is clearly a very

exciting area.

Just on the basis of what we've heard so far, preparing to be a parent should be no less important than preparing for one's life work. We have long understood that good health and medical care for women before and during pregnancy had very important influences on their infants' health. In view of this recent remarkable scientific finding about brain development, all prospective parents, men and women, must become actively and knowledgeably involved to assure the best possible health status before and during pregnancy because of its importance to newborn and early child development.

A healthy mother, a healthy baby, born into a healthy family, offers the best chance for full advantage of this new science demonstrating how much the young child's brain development benefits from stimulating and interactive environments. The general society should be so infused with this information that no child should escape its benefit.

Formal and informal education should ensure that future parents, especially girls and women of all ages, understand that proper personal habits, balanced nutrition and family support are among the factors that improve pregnancy outcome.

There is proven value in a specific medical visit and

evaluation when pregnancy is contemplated. This provides the opportunity for a complete family and personal history, physical examination, needed laboratory tests that could identify conditions that might require special consideration and counselling.

For example, medical conditions that might harm the woman and fetus and lead to a less healthy start could be identified and corrected. These could be as obvious as problems of obesity or conditions that are less obvious and important as high blood pressure or diabetes and even unrecognized risks such as genetic conditions, hazards in the workplace, diets, and even medications that patients may feel that are not harmful. Personal habits such as smoking, drinking, drug abuse could be stopped or reduced.

While all of these will be addressed as a part of prenatal care, often the harmful influences can occur even before pregnancy is suspected or diagnosed, so this good healthy living life style is important before pregnancy.

At the present time, medical care begins with pregnancy for most patients, since preconception care that I've just described is relatively a new recommendation and is not often exercised.

There is no question that early and comprehensive prenatal care provides an added assurance that there will be a healthy mother joyfully interacting with a vigorous newborn that is responsive. Such newborns have the best chance of maximal development. Mental and physical impairment or disability that could have been avoided with proper prenatal care may otherwise greatly increase the difficulty in reaching developmental potential.

Risks that should be identified and can be modified with health promotion or prevention or treatment are rich opportunities that can be exercised during this prenatal experience. Advantages of this care are insufficiently recognized by many who consider pregnancy to be only a normal condition and not recognize that very harmful and serious changes can occur without warning.

Prenatal care not only proves an advantage for mothers and infants, but over many times has been documented to decrease overall costs. Too many women still in this country do not get adequate prenatal care because of lack of knowledge, motivation, resources or insurance, and we must work to reduce these barriers.

The time immediately after birth, the postpartum period,

is another critical opportunity to be captured for evaluation and examination. A smooth transition from birth to parenting a newborn at home that provides comfort and reassurance about the details of newborn care and feeding is enhanced by professional observation and evaluation.

As a matter of fact, I am sure that common wisdom understanding this and the advantages that it offers contributed to the mass public and professional outcry over postpartum hospital stays that were cut short for financial and administrative reasons without this due professional concern.

Throughout our population, many barriers interfere with ideal prenatal and perinatal care: smoking, drinking, substance abuse, poor nutrition, family violence, stress, lack of knowledge and inadequate medical care. And we must remember up to one in four children in this country is born in poverty. Special efforts need to be made also that we are bringing the benefit of this science and support to these less fortunate members of the society.

Importantly, much more emphasis needs to be placed on planned child bearing to pursue a more orderly and productive preparation for pregnancy and its care. Over half of the

pregnancies in this country are unplanned or untimely. This is not only a problem as we focus on teenagers, but in numbers is even a larger problem in the adult population. Only 15 percent of this risk is among adolescents.

It would be an enormous benefit that would have major impact advantage to newborns if there were a large reduction in this unplanned pregnancy. There is no comparison between the attentive mother eagerly anticipating the birth of a child and doing everything possible to make sure it is healthy and will be received in a warm environment compared to a person who has a much less interest in that pregnancy and does not afford the prospective opportunity for this support and comfort.

It was clear even before today's findings that it was necessary to improve the general advantage for newborns to have this kind of start. Hopefully, with this kind of new information, it will be impelling enough that the necessary social and policy actions can be accomplished.

I really do appreciate an opportunity, as brief as it is, to bring this maternity care and obstetrical perspective to these important issues.

Thank you.

(Applause.)

THE PRESIDENT: Doctor, what's the best delivery system we could develop to get this information especially to poor prospective mothers?

DR. DAVIDSON: Well, I think part of that is a medical answer and part of it is a general support and educational answer that's even beyond medicine, but clearly, it is important that all women and families have an opportunity to participate in quality medical care that provides the springboard for the other necessary services to be provided because that context allows the easy assessment as to whether or not there are other physical, psychological or other needs that help prepare a parent to engage in this exciting enterprise with the newborn.

DR. HAMBURG: Dr. Brazelton?

