Jeffrey S. Bland, PhD, earned his bachelor degree in chemistry and biology from the University of California at Irvine. After receiving his doctorate in biochemistry from the University of Oregon, Eugene, he became a chemistry professor at the University of Puget Sound in Tacoma, Wash. Dr Bland has also been the clinical laboratory director for the Bellevue Redmond Medical Laboratory in Washington State, the director of the Nutritional Supplement Research Laboratory at the Linus Pauling Institute of Science and Medicine, and president of the Seattle-based Northwest Academy of Preventive Medicine. Dr Bland also developed and continues to oversee the Functional Medicine Clinical Research Center, a research facility with a full medical staff located in Gig Harbor, Wash. Along with his wife, Susan, Dr Bland founded the Institute for Functional Medicine (IFM), a non-profit organization dedicated to support the growth of patient-centered medicine.

In 1984, Dr Bland formed his own company, HealthComm International, to help educate healthcare professionals. In 2000, HealthComm International merged with its strategic partner, Metagenics, Inc, and Dr Bland assumed the position of president and chief science officer of Metagenics. Dr Bland is an accomplished author and sought-after speaker.

Alternative Therapies in Health and Medicine recently interviewed Dr Bland at his office in Gig Harbor, Wash.

Alternative Therapies: What have been the significant turning points in your career?

Jeff Bland, PhD: We all have those branches in the road when we have to decide which way to turn. Sometimes, we find ourselves on a path that departs from where we were originally headed. For me, one decision like this happened in college where I was initially a double major in music and math. I was a brass player and wanted to be a performing musician. In my sophomore year, a friend who was a very good trumpet player wanted to audition for the brass section of the world-touring Righteous Brothers band. We both had done some recording in the studio at that point but he was a little apprehensive about doing the audition on his own and asked me to go. I really had no interest, but thought it would be an interesting experience and wanted to support my friend. As it turned out, although my friend was an excellent musician, the band already had a really good trumpeter. They did not, however, have a good trombone player, so they asked me to join. If I were to say yes, I would have had to take a year off from school. I recall at first being infatuated by the idea of making that kind of money and having that experience. I knew that when I went home to talk to my father, who was a very strong advocate of higher education, he would discourage me from going on tour and encourage me to finish college and pursue my music later. I was sure he would help me make my decision. When I presented the idea to my parents, however, my dad told me this was a threshold decision and I was old enough to make it on my own. I remember staying up all night listening to the records I had made with various bands, struggling to assess if music was truly my vocation. In the morning, I came to the conclusion that I was really technically a very good musician but I didn't have that art that separates the good ones from the superb ones. I turned down the invitation to go on tour and changed my major to the sciences the next week. I graduated with a double major in biology and chemistry. That was a critical turning point in my career path.

I was very interested in biomedical research. During my senior year, I worked with Dr Sherwood Rowland, the eventual Noble Prize Winner in chemistry for his discovery of how the ozone layer was being eaten up by fluorocarbons. I worked in his lab and he was one of my graduate thesis advisors. My plan was to enter UCLA medical school. But the summer before going to medical school, another turning point occurred. I was surfing at Dana Point in California, my favorite spot. I was surfing at Dana Point in California, my favorite spot. We were having a great day with big 15-foot
waves. When we got back into the beach, though, I noticed some earth moving equipment on the cliff. One of the guys told me this was probably the last summer we would be able to surf at the Point because it was being made into a boat harbor. This was the last straw for me in southern California. I didn’t like the traffic, the smog, and I was wondering if I should really be there. That day became another important turning point as I decided to leave California to attend the University of Oregon to work on my PhD.

