To make a difference, start with patients

John Tsai, Head of Global Drug Development and Chief Medical Officer, describes how he balances innovation and patient needs.

By Elizabeth Dougherty | Nov 04, 2021

John Tsai's career as a physician, and now as Head of Global Drug Development and Chief Medical Officer for Novartis, had an unlikely start – in electrical engineering.

His first job was as a supervisor in a manufacturing facility for what at that time, three decades ago, were innovative medical scanners. He was enthusiastic, but motivating the team at the plant to hit ambitious production goals proved challenging.

As part of the job, Tsai was able to visit doctors who were using the technology. "When I saw the scanners being used for diagnosis in the hospitals, I felt energized, almost like electricity going through my own body," says Tsai. "I could see the value of the technology to help people."

Tsai brought that emotional connection back to his team at the plant so that they could also make the link to the patients who were benefiting from the work they were doing. "We ended up being the most productive unit in the assembly plant," says Tsai.

The experience inspired him to go back to school to become a doctor. Ultimately, he chose to join the pharmaceutical industry. "I felt there was the potential to have a positive impact on the broader healthcare landscape," says Tsai.

We had a chance to catch up with him and learn more about his purpose and its connection to the Novartis drug development strategy.

Had you had any other experiences with patients when you started as an engineer?

I had actually decided to work on medical scanners early in my career because I was fascinated by how this machine was used to diagnose my grandmother when she had a stroke. I was very close to my grandmother. She had a stroke during my college years and I was there when we took her to the hospital. She ended up receiving treatment that helped her recover well and it really impressed me. It was a time of real transformation for digital technology in medicine, so I thought I could make a big difference with a career in electrical engineering.

Why did you decide to leave engineering and get into medicine?

When I saw the doctors in the hospital caring for my grandmother and then saw the value of the technology more broadly, I knew there was more to that feeling of being energized. I wanted to use my energy and natural curiosity to make a difference for human health, and that inspired me to go to medical school. It was not an easy transition, but it was so much fun as I started to learn more about how the human body works as a

system.

John Tsai puts patients and their needs first in his efforts to develop innovative medicines for a wide range of diseases. Photo by Bjoern Myhre.

How have the insights you had as an engineer shaped your approach to drug development?

With a pipeline of our size, there’s always a lot going on across the many different diseases we’re looking at. We have so much expertise on our teams. I've never seen such depth and insight from our scientists. But I’ve found that large organizations can be complex. We often get caught up in short-term goals and following processes.

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>
> **John Tsai**

How do we ensure that we don't forget that we’re serving patients? What we have to do is map backwards. Start with the patient and understand what they are going through and what they need so that we can help them by bringing forward medicines that we hope will make a difference in their lives.

Do you have an example of how you think about patients during drug development?

There are several kidney diseases that can cause kidney failure at a very young age. There are people out there in their teens, 20s and 30s with renal failure who need dialysis while waiting for kidney transplants. We’d

like to find a way to keep these young patients off dialysis and the transplant list for as long as possible, so they can focus on their education and careers, and build up their lives.

To get there, we conduct clinical studies so we can better understand whether our potential treatments are safe and effective. But we also talk to patients, caregivers and patient organizations directly to learn more about their symptoms and the impact these have physically, emotionally and financially, so we can better understand what matters most to them and where potential treatments should be focused. (Learn more about our work on kidney disease.)

Why is thinking about patients important beyond understanding of the disease and treatment?

We estimate that about 85% of clinical trials across the pharmaceutical industry don't complete on time, which delays the overall process. That means that patients in need of medicines have to wait longer to get the latest approved advancements.

The problem is often slow recruitment. We as an industry often can't find enough patients to participate. And on the other side, there are patients out there who might want to join a trial but might not know how to find the right trials. Or they might live too far from the trial site to participate.

We always need to start with the patients and the challenges and preferences they have.

How do you link a focus on patients to the work of running clinical trials?

Take cardiovascular disease as an example. This is the No. 1 killer worldwide, but it disproportionally affects certain racial and age groups. If we want to develop a medicine that benefits many people, we have to find trial participants for our clinical trials who represent the actual population of people with the disease.

We need to do this at scale, not just for one disease but across our entire pipeline. So we are working to leverage data and digital technologies to help us. As examples, we're embracing digital patient recruitment because we've seen that social media campaigns can reach a broad group of patients who could participate in our clinical studies. (Learn more about digital recruitment.) We're also embracing decentralized trials and have found that telemedicine-enabled trials also help us reach a broader group of patients. (Learn more about diversity and inclusion.)

Innovation seems so important. How do you balance innovation and patients?

One of the main reasons that I joined Novartis was because of the enormous potential for innovation to help deliver on this purpose to improve and extend the lives of people with our medicines. We have innovative digital access tools and trial monitoring tools. We are also developing many innovative, potentially transformative medicines, and the path forward for these interventions in terms of clinical trials will not be easy. Developing medicines that haven't been developed before, in diseases that haven't been explored much, means that there is no known path.

And that brings me back to the responsibility we have to patients. These innovative medicines give patients hope. I've seen it in their eyes. But we need to put ourselves in their shoes. There is also uncertainty. We are

asking patients to trust that we are doing everything we can to develop safe and effective medicines. We're always coming back to this. It's not about the milestones or the innovation. It's about improving the lives of patients.

An interview with the Head of Global Drug Development and Chief Medical Officer for Novartis.

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