

## Patrick Hanaway, MD: Transforming Scientific Understanding of Nutrition to Clinical Understanding and Practice

Interview by Craig Gustafson

Facilitated by the 2014 Institute for Functional Medicine Conference

*Patrick Hanaway, MD, is the director of medical education for the Institute for Functional Medicine and its 2014 conference, which will be held May 29-31, 2014, in San Francisco, California. Dr Hanaway is a board-certified family physician, holding a medical degree from Washington University with residency training at the University of New Mexico. He is a past president of the American Board of Integrative Holistic Medicine and is currently in practice with his wife at Family to Family in Asheville, North Carolina. As an initiated Marakame (Shaman) by the Huichol people in the Sierra Madres of central Mexico, he incorporates these healing approaches in his clinical practice.*

**Integrative Medicine: A Clinician's Journal (IMC):** It seems that the many perspectives in nutrition can be very confusing and that many practitioners tend to be ill-equipped by their educational background to address this. Why do you think that is, and why does that make pursuing nutritional information by continuing education so important?

**Dr Hanaway:** There are several pieces that relate to that. From a timeline perspective of an individual's education, it develops with the lack of nutrition education in our training. We do not get good information because there is not an awareness, clinically, of the importance of nutrition as a foundational consideration within our medical treatment model.

If you talk to professors in the medical schools, they will allude to wellness training: "Yeah, sure, there is probably a 2% to 5% input of interest in overall health and well-being," which is an interesting perspective. Regarding nutrition, their perception is, "Well, there may be some little bit there. The data are kind of ambiguous as it relates to any particular disease."

Ultimately, this is a reflection of the fact that the focus of our system of medicine, at this point in time, is on individual diseases, is on end-stage pathophysiology and

pathology, and is then focused on, "How do we reduce the symptoms related to that?" The system prefers this orientation rather than working much earlier in the process of imbalance as we would see within an example such as Ayurvedic medicine. Through symptoms and pulse and different approaches, they begin to note imbalance at a much earlier level where you can see, if you will, a bigger bang for your buck from nutritional interventions, or as we know, lifestyle interventions that focus on nutrition, diet, exercise, sleep, and stress reduction. These interventions offer the biggest impact in our overall health and well-being, as well as in affecting the development of disease.

Because we focus so far downstream with our current medical model and on symptoms and reduction of symptoms, we miss the upstream importance of food, which is why our conference title is actually "Functional Perspectives on Food and Nutrition: The Ultimate Upstream Medicine." When we start looking upstream and asking, "What could be causing that?" we find that there are more radical dietary interventions, such as Dean Ornish, MD, has done through his program with reversing angiographic reasons of coronary heart disease and publishing it in the *New England Journal of Medicine*, or reversing the genetic expression of patients with prostate cancer, as he has also published. Those are 2 examples where dietary approaches have been shown to reverse even complex chronic disease that has developed pretty far downstream.

Because medicine is focused downstream instead of upstream, it misses the importance of food and nutrition as a fundamental tenet of our overall health and well-being. That is really the simple answer to your question. Because the focal point is different, that requires us to explore, "How can I use nutrition to promote health and well-being?" There is plenty of good data on the importance of that. We have to recognize the knowledge base, so that we can feel comfortable and drop into it. What are the skills that I need to help promote behavior change in my

patients and, quite frankly, in myself as a provider? It is both sides of the equation. We find that the doctors who follow a healthier diet promote a healthier diet in their patients. The doctors who exercise promote exercise in their patients.

It is a journey that begins with ourselves in developing the awareness, the knowledge, the skills, and then the behavior change to be able to model wellness, and to look at each individual—not as a cookie cutter, one-size-fits-all—recognizing that we are all unique. How do I listen to what the specific needs for this individual are in order to meet the dietary recommendations? What micronutrients are needed to personalize therapies—looking at a physical exam and biomarkers to really refine our treatment. Do you need B<sub>12</sub>, or B<sub>6</sub>, or magnesium, or zinc? We will be giving people a taste of the skill sets that are available to us to be able to discern this.

**IMCJ:** It seems, from a basic metabolism perspective, that medical education is covering those bases. But for some reason, after learning and memorizing the Krebs cycle and the basic biochemical process that is metabolism, there seems to be some sort of disconnect there.

**Dr Hanaway:** To me, that is something near and dear to my heart from back in the time that I was in medical school. I studied molecular biology in college. When I went into medical school, I literally—I am not sure why—thought that when I learned biochemistry there, I was going to learn about it in relationship to food. That is not what I was taught.

When I learned the Krebs cycle, what I learned is: There is input from protein, fats, and carbohydrates, and they come into this thing called the Krebs cycle, and there is a movement of 4-carbon molecules for this pathway. What I did not learn was that the conversion of citric acid to cis-aconitate acid requires iron and glutathione, the most potent antioxidants in the body—that glutathione comes from the digestion of proteins going on in your gut. If you have got digestive issues going on—for instance, if you are taking a proton-pump inhibitor and you are not effectively absorbing the amino acids—you are going to decrease the efficiency of the Krebs cycle to work in your body.

I did not learn about that process in relationship to nutrition and food. I did not learn about the fact that

fluoride, mercury, antimony, and arsenic can all inhibit that specific step of the pathway. When I look at the pathways, or look at the ability to produce ATP in the electron transport chain, I did not learn about the nutritional elements that are necessary to promote ATP production. Nor did I learn the fact that medicines, such as statins—which were coming into practice when I was in medical school—actually decrease CoQ<sub>10</sub>. CoQ<sub>10</sub> is an essential factor in the electron transport chain to produce energy. Why do people have muscle pain? Why do people feel more tired? It is very clear why this happens from a nutritional standpoint.