DR. BRAZELTON: Well, first of all, I want to thank the President and Mrs. Clinton for every family in this country because I can guarantee you that all of them are watching today with the kind of feeling that nobody before has cared.

When I was on the National Commission for Children with Jay Rockefeller for two years with many of the people in this room, we went around this country and were really horrified

that we were one of the least family and child oriented countries in the world. How can we have gotten there? And yet I have identified in my own work ten stresses that have made parenting much harder today than when we were raising our own children. It's escalating. Parents are under more stress every day than we are meeting.

Why has a country like ours not met this responsibility when we know what the outcome is at the other end?

And I have some biases. Biases only operate if you are not willing to face them. If you bring them to the surface, you can say, hey, I don't want to be dominated by that bias, I want to act on it. One of them is that we basically feel families ought to be self-sufficient and if they're not they ought to pay a price for it, so we don't do anything really important to help them. Even welfare reform, we turn the wrong way.

We should have looked at what we were going to do with children before we pushed women out into the workforce. It's so obvious to anybody.

(Applause.)

So, you know, we don't do it. The next one is women ought to be home with their kids and if they're not, their

children ought to suffer and they're going to suffer. You know, we aren't paying attention to what 70 percent of families are going through with that bias.

The third is that we don't like failure and we don't like diversity. We have made diversity into a negative in this melting pot society. How have we done it?

When I play with newborns around the world, they bring us a fantastic kind of diversity to our country. We ought to be so proud and valuing that so much that we could change that model.

Well, what I want to do is use that to say to you that I think what you all entered into your presidency with last year was wonderful. When you did the family medical leave bill after we had worked for 10 years to get it, it seemed like it was failing because it only affected 5 percent of families, but it had a spread effect that all of you ought to be aware of. It certainly is the one thing in my elderly life that looks good.

Businesses began to wonder what are we doing to our families and they are now planning family support systems in many of the businesses in this country. And we're working with four major businesses to set up centers in every

business site with not only quality day care but preventive health care, support systems if they deserve food stamps and so forth, they get them right there, they go right into Head Start right there. These are community centers and people are beginning to feel a sense of community again at a time when we've lost that in this country? Isn't that exciting?

The same thing went on, Hillary, with the health care bill. You may feel like you've lost it, I don't. You shook medicine to its roots. It's running for cover now and it ought to. It has not been successful.

In pediatrics, which you've asked me to talk about in five minutes, I can tell you that pediatricians are very disillusioned. They know that what they've been doing is not satisfying anybody, including themselves. Middle class people only get a baby weighed, measured, and immunized. That's not what they come for. Lower class women don't come. Forty percent of our kids are getting no effective preventive health care. Aren't immunized. What country can say that about their children?

So we'd better re-look at our health care, as we have that opportunity. And I would like to ask you for something today and I hope all of you in the front rows are going to

respond to this. I'd like to see universal coverage at least for all children and pregnant women.

(Applause.)

And it's not costly, it's an investment. As William White had said, will it cost us a lot more? Compared to what? You know, we are paying a terrible price for our lack of attention to this area later.

Well, we can't just fall back on universal coverage. We need a special kind of outreach medicine in this country. It not only has to be available, affordable, but it has to be respectful. It has to begin to pay attention to what families want when they come to a doctor.

When a mother comes into a pediatric office, she comes with two questions: How am I doing? How is my kid doing? But she doesn't just want back his height and weight. That may be very important, but she wants to know whether that baby is right on target.

The Academy of Pediatrics has asked me to help them with their immunization program and I said, sure, if you'll do one thing: every mother who brings a baby in for an immunization hopes she's going to get something back from that visit. When she walks in the door, have somebody at the door who

says, oh, what a beautiful baby, look at that baby, look at you with those lidded eyes and look at you look back with those lidded eyes, aren't you having a great time. And then you have one other person in the office who hands that baby a toy, if that's age appropriate, and as the baby grabs for it, they say he's right on target, isn't that wonderful. No mother will ever miss another immunization, I can promise you. So these are the things we've got to begin to incorporate in our medical outreach.

I think we need to change our medical system from a deficit model which we were all so well trained in in medical school, look for all the problems, we never miss one, but then say, hey, what kind of strengths are giving these people the opportunity to raise five kids in the ghetto with no supports? And as soon as you ask a mother that, she sits up, her eyes come alive and she begins to answer and then she'll tell you things that are important to her.

And I would recommend that we change our preventive health care system from one that welcomes, that reaches out, when they come in you never look a baby in the face, anybody that looks a baby in the face gets what they deserve, a screaming baby. What you do is look just past them and as

they pick up on just what you're looking past, they begin to do something. They've just learned.

