

LETTER TO AN IMMIGRANT FROM THE LAND OF PRESCRIPTION-PAD MEDICINE

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Making things plain to uninstructed people is one of the very best ways of clearing up the obscure corners of one's mind.

—Thomas Huxley

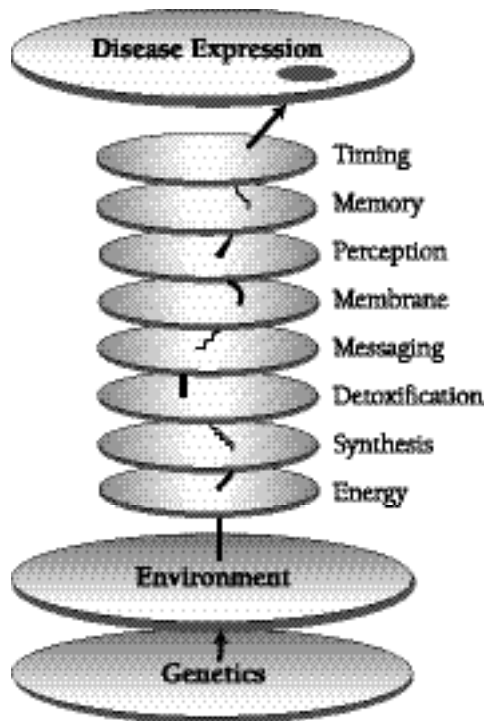
In this paper, I illustrate the plan for a series of commentaries I will write for the next several issues of *Integrative Medicine: A Clinician's Journal*. In the inaugural issue of IMCJ, I had started the series (which will henceforth be called "Lenses" and appear in each issue) by introducing a framework from which to view the main physiological issues of integrative medicine. In Volume 2, Issue 3 of IMCJ, I continued the series with a discussion of the first lens—"Energy Chemistry: The Metabolism of Light." This paper interrupts the first two

pieces in the series by providing a perspective that shifts from the clinician's to that of a well-informed patient who benefits from a guide to participation in what should always be a collaborative intellectual process.

The illustration on the left shows a simplified conceptual trajectory, from genome expression to disease expression. Chronic illness derives from multiple genetic and environmental factors. This diagram simplifies this reality, with one line rising from a genetic field and refracted by the combined effects of the environment. From there the tendency of the impulse to ultimately express itself as signs, symptoms, and laboratory determinants of disease is moved by combined physiological strengths and weaknesses in any individual. The "lenses" that alter the inclination of tendency toward disease expression are our domains. The sequential arrangement in the illustration should actually be shown as more of a web than a stack, which I chose for simplicity.

I received my naming lessons 40 years ago from clinical pathological conferences in which the pathologist had the last word with a post-mortem name change for the patient's problem, which was sometimes a sobering surprise to the clinicians who had cared for the patient. In my training, I was also influenced to believe that naming my patients' problems was the ultimate step toward a treatment which, if successful, would validate the diagnostic label. I was educated to heed the principle of parsimony (Occam's razor) with a suspicion cast upon polypharmacy and, by implication, poly-anything. One disease: one treatment. Diagnosis: depression; Treatment: antidepressant. End of story.

Now I see my job as leveraging the trajectory of the impulse toward disease as it passes through the domains of the lenses shown in the diagram: fuel efficiency, metabolism, catabolic processes, sanitation, cell signaling, transactions across boundaries, taking in the world, recollection of self and others, and attending to the rhythmic meshing on which harmo-



ny depends. My future commentaries will focus on each of these domains, and illustrate some of their problems and remedies. In this third commentary, I would like to take a detour to present another overview that may be a little less overwhelming to the intelligent layperson who is arriving on our shores from the land of prescription-pad medicine.

I was scheduled on a Tuesday to see a young man who had been labeled “Asperger’s Syndrome.” A neighbor with the same diagnosis had done well under my care, so his mother expected that I might be helpful in enriching his social ease, improving his temperament, and relieving problems with digestion and sleep. Anticipating a meeting with a bright and skeptical patient recently disconcerted by the combined grief and relief of being assigned a label, I awoke in the middle of Monday night to write an essay to him. This essay might provide an overview of a systems-approach to him, not as a label but as an individual, and might allay his concern that I was going to drug him with some out-of-the-can remedy based on his label. Here is what I wrote:

Dear Frank,

Labels

I understand that you have been given a label. Well... Congratulations, I guess! But all the label means is that you bear a resemblance to other people who form a group with certain similarities, such as being very bright, seeing things differently from other people in ways that make friendship difficult with most (but not all) people, and having a temper. The label only helps a little with my job of doing everything I can to perfect your health and help you achieve your goals. Some of my knowledge that may help me to help you sort things out comes from having known other people in “your group” (same label or similar labels).

