

## A CONTINUOUS, STERILE APPROACH CAN OPTIMIZE WORKFLOW AND PATIENT CARE



BY JACK M. CHAPMAN JR, MD

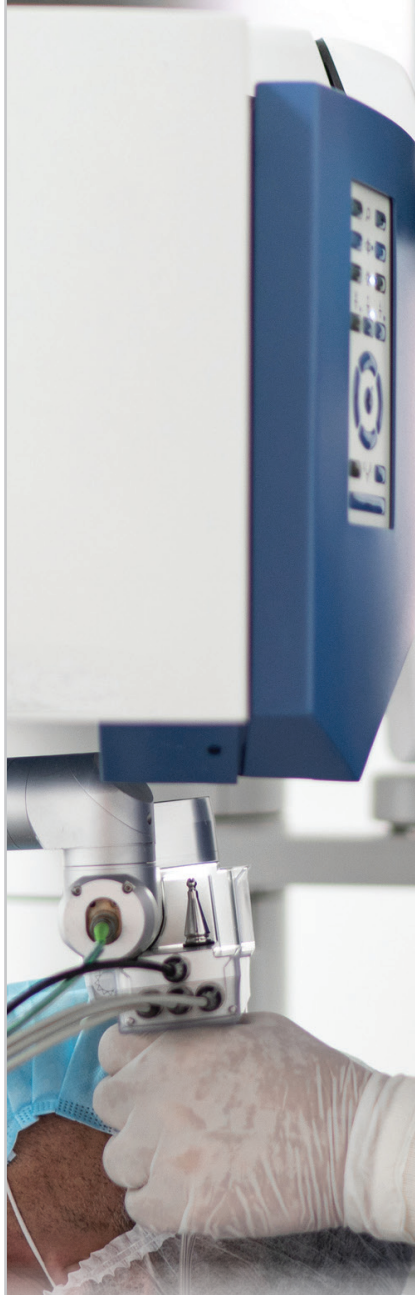
Performing laser cataract surgery as a single, continuous procedure in a sterile surgical suite (Figure 1)—rather than moving patients from a femtosecond laser room to an OR for phacoemulsification—has improved my practice’s efficiency and reduced costs, among other benefits. The compact Ally Adaptive Cataract Treatment System (Lensar) was key to implementing this strategy.

### ENHANCED EFFICIENCY IN A STERILE ENVIRONMENT

**My experience.** My ambulatory surgery center (ASC) has four ORs, each equipped with a femtosecond laser (Ally Adaptive Cataract Treatment System). Our practice comprises 10 ophthalmologists: nine anterior segment surgeons and one oculoplastic surgeon. Two anterior segment surgeons are operating concurrently, utilizing two ORs each. This arrangement allows surgeons to alternate between rooms, minimizing turnover time between cases.

The patient is prepped and draped in the surgical suite, where the laser’s head is also draped. Upon entering the room, I put on my gown and gloves. A lid speculum is placed, and the patient is positioned under the femtosecond laser. The patient interface is then sterilely docked onto the eye. Following the laser imaging and treatment, the laser is undocked, and the patient is repositioned

## Laser Cataract Surgery Workflow



## WHY A LASER SUITE OUTSIDE THE OR MAKES SENSE

BY WILLIAM SOSCIA, MD; RICHARD  
TIPPERMAN, MD; AND GARY WÖRTZ, MD

Laser Cataract Surgery Workflow  
in a High-Volume Practice



BY WILLIAM SOSCIA, MD

Opinions on laser cataract surgery vary widely. Some surgeons prefer to use a femtosecond laser for all cases, others use it for complex cases only, and still others don’t use the technology at all. Surgeons who perform laser cataract surgery debate the optimal location of the laser. Some maintain that containing workflow in the OR is better than performing the laser steps in a dedicated laser suite. At my high-volume practice, my staff and I have found that a separate suite enhances efficiency and keeps the OR running smoothly.

### OUR EXPERIENCE

Our ASC has two ORs, one retina suite, and various laser rooms. Together, five skilled ophthalmologists perform about 7,000 IOL procedures annually and have completed just under 50,000 laser cataract procedures in almost a decade.

I often perform 30 cataract surgery cases in roughly 4 hours. Efficient workflow is crucial. Preoperative preparations and laser arcuate incisions, capsulotomies, and nuclear fragmentation are completed by a physician assistant (PA) in the laser suite. Patients are then taken to the OR. The time saved by having someone else complete the initial surgical steps in a laser suite allows me to maintain a brisk pace without compromising patient care (Figure 2).

*(Continued on page 76)*

Is performing the laser steps outside the OR or all steps of surgery in a sterile OR better?