I saw an eight-month-old baby the other day who just learned to go "phfft". So I said to the mother, "How is she phfft doing?" And the baby sat up straight. Eight months. Right in the middle of stranger awareness. And I said, "Is she phfft eating all right?" By the third "phfft" she reached out for me, a stranger. I took her and went "phfft" a fourth time and she looked up in my face, felt my mouth and went "phfft" back. And how long did that take out of the 10 minutes I had for those patients?

The other thing you can do is the same thing with mothers. As you're working with them, watch their rhythms, use their non-verbal language and they're right with you. And I think we can change our model by touching in on what I call touch points. The vulnerable times in a child's development are like a map. There are six of these in the first year, three in the second, two each year after that, when a baby regresses just before they take a spurt in development and these spurts in development are going to cost everybody in the family a lot, but these regressions cost the most if parents don't understand them because they think, oh,

my lord, she's starting to lie, steal, suck her thumb, wet the bed, any of the things kids can do.

If you're there to touch into the system and say, you know, regression is a time for reorganization and for learning and she's just going to take off in such and such a way, a cognitive way or a motor way. These parents, the next time they come in, "Wow, you were right," you have not only empowered the child, you have empowered the mother and all of these efforts we've been hearing about, about brain development, ought to be looked at with that in mind. Are we just talking about the brain development in the child or are we talking about the parents' development, too? And every time we are rewiring the brain of the baby, we're rewiring the brain of the parent.

We have a chance through preventive health care, preventive education, to give back to parents this feeling I matter, what I do matters. And every time they look at their baby and the baby goes ooh and they go ooh back and every time the baby smiles and they smile back, that baby is not only -- I'd go a step farther than you did, Dr. Kuhl, I would say that the reason we talk to a baby in a special way is they know we're talking to them. If I hold up a newborn with

its head here and its bottom here and say, "Hi, how are you doing? Come on, you can turn to my voice." That newborn stops breathing, the face lights up, breathing starts up again. He keeps himself under control so he won't startle and turns to my voice and arches toward me like, "There you are."

If I get a mother over here and I'm over here and we both talk, any newborn worth its salt chooses the mother's voice, turns to her, and I've never done it yet, I was in the nursery yesterday, that the mother doesn't grab her baby and say, "You know me already."

And if we want fathers in there, Bill, what we have to do is put the father over here, macho types, you know, and get them to talk and fortunately 80 percent of babies choose their father's voice instead of mine, and the other 20 I tip their head.

(Laughter.)

The father does the same thing that a mother does and grabs his baby and says, "You know me." Well, this has worked at Howard University with unwed African-American fathers, it's worked with addicted women, it works with anybody who cares.

Now, if we have a country that still cares and is still hurting because they care so much, can't we capture that energy, put it to use to do just what we've been talking about in capturing these pathways, not only in the baby, but in the parents?

Thank you.

(Applause.)

MRS. CLINTON: Dr. Brazelton, I wanted to follow up on a couple of things that you said today and that I've heard you say many times before.

As I mentioned earlier, the organization Zero to Three has just completed an extensive nationwide survey of parents of young children. They used this survey to try to find out what parents know and what they don't know about children's development and we find out from this survey that parents know a lot about what they should be doing, there are some things they have misconceptions about, but there is a clear finding from this poll of parents that they are just hungry for information on what they can do to enhance their child's development.

You and I have spoken together many times and we have said over and over again, in your much more extensive work

and my more limited observation and contact, I have met very few parents, very few, who I thought didn't care about their children, but I have met many parents who were overwhelmed, stressed out, anxious, unsure about what it is they were supposed to do.

What would be the best things that you would want every parent to know to do to nurture their young children? If you could have a face-to-face conversation and look into the eyes of every young mother and father, what would you want them to know to do?

DR. BRAZELTON: I'd want them to know two things, I'm afraid. One is to learn how to follow their baby's behavior and when they talk to them watch to see when that baby pays attention. If you talk like I was just talking to a full-term baby to a specially vulnerable baby like a preemie or one who has been addicted in the uterus, you'd stop that baby from breathing and they'd turn away from you, spit, up have a BM, turn blue around the mouth, show you in every system I'm overloading you.

On the other hand, if you reduced your voice and said, "Hi, how are you doing? Come on, you can turn to my voice," even these very fragile infants pull it together, turn to

your voice, put four modalities into action in terms of the brain's development in order to turn to you.

Now, I think parents need to learn how to watch their baby's behavior as their language and learn the baby's temperament as their language and then they'll feel like I know my baby.

And the other thing I want them to know is the ghosts from their own nursery and how much those dominate your behavior when you hit a snag. If they can look back and say, "I don't need to do this just because my mother did this to me," in terms of child abuse, "I can make a choice." And then I think they can make the right choice.