One of my professors at the University of Oregon had a strong interest in environmental factors on neurobiology and neurochemistry, including, of course, nutrition. Working in the area of neurophysiology led me on a different path than I originally planned. I decided to focus my PhD work on the effect of small molecules on neurobiology and function. Upon graduation, I made the decision to teach at the university level. This was during the Vietnam War period and it was difficult to get a teaching position at the university level because everyone wanted to be a professor to stay out of the war. I was fortunate to receive an offer from the University of Puget Sound. I was very excited because I have always loved the Pacific Northwest. My wife had just given birth to our second son while I finished my PhD, and we were planning our move to our new home.

We were in Washington State for about five days when our son died of Sudden Infant Death Syndrome (SIDS). It was a life-changing experience. I won’t go through all of the anguish, but this horrible event made me realize that I wanted to help prevent parents and children from going through what we went through. I re-focused all of my energy and began asking the questions: “Why? Why did he die? What do we know about SIDS?” These questions led to another perspective of nutrition and environment and its relationship to the immune system.

About a year later, I was lecturing on metabolism to first-year medical students when a young man asked me about vitamins. I gave him the pat answer and referred him to a textbook page. He raised his hand again and told me that he had read that page and he didn’t think the information was satisfactory in answering questions he would get from his patients. Quite honestly, I didn’t know a whole lot about vitamins. I was the product of conventional scientific education, which included next to no information on vitamins. I told the class that in a week we would have an hour devoted to this topic. That gave me a week to go to the library and put some references together to do a satisfactory lecture on vitamins. Here, another turning point occurred.

At the library I found hundreds of unfamiliar papers not previously mentioned by my mentors. I had been trained by some of the leading biochemists in the world and I had not been exposed to this information. At first I was angry. I thought they had withheld information from me, but then I realized that was not the case. I recognized it was more like intellectual hemophilia. We often get into channels of thinking where it’s hard to “know” what we “don’t know.” Thanks to that student’s challenge, who later went on to be a part of the Johns Hopkins University Medicine School faculty, I was able to break out and move into another direction.

I later worked with that student to publish papers on the role of vitamin E and red blood cell aging. This work was an interesting highlight of that period, and I ended up on the cover of the most well known “medical” journal of the world, the National Enquirer. My picture was next to Elizabeth Taylor with the headline, “University Professor Finds Secret to Aging.” Now this was certainly not the case. However, that article gave me incredible exposure. From that point, all sorts of people began calling. I even had to hire my own secretary just to handle the influx of calls and media attention. That was the next transition of my career. People began referring to me as a nutritionist, which I really wasn’t. All sorts of things happened over the next several years. I became more recognized and was asked to speak to a variety of medical groups. I then decided to take a sabbatical to work at the Linus Pauling Institute, which was another huge turning point for me.

I moved with my family to Palo Alto and worked directly for Dr. Pauling, which completely changed my career vision. Even though I had a 13-year career as a well-respected educator, I felt it was time to expand my classroom. When I left the Pauling Institute, I decided to go back to Gig Harbor to start a company to help practitioners successfully integrate biomedical nutrition into their practices. My father thought I was crazy. He told me I was a great professor, researcher, well-esteemed at the university level and could teach virtually anything I wanted. I had tenure, and I had my kids’ college education paid for. He wondered why in the world I would give that up to start a business, something I knew nothing about. Clearly, I couldn’t answer his questions, but I was driven by my concept. He then told me if I were really serious, he would come out of retirement to help me. He became the business manager of HealthComm, my new company, and I was able to focus on health education, communication, and research programs for natural health stores and healthcare practitioners. We grew to about 20 employees.

But to develop the necessary cash flow to keep the education and information business alive—the philanthropic ambition to help change medicine—I needed to develop a new category of products for healthcare professionals. During this same time, my wife and I recognized a need for a different category of healthcare information—one with a focus on improving function rather than simply treating disease. Loss of function precedes onset of disease. Disease does not come as a bump in the night; it comes as a consequence of declining function over time. We started thinking about what term we could use to describe this concept. It wasn’t alternative medicine, it was not orthomolecular, holistic, or integrative, it was something related to function. We decided to call it “functional medicine.” We thought if we asked a group of 1,000 physicians how many wanted to practice “dysfunctional medicine” no one would raise his/her hand. But if we asked them how many
wanted to practice functional medicine all of them would. We also didn’t want it to be degree discriminatory. We wanted to allow any healthcare provider to be part of the organization and only discriminate on the basis of the person’s commitment to quality care. A few years ago my wife and I donated our equity and past investment in that organization and spun it off into a non-profit organization that focuses on providing educational information to stimulate change in our healthcare system. My focus now is on developing a strong research facility here in Gig Harbor. We want to become the best nutrition research facility in the world.

