I am Bruce McEwen, professor and head of the Laboratory of Neuroendocrinology at the Rockefeller University here in Manhattan.

**Question:** What are the most important recent findings from neuroscience and epigenetic research with regard to the epidemic levels of child maltreatment and violence against children, especially also with very young children?

Well, I think the big finding of recent years started first with the adult brain and this is now extended to the developing brain. It’s that the brain is a very plastic and changeable organ and that stressors or stressful experiences, especially during early life, can change brain architecture. It can cause some brain structures to become overactive and other brain structures to become underdeveloped and underactive, which causes an imbalance in how the brain functions and how the person behaves.

**Question:** What national measures do you propose in order to help prevent the lifelong and even trans-generational effects of child maltreatment and appropriate maternal/parental care of children?

I think the big issue in the case of preventing child abuse and neglect is one first of communication that is sufficient to get policymakers to enact laws and provide services that we already pretty much know about that will address these problems. One of the big issues is the return on investment, which is considerable but it’s always something that will take maybe 10, 15, 20 years before it’s realized; unfortunately, this society tends to be a two to four year society, expecting return almost immediately. So, we have to get that message out and to do so I think it’s very important to provide the scientific facts—the information that we have from neuroscience as well as from other areas that have to do with behavioral and medical effects of early life abuse out to the policymakers to make them realize how serious a problem it is. Then, hopefully they will act accordingly recognizing that, of course, always, the financial climate, especially now, is a very serious one.

**Question:** What should and could be done to bring your important findings to American parents and caregivers and make them become aware of the often deleterious consequences of corporal punishment and other forms of maltreatment?
The idea of the communication to the general public, as well as to policymakers, is extraordinarily important and I’ve been thinking about ways that this could be improved. Much of what is done is through documentaries, for example, PBS and occasionally other of the major networks; but I think that something has to be done that would reach people at a mass audience level. Of course, one idea would be that some of the popular shows, if they could write into their script—like *House* or some of the shows that a lot of people watch—some messages of this kind that would get this across to a larger audience because communication, whether it’s by television, or even by newspapers that many people read, or by the internet, has to be sort of improved and increased to build a base of popular support for these policies.

**Question: Can you tell us a little about your research in a way that if you were speaking to a parent or the general public, you could explain it in a way that it would make sense?**

Well our research actually began in the late 1960s when people really didn’t realize that the brain was sensitive to, for example, stress or to circulating hormones in the body. We discovered that a part of the brain called the hippocampus—which is important for spatial memory, for memory of events in our daily life, for mood regulation—and it’s also a brain region that degenerates early in Alzheimer’s disease—is a target for cortisol, for the adrenal stress hormone. This was really the first finding that brain areas that are important for learning, memory, for many aspects of brain function and behavior were sensitive to circulating hormones. Our own work and a lot of work in a lot of other laboratories as the result of this have shown many, many different things translated to humans: the hippocampus shrinks in depression, it’s smaller in post traumatic stress disorder, it shrinks in chronic jet lag, and it is smaller with chronic inflammatory disorders.

There is good news. We were part of an effort that discovered that the hippocampus also has the capacity to make new nerve cells, even in adult life, and now that has been shown to be a part of the explanation for why regular exercise—and this is not becoming a marathon runner but a sedentary person, say, starting to walk an hour a day for five out of seven days a week—actually will enlarge the volume of the hippocampus, cause it to grow, and cause memory to be improved. So, that sort of is what I call a ‘top/down’ therapy. It’s an example of something that people do. We know it’s good for your cardiovascular system, for your metabolism, and now we know it’s good for your brain.

It encourages us to believe that there are other things that can be done to improve brain function that don’t involve simply taking drugs because the other lesson that we’ve, and others have learned from this, is that a drug is not the solution, even to depressive illness. In order for an antidepressant to work properly, it actually facilitates brain remodeling but it has to be done in an environment that is positive because if the antidepressant is taken in a bad environment, it may lead, some people have even suggested, to suicide or other problems. So, it has to be combined with a top/down intervention, but it may actually help facilitate the process of “structural remodeling,” as we call it. What our work has really started out to do was to focus on the hippocampus, but now we and others have
extended it to other brain regions like the prefrontal cortex, which is important for downstream control of all of our self regulatory behaviors; whether its mood or impulsiveness. It also helps us with working memory and decision making.

Another structure, the amygdala, is a structure that actually grows under adverse circumstances, becomes hyperfunctional in anxiety disorders and depression and actually is no longer properly regulated if the prefrontal cortex is not properly developed, so there’s this imbalance within the brain circuits that results from a chronically stressful experience; especially an early life abuse or neglect. The challenge when we then look at the adult brain is to figure out ways to help the brain help itself to perhaps help to correct or compensate for this imbalance. That’s of course, one of the challenges in psychiatry and an awful lot of people who come in with anxiety and mood disorders and other substance abuse disorders are people who have had early life adverse experiences and of course, we have to find ways of helping them. But one of the positive aspects of all of this is that the plasticity of the brain actually encourages us to believe that we can devise strategies—like exercise, like cognitive behavior therapy—that will actually help the brain help itself and help people live a more productive life.