THE PRESIDENT: Let me ask you something. This goes back to something Dr. Davidson said, too, about the whole perinatal care network. If a lot of the parents that are most at risk of messing this up because of their own difficulties are in fact already covered by public programs and if in fact, which basically underpay the doctors in many ways, wouldn't the most cost-effective way of dealing with this be to sort of build into the Medicaid expansion program to treat these things as actual services that ought to be given to pregnant women? Or if women don't come in in

prenatal care, at least immediately after childbirth, before they get out of the hospital, at least somebody goes through some of these things? And then there's some understanding that they can come back for this kind of consultation?

Shouldn't we try to develop a more systematic way of imparting all this scientific information and all this kind of stuff?

(Applause.)

And isn't it really rather inexpensive and easy to adapt the program to this?

DR. BRAZELTON: Do you want to answer first?

DR. DAVIDSON: Well, I will give one reply. It has been suggested to me that this level of interacting with parents or parent education ought to be in the same category as immunizations and we ought to be as concerned about this and maybe have bench points, as immunization is required to get into school. And this is for parents across the board, because there is so much information that they want to know and once they are engaged there is so much more information that they want to know and it certainly should be built into the situations where the parents are naturally found.

DR. BRAZELTON: Bill, I would say not the way it's set

up now. AFDC is handed out as a top-down gift to people and with it goes a kind of derogatory approach that I think is so destructive.

If we change the model to a shared model in which we were looking for relationships in our training, touch points, it takes us a week to get people who are very dedicated to come around to want to make relationships with other people not at a top-down level. And then we try to get them out of the model of just looking at deficits to looking at positives. Those are big steps, but we can do it. We can train people.

And if you could get us universal coverage and if we could retrain people to come out of the old medical model of negative failures, we could sure do it. We'd reach everybody in this country.

THE PRESIDENT: When we break, it might be worth having a conversation with the governors who are here, because we do have some governors here, but in virtually every state in the country now, I think every state, the Medicaid program covers people who are above the welfare level. There are people on AFDC and then people who are working poor. And there will be, I believe this anyway, I believe the chances are

overwhelming that there will be a dramatic expansion of medical coverage to children who don't have insurance now and we might get all the way there. Sometimes a fever overtakes the Congress in a positive sense and we get things done. It's building in the right direction, anyway.

But the thing that strikes me about all this, if you go back to what all the first speakers said, if you go back just to begin with Dr. Cohen and you go through what Dr. Shatz said and certainly what Dr. Kuhl said, there has to be -- the defect in America is we hate systems about everything.

We need a system to have the kind of networking relationships with parents, hopefully before but at least immediately after birth, that we don't have and those things are, compared to what we're spending money on now, relatively inexpensive if you can do what you're talking about.

MRS. CLINTON: I would like to just add to that. There are a lot of interesting programs out there. Some of them have been highlighted in starting points, I know that Rob is going to be highlighting some of them in his upcoming special. I know many of you have worked in them.

It's not that we don't know what works. We do know what works. We know what can help get a parent more engaged.

We know how to intervene to try to create better conditions for a non-responsive depressed parent, an over-stressed parent, to have this kind of interaction with his or her child. But we do not have any systematic way to do it and I think what the President is saying is a very important point because we have this reaction against systematically helping people, and yet we systematically pay the costs of not helping people, in a very sensible preventive way in the first instance.

I think that it's not only something we should look at from the point of view of what public programs like Medicaid can or should do. There are also great opportunities for HMOs and for insurers that are serious about cutting costs down the road and I know that at least one, Kaiser Permanente, is represented here that is very interested in trying to figure out ways of creating better conditions for prenatal and post-birth relationships between parents and children.

And I also think that we can't look at this solely as a problem of our poorest, most disadvantaged families. That is where we have perhaps a greater pool of parents and children at risk and where the social costs are more obvious, but I

think that the stresses that Dr. Brazelton has talked about and that he's worked on for so long really affects society across the board and so it's not just a question of public response, it's a question also of private response.

And to that end, I would like to ask Dr. Cohen, because he referred earlier to Dr. Sally Province whom I had the privilege of working with and watching work with mothers and infants, and in the observations that I watched those many years ago, she was dealing with primarily stay-at-home mothers, middle income, upper income mothers, who knew that they had a problem, who knew because of some referral from a physician or a neighbor or just what they felt themselves that their child was not thriving the way that they had hoped their child would. So they would come for this intervention and assistance from Dr. Province and then Dr. Province after observing, it was predominantly, I think, all that I ever saw were mothers and children, after observing the parent-child relationship, would then work with that mother to understand how not to startle the baby, how to read the baby's temperament, how to be more attuned to her child.

And, Dr. Cohen, that's much of what the work that you've done all these years at the Child Studies Center has been

aimed at. How do we take that knowledge which is there, that trained people like yourself and Dr. Brazelton and Dr. Hamburg and others on the panel have, how do we take that and systematically provide it to parents who want to make these changes so that they are better able to develop their children?