Figure 1. Dr. Chapman performs laser cataract surgery in a sterile surgical suite.

about a foot away. I move into position, align the microscope, and begin phacoemulsification completed in 2 minutes or less. My team and I transition from the femtosecond laser to the phaco machine in approximately 32 seconds, saving as much as 7 to 8 minutes per case.

**Prospective study.** A study conducted at my practice compared the efficiency of sterile laser cataract surgery procedures using the Ally system in one OR with nonsterile laser cataract surgery procedures using the LenSx with Verion system (Alcon) in another. The average wait time for draping was 2.11 minutes shorter with the sterile laser cataract surgery procedure. Additionally, staff saved an average of 9.54 minutes per case (unpublished data, Gainesville Eye Center, October 2023, sponsored by LenSAR).

**Technological advantages.** Ally's dual-pulse femtosecond laser is both fast and efficient, contributing to overall OR efficiency. The system automatically assesses cataract density and suggests a customized phaco fragmentation pattern for each eye, thereby reducing effective phaco time<sup>1</sup> (see *Pearls to Boost Efficiency*).

**Prostaglandins and miosis.** Prostaglandins are released inside the eye during the interval between the femtosecond laser steps and phacoemulsification, initiating inflammation.<sup>2</sup> Schultz et al measured total prostaglandin levels in the aqueous humor following laser pretreatment in patients undergoing laser capsulotomy alone, laser fragmentation alone, or the complete procedure involving both capsulotomy and fragmentation. They found that the capsulotomy and the full procedure resulted in the greatest prostaglandin release, which can lead to miosis.<sup>3-5</sup> Jun et al reported that pupil size decreased by more than 29% during the transition from laser treatment to phacoemulsification and that the duration of laser treatment was strongly correlated to the extent of miosis.<sup>6</sup>

## PEARLS TO BOOST EFFICIENCY

The following steps can maximize efficiency with continuous, sterile laser cataract surgery:

- ▶ Use wireless integration with preoperative diagnostic devices.
- ▶ Observe the patient's ocular anatomy, such as eyelid morphology and dilated pupil size, because these factors may influence the procedure.
- ▶ Train the surgical suite team, including the anesthesia staff, on the one-step continuous, sterile procedure and the goals of the process.
- ▶ Assess the layout of the OR and streamline workflow by strategically positioning the microscope, phaco machine, instrument table, and other equipment as necessary.

**Continuous, sterile procedure benefits.** The continuous, sterile procedure adopted at my practice shortens surgical duration without compromising pupillary dilation. I also find that I am more relaxed without the interruptions inherent in a two-step procedure.

The continuous procedure has lightened my staff's workload. They can prepare for both portions of the procedure simultaneously, eliminating the need to assemble instruments and equipment in two separate rooms or relocate patients midsurgery. Intraoperatively, staff can fully support both the surgeon and the patient.

### POSITIVE PATIENT PERCEPTIONS

Since transitioning to a single-room, continuous procedure, my staff and I have been able to focus on one patient at a time, thereby enhancing the quality of care. Patients who experienced the two-step procedure and later underwent the one-step procedure for the contralateral eye have noticed the difference. The two-step approach made them feel as though they had undergone two separate surgeries. ■

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Figure 2. Dr. Soscia performs cataract surgery in one of the practice's ORs.

*(Why a Laser Suite Outside the OR Makes Sense, continued from page 73)*

Several years ago, I performed the entire laser cataract surgery procedure, but it required me to travel between a laser suite and an OR. The model can work for practices with fewer resources or smaller caseloads. As my practice

expanded and my caseload grew, we adopted a model in which one surgeon tackled the laser portion of the procedure and a second surgeon finished in the OR. For a while, I completed the laser portion for my colleagues and performed 10 to 15 procedures before starting my clinic day. Later, a PA was hired to handle the laser steps for a considerable portion of our cases. Our laser cataract surgery conversion rate increased to about 50% after adopting this model, which demonstrates the PA's contribution to our efficiency. She also performs other ophthalmic treatments.

#### CONCLUSION

My practice's approach is unlikely to suit for every practice, but it highlights how innovation and the right team can maximize efficiency and quality of care in laser cataract surgery.

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#### The Only Sensible Location Is Outside the OR

BY RICHARD TIPPERMAN, MD

In a multiroom ASC, the only sensible location—both logistically and economically—for a femtosecond laser is outside the OR. Even with a one-room ASC, there are good reasons not to put the femtosecond laser in the OR.

#### MY ASC EXPERIENCE

I operate at a four-room ASC where approximately 9,000 cases are performed each year. Most days, three of the rooms are used by anterior segment surgeons; the fourth is used by a retina surgeon. Sometimes, all the rooms are in use for a mix of anterior segment procedures.