Two Questions

Most of my knowledge, however, comes from what I have learned by following a couple of questions about any living thing that wants to feel or do better—including, for example, a marathon runner who wants to shave a minute off his or her best time, or an actor who wants to give a better performance.

First question: Is there something you need to get, for which you have an unmet need and which, if met, would improve your health, performance, etc?

Second question: Is there something you should avoid or rid from your body (toxins, allergens, etc) which, if taken care of, would improve your function?

Those two questions embody the whole strategy that I will follow—with your collaboration.

Tailoring

Having done this kind of detective work with others who have the same label gives me a handle on the things you might need to get or avoid; but at the end of the day each person is different. So there is no out-of-the-can recipe that would automatically provide you, as an individual, with the best result. Therefore, the job ends up being similar to tailoring, where the idea is to get a good fit, which may take some trial and error. There are lab tests to measure some of the things we are talking about, but your body is often the best lab. If you try to take a certain vitamin or other nutrient, or avoid certain kinds of foods, and it helps or doesn’t help, we will learn more from that trial than from most lab tests. There are, however, certain tests that help map out your territory. Such tests look at the “big places and events” in your body.

Two Big Places

By big places, I really mean certain surfaces that, if measured, would impress you as being important because they are huge, on a human scale, and a lot of biochemical business gets transacted across the boundaries represented by such large surfaces. Take your digestive tract, for example. It appears to be a tunnel of the outside world that begins with an open mouth and ends at your anus. If you were to measure its length and circumference, it would turn out to have a surface area smaller than, for example, your skin. No big deal. But look closer. Your tongue has little furry projections and other complications, which, if measured up and down their bumps and crevices, turn out to multiply the collective surface area. And so it goes, all the way down the tunnel, so that the total surface area is about the size of a tennis court. If this tennis court is not working well, it has a big impact on the various organs of the body. Could your gut affect how you feel in your brain (perceptions, emotions, thinking)? Yes—consider serotonin, for example. It is a neurotransmitter that has a lot to do with perceptions, emotions, and thinking. Most brain drugs work on serotonin. Most (95%) of the serotonin you make every day is produced in the walls of your intestine. If people have gut symptoms (diarrhea, constipation, bloating, gas, pain), it is most likely that some sort of gut-brain connection is not ideal, but some people without digestive symptoms nevertheless have brain problems related to abnormal gut function. These difficulties may be with either of the two main events in the digestive tract: digestion of food and interaction with the 1,014 germs that live there. A laboratory test to examine the chemistry and contents of your bowel movements may shed light on your gut function.

Another big surface in your body is the membrane that surrounds each of the 1,013 cells in your body. This is a waterproof covering that separates the water outside of cells from the living water inside the cells. These two

salty watery compartments have very different composition—1,000-fold difference in calcium concentration, for example—so the health of this membrane determines how well each cell can function. An important aspect of the health of the membrane is its flexibility since a lot of business gets transacted on this membrane and on membranes made of the same material that occupy the interior of cells. If these membranes are stiff, they don't work well. If the membranes are fluid and flexible, they provide a better environment for messages and substances that need access to the cells. These waterproof membranes are made of oils—fatty acids, to be specific. Your brain is composed mostly of these membranes. Nerve cells consist of tunnels that extend to their neighbors, as well as across long distances, which are reached by very thin tubes of membranes. Most of the physical composition of brain consists of the same two fatty acids found in fish oils (EPA and DHA). When these fatty acids are insufficient, you get a stiffness of structure that affects function. Correcting such a situation can make a huge difference in how people think and feel.

Three Big Events

I just mentioned big events. By events, I mean processes. By big, I mean important in terms of how much energy you have to spend getting the process done everyday. Of all the processes in your body that involve making molecules everyday (growth, replacement of worn out structures, synthesis of message-carrying molecules like neurotransmitters and hormones, and getting rid of used or unwanted molecules), which do you think takes the most energy in adults? Answer: getting rid of used or unwanted molecules. Roughly 80% or more! So if I am trying to find out if your body/brain is operating efficiently, I naturally want to see if this function—detoxification, sanitation, taking out the trash—is working well. If not, it can be detrimental; and if there is a problem for some other reason, detoxification will be impaired, and testing it will show that impairment.