DR. COHEN: Well, thank you. One important part of the work in the Child Studies Center this last decade has been to move the clinical work of Dr. Province out into the community, so now the clinic that you worked in is represented in every school in New Haven where psychologists, social workers, child psychologists are out there in the schools working with teachers, in preschools working with Head Start teachers.

In our most recent work, it's been working with police officers and teaching police officers the basic concepts of child development and how do you work with families and police officers are out in the community. They are still making house calls.

And I think that one of the important parts of our work is to work with all those other aspects of the community where families are met, the faith community, pediatricians,

primary care, education, social service agencies, as everyone buys into the idea of thinking about the first years of life. And that will transmit the kind of knowledge we have about parent-child relationships to the families.

We shouldn't underestimate how hard the work is because after you do work with the families and you bring them in, it is sustained, hard work to make a change, especially when you have multi-generational difficulties of the sort that you saw also with Dr. Province. It means long-term work, work with the parents, work with their extended community, and work with the child. And we have to recognize that as well, that this is not going to be simple work once we identify the children.

Thus, when you go out into the community, what you find is more and more need and that is what we have to recognize as providers, that it won't be a few children, it will be more children. Every highway once it's built is filled with cars and every time you reach out into the community, you find more parents who want our care.

Finally, we'll have to find ways of doing this not just with professionals like Dr. Province and high trained professionals, but extenders of our clinical care and I think

there, too, the President is quite right in saying can't we create systems in which there are a range of providers working in a systematic way, delivering to all children at their socio-economic class differences what they need. And it's not always a highly trained physician, but sometimes it is a highly trained physician.

DR. BRAZELTON: I didn't get your question but absolutely, for my money, one of the good things about managed care is that it can provide us multi-disciplinary opportunities. We could train the woman on the phone, the woman when you first enter a doctor's office, somebody to assess the baby so the doctor in his 10 minutes doesn't have to do that, but he then can use it. The second I think you reach out for somebody and offer to become an advocate, they know it and they'll respond to it and you could bring them in in pregnancy in such a way.

And then I've found in my own work that modeling is the quickest way for a parent to learn how to nurture a child.

DR. HAMBURG: Well, Dr. Phillips, you're not forgotten, you're down there on the end, but we remember you're there and the very important subject you have to address, so, please.

DR. PHILLIPS: First, Barry, I want to thank you because my 11-month-old has perfected that Bronx cheer of yours after three months of almost constant practice and I'm very glad to know that's normal development.

Thank you, Mr. President and Mrs. Clinton, for highlighting research on child care as part of the evidence that you want American families to know about in the context of this very important gathering. It's not often that we get to sit on the same panel with neuroscientists, so it's a deep honor.

Just as the research on the inner workings of the brain have somewhat ironically directed attention outward to the importance of the environment, research on child care has affirmed the centrality and durability of the family in the development of young children.

We now know, for example, that placing a baby in child care does not interfere with the development of the mother-infant attachment relationship or the father-infant attachment relationship. These bonds are extremely resilient. Today, however, the vast majority of families are sharing the rearing of their children with child care providers, starting in the very first few weeks of life.

We know from the new national study of infant child care funded by the National Institute of Child Health and Human Development that 80 percent of the infants in the United States experience some regular non-maternal child care during the first 12 months of life. Most of these babies started child care before their four-month birthday and most of them are in care typically for close to 30 hours a week. We are talking about very high dosage, very early exposure to child care for most U.S. babies.

As millions of American children are moving into child care, most of these settings fall short of any standard that any of us in the room would consider optimal. Barely adequate has become the term of art to describe the typical child care arrangement in this country. Virtually every study that has involved actually going inside child care settings and observing what happens has found that about 15 to 20 percent, about one to five or six, are in fact dismal and even dangerous and those are the settings that will let us in to observe them. Compared to older children, infants seem to get the poorest quality of all.

We also see fabulous child care in all kinds of arrangements, whether it's from the grandma or a teacher in a

child care setting.

Neuroscience tells us that these suboptimal child care environments should affect early development. Child care research confirms that they do. The quality of the child care environment significantly affects virtually every domain of development that we know how to measure, whether it's problem solving skills or social interactions or attention span or verbal development, whatever we can measure, you get an effect for quality of care.

We've known this for a while now about three and four and five-year-olds. What this new study is telling us is that it's also true for infants and toddlers. Contrary to persistent concerns, young children, including babies, can thrive in child care when it is of good enough quality.

Now, the key to quality lies with the care giver. Good care giving looks a lot like the good mothering and the good fathering that you've been hearing about on this panel. Children show significantly better cognitive and language and social and emotional development when they are cared for by adults who engage with them in frequent affectionate responsive interactions, who are attentive and know how to read the baby's signals and the baby's temperament and know

when to turn up the volume on an interaction because the baby wants more and when to turn down the volume because the baby is absorbed in something on their own or is tired and needs to take a nap.

