

Cancer Battle Gives Clinical Engineer New Perspective on Job, Life

Dan DeMaria

*Everything we do, we do for the patient.
Let clinicians be clinicians.*

These two statements are a bit of a mantra in my department. I've always believed in them, but personal experience moved these words from mere concept to reality.

February of 2004 found me on top of the world. I was a senior field service engineer for an original equipment manufacturer. I had a job that let me take apart and repair computed tomography (CT), cardiovascular, and X-ray equipment. I had a loving family, great friends, and a house on a lake in New Hampshire. It didn't get much better than that! I was thinking these things while driving past Niagara Falls en route to a four-week training course for a new CT that I would be installing soon. Little did I know that a discovery I would make that evening would change my world and my outlook on both life and my job forever.

While cleaning up and changing clothes prior to going for a quick dinner, I noticed a small lump under my arm. I thought little of it and went about my business. As the days passed in training, I noticed the lump, once barely noticeable, had grown significantly. It grew to the size of ping pong ball, then a golf ball, and, in the last days of class, to nearly the size of a lemon. I asked my

wife to make me a doctor's appointment as it was quite uncomfortable.

I arrived at the doctor, who examined me and asked, "Do you have a cat?" I must have stared blankly at him as he explained that I likely had cat scratch fever. I, of course, asked, "Isn't that a song?" He set me up on a course of antibiotics and sent me on my way. A few days later, this thing was still growing. My doctor sent me to a surgeon to get a biopsy. I met first with a young physician's assistant (PA) who asked me upon examination, "Do you have a cat?" I then met with the surgeon who also asked, "Do you have a cat?" Is the song in your head yet?

We scheduled a biopsy that the surgeon told me should take "just a few minutes" under general anesthesia. On the day of my surgery, I met with the PA, sang a few bars of "Cat Scratch Fever," and off we went. Imagine my surprise when I woke up in recovery five hours later. The PA and the doctor visited with me and explained that they had completely removed a mass larger than a grapefruit that was intertwined with the surrounding muscle and tissue.

A few days later, I went for my follow-up with the doctor and was surprised that the PA didn't come visit me. She had always visited me first. Instead, the doctor walked in and said, "I'm sorry. You have cancer. Your prognosis is not good. I'll call an oncologist." He then left the room. I never saw him again. Surely this was a mistake, I thought. I'm only 42. I have a wife that needs me. I have so much yet to accomplish. We're going scuba diving in Bonaire in two weeks. This will have to wait; I haven't had a vacation in three years! So began the journey that changed my life.



Dan DeMaria says his cancer ordeal taught him some lessons that he's carried over to his job: "My experience as a patient taught me how important it is to solve the problems of our clinicians, our customers."

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‘OK, Let’s Get Started’

A few days later, I learned that I had a rare and extremely aggressive form of non-Hodgkin’s lymphoma. Without treatment, I would likely not survive six weeks. Luckily, I lived just 70 miles from Dana-Farber Cancer Center in Boston, MA. This facility and its wonderful staff, along with the folks at Brigham and Women’s Hospital, also in Boston, taught me the meaning of a term we often hear: “compassionate care.” During my first visit, I noticed how sick many of the patients appeared. Many wore masks due to compromised immune systems resulting from chemotherapy. Many were children. It didn’t occur to me that I would soon look just like that—mask and everything.

During my first visit with my new doctors, we discussed treatment. It would involve nine months of intensive chemotherapy, all of which would be done on an in-patient basis with stays estimated at five to 10 days, followed by a recovery phase of up to two weeks at home. There was a good chance that I wouldn’t survive the treatment. There was 100 percent chance I wouldn’t survive without treatment. I thought of the children in the waiting room who seemed so strong and of my wife’s disappointment should I give up without trying and said, “OK, let’s get started.”

First, we needed to get some baselines. Within minutes of my initial consultation, I found myself lying on a table undergoing a bone marrow biopsy and a test of my spinal fluid. I thought I was a strong man until I experienced the pain of a bone marrow biopsy. Years of playing contact sports, breaking many bones, hundreds of stitches, nothing remotely prepared me for this level of pain. The nurse assisting the doctor commented, “First one huh? It gets a little easier; you’ll do fine next time.” At that moment, it struck me: This is going to be rough.

A couple of days later, the very same day we were to have left for our tropical island vacation, it began. I was admitted to a room, several IVs were started, vital signs were taken, and there I was: a cancer patient.

One of the first things I did was look at the equipment being used on me.

