R&D checkup

How innovation in the medical field leads to healthy financial returns

Interviewed by Chelan David

Detecting problem areas at an early stage is essential for a business to succeed. It’s also important that, once identified, these problems be fixed judiciously.

In this sense, Positron Emission Topography (PET), a medical technique used for early detection and evaluation of diseases, parallels the business world. As Dr. Mike Phelps, the inventor of PET and the chair of Molecular and Medical Pharmacology at UCLA, says, “It’s not just detecting disease earlier, but it’s improving the accuracy with which you understand what you’re dealing with, and from that, getting more quickly to the right treatment.”

Smart Business spoke with Phelps about the technique he pioneered, the spiraling cost of health care and the challenges involved with raising private funding.

How important are innovations such as PET in helping identify medical problems early?

One, treatments have better responses at early stages, and two, the complexity of the treatment — both in the treatment itself and the costs — expands as the disease progresses.

So it’s important to detect a disease earlier from that regard, and of course, the prognosis gets worse for the patient as the disease progresses. It’s probably reasonable to say that we can cure greater than 90 percent of all cancers right now if we could detect them when they’re truly just a primary cancer — they’re only in the organ where they originate and they’re still encapsulated at that point.

But once they spread beyond that, they start to infiltrate the organ they’re in, they start to spread to other organs. The prognosis gets bad, the treatments get complicated and very costly.

In pioneering this technique, what challenges in the research and development phase did you face?

There were a lot of technical barriers to overcome. We were developing a camera to be able to watch and measure the biology and biochemistry of disease in patients that had never been done before. Of course, we also faced a lot of problems in terms of FDA approval and the reimbursement.

At the time that PET came to the clinical world, all the previous approaches to reimbursement and FDA approval had been changed and much more evidence was required. So we had to develop all of the basic science and clinical evidence to show that it would change and improve the care of patients.

How does PET improve medical delivery for patients?

It’s well-proven that PET has about a 93 percent accuracy in diagnosing Alzheimer’s three-and-a-half years before the conventional approach can make a diagnosis of probable Alzheimer’s. So it makes that diagnosis early, and with a single test, as opposed to years of repetitious tests trying to make and improve the diagnosis.

Could health insurance premiums decline as diseases are detected earlier?

It’s not so much about detecting disease earlier. The question is, can you develop a better way to manage the resources that you have for health care in such a way that you lower costs and improve quality?

Health care is 15 percent of the GNP. If it’s growing at five times the GNP, and if we’re not careful, it’s going to become the GNP. The largest expenditures are in the treatment and care of patients, not the diagnosis.

The largest number of mistakes that alter the care of patients and the costs is in the diagnosis.

If you can make the diagnosis quicker and more accurately, then you reduce the number of tests that are being used to make that diagnosis. The quicker you can get to the right answer, the better you can get to the right treatment and the care of patients. In addition to just being earlier, it is important that resources are better utilized.

You are the principal or co-principal investigator of more than $150 million. How do you manage this type of budget?

Very carefully. It illustrates our ability to compete nationally to get funds like that, but managing funds after you get them is quite a different issue. When we get them, we propose something that the review process said was important and worth money.

What follows, though, is how you use the funds to execute not only what you agreed to do, but to motivate people to come up with new ideas constantly.

What challenges have you faced in getting prospective donors on board with your mission?

It is very much like in business when you’re starting a new entrepreneurial company and trying to convince investors of the level of your convictions and your beliefs, and that you can execute what you say.

Most of our donors are people who have been through that. They’re smart people who have had good ideas and they’ve been successful.

You try to get them to come to a common place with you — to share a belief with you. Even on gifts in a university setting, most often the most important thing that the donor will actually provide is not his money, but his commitment to you, and his ideas.

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