THE VALUE PARADOX:

the hidden cost of faulty funding in orthopedics

TOBY ORTHOPAEDICS

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MANAGEMENT SUMMARY

The orthopedic care sector, identified as one of the most prevalent and costly segments within the US healthcare system by McKinsey analysts, continues to grow rapidly, with an estimated annual direct cost ranging from $350 billion to $400 billion[1]. The recent surge in orthopedic procedures, partially due to the backlog caused by the pandemic, is expected to persist until early 2025. Particularly, hand injuries, which dominate the spectrum of orthopedic injuries, significantly impact patients' quality of life and productivity.

The current approach to healthcare provisioning emphasizes short-term cost-cutting, often neglecting the long-term consequences and patient outcomes. Surgeons, facing resource constraints and lacking adequate tools, resort to designing solutions on-the-fly during procedures, compromising the quality of care and patient safety. This is especially risky in delicate procedures, such as repairing tendons in the hand's intricate anatomy, often referred to as "no man's land." The reliance on improvised tools not only poses risks to patient health but also undermines the job satisfaction and morale of surgeons.

Reevaluating the prevailing value model in healthcare is imperative to support all stakeholders effectively.

Prioritizing investments in essential surgical tools and resources not only enhances patient outcomes but also fosters economic productivity by facilitating quicker recoveries and workforce participation. Moreover, ensuring access to appropriate tools fosters innovation and advancement in surgical techniques, contributing to continuous improvements in patient care and healthcare system sustainability.

While advanced technologies like AI and robotics hold promise for the future, immediate benefits can be realized by improving access to simple yet effective orthopedic tools. This paper calls for a re-adress in the way value in healthcare is established to deliver optimal outcomes, restore trust in the healthcare system, and improve the lives of millions of orthopedic patients.

INTRODUCTION

According to analysts McKinsey: “orthopedic care is among the most prevalent, most expensive, and fastest-growing categories in US healthcare”. They report that “We estimate that the annual direct cost of healthcare for orthopedic conditions totals $350 billion to $400 billion, or roughly 10 percent of total US healthcare spending”.[2]

The orthopedic market grew 6.5% in 2023 to $59 billion worldwide partially driven by the influx of procedures deferred during the pandemic now finally re-entering the system. The impact is expected to continue to be felt to early 2025.[3]

A key study shows that in the US fall-related injuries accounted for 51% of health care encounters and 61% of emergency orthopedic surgical procedures.[4] Another study, analyzing the anatomic site of orthopedic injury found that the majority were finger injuries (38.4%), followed by shoulder (16.8%), lower arm (between the elbow and the wrist) (15.3%), wrist (15.2%), elbow (10.5%), and upper arm (between the shoulder and the elbow) injuries (3.7%).[5]

Given the importance of the hand to daily life it is clear that injuries to this delicate anatomic structure pose an important issue to patients and getting back to full mobility fast becomes paramount.

Hand injuries can significantly diminish an individual's quality of life, impacting their ability to perform daily tasks, engage in leisure activities, and maintain independence. Basic activities such as dressing, eating, and writing can become challenging or impossible with a hand injury, leading to frustration, dependence on others, and a loss of confidence. Moreover, hand injuries often hinder productivity in both personal and professional spheres. In the workplace, individuals may struggle to perform tasks efficiently, leading to decreased productivity and potential job loss. This reduction in productivity not only affects the individual but also has broader economic implications, contributing to decreased output and increased healthcare costs.

The importance of restoring full mobility quickly after a hand injury cannot be overstated. Positive surgical outcomes need to be supported with prompt rehabilitation to facilitate faster recovery, allowing individuals to regain independence and resume their normal activities sooner. Swift restoration of hand function is crucial to getting people back to work and able to perform their daily activities independently and without pain. Moreover, getting back to full mobility promptly can prevent secondary complications such as muscle atrophy and joint stiffness, which may arise from prolonged immobility.