Another big process in your body is burning fuel to get the energy to do everything I just mentioned. Not having enough energy results in more than feeling tired. It may instead mean that certain functions (muscular or mental strength) are inefficient. I don't like mechanical analogies for living things, but in this case an internal combustion engine is an appropriate analogy because the process is the same: Put fuel in, get energy and exhaust out. By measuring the energy that comes out, you can get an idea of the efficiency of the engine. Practically-speaking, measuring the exhaust also provides an accurate picture of efficiency. It shows whether your combustion is clean. You burn your food at a lower temperature than a gasoline engine, so the "smoke" in your "exhaust" is bound to be dirtier than if it were from a high-tempera-

ture operation in which the fuel is mostly burned to carbon dioxide and water. The "smoke" that we are talking about is a collection of chemicals, mostly organic acids, that appear in your urine and can be measured as a reflection of how clean your metabolic fire is burning. The urine test for organic acids is, then, very similar to an emissions test at the motor vehicle department.

A third big-budget item in your body's economy is making new molecules to replace and repair old ones. Making molecules for the sake of getting rid of toxins and used molecules overshadows new synthesis (except in growing children), in terms of energy expenditure. Measuring the efficiency of making new molecules, especially proteins, provides an assessment of this relatively big operation. First, let me present a shoe-factory analogy, then the details. If I spent a couple of years taking inventory of the dumpsters behind shoe factories—tabulating the quantity of remnants of leather, soles, heels, eyelets, adhesives, shoe laces, thread, paper clips, Kleenex, etc—I would have data to compare with the profit-and-loss statements in their annual reports. After a while, I would become good at assessing the factories' efficiencies by measuring their economies of waste associated with making shoes. Similarly, if I were to look at the leftovers from protein chemistry in many people, I would be able to assess whether there were inefficiencies which, if corrected, would bring about better functioning. The test that corresponds to the dumpster in my analogy is a 24-hour urine amino-acid measurement. It shows leftovers from making neurotransmitters, various molecules needed for energy metabolism, and intermediaries in a whole range of synthetic operations in your body. This test can also show if there is a plain shortage of the materials needed, based on poor digestion of protein or absorption of amino acids.

Such tests provide a guide, but they are only the technical part of a process that is intended to be an artful collaboration between you and me. The art involves making a portrait of you as an individual, and developing intentions toward eliminating problems. The thinking I described, in terms of the two questions, two surfaces, and three processes, leads us through steps that improve how your body and brain function. The thinking is aimed at you as an individual, not at your your label. Laboratory tests can be helpful, but at the end of the day it is your body, rather than any lab test, that can best tell us whether something is working or not. To get this message from your body, we need to have patience and good communication, which depends on an intelligent and leisurely conversation. Many times my patients really know what is wrong and what needs to be done, but they don't have the physiological or biochemical vocabulary needed to translate their intuitions, dreams, and symptoms into a specific order of priorities among all the options for heal-

ing. My job is in translating and helping to assign priorities among the several options that appear from your story, physical exam, lab tests, and results of trying certain changes in diet, supplementation, and remedies for problems spotted in the areas I have described.

Summary

If you have strep throat, a broken arm, or a sudden terrible pain in your gut, then I have no argument about getting the right label and the right treatment for such acute problems. Chronic problems, however, require different rules. Many chronic problems occur because of issues that touch individuals when their own quirky needs to obtain or avoid things are unmet. They get out of kilter. When your balance is off, your physical, mental, and emotional performance becomes fragile—sometimes to the extent of making you fall into a condition that gets assigned a label. Getting better can depend much more on restoring balance than on taking a pill. So, if after receiving a label, your question is, “OK, now what?” then the answer is, “Let’s have a leisurely ongoing conversation that will take us from step to step with answers to the repeated question: ‘Okay, what do we do next to troubleshot the problem, guided by a systems-approach such as I have described?’”

My daily exploration of the landscape of my patients’ immunology, biochemistry, and toxicology would not be possible without the metaphors that serve as my landmarks and signposts. Many of these metaphors serve to aid in my patients’ need to understand the process. Sharing my map of the landscape gives buoyancy to details in a patient’s history that he or she might overlook were it not for images that lift them up to being part of the clinical dialog. I hope to choose metaphors that provide common ground for my patients and me to share in understanding the basis for clinical options. There is a danger in overloading even the well-informed layperson with such images as the eight lenses of biomedical intervention. I particularly want to help them replace the prevailing mythology of disease that they bring from our contemporary medical culture—that they are the victims of the attack of disease entities against which their defenses consist of luck, pharmaceuticals, and surgery, without participation on their part. The “essay to Frank” sketch, featuring the two questions, two big surfaces, and three big processes, provides a framework of common sense and common ground for many of my patients.

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