An effort is made to have each surgeon work out of a single room. This approach may extend the day for an individual surgeon, but it can double the productivity of the ASC. For example, if two cataract surgeons each performed 20 cases and they used two rooms apiece, 40 cases would be performed that day at the ASC, and the surgeons would finish earlier than if they used only one room each. If, however, four surgeons each performed 20 cases, 80 cases would be performed at the ASC that day. Each surgeon's day would be slightly longer, but the ASC's overall productivity would be 100% greater. Fortunately, the physicians and staff at the ASC where I operate recognize the benefit of the latter approach.



Frequently, three or more anterior segment surgeons are performing laser cataract surgery on a given day. It would be impossible for the ASC to manage patient flow if the femtosecond laser were in only one of the ORs. Because each surgeon's case mix and flow are different, there would be no way to schedule laser cataract surgery cases efficiently in the OR with the laser.

The femtosecond laser is in a separate room off the preoperative area. The staff who operate the laser are efficient and attuned to the day's operating schedule. They identify which of the different surgeons' patients is next in line for laser cataract surgery by keeping track of who is waiting in the preoperative area and which surgeon is likely to finish their current case first. As soon as the staff knows the IOL is being implanted in the current patient, they begin preparing the next patient for surgery and often position them under the laser. Once the surgeon completes their current case, they walk to the laser suite and perform the laser portion of cataract surgery. During this time, staff turns over the OR in preparation for the patient's arrival. The approach is seamless and avoids time-consuming congestion that would occur if multiple surgeons and laser cataract surgery patients were waiting to get into the same room.

If the femtosecond laser were in a single OR and two surgeons needed to use it, the second surgeon could move forward with a conventional cataract procedure and have the laser cataract surgery patient wait in the preoperative area until the OR with the laser became available. With this strategy, the preoperative area would be crowded, and patient wait times would increase.

Even at an ASC with just one OR, I believe there would be little benefit to having the femtosecond laser in the OR. As noted earlier, having the patient ready in the laser suite as the prior case is finished reduces turnover time. Additionally, though rare, delays

due to extra time required for pupillary dilation or a system reboot can occur in the laser suite. In these instances, the next patient may be taken to the OR for conventional cataract surgery, and then the surgeon can return to the laser suite.

#### CAVEATS

Spatial constraints are probably the strongest reason for putting the femtosecond laser in the OR. In this situation, the OR is the only physical location that can house the system.

Another argument for putting the unit in the OR is that it would allow an expansion device to be placed in the OR and laser cataract surgery to be

performed immediately thereafter. In my experience, this is rarely required. If a surgeon feels strongly that a pupillary expansion ring should be placed before laser cataract surgery is performed, the patient can be brought to the laser suite after having the device implanted in the OR.

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### The Advantages of a Dedicated Femtosecond Laser Room

BY GARY WÖRTZ, MD

Cataract surgery is one of the most common surgical procedures worldwide. Millions of patients are treated annually. The introduction of laser cataract surgery revolutionized the field by enhancing precision with image-guided incisions and advanced toric IOL marking. Unfortunately, the high cost of femtosecond laser platforms can pose a challenge. In my opinion, placing a single femtosecond laser in a dedicated procedure room is the best way to maximize efficiency, improve patient flow, and reduce costs.

#### SCHEDULING

One main challenge surgery centers that offer both laser and traditional cataract surgery face is scheduling procedures in a way that optimizes resources and maintains steady workflow. The high cost of femtosecond lasers makes placing a unit in each OR impractical. Alternating between laser and nonlaser procedures in the same ORs, moreover, can decrease efficiency, extend patient wait times, and frustrate surgeons.

The establishment of a femtosecond laser procedure room outside the OR can streamline the process. Furnishing the room with a single femtosecond laser system ensures that the equipment is used continuously. This is especially important at centers where more than one surgeon uses the laser on a given day. Surgical time between ophthalmologists may vary, and unforeseen complications can dramatically alter the schedule; sequestering a laser system in one OR is therefore impractical.

The laser system's location in a procedure room facilitates smooth transitions between laser and traditional cataract procedures and improves scheduling efficiency, thereby reducing wait times and increasing patient satisfaction.

#### COST EFFICIENCY

Consolidating equipment in a procedure room can dramatically reduce the cost of offering laser cataract surgery. One system is purchased instead of several units for multiple ORs. Maintenance, calibration, and staff

training for a single femtosecond laser is also more manageable.

The approach can make the adoption of femtosecond laser technology more feasible for surgery centers.

#### CONCLUSION

Creating a dedicated laser room can be costly, but the long-term cost savings and improvements in patient care far outweigh the drawbacks in my experience. Staying at the cutting edge of the evolving specialty of ophthalmology while maintaining affordability is challenging. Having a dedicated femtosecond laser procedure room can help achieve a balance. ■



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