**AT:** How do you actually define functional medicine?

**Jeff Bland:** Functional medicine focuses on the early warning recognition and intervention to improve physical, mental, and physiological function prior to the onset of acute disease.

Many thought functional medicine wasn’t the best term, because they viewed it primarily as rehabilitative, geriatric medicine. To them it was a pejorative term. They saw “functional” to mean either psychosomatic or mechanical disability. They told me not to use the term because it came with that baggage and past connotations. I predicted in the late 80s that the trajectory of biomedical research would lead to the redefinition of the term function and it would be applied to the onset of pathology or disease. I’m not too far off in 2004. If you type “functional medicine” in MedLine you will find thousands of links. A visual scan of those links confirms that functional medicine no longer refers to the old meaning. It’s been redefined. In fact, it is now a term used frequently in radiology.

**AT:** How does functional medicine differ from orthomolecular and integrative medicine?

**Jeff Bland:** All three have similar tenants and philosophies but also have key differences. Functional medicine derives a lot of its underpinning from basic bioscience. This is also true of orthomolecular medicine. Functional medicine expects a certain level of knowledge of biochemistry, cell physiology, and molecular genetics. Functional medicine is tightly tied to the emerging mechanisms of disease. In contrast, integrative medicine processes stem from the integration of western medical pharmacology with historical and cultural healing methods. Most of those revolve around ethnography and are culturally and historically interesting, but not necessarily built on the western model of biosciences.

Functional medicine is different from integrative medicine because it is more science-based in terms of utilizing diagnostic tools and analytically evaluating mechanisms of disease. Although orthomolecular medicine is also built on science-based analytical mechanisms, it principally focuses on molecules that create change in our outcome. Functional medicine does not conscribe only to molecules. It includes thoughts, attitudes, beliefs, function, environment, psychosocial events, and spiritual experiences. We study these from a scientific lens. This perspective asks, “Where does it hit the body?” What is the mechanism by which we can accurately assess how function is influenced? I see functional medicine as a hybrid between orthomolecular and integrative medicine.

**AT:** How does conventional medicine integrate with functional medicine or is that a non-issue?

**Jeff Bland:** We feel it is a non-issue. From a functional perspective, we use the best way to assess function. This can be scanning, electron mycroscopy, Computed Axial Tomography (CAT) scanning, nuclear magnetic resonance, range of motion, or just listening to the patient. There are many ways to assess function. We use whatever tools best allow us to evaluate function based on what questions we asked. We do not discriminate among where those tools came from other than if they are valid.

**AT:** What about treatment?

**Jeff Bland:** Same thing with treatment. We use whatever improves function, not just masks symptoms or blocks function, but actually improves function leading to the restoration of an individual’s ability to maintain homeostasis. It may turn out to be an ace inhibitor at a certain dose. It could be a nutrition regimen or other substance that has functional impact.
Conversations with Jeff Bland, PhD

functional medicine we do not discriminate among treatments. The key question is, “How can the health treatment plan weave together to form balance, harmony, synergy, and symbiosis?” I think “function” means “function of the system” not just function of the myopia of atoms or pieces of the individual.

AT: What do you feel have been the most significant advancements in functional medicine?