Preventive maintenance (PM) stickers were up to date. That’s a good sign. The four IV pumps looked to be in good condition. Maybe this wouldn’t be so horrible after all. The doctors quickly erased that thought as they decided it was time for intrathecal therapy. This meant they injected the chemotherapy drugs directly into my spinal fluid in an effort to keep the cancer from spreading to my central nervous system. If that happened, I would

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not survive. They told me they’d be drawing blood every hour to determine when I should get the antidote. Antidote?! What had they done to me? This was the cycle for the rest of that year; poison (better known as chemo), antidotes, tests, and pain. I learned a few things about equipment along the way:

- IV pumps are loud and annoying when you’re trying to sleep.
- Telemetry monitors are far preferable to bedside monitors if you’re trying to avoid using the bed pan.
- Nurses really freak out if you trick your telemonitor into simulating things like V-fib by messing with the leads. (If you hand them chocolate when they rush into your room, they don’t stay mad.)
- Bringing the key to the pain pump can get you in a lot of trouble.

Learning New Lessons

During the course of treatment, I received many CT scans. One memorable evening, a brand new CT tech was scanning me. She came into the room and pulled me out of the gantry, explaining that the machine was malfunctioning. I’d have to wait until her other machine was free for my scan. When I asked what was wrong with the machine, she explained that there was ring artifact. I told her, “Put me in the hallway, run air calibrations and let’s try again.” She asked if I was a CT tech; I told her no (“But I stayed at a Holiday Inn Express” wasn’t a commercial yet, but, oh, if only it had been!) The look on her face was priceless. I explained that I repaired CT for a living when I wasn’t moonlighting as a cancer patient. She did as I suggested and everything worked fine. We became fast friends and I even helped her study for the physics portion of the CT certification.

I realized during one scan that I could identify every single sound coming from the system. I also realized how frightening this procedure must be for someone that didn’t understand what was happening. One little thing I could do in the future was ensure every cover fit perfectly to minimize vibration and unnecessary scary sounds. I

also vowed to never again wait impatiently for the tech to finish that add-on patient. I was supposed to be meeting my wife for dinner after all. How dare they delay me? Instead, I'd remember from now on that the patient comes first. Oh how I missed waiting for that add-on patient to finish. Much preferable than being the add-on!

I also became quite close to my nurses during my treatment. I learned little things, such as nurses love presents. I always brought treats with me as I was getting admitted.

I learned another lesson that I use to this day in my dealings with clinical staff. As a young biomed tech, I often complained that nurses and clinicians didn't care about the equipment that I worked so hard to maintain. The truth is the nurses simply care more about the patient. The equipment is just a means to an end. Clinicians rely on their equipment in order to do their job. They rely on us to ensure it does what they need it to do. This is where I arrived at the statement; Let clinicians be clinicians.

The Little Things

The months crept by and I became weaker, down from 200 pounds to 140 pounds, hairless—you don't realize how important eyelashes are until you have none—and demoralized by the ever-present sickness and pain. I found myself wandering into the children's unit. There I witnessed great courage and unending optimism by children in even greater pain than what I was experiencing. I watched clinicians toil to keep those children comfortable while parents hid their weeping. I promised myself that if I survived, I would remember those scenes and do the little things to ease daily life for our clinicians and patients. Even as non-clinical staff, we can and should do these little things.

It is a standing rule in my department that we will never offer verbal directions to a lost patient or family member. We will instead escort and offer kind words. Patients and family are often frightened, sick, and hurt. We may not be clinical staff, but our words and actions affect our patients. We will never utter the words, "That's not my job" to any staff member. We will instead explain that "I can't help you with that, but I will help you find

the person that can." We will then keep that promise. We will always ensure every action we take is in the best interest of our patients as we may one day find ourselves as that patient.

One day, my doctors informed me that I had completed my treatment and that I was cancer free. I went back to work before my hair even started growing back and soon realized my place was no longer that of a field service engineer working 60 to 80 hours every week. It was instead that of an in-house clinical engineer. I now manage a growing clinical engineering department and do my best to never forget why we are here.

Six years have passed and I'm still going, much to the surprise of the doctors. One smiled at me shortly before I left New Hampshire and said, "Every doctor has a miracle, you're mine. Thank you."

How Life Has Changed

In the early days of my career, my goal was to be the technical guru that everyone looked to for help and advice. During one of my reviews, shortly after graduating from the Army advanced biomed course, I was told I could fix nearly anything with one huge exception: the customer. Gradually, I began to understand this. My experience as a patient taught me how important it is to solve the problems of our clinicians, our customers. I learned that

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it isn't enough to simply repair the equipment. Instead it's important to show them that we're here to help them navigate through the maze of technology that our

hospitals and clinics have become.

We can no longer be biomed techs that fix "boxes." We must become clinical engineers that support interconnected and ever more complex systems. We must do this so that our clinicians can be clinicians. They take care of the sick and the hurt. We must use our specialized skills and knowledge to allow them to do so.

Our job is to provide the technical expertise and leadership to provide the very best patient care, by guiding and supporting our clinicians in their use of the amazing technology available to us today. We take care of technology so that clinicians may take care of our patients. Everything we do, we do for the patient. ■