Staying Sharp – Grace Church
THE DANA ALLIANCE FOR BRAIN INITIATIVES

MC: Good morning. My name is Mae Carpenter. I'm Commissioner of the Westchester County Department of Senior Programs and Services and welcome to our Staying Sharp program. This is the second program we've held in Westchester County in less than six months and we're so proud to be able to bring it to Westchester County, the southern part of the county, because you're going to learn a lot today and you're going to have a lot of questions and you're going to get a lot of answers to your questions.

First let met thank the Grace Baptist Church for agreeing to co-sponsor and host this program with us this morning, and of course, always AARP and the Dana Alliance. They do so much to try to help seniors stay healthy around the country. You know, we have the Livable Communities designation from AARP and the World Health Organization. And the purpose is to empower you with information that you can use to live a better life, a healthier life, and this is one of our livable communities

programs. So I'm not going to take up a lot of time this morning because you're going to just be absolutely delighted with what you hear. You're going to be surprised at things that you didn't know, and you're going to want to just use whatever you learned this morning.

So let's get started. And first we're going to have readings from our Deputy County Executive, Kevin Plunkett.

KP: Good morning and what a beautiful day in Mount Vernon and a beautiful day in the Grace Baptist Church, and I want to thank the Reverend Richardson for hosting today's event. The County Executive is in a church himself today. His daughter, his seven-year-old daughter, is celebrating her First Communion today, so he would have loved to have been here to welcome everybody to this very informative and important forum.

I happened to be at the forum that was at the County Center towards the end of last year and I think there was 500 or 600 people. And the reason is, is because as we get old, and I'm 63 so I qualify as a senior citizen, as we get old it's important to know what we need to do to stay sharp. And we are, at the County, very proud to be co-sponsoring this type of an

event, particularly in the southern region here in Westchester County, to bring the great panelists like we have today, to give their expertise so that we can all stay sharp. So, from the County's perspective, Mae Carpenter, our Executive Director of our Senior Programs and Services, we're very proud to be a partner with the Dana Alliance, with Met Life who helps sponsor this event. So on behalf of County Executive Astorino, on behalf of all of us at the County, I want to say have a great, great program.

Today with me is somebody who isn't a senior citizen but a member of Grace Baptist Church, Jim Coleman. (Applause) Jim has joined our team and I asked him to be here today so as he does get older, he can understand why it's important to stay sharp. So, welcome aboard Jim. Have a great, great program, and let's all stay sharp, eat well, laugh, have fun, and enjoy the senior years. So thank you very much. (Applause)

MC: Thank you Kevin. Now, a special introduction for Laura Reynolds who is the Senior Project Manager for the Dana Alliance for the Brain Initiative. She's all over the country and she has taken time out of her busy schedule to be in Westchester County twice. So let's welcome Laura Reynolds from

the Dana Alliance. (Applause)

LR: Thank you Mae. Good morning. And on behalf on the Dana Alliance for Brain Initiatives, welcome.

In April 1993 a press conference was held in Washington, D.C. to announce the launch of the Dana Alliance for Brain Initiatives. The founding members of the Dana Alliance pledged their commitment to advancing the public awareness and education about the progress and promise of brain research, and to disseminating information on the brain in an understandable and accessible manner. I share this quote with you by David Mahoney, former Chairman of the Dana Foundation, who two decades ago said, “We all have a stake in neuroscience. At some time in our lives every last one of us will experience a brain-related disease, disorder or brain injury. Neuroscience research is lifting the burden of brain disease and disorders. It is unleashing our potential as individuals and it is revolutionizing our attack on the social and economic problems that face our nation as we enter the 21st Century. All that we are, and all that we hope to be is centered in the human brain, and that’s why neuroscience is truly the human science. Twenty years later we celebrate the achievements of the

Dana Alliance and applaud the ongoing commitment of its members and the broader neuroscience community to share their knowledge with the public for the betterment of all. Thank you. (Applause)

MC: And representing Reverend Richardson this morning is Reverend Barbara, who is going to start our program, opening it up with prayer.

RB: Good morning all, and it's a wonderful, wonderful day. This is the day that the Lord hath made and we will rejoice and be glad in it. The Health and Wholeness Ministry, this is just one of the many, many, many different type programs that we have here at Grace and look forward to many, many, many more, because we haven't stopped yet. We still have to empower, educate, so that we can be all that we need to be. Let us pray.

Oh, living Lord, we come this morning thanking you for another day, one that we have not seen before. We thank you for all those hearts that you've sent to this place today to gather knowledge, to gather understanding, to be better informed about what I must do to remain whole. Lord, guide us today, guide the speakers, guide all those that are here so they

can become the instruments used to proclaim your peace. In Jesus' name we pray. Amen.

MC: Now, before we get started, just a couple of housekeeping chores. Don't forget to complete your survey form, your evaluation before you leave today. Hopefully, you will find this program informative and very useful, and we need to know so we can schedule more programs that you can benefit from. And also, let me thank Collette Phipps from the Department of Senior Programs and Services. Collette is roaming around here someplace, who is our staff liaison for this initiative. Collette, thank you so much. And to all of the members of the Department of Senior Programs and Service, we call them our SWATT Team. It stands for "Staff Working All The Time" for senior citizens here in Westchester County. Thank you to my wonderful staff.

Now we're going to get started with the Brain Power warm-up exercise again. Kevin, I don't know if it made any difference for the two of us last time. We're going to do it again today. So we're going to bring up George Duran who is a personal trainer.

[WARM UP EXERCISE – NOT TRANSCRIBED]

DP: Good morning everybody. I need to give you a minute so you can catch your breath. That was more than a warm up, that was a real workout. Good grief. (Applause)

Well, good morning to everybody. Thank you so much for being here with us. This is, as Dr. Carpenter said earlier, this is really an incredible opportunity for us to gather together to really learn information that will really make your lives better, whether you were affected by any of this or you know somebody, you know, knowledge is power and we're really happy to have you here.

I'm Dionne Polite and I'm the Associate State Director for Multicultural Initiatives at AARP and I am one of the partners here. I want to thank, again, the Dana Brain Alliance. I want to thank Westchester County and certainly I want to thank Grace Baptist Church for hosting us here this morning. This is really, really lovely. It truly is a team, collaborative effort and indeed, it does take a village. I'd like to introduce our esteemed panelists. We have folk that are coming far and near, but folk that could really give us information that will educate us, enrich us and empower us. So I'll start with my immediate left, and I'll have you

introduce yourself and talk a little bit about your area of expertise, please, Dr. Byrd.

DB: Thank you very much. My name is Desiree Byrd. I'm a neuropsychologist. I'm in the Departments of Neurology and Psychiatry at the Mount Sinai School of Medicine in Manhattan. Currently, I'm working in HIV and substance use, but I've worked in dementia clinics and psychiatry clinics, and I do a lot of research on ways to figure out how to test how well the brain thinks, so to say. So that's my primary are of research, and I'm absolutely honored to be here and congratulate you all for coming to such an educational event.

DP: Thank you Dr. Byrd. Dr. Fenton?

AF: Good morning. I'm Andre Fenton. I'm a neuroscientist. I'm at the Center for Neuroscience at New York University, and I study how our brains, and in particular the neurons in our brains – you may not be aware of this but you have a 100 or so billion neurons in your brain, and I'm interested in understanding how those neurons change and what molecules they use to make those changes when you learn, and when you remember, and how those memories persist in your brain.

And on the other side of my research program we're interested in understanding how the activities in that population of neurons actually reads out the information that you've absorbed through your experiences throughout life. And the way … the research is mostly conducted in small animals, in rats and mice, and the reasons that we conduct this research is because we're very interested in understanding how the basic biology of the neurons in the brain actually impacts our own very human and important lives. So it's wonderful to be here. It's inspiring to be here, and I thank you for the opportunity to come and talk with you.