Jeff Bland: Folic acid research is a tangible example of how a single agent has been found to improve the function of many different organ systems and have an impact on many different diseases. In the 1970s a landmark paper appeared in The Lancet demonstrating folic acid insufficiency can lead to neural tube defects. It took the better part of 30 years for that observation to make its way in clinical practice and for practitioners to begin recommending folate supplementation. Researchers then began looking at other aspects of folic acid. Observations by Kilmer McCully and homocystenemia led to the recognition of oncological, cardiovascular, and neurovascular risks. Now, a hormonal link demonstrates some people can’t properly methylate estrogens so they are at risk of developing estrogen-related carcinogenesis. That is a folate-related methylation process. These observations indicate functional insufficiencies. They are not deficiencies. Clinicians and researchers never thought any of those patients were deficient in folic acid. Functional insufficiencies produce functional decrements and result in memory impairment, dementia, dysphoria, depression, low energy, loss of muscle function, and more. All of these can occur well before the onset of clinically defined folate deficiency or megaloblastic anemia diagnosis. The basis of functional medicine follows personalized medicine and relates to specific individual needs that create individual function. We practice patient-centered medicine that deals with the individual and individual function.

AT: The story of folic acid is a great example of a functional medicine advance. Why does it take so long for conventional medicine to recognize and incorporate these advances into clinical practice?

Jeff Bland: That’s a question I don’t believe anyone can completely answer. It has to do with the intangible concept of the tipping point. There are tipping points in science just as there are tipping points in marketing or sales. Having traced a lot of major medicine discoveries, I have estimated that it takes about 50 years on average from the first observation and publication of the work to gain large-scale acceptance.

There are some classic examples that lead me to believe this. Amazingly, it took about 50 years from Semil Weiss’s observation of the relationship between physicians’ unwashed hands and post-partum sepsis before hand washing in obstetric practice became procedure. Another example involves the relationship between vitamin C and scurvy. The use of citrus fruits in preventing scurvy was well-known by 1560 and yet was resisted for decades. Robert Linn’s first clinical published trial analyzed citrus regimens with different sailors on the same ship. The sailors who received lime and citrus rations every day did not get scurvy. From the time Linn made that observation, it took from 1775 to 1823, about 50 years, before it became common procedure to stock ships with citrus fruits.

AT: Are you saying that this “50-year theory” applies to all medicine, not just alternative medicine?

Jeff Bland: That’s correct. I think we resist change because we are afraid to harm our patients. This is critical because we are dealing with health. It’s not like marketing a product or developing a computer. Healthcare professionals deal with lives. I don’t care if you are a shaman or a surgeon, everyone is watching; it could cost us our careers. Because of this, we resist change. In a way, this is a positive. We don’t want doctors jumping on every new bandwagon that comes along.

We also fear reprisal, which prevents us from doing something that is reasonable. Every medical decision is based on a risk to reward basis. Every time a doctor prescribes anything they are making some kind of evaluation about medical benefit versus the risk. Every drug and every procedure has a risk. Even
doing nothing has a risk. We get hung up on being the person that says the reward to risk has shifted. It takes time to get to the level of approval.

**AT:** Do you see that changing?

**Jeff Bland:** Not really. For example, molecular medicine began in the 1950s. The term first appeared in the scientific literature in a 1949 article by Linus Pauling and Charles Itano published in *Science* called “Sickle Cell Anemia, a Molecular Disease.” Roger Williams, a University of Texas biochemist, authored a 1952 paper in *The Lancet* called “Biochemical Individuality.” He outlined what he called the “genetotrophic theory of disease” where individuals have specific nutrient needs. These unmet needs create disease beyond what we would expect with nutritional deficiency. Those concepts were set in motion in the 1950s. It’s now 2004. We are at the 50-year mark and we are seeing a transition. These concepts have passed muster during this five-decade washout period.

The paradigm shift occurring in medicine today is as remarkable as any in our history. This is a watershed change in medicine. We are at that transition; we are at that tipping point. But it takes time for the text to be re-written, the training courses to be developed, the internships, residencies, and grand rounds to change—all of the processes required to authenticate a doctor to practice medicine. Once a change is agreed upon, it takes about ten years to incorporate this change into common medical practice.