We have learned that language stimulation in child care settings is one of the most important facets of that care-giver child interaction, starting with babies.

Consider the difference between a baby in a child care setting who holds up a toy car and says "cah" and is greeted by a care giver who knows to get down on her knees, look at the baby's eye level, clap, hug the baby and say, "Yes, you have a car." Maybe she even has a book about cars to pull out and show the baby. As compared to the baby whose gleeful exclamation of "cah" is ignored, completely ignored, and frequently ignored.

These are precisely the kinds of differences that we see when we go in and look at child care settings. It's the difference between high quality and that barely adequate care that we see all too often.

Research also tells us that adult-to-child ratios are a critical ingredient of quality because it's humanly impossible to offer an infant enough of these kinds of

nurturing, stimulating exchanges when a care giver has to juggle the demands of more than a few babies, more than six to seven toddlers. Ask any parent of twins or ask any parent who has just survived their two-year-old's birthday party and say to them, "Oh, they're coming back in 10 minutes, they've just been out for a play session."

We also know that better trained and educated providers interact more effectively with young children in both home-based, even those informal care settings, as well as in centers. Experience alone does not appear to make a difference.

Children are also affected by the stability of their care givers because what we in my discipline euphemistically call staff turnover or care giver turnover, infants experience as loss of loved providers and this brings us to the difficult issue of how little we value and reward the individuals who provide child care in this country.

Wages predict turnover. It's a simple and direct relationship. Yet we pay child care workers among the lowest wages of any workers in this country, including people who guard our cars in parking lots.

Parents understand the importance of quality in their

children's child care. It affects not only their children, but their performance on the job. Some parents call it safety, some parents call it trust, some call it learning opportunities, but they all care deeply about it and they worry deeply about it. They struggle one by one to find child care and then to keep it, which is sometimes even harder. They do their best under very tough circumstances, constrained by what's available and convenient and affordable near their homes or their jobs, and constrained by the nature of their work hours and the demands of their jobs into which their child care have to fit.

We all share a responsibility for meeting the needs of America's children for high quality child care. Parents need real choices, starting with the choice about when to start using child care, which is a matter of family leave policy and I applaud you, Mr. President, for expanding the range of activities that that act will now cover. It will provide parents now with precisely that time they need to find high quality child care and the necessary time it takes to look for it.

I also applaud you, Mr. President, for highlighting the exemplary efforts and extending the exemplary efforts of the

Department of Defense. I have been particularly impressed by their understanding but efforts to enhance training must go hand in hand with efforts to enhance wages. And, as a result, staff turnover in their child care programs has plummeted.

The questions this conference raises for child care are big ones, but unlike some other areas of child policy, we do know what to do here, as you said, Mrs. Clinton. We know how to provide high quality child care. The unified efforts of the four branches of the military have proven this, as has Head Start, as I'm sure will early Head Start, as have the wonderful child care programs that are available to people who work in the federal agencies and in the U.S. Congress that I was fortunate enough to be able to avail myself of who are accredited and who also offer decent wages to their employees.

And today we're hearing very compelling evidence about the high stakes involved in decisions either to follow or to ignore these models and I am delighted to hear that you're going to keep looking at this issue in the months ahead.

Thank you.

(Applause.)

MRS. CLINTON: One of the reasons we want to look at this issue and we will have a conference later this year is because this is one concern that is shared by Americans no matter where they live or what their station in life might be. And I think we need to clear the air and have a very honest national discussion about child care, the good, the bad and the ugly, and try to give parents more guidance about what good child care is and look for ways of creating real choices for parents because that is what I think we should make available to parents but in reality many parents have no choices. They don't have the choice about whether or not to go back to work, especially if they're a single parent or if they're a parent in a low income family that needs two paychecks just to keep body and soul together. They often believe that they don't have a choice about the quality because of the cost of the programs that they are looking at. And I think that part of what we have to do with this research that we now have available to us is to take a hard look about what real choices are and try to do more to provide them.

Now, some people argue, Dr. Phillips, that what the research that we've heard about from Dr. Shatz and Kuhl and

Cohen and others, really tells us is that women with very young children should not work outside the home period and that all of our problems would be solved and all of our babies' brains would be well wired if women just stayed home. And I think it's important that we talk about this and not either adopt an ideological point of view one way or the other about this question and it seems to me that part of what this conversation about scientific research should lead us to do is to look for ways to give real choices to women so that women feel that they are making the choice that is right for them and their family.

But could you comment on what this research is telling us and whether it's fair to conclude, as some now argue, that it's the absolute definitive word on whether or not women should work outside the home?

DR. PHILLIPS: Yes. I have always been dismayed by how zero sum the debates are about work versus child care. All families in this country do both and both need child care and also need the freedom to make choices, especially about when they start child care. And I would love to see family leave policies in this country extended to cover more employees, a longer period of time and to address that thorny issue of

wage replacement.