DP: Thank you. (Applause) Dr. Edwards.

CF: My name is Christopher Edwards. I am a psychoneuroendocrinologist at Duke University Medical Center. I have appointments in the Department of Medicine, I have appointments in the Department of Psychiatry, appointments in the Department of Endocrinology, and probably many more that I don't know about. (Laughter) I do many things. From a research perspective I am an expert in black and minority health, and I study diseases that are prominent in blacks, including dementias, in the are of dementia I have great interest in the impact of medicines

and disease and genetics and behavior, as well as culture, on the progression and manifestation of dementias.

Another hat that I wear is I am director of a chronic pain management program, and so I'm interested in the relationship between pain and thinking processes, including dementia. Thank you. (Applause)

DP: Thank you. And Dr. Griffith.

PG: Good morning. I'm Patrick Griffith. I'm Episcopalian and it's nice to be welcomed in a Baptist church. (Laughter) I'm an adult neurologist. I practice in the South, and we think that there are some medical issues that are unique to being in the South, particularly stroke. And we are in the part of the country that's called the Stroke Belt. At Morehouse School of Medicine I'm responsible for teaching medical students and residents about the brain and about neurology. My research interest is what is unique about the African American experience that we have more Alzheimer's disease than other ethnic groups. And whether or not that's ordained or whether or not there's a fixable scientific explanation.

I've been fortunate to participate in databases

that look at the genetics of Alzheimer's disease in African Americans, and also in some of the clinical trials, agents trying to help with the cognitive problems that come with aging and with dementias where Alzheimer's is the most common but not the only one.

DP: Wow. Thank you very much Dr. Griffith. (Applause) So, you all can tell this is going to be a really, really, incredible, incredible session. Before we get into the discussion though, I neglected to acknowledge Met Life Foundation for their generous support of this program. And I also want to say, can you believe we have four scientists that look like us sitting at this panel. (Applause) I know I didn't have to say it because you see it but, you know, it's a beautiful thing. That's how we know our God is good because (Applause) … so we'll start rocking and rolling now. And I want to first ask Dr. Byrd to just give us an overview, a primer of the brain.

DB: Absolutely. The brain is a beautifully complex organ. I've been intrigued with the brain since I was in third grade. The brain is comprised of hundreds of billions – hundreds of billions of nerve cells, and to fit those into our skull it's all folded in

on each other, so you know the brain has this wrinkly kind of appearance to it. That's because there' s not much space, otherwise our heads would be – can you imagine how big our heads would be if they were laid out flat? So all these cells, we call them neurons, they communicate with each other by way of chemicals and electricity. Different parts of the brain are responsible for different things that we do – everything from your involuntary swallowing of the saliva that gathers in your mouth, to singing a song, to what makes you laugh – all of those things, the brain is responsible for it. And many factors in our world impact how the brain controls things. So psychoactive drugs, street drugs – you've seen how differently people act when they're on drugs; where we come from; what's going on in the rest of our body – all of that influences how the brain works.

DP: Wow. Thank you very much. It seems that you've made a very complicated subject very simple for us, so thank you very much for, you know, just making it where we can understand it. (Applause) I want to … I'm going to drain your brains today, this afternoon. And I want to first start with getting a sort of clarity on how the brain is different for men and women, and

Dr. Edwards, I'm going to ask you to talk a little bit about that. What … I mean let's get to it, right? Why are we so much smarter? (Laughter) I'm only kidding, really, I'm only kidding. You know, the differences between men and women and please, if you can just share a little bit with us.

CE: One of the things that I was taught early was always understand your audience. And so one of the things that I'm going to say is that the female brain is infinitely more smart than the male brain. (Applause / Laughter)

DP: That's a good man. He's from North Carolina.

CE: I've been in husband training for many years.

DP: Good. Wife's done a good job with you.

CE: So, it's interesting because the idea of brain differences certainly does exist. One of the interesting factors though is why. And there are a couple of theories as to why. The first is that genetics and biology contribute in a unique way to produce two brains that function in similar ways but have some very distinct characteristics about them. The second theory is that there are differences in experiences, the way that we socialize men

and women, that produces those changes that we see biologically and that ultimately influence, for example, how the brain functions. Let me give you an example of that. There are many who have tried to find a biological basis for an observation that women are more emotional than men. And to be honest with you, the studies have failed miserably. What we understand, though, possibly, is that women are more socialized for their emotional responses, and men are more socialized for being stoic and holding it in. If you go and you're looking for a date and your guy cries on the first date, that has implications. (Laughter) There may not be a second date. At the exact same time you want a man that's sensitive and that can relate to your pride or your emotional being(?), that can identify with the things that you go through. So there is balance. And so I think there is a complicated question how the differences manifest that we still don't understand. We know that there are differences in the size of certain brain structures. It could simply be that those structures get used in one gender more than in the other, and so just like a muscle, that part of the brain gets bigger because it's used more. There are differences but why, we don't understand.

DP: Thank you very much. That was great. Was

that cool? The other question I have, and I'm going to ask you, Dr. Griffith, is specifically about African Americans. And I don't know, when Dr. Griffith spoke, if you heard an accent. But there's a little bit of an accent, so I'm going to throw in Caribbeans in there as well, the three out of five of us on this panel have accents, but I'll let you guess who has what. But talk a little bit about the differences there as well because, surprisingly, there are some significant differences.

PG: Yes, and I think that to piggyback on what Dr. Edwards just alluded to, it seems to be a slight statistical predisposition for African American women to have more prevalence of Alzheimer's disease. Now what I've been told in my version of husband training, is that it's because they have to live with African American men. (Laughter) The science is that women outlive men, and why is one of these questions that Job would ask. But more pertinent to that would that if they outlive men and age is the most significant risk factor for having the form of Alzheimer's disease that comes on in the elderly – there are some other kinds, but that's the most common – then maybe that's why, because they happened to be there. And I've been told by people who go to

nursing homes that you see very few men. So I think that what Dr. Edwards has opened is whether or not it's a divine plan. And I'll make sure that my … I'm not close to him when the thunderbolts come down. But there's both science and there's experience, and I think that if we can understand it we might do a better job. So, for instance, there was a study in, based in Baltimore that's called the Women's Health Initiative, where they looked at post-menopausal nurses an whether or not simply being post-menopausal and female you were more likely to get Alzheimer's disease, and if the science was that post-menopausal women lacked estrogen, then if you gave it to them that would help. Unfortunately the study outcome was it didn't help and maybe it made things worse. So the question is, in women who are going to have more Alzheimer's, should you ever stop estrogen – and this is for the endocrinologists – or should you taper the dose or should you, you know, what kinds of things do you recommend to your patients? Because what happens is if grandma has Alzheimer's disease, every one of the daughters comes to my office and says, "Am I going to get it?"

DP: Thank you very much Dr. Griffith. That was very good. Dr. Fenton, I'd like you to add to that conversation as

well.

