

## Correcting Inefficiencies in the Orthopedic Implant Market

By Mike Cowden and Jim Weldy

The rising cost of healthcare in the U.S. has prompted various stakeholders to address the problematic trend of inefficiencies in the orthopedic implant market, an area ripe for cost savings as orthopedics accounts for approximately 15% of healthcare costs nationwide. Orthopedic practices pressured to find savings must seek out ways to improve workflow and streamline their practice without sacrificing quality of care or their own financial viability. Rooting out inefficiencies is a key way to do so.

While the shift in the 1990s from film imaging to digital imaging in orthopedics translated into savings of costs and time overall, it also introduced major inefficiency in one area: surgery pre-planning. Before this shift, surgeons and implant representatives would overlay acetate images of replacement joints over film of the patient in advance of surgery, enabling them to identify and select the properly sized implant for the patient. When orthopedic practices stopped using film, however, they were no longer able to match the acetate images to individual x-rays. Not knowing precisely which implant would work, surgeons were forced to order an array of implant sizes for every surgery—each size with its own costly surgery tray, calibrated instruments, and sterilization requirements.

These inefficiencies persist today, and also include excess inventory and management costs affecting the entire implant supply chain. Digital templating, in which the correctly sized implant can be accurately assessed before surgery, solves several of these inefficiencies.

### **Workflow**

Better information about what to expect can improve surgeon confidence and safely minimize surgery duration. Specifically, knowing which instruments are appropriate for the procedure can reduce both uncertainty and the added risk that accompanies in-surgery adjustments. Accurate pre-planning can increase efficiency on the order of hours per day, benefitting both surgeon and hospital. In one instance, the same physician at the same hospital performing the same surgeries increased his daily workload from 8 surgeries to 9 by using digital templating.

### **Sterilization**

It costs hospitals \$75.00 on average to sterilize each instrument tray for each implant size the surgical team brings into the O.R. Without knowing which size implant is appropriate in advance, surgeons and implant manufacturer representatives cover their bases by bring a range of sizes. By planning surgery in advance through digital templating, surgeons and reps are able to reduce implant sizes needed from between 7 and 10 to between 1 and 3, for example, creating savings of between \$300 to \$675 per surgery.

### **Extra inventory**

Digital pre-planning saves hospitals considerable space in terms of excess implant inventory, often freeing up critical storage near operating rooms. In fact, digital templating decreases excess inventory throughout the entire supply chain.

### **Patient safety**

Accurate surgery pre-planning means more efficient surgeries. For the patient, less time in surgery means less time they spend under anesthesia—so any reduction in that duration

means reducing the risk to their safety. Additionally, minimizing patient complications associated with anesthesia minimizes each provider's exposure to liability.

### **Improved outcomes**

Recently, surgeons using templating technology have been able to double-check implant sizes as they enter surgery, allowing them to fine-tune the procedure and avoid cutting out too much bone (in the case of an improperly large-sized implant) or having to fill in the remaining space (with an improperly small one). Because an imperfectly sized implant may fail in a shorter time frame than the right-sized product, joint instability and revision surgeries can be a result of inaccurate or insufficient pre-planning. By avoiding this problem, surgeons can help their patients achieve better outcomes, ultimately yielding happier patients, higher patient satisfaction scores, lower costs and a more successful practice.

The advantages of pre-planning are significant. But the technology still suffers from a damaged reputation due to earlier, inferior systems that the orthopedic community found to be inaccurate. The inaccuracy resulted primarily from the following: 1) the parts of the DICOM Standard concerning pixel spacing in projection radiography had meanings that were not yet fully stabilized; and 2) image data used to calculate measurements and sizing were stored by modality vendors and interpreted by viewer vendors using divergent meanings for the data. Advances in standardization and communication have rendered these problems largely obsolete.

As orthopedic practices across the country are forced to find ways to streamline workflow and improve patient outcomes and satisfaction, they must equip their practices with sufficient tools to do so successfully. Modern digital templating is one such tool whose benefits are just too substantial to ignore.

Mike Cowden is CEO of Medstrat, Inc., a leading orthopedic PACS company.

Jim Weldy is VP of Business Development at Medstrat, Inc., and has been involved in orthopedics for over twelve years. He has played key roles in developing healthcare businesses in Chicago and Silicon Valley, and was formerly with the University of Chicago Hospitals.