Science communication is extremely important because there’s a lot of misperceptions about psychiatric conditions — a lot of stigma and prejudice toward people who have these conditions. Scientific information about it — having the facts, having the knowledge, makes a very big difference in people’s lives.
Illnesses are the result of weakness or moral weakness. These are physical illnesses that affect the brain. These illnesses are treatable and people should not suffer in silence.

Brain World: How did you become interested in neuroscience?
Jeffrey Borenstein: I became interested in neuroscience in medical school when I decided to become a psychiatrist. It was having the opportunity to see people who had various psychiatric conditions such as depression, bipolar disorder, and schizophrenia and wanting to understand what may cause those conditions and how to best help people with those conditions.

BW: Why is science communication important?
JB: I think science communication is extremely important because there’s a lot of misperceptions about psychiatric conditions — a lot of stigma and prejudice toward people who have these conditions. Scientific information about it — having the facts, having the knowledge, makes a very big difference in people’s lives. I think that understanding psychiatric illness such as depression or schizophrenia is an illness like any other illness — that it’s based on the biology of the human brain, just like pneumonia is based on the biology the human lungs and that there are treatments available to help people, and that people shouldn’t suffer in silence — that they should seek and accept help.

BW: What is the Brain & Behavior Research Foundation?
JB: The Brain & Behavior Research Foundation is the largest private funder of brain and behavior psychiatric research grants in the world, and we fund scientists around the world who are doing innovative and cutting-edge research about the brain. Our major focus is supporting young scientists who are just beginning their career in brain research. Unfortunately it’s very very hard to begin a career in brain research — in any area of medical research. We are able to give support so that people can begin to develop initial pilot data so that they could then go on and receive subsequent funding from the government and other sources.

BW: Why would you say that it’s harder? Would you say it is harder now than when the foundation began?
JB: Yes, it’s become more difficult over the last few years — the amount of funding available and real dollars hasn’t kept pace. It’s very challenging and difficult for — especially young researchers to get that kind of funding to begin a career and to continue a career. We really don’t put enough dollars into research to help people, and that people shouldn’t suffer in silence — that they should seek and accept help.

BW: So how can we improve treatment? Or how can it improve?
JB: Well, over the years, treatment has improved. So that somebody who has any of these conditions in 2018, it’s a better time to have it because we have better treatments than we
important finding. It shows that the brain can adapt to grow new cells and have brain even older adult brains are able to age of 2 or 3. We now know that's old brains do not grow new cells, and that "old" was after the school in the 1980s, I was taught of all, when I went to medical important breakthroughs. First neurology has been? JB: Neuroscience is a key to understanding mental illness. Neuroscience is studying the brain and a better understanding of how the brain works and what can go wrong in terms of how it works helps provide important information about the causes of mental illness and potential treatments for it. So neuroscience is extremely important in our understanding of the brain.

BW: What would you say is the most impactful breakthrough in neuroscience has been?
JB: I think there's a number of important breakthroughs. For one of all, when I went to medical school in the 1980s, I was taught that old brains do not grow new cells, and that "old" was after the age of 2 or 3. We now know that's not true — that adult brains, even older adult brains are able to grow new cells and have brain cells make new connections through a process called "neurogenesis." This is an extremely important finding, because it shows that the brain can adapt — can change — so that's a very important finding.

I think that our tools to understand the brain have significantly improved: whether it be through neuroimaging studies, using MRIs, or other forms of imaging; whether it be through genetic studies where we're able to look at large numbers of people who have a particular condition and compare them to people who don't and look for certain areas of genetics that may have some relationship to that illness. Our ability to use new technologies such as "optogenetics" to study the brain is extremely important. So I think that there's been a number of breakthroughs in the course of my career that have had an impact on neuroscience.

BW: What would you say is the proudest accomplishment of BBRF? JB: I think that the proudest accomplishment of BBRF is the impact that the foundation has on the careers of young scientists. So the foundation has been providing research grants now for over 30 years and some of the young scientists that we supported initially are now senior people in the field who continue to have an extraordinary impact in terms of their research, in terms of their mentoring other scientists, in terms of clinical care. So I think the most important accomplishment of BBRF has been support of scientists and the support of their ability to develop innovative approaches to research.

BW: What would you say has been their most ambitious undertaking? JB: Well, I think that there's been a number of research projects that we supported that really are very ambitious. So one of them is support for work by Dr. Robert Freedman of the University of Colorado in Denver, looking at giving dietary supplementation during pregnancy to decrease the risk of the child ultimately developing schizophrenia or other psychiatric conditions. Dr. Freedman's done work stemming from very basic research to clinical studies to look at the possibility that giving choline supplementation to pregnant women can reduce the risk of developing these illnesses. We also were early supporters of Dr. Karl Deisseroth and colleagues in the development of optogenetics, which is an important new tool now used by thousands of scientists around the world to study the brain.

BW: How does that work — optogenetics? JB: Basically, it's used to study the brain in laboratory animals and they're able to genetically engineer brain cells so that they respond to light. They turn on as a result of being stimulated by light, and then they surgically put in a wire that can provide laser light to instantaneously turn on and off a particular brain cell or group of brain cells, and then see changes in behavior — see the connections of those brain cells to better understand the brain. We were also early supporters in the work of Dr. Mark George and his development of transcranial magnetic stimulation, and other conditions, where electromagnetic stimulation from an electrical coil placed on the scalp, target specific areas of the brain. Today, it's an important method of treatment, which is now widely used for depression.

BW: What do you hope BBRF will achieve in the near future? JB: We are hoping to accelerate the support for brain research so that we can really have in hand, improved treatments, cures, and methods of prevention for these illnesses. My hope is that in doing so, we can have a positive impact on the lives of so many people who have been affected by these conditions, so that they can live full and healthy and happy lives.

BW: What can we do to help — in terms of helping with research and destigmatizing mental illness? JB: I think that getting the word out to people is extremely important so that people understand that these illnesses are the result of biology, not result of character weakness or moral weakness. These are physical illnesses that affect the brain. These illnesses are treatable and people should not suffer in silence. They should seek help. One of the ways that I've done that — is through the “Healthy Minds” public television series, which is broadcast on public television stations around the country, but is also available on demand online, where in each episode, I interview an expert in a particular area or for a particular illness and/or a person who has lived with a particular illness to share their experience.