AF: I'm itching to. One of the wonderful things about the brain, whether it's an animal brain, a fruit fly brain, and in particular the human brain, is it's self-organizing and changing. So the very experience of living – in fact we can point this out right now – because you are here, when you leave your brains will be different. It's not an abstract concept, you'll know something more or less. That's true. But your physical biological brain will be different, because that's how brains work and what you've been hearing is we can observe differences but it's really hard to tell what the origins of those differences turn out to be, because what brains do is they change as a function of experience, so what you did when you were a child, what you consumed, what you eat, your nutrition, the amount of blood perfusion that your brain is generally getting, which increases when you exercise. The fact of exercising causes cells, nerve cells, neurons, in the adult brain to grow at a faster rate. We used to think that brains didn't grow, well they grow all throughout life and it tapers down with age. But there are many things that you can do as you live that change your brain. In fact, it's unavoidable. So, what that teaches you, and teaches someone

like me, I have a three-and-a-half-year-old daughter, I'm very concerned, interested and engaged with how she spends her time. How does she experience the world? That's changing her brain. And think about it this way, her brain is also determining how she will experience the world. So it's a very delicate balance that one really has to, once you're aware of it, you're really compelled to take care of your whole being, your whole experience – what you do in your spare time, what you do for work, how you argue with somebody, how you shouldn't argue with somebody – all of these things really leave lasting … the word we use, are traces in the brain, and the brain is absorbing this, really transforms who you can be. So you have a lot of control over who you will become, and you had a lot of control over who you have become through controlling and constructing your opportunities for experience. (Applause)

DP: I think what you're saying is our life experience really determines how our brain functions.

PG: In a huge way. We an demonstrate, for example, in the laboratory, where you can make very precise measurements that are very difficult to do, and would be unethical

to do in a human brain, we can demonstrate that 90 minutes – that's a very short time out of a lifetime – but 90 minutes out of a rat or mouse's, say, five months of life, is enough to make changes in the brain that we can reliably find, that are huge, and changes how the brain functions. That sounds abstract, but let me put it concretely like this. We've done an experiment, and others have done similarly, where we damaged the brain early on in life, of an experimental animal The idea is to give the, to create a model in this animal of something like schizophrenia, mental illness, something devastating. The brain has a really ugly hole that persists for a long time, and yet with 160 minutes of training, just doing mental exercises, if you will, for this brain, early in its life when it's in its teenage years let's say, totally reverses – not the damage but the function. So you can't actually tell that the animal has been damaged in any way. Although the brain looks ugly and abnormal it's functioning properly because, again, experience really has this powerful ability to change the brain.

DP: I have a question for you. What is it then that triggers, as we age – all of us are young in here, 21 at least, it looks like – but as we age, what is it that affects our memory then?

Because it seems – I'll readily admit I'm over 50, that the things that I could remember instantly in my 30s and 40s, take me … the only things I seem to be able to remember are my children's names. I know that … everything else it takes me a little while longer. Starting with you, Dr. Byrd, and I'd like each one of you to have a say in this. What happens with our memory bank as we age?

DB: Well, one of the ways in which the brain changes is that some brain cells die. That has to happen. Some brain cells die, others are born. And it just so happens that as we age the part of the brain that sits right above our ears, it's called the temporal lobe, that's that section of the brain, the cells in that area die as you age. They die more quickly than in other areas of the brain. So you have less physical brain capacity to manage memory, so that's one of the reasons why memory isn't as good and it's one of the areas of thinking that goes down the fastest as we age.

DP: Thank you. Dr. Fenton?

AF: So that same part of the brain is really strongly engaged in processing memories, and the way it does

that, or some of the way it does that, is by organizing how a chemical, calcium, it's a mineral that you consume in your food, but is very, it's like gold in neurons. It's very stingily managed and exchanged, because it's very, very important. And it's important to keep calcium levels at the right level within neurons because it causes so many other things to happen, that are normal. With aging, one of the things that we've noticed is that the other molecules in neurons that manage this important currency of calcium, for reasons that are not obvious, but nonetheless detectable, with age, those – we call them calcium-buffering proteins – tend to decrease their availability. And so neurons start to do poorly directed signaling because they have the signal, calcium, it's too much, and they … I don't know if the right analogy is they get confused, but all the biochemical pathways can become overly activated, and the beautiful coordination that normally happens within neurons, within aging at least, becomes poorer, and this especially is happening in the part of the brain that we just talked about in the medial temporal lobe.

DP: Dr. Edwards?

CE: I think there are, for me, two components in

the answer to this particular question. The first is biological in nature. And my colleagues I think have done a very good job of explaining that. There's a second, and that has to do with motivation and attention. What you attend to, what you're interested in, what you care about as you age, sometimes changes. What we know about memory is that it has to be put in before it can be taken out . If you're not really interested, if you are focused on other issues, if you're attending to other issues, if you're thinking about grandchildren and health, and the light bill, sometimes you are not as focused on those immediate things in your environment. If they don't get put in well, it's almost impossible to retrieve that well. So I will say it's a twofold answer: there's biology, and that biology is influenced by diabetes and hypertension, and many other diseases that plagues African Americans, but I don't want to give short shift to the idea of attention. Our attention shifts as we age. What important and what's not important becomes … it changes and we often put less attention on things as we age than we would have when we were younger, and as a result we don't take that information in.

DP: Dr. Griffith?

PG: One of the signs on some desks is the easy button, the other one is 'the buck stops here.' So as a geriatric neurologist, they're going to say, "That's fine, but what can you do about it?" So externally there's all kinds of cosmetic things, but what my patients are asking is, can I eat my way to better mental health? Can I exercise my way to better mental health? Or is there a safe drug that industry has generated, and obviously industry has to do it in collaboration with scientists, like are on the panel today, to stop the process, to reverse it, or if you're sort of a visionary, to prevent it from even happening in the first place. And so the public health policy planners have to make special arrangements for the fact that the fastest growing segment of the American population is people who live past age 85. So, is there something that we can do in pre-K, or earlier, to prevent that when they get to that age they're having issues? Or, if it's recognized by their physician when they go for their annual checkup that they're not quite as sharp as the used to be; or in some situations where it's a job performance issue. Can you do something at that point to fix it? And so there is ongoing attempts for what they call a medical foods, or natural foods. There's a question about herbs.

There's a question about medication. Some of my research has been in approved drugs for cognitive problems, does it work the same in African Americans? Or is it a difference in biology? So, I get asked different operational questions and what I try to do is to be as informed as I can so that I can stay sharp for … as an ombudsman for my patients. So my family says I read too much, but that's the only way that I can continue to educate myself of how to help my patients. And what I would recommend to all of you here that are coming for knowledge, is you have to continue to be a lifelong learner. And whether that's learning the Bible or whether it's learning better health strategies, but you've got to continue to learn. The doctors and all the professionals have to stop their practice and go for training. I can assure you that what I know now than when I graduated from Howard Medical School in 1971 is very different. That was your chance to say I didn't look that old. (Laughter)

DP: They were thinking it.

PG: My point is that you have to continue to learn. And that will compensate for what Dr. Byrd was talking about. Yes, there are regions of the brain that are predetermined to die. And

there's a medical word for it, or a scientific word for it. That's not the issue. The issue is, if you know that's going to happen, and if you know that you're going to be here when you're 90, then you want to be as sharp as you can when you're 90. Right? Okay.

DP: Thank you. (Applause) Dr. Griffith, I'm going to let you take a sip of water if you need to, because I'm coming back to you now, because I want us to get into now, okay, so it's normal to lose some memory, then what happens when you have Alzheimer's or dementia? What are those two and what are the differences then?