Orthopedic surgery plays a key first role in enabling this return

to mobility and productivity, ensuring that everything is in place for rehabilitation and recovery to take place effectively and rapidly. Despite this, adequate surgical instruments for interventions on this key area of the anatomy are rarely covered by insurance. Although they can be a game-changer in terms of securing better outcomes, far too many patients are unable to benefit from treatment with tools specifically designed to support surgeons in this complex, critical area.

While Medicare Part B covers doctor and outpatient services as well as prescribed equipment and supplies for home use that are deemed medically necessary, these rarely cover surgical tools.

ON THE FLY SOLUTIONS

Without the right tools surgeons turn to tools they can make or repurpose "on the fly" within the OR. These "MacGyver" methods mean relying on anything they can get their hands on in the OR which can be anything from a piece of wire to a pediatric feeding tube. While based on solid anatomical and medical knowledge, these tools are not specifically designed or tested for the surgical purpose they are being used for and require quick-thinking by the surgeon. While it is doubtlessly admirable that surgeons are thinking on their feet and going above and beyond their surgical duties by also inventing the missing equipment, these solutions are time consuming, inadequate and obviously yield less reliable results than regulated medical devices.

This is particularly poignant when we think that these makeshift tools are the only ones available to surgeons operating in one of the most necessary but complex areas of the human body, aptly called "No man's land": in the hand.

A CASE IN POINT:
no tools for “no man’s land”

Zone II is a segment of anatomy in the hand from the mid-palm where the flexor tendons of each finger glide back and forth inside a tight tunnel structure called the flexor tendon sheath, or pulley, system. The complexity of repairing a tendon in Zone II is alluded to by the name given to this area by hand surgeons, “no man’s land.”

In essence, a tendon is like a rope, woven of individual collagen fibers. As long as the tendon is inside the flexor tendon sheath and under some tension, the tendon is healthy. When a lacerated tendon retracts outside the pulley system (flexor tendon sheath), the tendon swells and frays, so that it may be very difficult to place it back into its sheath. Simultaneously, the empty flexor tendon sheath begins to contract, until the sheath becomes practically obliterated.

In addition to lacerations, certain sports activities can cause flexor tendon injuries. These injuries often occur in football, wrestling, and rugby or rock climbing. Certain health conditions, such as rheumatoid arthritis, weaken the flexor tendons and make them more likely to tear. Oddly enough, this can happen without warning or injury - a person may simply notice that his or her finger no longer bends, but cannot recall how it could have happened.

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Because tendons tear in different ways - such as straight across, at an angle, or pulled right off the bone - there are many different methods for surgeons to repair them. All the methods of repair, however, involve suturing the tendon back together. Surgery is usually performed on an outpatient basis and patients are often encouraged to begin movement immediately. The procedure can, however be extremely frustrating especially in the "no man's land" area and there is risk of soft tissue trauma. In addition to this, tendon injuries usually cannot be treated successfully beyond three weeks from laceration.

HEALING A SICK VALUE-MODEL

Current healthcare provisioning is highly focused on cost-cutting and the insurance cover model mirrors this attitude. Of course curbing expense is critical as far too many Americans (nearly three in 10) in employer plans, more than one-third in marketplace or individual-market plans, and about two of five people with Medicaid or Medicare said they or a family member had delayed or skipped needed health care or prescription drugs in the past 12 months because they couldn't afford it,[6] but this should not impede the optimal outcome of surgery or mean that they are treated with makeshift tools.

Cost cutting should not prevail over long term cost savings that can be made by improving access to key surgical tools. In fact, when a wider range of factors than the simple cost per item of surgical tools is taken into account, it becomes clear that getting surgery right quickly, simply and first time equates to a huge saving. Clearly, the longer surgery takes, the higher the costs to the healthcare system as more staff are occupied for longer, using more resources such as anesthesia and monitoring machinery as well as occupying the OR longer, reducing the number of surgeries that could be carried out by the surgical center in any given day.