**AT:** How should we be practicing medicine? What is your vision of what exceptional healthcare looks like?

**Jeff Bland:** I believe we now have all the tools necessary to produce exceptional medicine. However, there are many institutional, financial, and political barriers to it being delivered properly. We have all of the diagnostic tools and functional assessment techniques to evaluate 99% of the root origins of disease, however, there is still room for improvement. We need more research to help understand concepts like genetic polymorphisms that will lead to enhanced precision in personalized medicine.

The barriers are two-fold. From a learning and systems approach, medicine focuses solely on disease. In the absence of disease there is nothing of real importance in medicine today. The primacy of diagnosis has become a pivotal point in the way we practice medicine. Obviously, diagnosis has value. I don’t want to discount that but like any paradigm, it’s limiting if it is the only lens through which we view health and illness. Using the diagnostic model, everything requires a diagnosis.
Typically practitioners diagnose a patient with different perspectives and tools, most times following their specialty. None of them owns the whole body. Instead it’s seen as piece parts. Practitioners are looking at body parts in isolation because they have to make a diagnosis and treat that diagnosis with standard acceptable medical practice. In light of what we now know about the web-like nature of physiology, that form of medicine is ludicrous. By focusing on what I call “medical taxonomy,” which is naming diseases so we can understand them, we have lost the essence of why the dysfunction originally occurs. Pedagogically, medicine revolves around the diagnosis, especially our systems of learning and reimbursement. It defines what a doctor gets paid for. They don’t get paid for understanding function, they get paid for finding a diagnosis.

Barrier number two is the business of medicine. In this country, the medical industry has become bigger and more complex than the defense industry. The business of healthcare is like the multi-headed hydra. No one really understands all the complex aspects of the healthcare system and how it works from a business perspective. We obviously have a gross understanding but nobody really understands all of the specifics. There are all sorts of historically developed favor taking, hand holding, and special relationships. It has become an endemic network of internectine communications from one person to another exchanging dollars. It is a system willing to pay an extraordinary amount of money for people who are sick but not willing to invest anything in keeping people healthy or helping those who are on an illness trajectory. This system assumes that if a person is not “sick,” they are “well.” This is a fallacy.

In addition, the reimbursement system is a perpetuation of an old model. I propose a new model, one that I call “side one and side two” of the medical evaluation form. I believe this kind of reimbursement could change our system very quickly by changing the diagnosis-focused paradigm. Let me explain.

Side one of the form relates to the office visit alone, addressing usual and customary charges determined by the insurance industry. If you happen to be involved in prevention and function, you may use more lab tests or have more patient visits. That increases the “side one” expenditure per patient. It seems as if the patient is an insurance drain. But what the insurance companies don’t consider it is that this preventative treatment keeps the patient out of the emergency or surgery rooms where really expensive procedures occur. That’s “side two.” However, if the patient goes to the emergency room or a surgeon, they become another doctor’s “side one.” Nobody is connecting the two sides and counting the value of a higher “side one” that focuses on prevention and correcting dysfunction. The insurance industry is not interested in both sides of the form.

That type of logic holds us to an old model already broken, and everybody knows it. Doctors are leaving medicine, patients are disenfranchised, and third-party reimbursement is in shambles. Medicare is confusing and the current administration’s new drug policy won’t last. It is a horrible patchwork array of junk that doesn’t make sense. There is a huge brokenness to the system but no one wants to tinker with the central mechanism that’s at fault, which is this financial favor taking that holds a dead model in place.

Remember, the present system was built on an old model based on people retiring at 65 and dying by 70. It doesn’t allow for lives to meet or exceed 85 or 90 years of age. This increasing life expectancy has resulted in a different need for the way we see the body and manage health. It’s a critical shift.