PG: Well, what I would encourage is that if your physician tells you that you have Alzheimer's disease, ask that physician have they done tests to make sure that it's not something else. So, if that person has done blood tests or X-ray tests, then that person can say, well we looked for other things but we think that this is most likely. So that's one. What's exciting about the different institutions that we practice at is that the searches for the earliest possible marker, what tells us that somebody in their 20s is going t o get Alzheimer's either when they pass age 50 or when they pass or get close to age 85. If we know what that is, can we

interrupt the process at any point? So that's the operational issue. First, are you sure that it's Alzheimer's? Second is what things seem to lead to Alzheimer's? And the third is how early can we recognize it? Some exciting new stuff that's come out from a genetic network is that there's fairly good scientific evidence that Alzheimer's seems to start somewhere between 20 to 25 years before it's recognized. So they're now thinking of it in three groups. One is called preclinical. The next one is a group that most people agree on is called MCI, not anything to do with telephones, right. It's called mild cognitive impairment. And then Alzheimer's, which may have three stages, some people say more, and that's mild, moderate and severe, or early, middle and late. But different scientists are working in those three buckets. Preclinical, what's the markers? Who tells us who's going to get it? And then the predisposition. And the form of mild cognitive impairment that seems to predispose to Alzheimer's is called amnestic. So, the form that's called amnestic it's because they have recent memory problems. So you remember Dr. Byrd talking about memory in particular areas of the brain. There are two broad categories of memory and they're different terms, different books,

but one is recent and the other is remote. So, since women outlive men, most women can tell you about their first husband, right? No? (Laughter) Okay. All right. Okay. So there may be other remote memories depending on what you want to remember. But the recent memory is how did you get from your house to here? What did you have for breakfast? How did you come into the sanctuary? That's recent memory. And in the people who are going to turn into Alzheimer's patients, it's the recent memory, the new things. They seem to have difficulty, as the scientists would say, changing their connections so that they can hold on, whether it's attention or whatever, to things that are just happening. And unfortunate, once that converts, then you get the different signs and symptoms of Alzheimer's disease. And the continuing caveat is that Alzheimer's is only the most common, it's not the only one. And you remember I talked about practicing in the Stroke Belt. There seems to be that if you have a stroke, depending on where it is, it seems to make the Alzheimer's more vigorous, more aggressive. And we're not sure if stroke prevention or healthy living delays or pushes back the onset of Alzheimer's.

DP: Oh my goodness. Thank you. That was a

great … you guys agree, that was a great, great overview. (Applause) I know there are going to be lots and lots of questions, so I'm trying to, as I said before, drain brain them. So I want to ask Dr. Edwards, if you can provide us with some details on dementia. Dr. Griffith did a great job with Alzheimer's, and if we can get some insight into dementia that would be great.

CE: I would say the real distinction between a dementia, and there are many types of dementia. We're talking about one type today, Alzheimer's dementia. There's a vascular dementia, there are Lewy body dementias, there are Parkinsonian dementias, HIV dementia. There are many, many dementias. But a general definition of a dementia is an impairment in your ability to think, and I'll talk about think more in just a second – that produces an inability to engage occupation, social, interpersonal, religious, spiritual and any other normal function that you engage, as a part of your life. Thinking is complicated, and there are many areas of thinking, so I'll talk about just a few. One is decision making. One of the things that we know that is often impaired in the dementias is your ability to make decisions, or to rapidly change your focus. It's a inability to have sustained ability to concentrate. It certainly is an

impairment in your memory. It's often associated with emotionality and emotional outbursts, particularly in some of the later phases. The real key is there's a difference between not being able to find your keys in your house and not being able to find your car in your driveway. Dementias, particularly in the later stage, really can include extremes like, "I can't find my car in my driveway," or driving a minute away from your house and not being able to find your way back. It is one of the most salient, and I think tragic features of dementias is that inability to really recognize familiar people and circumstances. And so it means that the person with dementia can be in their front yard and wander to the neighbor's yard, and really be completely lost. And so we know that we have frequent occasions in which people with dementia wander off and often with tragic outcomes. The last thing I'd like to say is that I'm excited that we have so many individuals of age in the audience. (Applause) And I like that because I think you're trying to do great things for yourself. But the truth of the matter is the value of what we're talking about today is not really related to you. I wish the church was packed today with 18 to 35 year olds, because that's really where the difference may be made. And so I'm going to

encourage each of you to find somebody between the ages of 18 and 35, and tell then what you know today. Preaching to the choir is great. For you to know is fantastic, but if you don't transmit that information to somebody who can make a dramatic change in their life, possibly toward a different outcome, then all of this is useless. So go find somebody.

DP: Amen. That's each one, reach one, teach one . That's what this is all about. (Applause)

AF: Can I add something to that?

DP: Yes, please, Dr. Fenton.

AF: And to finish that it's actually very hope …

(VIDEO TAPE – CUT OFF)

DB: … that can get into our brain, luckily for us our brains are very well protected. We have thick skulls, the brain is covered in this, what we call a dura mater, this thick, like leathery piece. And then there's a chemical barrier that keeps a lot of things out. But HIV is a virus that sneaks in, and it sneaks in better than the drugs that treat HIV. So for a lot of people the virus (Glitch/Inaudible), and so research is still trying to understand and get a hold of whether or not having HIV places a person at greater

risk for other kinds of dementia. So there is this idea of accelerated aging, so the body naturally changes we age and it seems that having HIV makes the body age a bit quicker. And so we're doing a lot of research to understand the degree to which being HIV positive places you at greater risk for other dementias like Alzheimer's, in addition to what's going on with HIV. So we'll have to pay attention to this aging population. It used to be that people with HIV died within like ten years of being diagnosed. Now people are living 30, 40, 50 years, and science and medicine don't know what to do with it, because they've never had a population of old people who are HIV positive. So we're actively figuring that out.

PG: Can I add?

DP: Yes, please Dr. Griffith.

PG: We teach our students that there are four D's to having cognitive problems when you're older. The first is depression; the second is drugs, and I don't mean drugs in a negative sense, but things that you take that interfere with how the brain works, that these two doctors have told you; the third is delirium, where older people and little kids don't respond well to

fever, and it seems to confuse the brain in terms of how it works; and then the last d is dementia. So when you get the doctor and he says you have a dementia, one of which is, could be HIV, it could be there's some other infections. And so we teach our students that if you think of dementia, the word, then you go down the list and it's a mnemonic, so D for drugs, E for emotion, and it's because we already used the D for depression. So E is emotion, meaning depression. Then M is metabolic. E is environmental or endocrine. N is nutritional. T could be trauma. It could be a tumor. I is infection, whether it's HIV, neurosyphilis, on and on and on. And then A is atherosclerotic or any other A word. And we let students use the mnemonic DEMENTIA, to plug in the different things that they learn. If you say among that mnemonic which things are reversible, there probably are only two, and that's the first two – drugs and emotion, meaning that if that's what's causing, what seems to be cognitive problems, you stop the drug, and if they're depressed you treat the depression. Everything else you may be able to level off, change, but it doesn't go back to baseline like the first two.

So, remember the scenario I painted, as your

advocate, when that doctor tells your loved one that he or she has Alzheimer's and you say, “Well, did you look at their medicines?” And patients think that if they didn’t get a prescription from their doctor, then it’s not a drug. So we tell them bring in everything in the medicine cabinet, everything, because it may be affecting how those synapses work and so bring in everything. And we try to get seniors to talk about what it’s like to know that you’re not going to be here forever. And some people, that makes them depressed. Now there are other situations – I’m not a psychiatrist – but the point is that if depression is the biggest comorbidity in your life, it can mask what looks like dementia. And so there was a geriatric psychiatrist from Nashville who coined the term ‘pseudo-dementia,’ that the patients with depression, when they’re being tested, they answer in correctly, or they say I don’t know, and so you think that they’re demented, but they’re depressed.

DP: You know, Dr. Griffith – all of you – I find more and more, and as I said before I’m over 50, but more and more as I interact …

PG: You don’t look it.

DP: You’re a true, wonderful Guyanese man.

Thank you very much. I find more and more as I interact with people, just an easy conversation, “Oh, I’m suffering from depression,” or “I’m clinically depressed.” Is there a trend where more and more people are being diagnosed with depression? And if so, what does that mean for us as a society?