Placing a child in child care is one of the most agonizing and frightening decisions a parent has to make and it's very important that that parent be comfortable about when they first enter into that system or non-system that we have now. But in fact the research on child care and the research on infant child care now is extremely reassuring with respect to working parents, mothers and fathers, in a couple of ways.

First, we know, we find again and again in analyses, that regardless of when families first start child care, regardless of how much child care they use, the family remains by far the most powerful, by far the most powerful, influence on their children's development. In many ways, how a child fares is in the parents' hands, so that's one reassuring message.

The other message is that if you can place your child in high quality child care, you can actually supplement what you're giving them as a parent and that's why the value of making high quality child care affordable for more families cannot be undervalued. Children can thrive when their child care is good enough and I think people weren't even sure that

was possible, but it's very, very possible.

MRS. CLINTON: One of the questions that I'd like to ask the scientists about kind of arises from that.

There was an interesting study that I wrote about in my book and I saw today mentioned in a New York Times article called "Meaningful Differences" about the amount and kind of verbal interaction that goes on in a home and the kind of stimulation that occurs.

And I think one of the issues that we need to address is how do we make it possible for more parents and those who are substitute care givers to understand what appropriate stimulation is, what kinds of activities are going to really help wire that brain and what might short circuit it, because I know that I often observe parents in various settings all over the country, and I'm always interested in what they think an appropriate way to talk to a child is, and does that make a difference and, in addition to verbal stimulation, what about physical stimulation?

And Dr. Schatz, or Dr. Kuhl, would you comment on that?

DR. KUHL: I think we can say that the kind of stimulation definitely makes a difference. I mean, obviously, we wouldn't think that shouting at a child more

would improve their development.

We think that interaction is extremely important and that the sort of mood and temperament of the child needs to be taken into account.

So, if a parent comes in to address a baby and is rushed and stressed, maybe that interaction isn't ideal, and if a parent simply decided, "Look, I have to crank up the level a little bit here, I have to do more of this, I am going to talk to this baby four hours a day," but talking isn't interactive and doesn't take into account where the baby is at that moment in time I don't think we could guarantee that that would do any good at all and, in fact, we might guess that it would have some negative consequence.

I think Barry was mentioning that one of the things that you try to train a parent is to understand and read the child, that the temperament and the tone that mothers and fathers adopt when they talk to children is this higher pitch and slowed-down level of communication.

The slowed-down level of communication says, "Go ahead and take your turn. I'm addressing you. It's your turn now." I think that's the kind of stimulation that we have to

teach parents how to do. Some of them have the intuition to do it, not every single one of them does. Teen-age mothers don't, always.

DR. SCHATZ: Brain research actually has allowed us to begin to understand what is going on in the brain when these adequate interactions occur.

We know, for instance that this process of strengthening synaptic connections or weakening synaptic connections can actually be influenced by the state of arousal or the state of mind that you're in, and this is both -- you probably know this from your own experience in terms of, you know, trying to learn or remember things.

Obviously, a state of stress makes a difference, and we know this at the level of these individual synapses and connections that I talked about earlier.

DR. BRAZELTON: I do think there is a danger in what we are proposing, of playing into something that is going on in this country, which is to go after children, to teach them language, teach them judo, teach them violin, all the rest, at a time which may not be age-appropriate.

The first three years maybe ought to be put more into learning about themselves, learning about their environment,

learning how about discipline, things like that, which may be more age-locked than learning how to read or learning some of the other things.

I would be worried about families who took away from this that they've got to start all these programs early, and push.

DR. COHEN: I think it's important to think about the baby's schedule. If we think about early child care, it's meeting the baby when the baby is awake and ready for you, which is so difficult. It may not be exactly on the schedule of the parents.

Quality care of children means being there when they need you. Sometimes when they need you -- and we haven't talked much about it -- is when they're upset and distressed, at moments of high affect. There, a lot of important work goes on between the parents, who are devoted to this child, whose primary preoccupation is this child, and the child.

So, when the child is crying or is hungry or has fallen down or is disappointed, how the parent responds to those highly charged moments is critical, and it makes an enormous difference whether it's your child or a child you really love and care about, or somebody else's child. It also makes a

difference how awake you are, how stressed you are.

I think that we need to find ways of allowing parents to be there for their children at such times. That's one of the advantages of worksite child care, is to be there not only when things are going well, but when they're not going so well, and the child is sick or upset or is frightened.

I think these charged moments is something which we need to think about, too, in our curricula, as we talk with parents, as we talk with other people who are dealing with children, which is how do you deal with a child who is having a temper fit, how do you deal with a child who has just pulled another child's hair, how do you deal with a child whose hair has just been pulled? These issues begin, really, very, very early.

I was doing a home visit two weeks ago, and there were two one-year-olds, and one little boy just reached out and just grabbed this other child's hair and just gave it a big yank, and the mother screeched, said, "Don't do that." So the child then looked at the mother, looked at the little girl, and crawled away and started to cry.

