

The Heart of Innovation

As I write this, my teenage son is sleeping next to me in the cardiac ICU at Boston Children's Hospital, recovering from a 9-hour surgery to correct a congenital heart defect doctors discovered when he was just hours old. He was one of the approximately 1.3 million babies who enter the world each year with congenital heart disease. Half never require intervention. A quarter eventually do. The rest are born with heart defects that are life threatening without immediate intervention. My son was one of them.

After five weeks in the hospital as a newborn and a short-term fix intended to delay surgery by a few months, my son surpassed expectations. He thrived with that stopgap for 14 years — a span during which pediatric cardiology, a specialty barely older than I am, raced ahead.

In 2016, there was a major breakthrough. Belgian company Materialise NV unveiled Materialise Mimics software at two major events: the American Academy of Orthopaedic Surgeons (AAOS) Conference and the Radiological Society of North America (RSNA) show. The software transforms standard medical scans into detailed 3-D digital images, letting



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surgeons study intricate anatomy long before they ever make an incision. Orthopedic surgeons adopted it first to navigate the delicate reconstructions they handle routinely. But its most profound impact has emerged in pediatric cardiology, where complex, shatteringly precious anatomy is measured in millimeters, and miscalculations have devastating consequences.

A week before surgery, my son's care team used Materialise Mimics software to turn his cardiac CT scans into digital 3-D models, a cutting-edge technique that's benefitted nearly 2,000 kids at Boston Children's. Detailed models mapped the landscape of his heart, allowing his surgeon to watch how his blood flows and see exactly how his individual anatomy might react to different interventions. This pre-surgical dress rehearsal reduced

the possibility of surprises in the OR and the number of hours on bypass, a gift for his mother who couldn't bear another moment in the waiting room.

In our industry, we get bogged down in the minutiae of ROI, ROE, number of leads generated, and other metrics that keep this machine running. And we should. But those metrics can overshadow the point of events. Trade shows and conferences are about ideas. About collaboration. About hallway conversations that advance innovation. And sometimes they're about technological debuts that keep a child — my child — safe under extraordinary circumstances.

From my quiet chair in the ICU I've gained a lot of clarity and gratitude. Gratitude for the things I've taken for granted. And gratitude that when my son was 5, concerned only with light sabers and Legos, my future industry colleagues were sharing and advancing the ideas that provided a small measure of comfort as I entrusted his surgeon with both of our hearts. **E**

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