PG: Well, I’m glad you gave me that segue because Dr. Edwards and I were talking in the break room before we came down about depression. There are some neuroscientists who see a higher frequency of depression in people who eventually get labeled as having either dementia or Alzheimer's disease. And so it begs the question, is there something wrong with the chemicals that Dr. Fenton talked about, in the brain, that make some people depressed? And that seems to be a biomarker that several years later it’s going to start affecting other chemicals. And some of the chemicals in memory are acetylcholine, but there are some others. And is that trying to tell us something? So you may want to give them your … the answer you gave us, is just putting him on the spot … (Inaudible / Overlap)

DP: He’s good, he can handle that.

AE: We enjoy doing that. Look, I have two

responses. The first is, my short answer is, maybe yes. There may be a correlation between dementia and depression. I think the second, more important response for me is that there appears to be a growth in the number of depression and other related diagnoses in the black church, in the black community. And what I want to say is that I don't think that is reflective of a change in our mood, but comfort of the church, with the idea of mental health, being as part, as important part of health as is physical health. That's why I think blacks are more willing to now seek treatment, they're more willing to talk to …

PG: So there's no stigma.

AF: Less …

DP: Reduced.

AF: There's less stigma. There is a willingness now to talk to your pastor as well as your primary care doctor, and maybe even a therapist and a psychiatrist, about how you feel, and then receive treatment. I don't think there's a huge shift in the number of people who are depressed in the black church. I do think there's a huge shift in the number of people who can look in the mirror and see it, and the number of people who can actually

feel comfortable seeking treatment, and I think that is a positive change. And I think as we get more data, as more people come forward, we're better able to understand the relationship, the very complicated relationship, potentially, between dementia and depression.

DP: Thank you very much. Dr. Fenton, Dr. Byrd, do you want to add to that?

DB: The one thing I would like to add is that we have to be careful with the comfort level, sometimes, that we gain, in some psychiatric illnesses, and I say this just because right now I hear everyone talking about bipolar disease. I ride the train, I hear women say about their children, "Oh, my baby's just bipolar. Don't pay him, you know, any attention." Bipolar mood disorder is a very serious thing that has strict criteria, and it's not … just because stars on reality TV and on talk shows are talking about bipolar, that all of a sudden now a child is acting up, if your partner's not doing what you want them to do, they're labeling them bipolar. Okay, that's not right. Or have all these roving psychiatrists that aren't accurate. And so I only caution the idea of gaining comfort with psych, if you're talking about psychiatric

illness, because unfortunately, sometimes it's over utilized, and mis-utilized, but I would agree and support that people are willing to admit to depression, and to talk to their friends about it. And that's a shift that I think is welcomed in our community and will help, eventually, differentiate the pseudo-dementia, which is like a fake dementia. You think you have a dementia, but it's really just your depression, and you go into see a neuropsychologist, which is what I do, we administer tests to people, and based on how you perform, we compare that performance to other people of your age, of your gender, of your education level, and now even for African American seniors, for your ethnicity. Because as a cultural group, we perform differently on these tests. Does it mean we're stupid or that we have poor memory? Absolutely not. It just means that rather than comparing any one of you to an 80 year old or a 60 year old Caucasian person in California,, I'm going to compare you to someone like your own cousin, and say relative to that how well do you do? And so when you go in and get formal testing by a professional who's sensitive to these items, then we can differentiate whether it's a real dementia, whether it's a pseudo-dementia, or actually you just feel as though your memory

is failing you, but when I compare you to other people of your age, you're right on target. So those are some of the things that cognitive testing can differentiate.

DP: Dr. Griffith, you wanted to add something?

PG: Yes. I wanted to underline the challenge that Dr. Edwards dropped for the church. The same way that they're talking about mental health and less stigma, I challenge the black church to remove the stigma of Alzheimer's disease. And I'll say it again, there have been people in prominence who have had Alzheimer's disease, and it depends on what stage, who can act in a movie and run a country, and do just fine. Okay. So the church has to open its arms and put them around the people who come to them with that label. And they've got to say that this is a medical condition. It's not something that's a punishment. It's a very hopeful condition because of research that you've heard about, whether it's the Dana Alliance, whether it's the individual medical communities. New York should be proud of the fact that the number of institutions in New York as a state that are tackling the problem of Alzheimer's disease, they are putting more energy and more science into trying to fix it. And what I would like to see is the

church do a better job of including these people. So, yes, you have Alzheimer's disease – what can we do to help you? If you have it, should you still sing in the choir? Absolutely, if you still remember the words and you can hum the tune. One of the ministers talked about the fact that in the late stages of Alzheimer's disease, in caring for his wife, he was a retired bishop, the only thing that he could use to help her to cooperate is to play gospel music. And then she would sort of tap her feet and bow her head, and then she would go back to that time in her life, so back to experience. And then he would get her to eat or get her to do what he asked. So I am looking for the church to not only reach out to people who say they're depressed, but to people who say they have Alzheimer's disease and what can they do? What can the pastors do to support that patient, their significant other, their extended family, and help us as physicians because when the patients come to us, they're saying, "Am I going to get it? Is this something that …?," you know.

DP: Thank you Dr. Griffith. Well, you know, I have to say it's obvious that Grace recognizes what you're saying and Reverend Dr. Richardson, as evidence right here, so we want

to, again, thank Grace for seeing this as a need and addressing that need. (Applause) Dr. Fenton, I wanted to ask you about the research behind depression, the scientific … any research that you're doing that can give us some insight. And then I also want to sneak in, personally, one of my girlfriends just walked in. You all I think know her, it's Terrie Williams and she's the author of the book *Black Pain*, which is about depression. So when we get to the questions and answers, just know that she's here too, and I'm not even looking over at her because I didn't ask her if it was okay for me to say that. She will tell me if it's not. But just so there's another resource her as well … but Dr. Fenton, that's Terrie right three.

AF: Depression, as with all mental illnesses or dysfunctions, is complicated. And so we really don't understand at a deep, in a deep way, where it comes from and what has gone wrong. But what I can tell you is that there's a emerging point of view. And that point of view can be looked at in a very powerful way, like this. If you look at someone who is depressed, very often what they're unable to do is engage with the world, so that's what it looks like. If you question them, do various kinds of

neuropsychological testing, one of the features is that they very often are not as good as they used to be, especially when they're not depressed – at differentiating between one situation and another situation that have a substantial amount of overlap but are, nonetheless, different. And this is a, from the point of view of how brains work, something we can understand as a calculation the brain needs to make. Nothing in your life is ever the same from one second to the next. Everything is always changing. Every time you go home, your home is actually different. But you're capable, your brain is capable of recognizing and ignoring those differences when appropriate. And it's also remarkably capable of making really fine distinctions in those differences when it does become appropriate. So you go home and it looks more or less the same as it did yesterday and the day before, and so on, but there's a curtain that's been moved. And you notice that and that becomes significant to you because you know no one was supposed to be at home, or if you have little children it suggests that they've been playing at the window, and you recognize that as something distinctive and potentially important. And so what it looks like is that people suffering from depression have a difficulty

in making these fine judgments about their circumstances. And the way we think about that in the brain is like this. Your brain has the general problem of how to recognize what is more or less the same and should be treated as the same and put into the same memory as you've had before, and what's importantly different. You can't go around remembering every detail of your experience. And you've got to lump things together and make separations. The interesting thing is the same part of the brain, in the medial temporal lobe, that seems to start going poorly with Alzheimer's disease, one connection away from there, is a place called the dentate gyrus, and this area tends to be really important for this patterned separation function, as we call it. In that part of the brain – it's a unique part of the brain because there are neurons there that are growing and being created all throughout your adult life. And those adult born neurons are important for this pattern separation. What's remarkable is every known effective antidepressant treatment, from shock therapy to all the drugs, to exercise, increases the amount of those neurons growing. And most things that are known to induce depression – chronic stress, fatigue, sleeplessness, epilepsy, a lot of drugs – suppress the

growth of those neurons. So from this point of view there's an obvious target: get those neurons to grow better. And we know some things to do, how to do that. Exercise is a very, very obvious such thing. Exercise is one of the most potent ways of getting those new neurons to continue growing. And again, every known antidepressant treatment, and I'm not claiming that they're all effective, but every known one is promoting the growth of those neurons, which is in the part of the brain that is managing your memories, which is in the part of the brain that needs to recognize when one situation is distinctive enough from another situation so that you don't lump everything together and say, "You know, life is just terrible."