If surgery is not successful in restoring the patient to complete mobility, then the system may incur additional and corrective surgeries as well as need for additional temporary implants. Makeshift tools are more likely to result in surgeries taking longer and causing surgical trauma, while longer surgeries, where the surgeon is battling with inadequate tools or having to "MacGyver" new ones out of whatever is at hand, are a risk to the patient that is anesthetized in the OR for longer, but also put the surgeon at risk of exhaustion.

It is critical that this short-sighted value model is reassessed to support all stakeholders in the surgical process. Specifically, from a patient perspective, it is critical to recover mobility as rapidly as possible; having to return to surgery means setting back the clock on the recovery process and it may take up to 2 years before they are able to return to work and live a normal life.

For surgeons, having to resort to on-the-fly solutions may lead to sub-optimal outcomes, with lasting consequences that can endure a lifetime and potentially even result in disability for patients. Surgeons, bound by their oath to heal the sick, find themselves in difficult positions where the tools and resources at their disposal may not suffice to achieve the best possible results. This predicament not only compromises patient care but also inflicts a heavy toll on the morale and job satisfaction of surgeons themselves.

Surgeons facing resource limitations and inadequate tools are thus placed in untenable positions, where their ability to fulfill their professional duties is compromised. Consequently, job satisfaction among surgeons is likely to plummet as they grapple with the ethical and moral dilemmas of delivering subpar care due to external constraints beyond their control. The pressures to reduce costs in healthcare settings should not overshadow the imperative of ensuring optimal patient outcomes.

It's not surprising therefore to find that surgeons are increasingly compelled to advocate for their patients, striving to secure the necessary resources and support from surgical centers. However, this responsibility should not fall solely on the shoulders of individual surgeons. Healthcare systems and institutions must prioritize providing surgeons with the essential tools and resources required to perform their duties effectively. By investing in the infrastructure and equipment necessary for optimal patient care, healthcare organizations can uphold their commitment to both patients and healthcare professionals, ensuring that surgeons can focus on their primary goal of restoring health and well-being without unnecessary obstacles or compromises.

Efficient surgical interventions play a pivotal role in enabling individuals to return to work promptly.

When surgeries are performed with precision and efficacy, patients can experience faster recoveries, allowing them to return to work sooner, restoring their livelihoods and financial stability. A rapid return to the workforce also contributes to the overall productivity of the economy.

By minimizing the duration of post-operative convalescence through optimal surgical care, healthcare systems can mitigate the economic impact of prolonged absences from the workforce due to illness or injury. By prioritizing the provision of adequate resources and technology to surgeons, healthcare systems can facilitate faster recoveries, promote workforce participation, and drive innovation, thereby fostering a healthier population and a more prosperous economy.

Moreover, ensuring that surgeons have access to the right tools fosters a conducive environment for innovation and advancement in surgical techniques. By investing in cutting-edge equipment and technology, healthcare institutions empower surgeons to explore new approaches and refine existing methodologies, ultimately leading to continuous improvements in patient care and surgical outcomes. This commitment to innovation not only enhances the quality of healthcare delivery but also strengthens the competitiveness and sustainability of the healthcare sector, bolstering its contribution to the broader economy.

Too often, expensive, niche products rally investor enthusiasm, while ORs languish without some of the most simple and cost-effective solutions. While AI and robotics are exciting areas for research and development, their impact on healthcare systems and patient outcomes is still minimal. The training, environment and investment they require is still unrealistic, while improving access to key, user-friendly, orthopedic tools could instead benefit thousands of patients immediately.

CONCLUSION

A skewed vision of value, where short-term cost-cutting has replaced pondered analysis of overall medical costs is damaging the entire system; making it impossible for surgeons to operate to the best of their abilities because they are lacking basic tools and eroding trust between patients and healthcare that continues to choose to “hope for the best”, incurring negative outcomes and painful, repeat operations when the investment in simple instruments- not expensive experimental technology- could change the lives of millions of patients.

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