



# THE POWER OF OBSERVATION

How everyday  
insights drive  
surgical innovation.

BY VANCE THOMPSON, MD

**I**nnovation in our field is not just about groundbreaking technologies; it is also about the everyday observations and insights that, over time, transform patient care. Throughout my career, I have learned that we surgeons serve as a critical bridge between clinical realities and the research and development that drive progress. Our firsthand experiences in the OR and clinic allow us to provide invaluable feedback that shapes and refines the very tools we use.

## THE VALUE OF CURIOSITY AND OBSERVATION

At its core, the innovation journey begins with curiosity. We stand on

the shoulders of giants—innovators who came before us—and have inherited technology that has already transformed patient care. The role of the physician in this process is both informal and formal. On the one hand, being an astute observer—watching how technology performs in real-world settings—provides critical insights into what works, what does not, and what could be improved. By keeping up with the literature, attending meetings, and engaging in spontaneous discussions in the hallways or over dinner, we nurture a mindset of continuous improvement. Every observation, no matter how small, is a seed that can grow into a transformative idea.

## FORMAL INVOLVEMENT IN THE INNOVATION PROCESS

For those of us who are passionate about driving change, formal participation in innovation is important. From the outset of my career, I have chosen to engage in clinical trials and in device and drug development. Mentors who had navigated these complex paths helped me set up research programs and guided me through the legal and regulatory landscape. They taught me to understand US FDA guidelines and to work with Institutional Review Boards and clinical research organizations. I learned to transform informal observations into

data-backed, formal studies that can lead to advances.

**A CASE IN POINT: IMPROVING ALL-LASER LASIK**

A memorable instance of innovation driven by clinical observations occurred during the development of all-laser LASIK. Early on, a small group of us—among the few with access to a femtosecond laser—observed the formation of an opaque bubble layer caused by carbon dioxide and water byproducts.

These gases, if not properly managed, could interfere with the ablation process, resulting in uneven cuts and challenging flap dissection.

Through detailed observation and a willingness to share our insights, we developed what some of us called the *meniscus technique*. Strategically positioning the uncompressed collagen fibers near the compressed ones—without compromising the flap creation made a pathway by which the gases could escape, thereby smoothing the

ablation process. This conversation, shared during early investigator discussions, led a member of the femtosecond laser’s development team to create the pocket software. This innovative product initiates the ablation with a small pocket at the limbus, providing an immediate escape route for gases. Pocket software became a standard feature on every flap-creation device worldwide.

**THE ART OF COMMUNICATION AND CONFIDENTIALITY**

Engaging with companies to share observations is not always straightforward. It requires a delicate balance of directness, transparency, and confidentiality. Our insights are often observations without extensive supporting data. When communicated effectively to the right individuals, however, be it through established liaisons or during investigator meetings, these observations can catalyze further research and development. Trust is paramount in these interactions. A strong relationship with company representatives,

bolstered by a shared commitment to improving patient outcomes, ensures that even sensitive information is handled responsibly.

**EMPOWERING EVERY SURGEON**

All of us, at every stage of our careers, hold incredible power. Whether we are on the front lines of clinical practice or deeply involved in research and development, sharing our observations can effect change. Dramatic breakthroughs are not always required. Sometimes, the accumulation of many small, thoughtful insights incrementally reshapes our field. ■

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