I would like to add one very salient fact that I've come across recently, and that is when you're depressed – and what's interesting here is as you become obese even, how you perceive the world actually changes. So as a very reliable experimental finding, if you ask someone, "How far is it to that door?" if they're depressed or if they, especially if obese, and it's a function of how obese they are, it actually looks further. It looks further. How can you walk up those stairs? Well, it looks like there

are many more stairs, it's higher. And guess what? You become more depressed, more sedentary, you don't engage with your world. So how you think about the world, how you experience the world is really determining how you actually interact with the world. And that seems to be the kind of things … those are the kinds of things that are in our control to manage. We might not be able to change our brains directly, we may not be able to prevent depression or dementias, but we can control how we perceive the world. We can control and develop strategies for how we get through the world that can compensate, not for everything, but for a lot. And you'd like to take control of what you can. And it's cheap and available. It just relies on you.

DP: Thank you very much. (Applause)

PG Can we press Dr. Fenton and Dr. Edwards on two issues? One is that some people think that emotion is in the right brain, and how you interpret faces and situations can be different if your right brain is not working properly? That's number one. Number two, that Dr. Edwards is aware of obesity being near to another problem that we have, being fat, in terms of what you eat, genetically. So how much of what is being described as

genetically based, and how much is anatomically based on whether it's right or left and whether it's genetic.

CE: It's a brain laterality or degree to which one side of the brain controls, or is dominant.

DP: Thank you, because I was wondering what that brain laterality thing that you just said was.

CE: It just refers to which side of the brain is dominant so, for example, most right-handed people have a left dominant brain.

PG: For speech.

CE: For speech. Exactly. And so if you have a stroke on the right side, excuse me, on the left side, and you're right handed, there is a … depending on where that lesion is, a great possibility that your speech generation, as well as speech interpretation is going to be impaired. With that, there is certainly a relationship between genetics and what you do, and my response is very straightforward. And I was trying to think as you were asking the question what my response was going to be. But this is my response. I want you to think about the relationship between genetics and your behavior as the following: your genetics put

bullets in the gun, okay, your behavior pulls the trigger. So I want you to think about that you may have genes that are related to many things, but if you're not in an environment where you do bad things, or in appropriate things, that gene may never be activated. It may never manifest as a disorder. But if you happened to have a particular gene for a disorder, for example, genes that are associated with dementia, and you don't exercise and you eat poorly, and you don't manage stress, and you don't take care of yourself in general, the likelihood of you manifesting is much higher, potentially, than someone who has that same exact gene profile who is eating salads, who is cutting down on high fat diet, who is managing their weight, who is taking their blood pressure medicine, who is doing foot checks for their diabetes, who is doing blood glucose checks and knows what their HBA1C is for those of you with diabetes. The idea is taking care of yourself really is important. Now, why am I saying that? It's really easy, and this, I think, is probably the most salient of the point that Dr. Griffith was making, you don't control your genetics. What you have today is what you have. Your behavior, you really do control. And so I'm going to say there are things that are noted in the prayer of

serenity that I think is extraordinarily important as you begin to move, or manage your health. The first is be smart enough to know what you control and what you don't. The second is control what you can control, let go of what you can't. And I think you have to be smart enough to know you can't alter your genetics, you can't alter who your parents were, you can't alter where you grew up or where you were born, but once you have awareness you can alter your behavior. You can alter where you decide to go, what you decide to eat, who you decide to be with, all of those things that are within your control are those things that you should be in control of, with prayer. With prayer.

DP: Thank you very much, Dr. Edwards, with prayer. Prayer changes things. We're running close to … I'm looking at Laura's face and I know we're running close to … there are two things … well actually … yeah, two things I want to say. One is, Dr. Griffith, if you could, because you said something interesting this morning when we were talking and I need it like in a minute or less, which I know is probably very unfair, but you talked a little bit about the significance between head traumas, or traumas, and dementia and Alzheimer's. I think it's really

important, and I know a minute is just … two minutes.

PG: That's all right. So the ongoing debate among care providers is whether or not the aftermath of head trauma is what causes some people to have cognitive difficulties. And if you think about it, there are two important groups where that's an issue. One is former football players, the second is military survivors of blast injuries that are coming home from the different conflicts overseas. And both groups are interested in, first, recognizing it, and second trying to understand what it is. With the football players – it could be the same issue if you're a boxer or other situations – and it seems to be with repeated head blows that you seem to come down with this condition that's called CTE. We think we know what the chemicals are that are different that are related to this trauma-related problem, and we think that that's related to something called TAU, T-A-U. Whereas Alzheimer's patients, the chemicals that are not right are both TAU and amyloid, though some people think amyloid comes before TAU. So the football players, where we're seeing problems with TAU, get damage to a different part of the brain than the Alzheimer's patients.

So one of the dementias, when Dr. Edwards was listing all the different kinds of dementias, is one called frontotemporal. And this is the one that if you're old like me you remember in school they called it Pick's disease. And it's just the name of the scientist. So it's a particular part of the brain, it's affected by TAU, and they act like they have Alzheimer's, but it's a different situation. And we're trying to understand what that is. In both situations, you have something called a risk promoter gene that puts you at risk, and it's called ApoE. If you have two ApoE4s, you're more likely to get late onset Alzheimer's disease, and if you have E4s, you're more likely, if you're a football player and you're banging heads repeatedly, to get CTE. So we've come that far, the question is what can we do to …

DP: Tell our kids to start playing tennis. (Laughter) I mean that's a start, right.

PG: Golf.

DP: Golf. Or start rowing a boat or something. Thank you very much, Dr. Griffith. That was very, very insightful. As I said, time is getting very short and I do want to make sure I have enough time for the audience to ask questions because the

four of you have been so incredibly sharing and generous with your knowledge … (Applause) … we've really, really been blessed. Before I turn it over to the audience I do want to ask each one of you, though, to leave us with … again another brain drain, one nugget that will really enrich us. We will leave here feeling that we are at least one nugget smarter than when we came in.

DB: My nugget is to exercise your brain. I hope you picked up the fact that brains can change, and so exercise your brain. Do crossword puzzles, pick up sudoku, talk to somebody who's an expert in something you don't know anything about, but exercise your brain.

DP: Thank you, thank you very much, Dr. Byrd. Dr. Fenton? I'm going to start identifying the people that had accents. Dr. Fenton is one, in case you didn't get it. He too is from Guyana.

AF: I'm going to have a variant on that, and that is something I learned. I didn't make this up, but what you think, you become. You should think about what that means. What you think, you become.

DP: I love that. Thank you very much. Dr.

Edwards.

CE: As the grandson of a bishop …

DP: We could tell by the way you speak.

(Laughter)

CE: I have to say that the church, the black church, has been at the center of every major movement in black history. (Applause) I am pleased that Grace is doing the right thing, but it's time for other churches to have mental and physical health as a part of their basic ministry, health as a ministry.