**AT:** The second barrier seems overwhelming.

**Jeff Bland:** It is a huge undertaking. But however hard it seems, the general population now sees that the “emperor has no clothes.” Once that happens, I don’t care how much incestuous favor taking goes on and how many political and economic advantages certain groups gain by maintaining the old system, a revolution will occur. Ultimately, truth creates change. And the system presently in place is untruthful. It’s built around a presumption as silly as doctors not washing hands between patients. What caused that change? When an idea reaches critical mass, all of those people who said things would not change are artifacts of the evolution.

**AT:** Are we at that critical mass?

**Jeff Bland:** Most healthcare prognosticators believe all of the indicators needed are present. Aging baby boomers are endur-
ing suboptimal medical services. They have discretionary money and will demand more for their dollar. They will also have more legislative power because they will be the largest, most informed electorate. Then things will change. I agree with the PriceWaterhouse Cooper HealthCast 2010 Report, which predicts that by 2010 the healthcare system we presently have in place will be dramatically different. Our present system will not last past 2010.

**AT:** Where does the pharmaceutical industry fit into all of this?

**Jeff Bland:** I think the pharmaceutical industry is both part of the problem and part of the solution. They are so tightly woven into this whole nexus, this problematic conglomeration we call healthcare. As we move away from the recognition of treatment of diseases to the promotion of function, the pharmaceutical companies will shift from earning all of their money from new disease-treated drugs to products that help improve function and are profitable. This is already occurring.

A good example are statin drugs. These drugs have become the number one selling prescription drug category in America today, with gross revenues last year of nearly $30 billion. And they are used to treat *nothing.* If you think about it, this is a fairly remarkable transition in medicine. Statins are a pharmaceutical preventive medicine originally derived from red rice yeast used in China. To me, statins are the harbinger of a new kind of pharmacology.

Biotech companies are also starting to move towards agents that modulate function. One example is the Amgen product that upregulates the white blood cell production for patients of chemotherapy. Another is the erythropoietin (EPO) used to treat anemia and chronic renal failure. These are functional drugs that are not treating a disease but manipulating function. There are many other examples. The drugs of the past that block function are ill-suited. They only fit into an old and dying medical model. The new model utilizes functional agents to promote the proper function of organs and systems.

**AT:** Looking back, is helping to develop functional medicine your most rewarding professional achievement?

**Jeff Bland:** I think it probably is. My answer is not a resounding “yes” because we are not yet to critical mass. When I can step back professionally, and the functional medicine field can go on in a broader sense, then I will more clearly say “yes” to that question. I think we are a few years away. But regardless of if I’m here or not, functional medicine will be the resting ground for all disciplines to come together and change the face of medicine.

**AT:** Any final thoughts for our readers?

**Jeff Bland:** One of the things we don’t do well enough as a society is honor our wise sages, the early innovators and creators. In this field some really remarkable people got us started. These names are often forgotten. I think of Canadian brothers Evan and Wilford Shute, using vitamin E; Fred Klenner who used vitamin C for polio; Irwin Stone and his work with vitamin C; orthomolecular psychiatrist Abram Hoffer; the pioneering work of Roger Williams; and Linus Pauling, who was still writing papers in his 90s. And the list goes on. We need to look at the founders in this field. They endured much critical scrutiny, yet they persisted because they felt they could really make a contribution and they did. They helped create a different vision.

There is a lot of gloom and doom, teeth gnashing, and hand wringing over our healthcare system. If we listen to conversations in airports and train stations, at the supermarket, at the mall—average people who really make the country what it is—there is an amazingly heightened sense of interest, concern, and community about the necessity for change. This puts the person back in the equation. It forces practitioners to focus on the individual rather than using some generic formula. That concept of individualization cuts across medicine and goes into many other areas. There is no one size fits all. Everybody has potential magic. This concept is gaining in its vibratory energy and will help us get to that critical mass. And when it occurs, it will be freeing because it celebrates people as individuals.