The mother then picked the child up and consoled the child, and then put the child back down on the floor. The

child is back down on the floor, looks at this little girl, whose hair he just pulled, and he takes his hand and he gives it a little -- "Don't do that." It was like, "Hand, don't get me into trouble again."

(Laughter.)

DR. COHEN: Now, that moment, that highly charged moment

--

MRS. CLINTON: That's good advice for adults.

DR. COHEN: Right.

(Laughter.)

DR. COHEN: That highly charged moment of assertiveness, of how the parent dealt with the assertiveness, comforted the child, and the child begins to internalize, what do you do. A year or two later, he may not have to hold his hand. He will know his hand belongs to him.

That, I think, is really very hard, unless you have appropriate training in child care, where the staff understands that this is a moment to learn, there are enough child care workers, where the parents understand how to deal with assertiveness and aggression.

I think they are, especially for very stressed families, a place to really do a lot of our thinking.

THE PRESIDENT: I'd like to make just a couple of comments. I'm going to ask all of you to help me figure out what we're supposed to do here. First, I believe the national government has a continuing and heavy responsibility to fund this basic research, to keep pushing the frontiers here.

There are, as has been acknowledged here, some things we don't yet know the answers to, and I'm very heartened that the distinguished head of the NIH, Dr. Harold Barmus, is here, and the President's Science Advisor, Dr. Gibbons, is here, and I think it would really matter if we knew how much was enough interaction -- something you could tell a busy parent, something you could tell a parent who maybe was a high school dropout and felt not very worthy, and you could empower them. You can empower them now by telling them that they can do enough, but if you really -- if you knew a slightly more precise answer it could really matter to this. So I think we have a heavy responsibility there.

The second thing I'd like to say is I wish you all would think about these issues we've discussed today where there are shortcomings in our society and ask yourself, is this primarily a money problem, and if so, what is the federal

responsibility here; or is it -- maybe there's a little money problem, but is it primarily a question of education and proper networking, in which case, as Dr. Davidson said to me when we had a personal moment here, maybe it's something that has to be done community by community. But I think it's important to disaggregate these problems.

The third thing I'd like to say to you is that as we think about -- we were talking about the Navy's child care network -- we're living in this, as everybody knows, in this really dynamic time, and I'm trying to figure out all the time what should I be doing here that will make America better 10 or 20 years from now, and I think about these decisions that we're trying to harmonize as having basically three major elements. There's the sort of the modern social elements of the technological changes and the global competition and whatever the social pressures are. There's the enduring need to have an appropriate amount of personal responsibility from individuals, without which no society succeeds. And then there is the constant need we have that's always being redefined to have a certain amount of security in our society because we share common tasks together.

And if you take the United States versus France, for

example, our unemployment rate is seven points lower than theirs. That's a big deal. We would be inconsolable if we had a 12 point unemployment rate. And the President of France and I have had a lot of wonderful conversations about this and he's tried to make his society more flexible and his labor markets less rigid to try to get more jobs and lower unemployment.

On the other hand, if I suggested that there is no social responsibility for a child care network, they would go crazy and they would think it was laughable, that it had nothing -- that they're pretty proud of the fact that they take better care of their children than we do. And I don't think it has anything to do with the difference in our unemployment rate.

In other words, I believe that every society today in this period of change is trying to identify where do I need to let competition and responsibility hold major sway here and get out of the way; and where do we need to do these things together. And no society has it perfect; no advanced society has a perfect decision. But I would argue that we pay a terrible price when we don't take shared responsibility for our children. And I think the research here supports

that.

Consider how all the -- consider how I would answer Congress and the Republicans in Congress if I were to say, well, we've got a lot of problems in the military budget, so what we're going to do is to dismantle this system of child care, it's just a silly little add-on we can't afford; and we're going to let all these people in the Navy go out and find their child care the same way Americans do, everybody else does. It seems a reasonable thing to do. And, oh, yes, we do have all these fine young people who serve in the Navy at what would be very low salaries compared to the private sector, but that's just tough. Why, there would be an uproar, and there ought to be an uproar.

But if you think about it, the children of people who aren't in the Navy are just as important to our future as the children of people who are.

So I think it would be very helpful to all of you to think over the next five or 10 years, whenever some problem comes up you ask yourself, is this something where it ought to be a matter of -- as we build a new society for a new century, something that we have to do together as a society, or something that we should just set up the right rules and

then let people deal with individually.

And that's how I try to think of every issue that comes to me. And when I -- was just captivated by what Dr. Shatz said about the whole way the brain -- my brain is racing, you know -- what are the implications of this in terms of what parents have to do and what the rest of us have to do. And if we ask and answer those questions right, then this country will be just fine.

Thank you. (Applause.)