DP: Dr. Griffith?

PG: I would say, as an Episcopalian, (Laughter), faith, and my father who is no longer physically here said, "He didn't bring me this far to leave me alone." So just hang on in there. You have great people working on trying to stop this, reverse it, prevent it, predict it, and we just have to have faith and hope.

DP: Amen. (Applause) Thank you. So the last thing is a question that Laura wants to make sure I ask, and it is commonly believed that the pharmaceutical industry is discounting support of neuroscience research, particularly studies of clinical

efficacy. (Inaudible / Overlap) What's your take on this? Is this correct? What will the impact be? And what can be done to get them back involved? That has to be a quick answer too.

PG: First I would say that we're in this together. I think that we have to cooperate because neither industry or government or physicians have enough financial resources to fix this problem. We must cooperate. We must put our minds together to figure out how to recognize this problem, what medications are going to fix it, and how do we go forward. We have to cooperate. I think that they're doing a fine job. I think that they have gotten a lot of negative press because people incorrectly think that they're only in it for the money, and I don't think that's true. It's not been my experience.

DP: Thank you.

CE: I say the question is an interesting intellectual exercise, but the truth of the matter is how many of you have participated in a study recently? No hands.

DP: How many have?

CE: Oh, I saw one. I'm sorry. The issue is that very few of us, as blacks, participate in research, because of the

history of research. It is important that we represent, when we have an opportunity in the black community, in research, or things never get better for us.

PG: I agree.

DP: Thank you. (Applause) Dr. Fenton?

AF: The trend is growing that the pharmaceutical industry is putting their focus, their attention, their resources, in places that are not aimed at the central nervous system, at our brains. That's a fact. The reason they're not doing so are complicated, many, many reasons. What's really very clear, however, is they will, to the extent that it is demanded. Scientists like me will put our focus and attention on problems to study, when there are resources to actually study these problems. And the resources will come when there's a demand to tackle these problems. If there's no demand for it, there are lots of things I can study. I'm interested in studying things. I've tried to understand things. If you want me to study aging, say it's a big problem. We really want to make this a priority. And put some money behind it, and we'll bring our research tools to study aging, because as scientist, and the pharmaceutical industry is often driven by the

same methods, we just have tools and we can put those tools to work on any problem, in principle. But you have to participate. We as a society have to participate in identifying what those problems are, what the priorities are, and if … without that we don't have direction, and we leave it to be haphazard.

DP: Thank you very much Dr. Fenton. Last, but certainly not least, the wonderful and lovely Dr. Byrd.

DB: Thank you. In short, at least in the discipline, in the disease that I work on, I haven't found that to be true. I think pharmaceutical companies, these companies that make drugs, are very interested in targeting the brain in HIV, so it is my experience, again, that they're interested in this area and that is because so many people with HIV, as I mentioned earlier, are experiencing cognitive problems and are living longer, and so whether or not that's because of what HIV is doing to the neurons or the swelling, or what we call inflammation of the brain that happens secondary to HIV … so that's my short answer. I'm very interested in hearing questions from the audience.

DP: I am too. I'm biting at the bit. So there are two … thank you very much Dr. Byrd. (Applause) There are two

mics in the two aisles here. For those of you that have questions, please line up and we'll get your questions answered. I would ask … I know there are going to be like a million people with questions, if you can keep it short but sweet, to the point. Many of the doctors, as you may or may not know, come from other states and have to catch planes. And then the other thing I need to remind you of is that when we're done, please leave to the door to my left, your right, or the door to my right, your left, to get your goody bags and also to hand in your surveys. All rightie, let's start rocking and rolling. We'll start over here with you.

W: Good morning. I must say it has been a very interesting discussion. One of the questions I want to ask, one only, it was mentioned that the group that should have been here was the younger group. Now, looking back, are we thinking that diagnosis, like attention deficit disorder or dyslexia, looking at those diagnoses that are labeled in children today, will those transcend later on in life to maybe Parkinson's or any of the other brain disorders?

DP: That's a good question.

CE: I guess that was to me. We don't know, is

the answer. And my reference to having more young people in the audience has much more to do with transforming health at a time when the iron is hot, versus waiting until you have hypertension, diabetes, obesity, and the early signs of dementia, to decide this may be a good time to think about health. If we thought about health, if we taught health in the early ages to young adults, I think the morbidities that we see of aging would be less and less severe.

W: So there's no looking at these early diseases to see if it will …

CE: There's really no evidence at all that dyslexia or any other of the diseases that you named somehow predispose you to more significant exacerbations as you age.

DP: Thank you Dr. Edwards. Miss?

W: Yes, I wonder whether or not the increased use of electronics across the ages is having an effect on the brain? (Applause)

DP: Dr. Fenton?

AF: There are two ways to answer that question. The evidence is not very compelling to me that the energies emitted by the consumer electronics that we use are sufficient and

have a mechanism for impacting how brains operate. However, remember what my mantra has been here, how you use your life, how you use your brain does determine and impact your brain. So if you spend all of your time on the internet, if you spend all of your time watching television and not engaging with other people, then I don't know if that's good. I don't know if it's bad. But it's significant. It's going to change how your brain has been experienced, if you will, which changes your brain, and it will have consequences.

DP: Thank you.

W: First, thank you very much. It was great what you learned and I loved all of your nuggets. None of you mentioned heavy metal toxicity. We know lead and mercury are extremely neurotoxic and they can cause, they can absolutely lead to dementia and Alzheimer's. You didn't mention silver fillings, which a silver filling, all silver fillings are 50 percent mercury. They off gas, after 25 years 80 percent of the mercury is gone. So it's gone to the digestive system and it's gone to, it crosses the blood-brain barrier in gas form. So that's one question that you never talked about, getting heavy metals …

DP: And that's all you have, my friend, one question per person.

PG: The answer is that we're not sure that it's cause and effect, and to think of a church analogy, we're not sure if it's the thing that puts you in the grave, which means that the neuron is dead, or is it the headstone, that it's a marker that that neuron was damaged by any of the compounds that you mentioned.

W: The University of Calgary put mercury in just the vicinity of a neuron and it turns right into a neurofibrillary tangle.

PG: It doesn't answer the question, does it kill the neuron or does it just tell you that the neuron used to be there? That's the problem.

W: It used to take me all day to pack a suitcase, I couldn't cross the road, I got my fillings out, I did mercury detox and my brain came back.

DP: We want to make sure other people get a chance. Thank you.

W: Good morning. I'm a caregiver. My mother was diagnosed with Alzheimer's three years ago, she's 88, and I

often listen to the conversations but she is in physical great health, she doesn't take any drugs except for Lumigan, which is for glaucoma, and she can bend down and pick up a dime, but her mother had Alzheimer's. She was diagnosed at 95. My question really is, is that where is the caregiver in terms of helping you fill out your scientific information? Because we have a lot of observations that we can contribute.

DB: I want to applaud you … I don't mind taking that question … I applaud you, first of all, for being a caregiver. That's one of the hardest jobs on this planet, and there are probably many caregivers of Alzheimer's patients and people dealing with other illnesses. But we are paying attention to caregivers. I don't know what the association, the Alzheimer's association and universities that are close to here do, but even in HIV, we're opening an HIV caregiver arm to our study so that we can bring the caregivers in, ask them about how the person is functioning, how you are functioning. Because as a caregiver, there's a lot of stress on you, and you need a break sometimes, and you need support, and you need education. And so there is actually quite a bit of research on caregivers. Again, you many not

have had the opportunity to be involved, but trust and know that …

W: I can say that my mom, she goes to adult daycare at the Walburg. We are fortunate in Mount Vernon to have the Walburg.

