Carla:

0:09

When I was a kid, I used to love experimenting with baking. I tried all sorts of recipes. One in particular was very difficult; I needed to heat sugar to a very particular temperature. The end result was that I set it on fire, but I learned a really important lesson: which was the value of clear instructions.

0:30

This was one of those childhood memories that came rushing back to me when I heard about a horrific incident with a medical device. David, a physician, thought he had deciphered a cryptic error message on the Thorak 25, which was a computer-controlled radiation therapy machine. Unfortunately, instead of a chance at recovery, Emily received a lethal dose of radiation, and she lost her life, and so did two others just like her.

1:05

This is one of those tragedies that begs the question: what can we possibly do to avoid mistakes like this happening? Products and their instructions far too often are designed without keeping the humans who will use and read them in mind. The Thorak 25 was designed to treat cancer patients, but it had a fatal flaw in its usability: its error messages were cryptic.

1:40

From very early on in my career, I've been designing medical devices, and I was always so focused on the technology, I had completely forgotten about the people who actually use these products. Soon enough, it came time for me to give one of the devices I had been working on to a nurse, to an actual user.

2:00

Like all nurses, she was super busy—her pager was going off, and she was probably eight hours into a 12-hour shift. She was struggling to operate the device; she didn't have the time or desire to troubleshoot it. In it was in that moment, I just felt guilty. I had let her down, but more than that, I'd let her patients down.

2:30

This is a classic example of a lack of empathy and usability in medical devices, let alone how important it is that these two things actually intersect. Empathy means understanding and

addressing the needs, the challenges, the emotions of those nurses and of people like those nurses who use medical products—really putting ourselves in their shoes.

2:56

It doesn't have to be complicated; it's just about asking questions and then listening. Actively listening to those nurses, doctors, caregivers, and patients to understand what it means to them. I was talking to Nana Barel about her diabetes; she wasn't monitoring her blood sugar. She hadn't even opened her blood glucose monitor. She bought it six months ago, and it was still neatly sitting in its box with the instructions folded inside.

3:28

So, I decided I needed to listen to Nana, and I did that. And we went out and found a new blood glucose monitor for her. This time, it was a lot easier for her to hold with her arthritis, it was a lot easier for her to see on the screen the font because it was a lot bigger. The instructions weren't packed with tiny text; they were full of pictures, so she could actually figure out how to use it. Which meant she checked her blood sugar regularly, her health improved, and her quality of life improved.

4:04

You see, in healthcare, empathy isn't a nice-to-have; it's a must-have. Only when we deeply understand the needs of users like Nana Barel can we design something that addresses those needs.

4:22

Now, usability is the measure of how safely and well a product can be used to achieve a specific goal by specific people. In medical devices, good usability is non-negotiable. In fact, all around the world, we have regulatory bodies that act as gatekeepers for any new medical device entering the market. In the U.S., that's the FDA.

4:49

In 2023, the FDA received 780 submissions for new medical devices. Do you know how many of those they approved? 10%. Of the 90% that got rejected; half of those were because the FDA wasn't convinced they had good usability. That's a huge number.

5:15

I once visited a hospital where they had rolled out a new patient monitoring system. I looked at these screens, and they were full of data. I didn't even know where to look. They were really clunky, with small text; I couldn't really see what was going on. There were alarms going off everywhere, and one of the nurses confided in me, and she said, "I'm actually terrified I'm going to miss a critical piece of information for my patient at the moment they might need it the most."

5:43

So I listened actively, and I translated what I heard from those nurses into a new patient monitoring system with much simpler screens. I stripped back a lot of the data and I put an intuitive color-coding system so they could glance at the screen and know whether or not they needed to do something.

6:05

The look on the nurses' faces was relief. They were relieved, and it was pretty special. Not only that, but they could then provide better care for their patients because when usability is prioritized, it directly impacts patient safety. Simpler screens and non-cryptic error messages these things prevent mistakes.

6:32

When you combine empathy and usability, that's when it's magic. I worked on a small monitor for people with a genetic disorder. I spent hours upon hours just listening to these people—what their lives were like living with a condition like this, what they looked forward to, and what they dreaded.

7:00

One patient, Sarah, told me she feels like a pin cushion from the number of times she has to prick her finger to get a blood sample to send off to the lab, just to wait two weeks to get the results. So what did I do? I listened. I asked a couple of questions, and my team and I redesigned a monitor that required less blood, less often, and patients could get the results within 15 minutes, sitting on their couch.

7:30

The best thing, though, was giving one of these devices to Sarah. Do you know what she said? She said, "I can finally live my life more normally." The impact of combining usability and empathy goes way beyond individual devices; it has the power to transform healthcare. Intuitive, safe devices allow providers to do what they do best: to provide care. They also allow patients to be more engaged in their own health, which improves their outcomes.

8:02

That's a win-win-win. Empathy and usability are not just design principles; they are lifelines that we can all access. We can all create a future where technology isn't just advanced but is radically empathetic. In other words, it's usable because we asked questions—simply because we asked questions and chose to care.

8:30

We can all improve patient outcomes and help build a far more compassionate world of healthcare.
Thank you.