**Question: In terms of prevention, what do you think is the barrier that people don’t understand or is the barrier more cultural?**

Well, I think this whole question of—certainly cultural, we heard enough about that, the cultural attitudes of spanking your kid or beating them to discipline them—but it’s my experience that when people realize that the brain is a living, plastic organ and that things that happen especially early in life can have lasting effects, they tend to take it a little bit more seriously because there’s an attitude that, “well, it’s just a psychological process, it’s somehow something that is not, doesn’t have any organic substance.” But we know it does have organic substance. I mean, for example diabetes, type II diabetes which is rampant now, impairs the development and function of the brain. So, not only is it bad for every other organ of your body, but it’s also bad for your brain and your ability to learn and perform in our society. Maybe that helps us take these things a little bit more seriously and I have the feeling that if you can get this message across to no matter whom, then they’ll begin to really take it more seriously and listen to alternatives to some of the practices.

In reading the book by Paul Tough, which is about Jeffrey Canada and the Harlem Children’s Zone and his struggles to develop the baby college, the most poignant parts of that book are discussions with parents to be. They have always been or were beaten when they grew up; why should they change this behavior? Well, there’s this sort of back and forth. Finally they try it out and realize that timeouts and some of these other procedures can actually work, but you have to be patient and you have to be persistent. Those are the kinds of things in the real world that have to go on but maybe with the background that you can have a long-lasting effect on the brain and the rest of the body if you do some of these things—there are ways that you can do it right, shall we say, or you can do it better.
In brief, what should be communicated to the public at large and to policymakers, judges, etc., in order to promote awareness of the biological public health effects of violence against children?

I think that the most important message to be communicated to the public and to policymakers is that the brain is a very sensitive and vulnerable and plastic organ that influences what goes on in the rest of the body—whether it’s the heart or the liver, every other organ of the body—and that it also responds to the hormones and the other agents from the body. It’s like saying that you can’t separate nature from nurture; you really can’t separate the brain from the rest of the body. The brain is the central organ of stress. It’s the organ that decides if something is dangerous; it responds, it regulates body functions and it’s a vulnerable organ. If it’s basically damaged, shall we say, or affected early in life. It can have lifelong consequences, not only for brain function and being competitive in our world, but also for systemic illnesses. That is a huge, huge drain on healthcare costs and on our society, as well as creating misery for the people who have to endure it.

What do you consider to be important contributions of this consultation to the national agenda of violence against children?

I think one of the important contributions of this consultation, I mean for me, is bringing together people like Judge Martin, other people who live in one silo while I live in another silo, and to talk to each other and communicate to realize that we have a common goal from which we can each learn from each other. Of course, then we have to go one from there to get a message out at as many levels of society as we can to begin to do the things, which are so obvious, but our society has not been doing.

How do you evaluate the cross-sectoral approach of this consultation: research, judiciary, child protective and advocacy organizations, national initiative by Attorney General Holder and participation by the New York State legislators?

I think that the involvement of as many sectors of the legal community, society, the various organizations that are trying to do intervention and the scientists is vital to get a coherent message across.

Do you welcome the Joint Statement from this consultation and what do you think of Assemblyman Scarborough’s decision to introduce legislation for a New York State Commission on Child Abuse and Violence Against Children?

I think that the statement is an excellent one. I think that the idea of promoting a legislative initiative is very important. It’s only the beginning though, but I think it’s a very important step forward.

Are you willing to engage in future collaborative undertakings to promote freedom of children from violence and victimization in the U.S.?
Question: How would you view this engagement in the future of what other things we could do?

Well, I’m a member of the National Scientific Council on the Developing Child that’s headed by Jack Shonkoff and involves a number of meetings a year and a very active website, which people can look up and use. It has wonderful resource materials and I know that some of the people—I’m not sure if all of the people today but certainly in the science area and some policy areas—have been connected to this. An organization like the National Council would be a very good facilitator of many of these things. Jack Shonkoff and others spend a lot of time traveling to state legislatures, and not just to Washington, to try to find people who get the message and are willing to work at the more local level for change, just like in New York State. There have been some significant changes in states where we might not expect them because you find people of all political persuasions who realize what the problem is and want to do something about it. So, I think we need to have that kind of an effort that goes to the grassroots level that provides information, the best scientific information available, and of course there are people who evaluate programs for their effectiveness. There are many different variations on those programs and we need to know more about what works and what doesn’t work and emphasize the ones that do work so we don’t fund things that are not going to work very well.

Question: I think that when someone thinks about child abuse, they just think physical violence. So, if you were going to define child abuse more broadly or as you’ve studied it in a more encompassing way, what would be a sort of abstract or cliffs notes of that?

I think for me, the basic elements of successful child rearing, aside from not physically or psychologically or sexually abusing a child, has to do with the overall consistency of the message that the child gets from a caregiver. To have a parent who is loving on the one hand and then abusive or even uses harsh language, which can be bad on another, provides a roller coaster. And we certainly know from animal experiments that having inconsistent parenting, even though the quality of the parenting when it is good is very good, leads to impaired social and cognitive development. This has also been shown in experiments on monkeys and it makes intuitive sense from what we know about human beings that this is the same way; so a consistent message. The other thing, which I think is noteworthy…I’m often amazed at how there are not more psychopaths and really terribly disrupted people. There are wonderful examples of people who have survived some awful early life circumstances and it’s often said that if they find even one person, sort of a guiding star in their life, who might be a neighbor, might be grandmother, grandfather, brother, sister or whatever, that this helps overcome all the other negative aspects. I think we sort of underestimate that. At the same time we don’t want to leave it just to that which may be very unpredictable as to whether somebody is going to find it. I’m thinking of the movie, Blindside, and other examples where there is a marvelous story. But I think it is true that consistency over time of loving care, giving—even if there
is, like a “tiger mom,” a tight discipline—but if it’s consistent and if it’s done in the spirit of not abuse, but of love and support, that’s what makes the difference.