DB: That's a blessing.

DP: Thank you.

W: Good morning and thank you all for coming. My question is, do you believe in vitamins or supplements for the brain, you know, for Alzheimer's disease or dementia?

CE: One of the tests that should be done when your doctor is getting ready to give you that label is to check the level of certain vitamins. The most important one is called B12. If your B12 is low it needs to be fixed, so that's part of an answer. Whether taking multivitamins, and in the marketing they have it multivitamins for men and multivitamins for women, and they imply that they're different. It's helpful or preventative, we're not sure. But we should look for B12.

W: Okay, because a lot of vitamins have been advertised as helping Alzheimer's, dementia and memory problems. Someone who has these(?) or just (Inaudible) anything.

CE: Again, a short answer is that science has not been settled. There are two kinds of vitamins: there are water soluble and fat soluble. The fat soluble ones go to the brain, so for instance, vitamin E in certain amounts can go to the brain and it might be helpful. If you overdo B vitamins, some of them come, just come out in the urine, they're water soluble, so we're not sure.

W: Thank you.

DP: Good morning.

W: Hi, good morning. Over the past 30 years I have serviced the elderly and I have watched combination of medication cause elderlies to fall and to lose their memory. How does that contribute to Alzheimer's?

DP: I want to make sure that I'm clear. You want to know how medication …?

W: Yes, because …

DP: Contributes to …

W: I've seen the combination of several medications that cause them to lose their memory and to have falls.

PG: You are going back to the example I gave

with the four D's that we teach our students, and one of the D's is drugs. And what it is, is that those drugs that block the chemical, called acetylcholine, makes the wires not connect and in the certain memory parts of the brain, the memory doesn't work properly. So if they have anticholinergic side effects you stop the drug. It's in the fine print of all of the package inserts that you get with the drugs, because it's written by lawyers.

W: Good morning. What causes bipolar?

DB: Bipolar disease – we still don't know exactly. Most psychiatric illnesses have what we call a neurochemical basis, which means there's something off in how the brain cells are talking to each other. But there's a genetic component, right, if bipolar diseases in your family, then you're more likely to develop it than if you come from a family that doesn't have bipolar disease. If you undergo a very stressful period that may activate, you know, that gene, so that we don't know for certain.

W: Thank you.

DP: As I said before, many of the doctors have to get on planes, particularly, right away, Dr. Edwards and Dr. Fenton, are the first two that have to leave. So does anybody on

the line have any pressing questions for either one of the two of them, because they're about to go. I know this is New York, we don't like jumping, but could those people … oh, you do, ma'am, go ahead, lady in purple, then the lady in black, over on this side, who has a question for Dr. Edwards or Dr. Fenton? Go ahead please.

W: I've been working with seniors for eight and a half years, and most recently I'm at Sunrise Senior Living in Fleetwood. And what I do is help adult children figure out where their parents, or their loved one, is best going to be served, whether it's an assisted living or in our specific dementia, Alzheimer's floor, which is secured. And what I find is when I start asking the young people questions – well, they're my age – I'll say to them, "Well, give me the reasons why you're thinking your parents should be in a community like this?" And the first thing they say is, "Well, you know, my mother is in great shape. She walks without a cane, she does her own dressing," and then after a while say well how …

DP: What's your question, love?

W: My question is, how could we reach out to

these adult children so they're not in denial that their parents need help in a particular way and they need to be engaged?

RB: An announcement to everyone who's here, that Grace, we used to have an Alzheimer's support group here, and we just recently started on the fourth Saturday of every month at 11 o'clock we have a support group for caregivers and Alzheimer's patients. So if you're going through any of that, let me know, get in touch with Reverend Roller who is facilitator. But you can speak to anyone in the Health and Wholeness Ministry about that. Any program that you think about, thinking we need, let me know and we'll work something out.

MC; Thank you Reverend Barbara.

RB: The last thing I wanted to say, we have exercise classes here. We heard a lot about exercises today for the brain, but we also have exercises with Aisha, does Zumba on Tuesdays.

DP: Reverend Barbara, can we have the questions for the two doctors that have to go? Then we can talk about the programs. Thank you very much. You had a question? Yes ma'am, it was you, and then the other person over here.

Please, your question.

W: Good morning. Dr. Fenton, you mentioned the importance of life experiences on the functioning of our brain. And we know that many of our children who live in inner-city environments, they have so many traumatic situations, so many situations of violence that occurs to them in their neighborhood and in the school, so what can we do to help our children?

AF: That's one of the questions I ask myself almost every day. And to be honest, there's no simple answer. What's really clear, though, I've been visiting high schools around the city, and what's very clear is the environments in which they're immersed, even in many of the high schools, are really, to say it politely, suboptimal for healthy development. And I don't know how to change that. But that surely seems to be something that needs changing. We've got to create healthier mental and emotional and physical environments for our brains to sit in. And that's in our community. I don't know how to do that, but it's very clear it's necessary.

DP: Thank you. Your question?

W: Good morning everyone. We have gotten a

lot of education this morning, but my question is, when the vein in the brain does, do you feel it?

CE: The answer is no, fortunately. The brain is interesting. The brain actually has no nociceptive or pain related nerves about itself. It can monitor your entire body but it does not feel itself very well, and so the answer is no. You typically know because there's a diminished function, but there is not a single feeling or a headache that you're going to get when your nerve cells die.

W: I have a quick question for the doctor, real quick. What makes a person with Alzheimer's become violent or belligerent? My father had Alzheimer's and he was normally very calm but when that disease started to progress …

DP: They're going to answer … (Inaudible / Overlap) … at this point we're going to have Drs. Fenton and Edwards leave now because they have to go back to their respective places. (Applause)

DB: Okay, to get back to the lady's question, that's one of the most perplexing and heartbreaking aspects of Alzheimer's. There are many changes that sadden us, but when

they become belligerent … because then that's less … it's harder to tolerate it, and I'm not certain, aside from … that's usually in the advanced stages, when you've lost an awful lot of brain cells, including in that part of the brain that helps you control how you act, and so that's my best understanding of why that aggressiveness and belligerence comes in, in the latter stages of Alzheimer's, but I'll defer to Dr. Whitfield who might have a little more insight … Dr. Griffith, I'm sorry.

PG: I think that that's absolutely correct. What I would try to answer from the side of the desk with the buck stops here, is what can you do about it? And so there've been many studies in collaboration with geriatric psychiatrists, to try medications when they become physically aggressive, when they start to wander, et cetera. And the answer is that we have some mediations but the FDA has put a boxed warning on it, meaning that they can have complications. So the family that agrees to try one of these atypical antipsychotics is what we call them, is that they ought to know, yes, it can help the behavior, temporarily, but there may be some problems. The frustration is that's all we have.

DP: I'm going to ask, I'm going to deviate a little

bit, and Terrie, do you want to address that, the violence and …

TW: Good morning everyone. The sister who asked the question about how do we address violence in our community, it's something that we really have to pay close attention to, and that is that when you have a horrific experience, you watch someone stabbed or shot right in front of you, you can't get up and go to work or school the next day like you didn't just see that. And that's what so many of us do. We don't grieve. You are severely traumatized and the only way that you're going to get through it is to talk to a therapist. And so for many of us, especially black folks, we think therapy is like a badge of shame, but our white friends …

PG: The stigma.

TW: Yes. But our white, my white friends and colleagues, they see it as a badge of honor. They will tell you that they can't go to said staff meeting, why? Because they're going to talk to their therapist; will tell you unasked what antidepressants they're on. We need to have that kind of freedom. There was a little girl who's two years old who was shot in the leg in a playground in Harlem. Her mother said …

(VIDEO CUTOFF)

(END OF TAPE)