How do we support that? That is where the teaching of biochemistry and metabolism is not done from a clinical perspective. It is done from a scientific perspective that fails to bring into account the fact that all of the inputs into the Krebs cycle are the food we eat. They are the fats, the proteins, and the carbohydrates. You have to take it back to the simple equation: garbage in, garbage out. If we eat processed food, the metabolism that is actually happening is going to be altered.

If we eat whole food that is plant-based, that comes from the earth, that has not been processed, that is what our bodies have been developed over the last 800 000 or several million years, to be able to metabolize, to provide the proper energy production, the nutrients that are needed for health and well-being. That is not the focus in medical school. Rather, the focus is on a science in which we do not begin to focus on what is happening to the patient until they start having symptoms. Then, we focus on how to decrease

those symptoms, or how we stop or abate those symptoms. The symptoms are just an expression of imbalance in the system.

**IMCJ:** How will attendees at the Institute for Functional Medicine, or IFM, Conference in May learn to interpret these processes from a clinical perspective?

**Dr Hanaway:** It is a noble task to say we are going to use functional nutrition to expand knowledge, change behavior, and personalize therapies. I think one of the first things within that is this term *functional nutrition*, which we are using to highlight the particular approach of IFM toward nutrition. We are working to broaden the view of food and nutrition.



There is clearly controversy over what the best diet for an individual is, and how we determine that. The conference delves into that conversation with experts in the field: Loren Cordain, PhD, who speaks about the paleolithic diet; Joel Fuhrman, MD, who talks about the plant-based diet; Mimi Guarneri, MD, who talks about the Mediterranean diet; and Christopher Gardner, PhD, a leader in the research arena, as moderator, who is going to ask the essential question: “Is it really that there are different metabolisms, different types of diets for people, or is it that people are attracted to, connected to, and motivated by different kinds of diets?”

On the first morning, David Ludwig, MD, PhD, from Harvard is going to address the question: “How does the way in which food is processed affect our health and well-being?”

Through these presentations, we are going to be coming back to a recognition that food in its elemental forms is the best medicine. We are coming into this with an opening that says, “We recognize the relationship between food and health, or processed food and disease.” Starting from there, we then explore the question, “What do we do? Which way do we go?” We begin moving down the path of evaluating patients in terms of what they need for specific kinds of nutritional interventions and dietary recommendations.

From a clinical perspective, this information is something that every doctor and every health care practitioner wants to know. It is fairly confusing to see what appears on CNN or in *USA Today* or *Time* magazine on a daily and weekly basis relative to diets.

**IMCJ:** Taking it a step higher up the food chain, even in the journals, in peer-reviewed literature, you are getting mixed messages.

**Dr Hanaway:** Right, every day. Those mixed messages are based upon relatively small cohorts with limited studies. So the challenge for a practitioner is, “How do I really incorporate these studies in my practice? How do I let patients know?” By and large, it is attention to the prime belief systems. Part of Dr Gardner’s work reveals that it may be all about belief systems and that is where we should focus our efforts. That is why an entire aspect of the conference is focused on how do we help to understand relationships with food, food addictions, psychology of eating, and then work with different kinds of coaching models and behavior change—the therapeutic relationship and behavior change to motivate our patients.

We are advocating use of functional nutrition to expand knowledge, to change behavior, and personalize therapies so that the behavior change aspect of it is essential. Most of us, as health care practitioners, have precious little knowledge and skill sets in how to do that effectively. This is another whole aspect of the conference. We are going to balance the art and science of medicine.

One might say the art of connecting to the individual through the therapeutic relationship is the art of working with food and nutrition.

Then, there is the science of working with food and nutrition that looks at different diet types and relates to food processing. We are also going to look at the science of cutting-edge epigenetics and nutritional therapy for gene expression. Randy Jirtle, PhD, who is one of the fathers of epigenetics, will talk about the work that he has done demonstrating that while a mouse can be bred to have an increased risk of developing diabetes, B vitamin support causes their whole body to change. Their hair color changes, their metabolism changes, and they do not develop diabetes.

When the mouse is conceived and developing in utero, we can change the phenotypic expression of what is going on. We will talk about what this means in practice as well, as we work with patients preconceptually, prenatally, and in infancy. We’ll discuss how to change the programming epigenetically and the impact of giving the right nutrients and, frankly, we will also discuss avoiding specific toxins, like BPA, which can create problems. We are going to talk about the relationship between our genes and the environment, as this has an effect on our overall health and well-being. The objective is for the science aspect and the art aspect to come into balance with each other.

The final aspect of the program is about bringing forth some inspiration in individuals. It is going to be talking to doctors who have brought the farmer’s market into the hospital parking lot, who have brought the local or family farm and its products to family medicine—and to Michael Pollan, who is going to talk about his books and research and what he has seen on a more global basis as it relates to how the food we eat affects our lives. That goes from the individual person and the choices we each make, all the way up the food chain to food policy and how we relate to those kinds of questions. These people are acting as the inspiration for our participants to be able to come away feeling connected to each other, to the knowledge, and to a larger community.

There are so many aspects to this conference. I think the thing that I want to emphasize, here at the end, is that we talk about the food connection. The IFM annual international gatherings are actually an opportunity for a community of caring individuals who are looking upstream to help care for their patients—to come together. In that way, it also provides a wonderful gathering of community to be able to support each other in this process.

*To learn more about the 2014 IFM Conference, visit <http://www.functionalmedicine.org>.*

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.