Femtosecond Laser Cataract Surgery: 2013 User Survey

Survey results show the rapid penetration of laser technology into US cataract surgery practices in the second year after the product's introduction.

BY MICHAEL LACHMAN

SM2 Strategic conducted its second annual survey of surgeons using femtosecond lasers in the United States to perform cataract surgery. The results provide key insights into how this technology is being incorporated into practice. The survey drew responses from 205 surgeons using lasers in 65 centers and included all four platforms that are approved for use in cataract surgery in the United States. All centers with lasers installed as of the end of 2012 were invited to participate, and the response rate of nearly 50% suggests that the results of the survey are highly representative of all users. The 2013 survey included more than double the number of centers and more than triple the number of surgeons compared to the 2012 survey. The full data set was about five times as large, incorporating 278,300 total cataract cases and 37,670 laser cataract cases.

Figure 1. Laser cataract procedure penetration in active centers, average by month.

The survey results indicate that these lasers are very rapidly incorporated into the cataract practices that acquire them (Figure 1). On average, the laser was used in more than 15% of cataract procedures in the first month following the laser's installation and more than 25% by the second month, reaching the long-term average penetration rate of 30% by the fifth month. This same 30% average peak penetration rate was seen in last year's survey, suggesting that this is a robust market metric for the initial phase of the technology's adoption. In the opinion of the study's authors, average laser penetration within participating practices and centers will grow beyond 30% over time as costs come down and as surgeons' and patients' familiarity with the technology grows.

EXPANDING THE DEFINITION OF PREMIUM CATARACT SURGERY

"The biggest surprise from the 2012 survey was the high percentage of laser procedures that were performed using conventional IOLs, with the laser used to correct astigmatism," said Shareef Mahdavi of SM2 Strategic and one of the study's authors. "This trend has not only continued but has expanded in the second year of laser use, confirming that the laser is not about growing the market for premium IOLs, but it is about expanding the definition of premium cataract surgery." Conventional IOLs were used in 41% of all laser procedures in last year's survey and in 43% of 2011 procedures in this year's survey. By Q1-2013, conventional IOLs had grown to represent 50% of all laser procedures (Figure 2).

FUTURE ADOPTION OF LASER CATARACT SURGERY IN THE UNITED STATES: NOT IF BUT WHEN

By Shareef Mahdavi and Matthew Jensen, MBA

With 2-plus years of the femtosecond laser's commercial availability in the United States for cataract surgery, there is now sufficient evidence to suggest that this technology is part of a long-term trend rather than a short-term fad.

The data collected and reported in the past 2 years have helped squelch much of the adversarial tone in surgeons' debates regarding using a laser in what is already a highly successful procedure. A similar debate took place a decade ago when the femtosecond laser was introduced to create LASIK flaps. Today, the available laser platforms are used to make nearly 70% of all LASIK flaps in the United States, according to Market Scope.

Will the laser become similarly accepted in cataract surgery? It is too early to tell. The dynamics of LASIK and cataract surgery are different: one is purely elective and paid for directly by the patient, and the other is reimbursed and subject to more stringent regulations of where it is performed and what charges may be paid directly by the patient.

Nevertheless, patients undergoing both procedures have responded favorably to the addition of a laser to a vision-correcting surgical procedure. (You may recall that this happened twice in LASIK, first when the excimer laser supplanted manually performed RK.) There is indeed magic in the word ***laser***, and patients tend to view the technology as being more accurate and precise than other devices. Virtually all laser cataract surgeons we have spoken with believe it is improving or will improve outcomes. As with the use of the femtosecond laser in LASIK, patients are showing a willingness to pay for a refractive procedure (and associated reduction in dependence on spectacles) performed in conjunction with cataract surgery. Today, that percentage is hovering around 30%, and the size of our survey sample (approximately one-half of all lasers installed as of January 1, 2013) gives us reason to believe that this is translating to 2% to 3% of all cataract procedures.

The data also show a more rapid return on investment than the 5- to 6-year time frame commonly described from the podium as the first lasers were being manufactured in 2010. Because monthly volumes average three times the breakeven point, we predict an acceleration in surgeons' adoption of this technology in the next few years. With four manufacturers already in the market and several others expressing plans to enter, the overall costs of ownership and usage will be subject to competition; thus, market forces will also help drive adoption (eg, we are observing surgeons in the consideration process actively seeking proposals from all manufacturers).

The key factor, however, is not acquisition of the technology but its integration into both the surgical environment (ie, patient flow) and the clinical environment (ie, patient counseling). Our work with laser owners (and prospective owners) in a consulting capacity via Spectacle Network, LLC, has shown that surgery centers and practices that are willing to invest in developing solid business processes see a faster uptake of laser cataract surgery. They have spent the time and resources to adjust their informed consent, educate and train staff members on the benefits of the new technology, and work with referring practices to make sure they understand the advantages of refractive cataract surgery compared with traditional cataract surgery. In short, they have taken the business considerations very seriously and avoided the "build it and they will come" mindset that plagues many ophthalmic practices when acquiring new technology.

Our view, developed while reviewing the data alongside our colleague Michael Lachman, is that the 30% average penetration of laser cataract surgery will hold steady as new laser units are placed. It will not rise considerably unless a "breakthrough" event affects either surgeons' usage (eg, multiple studies showing improved outcomes) or patients' adoption (eg, loosening of current governmental regulations). Incremental gains can and will be made as best practices surrounding laser cataract surgery continue to emerge and become shared wisdom in the ophthalmic community.

Given that the higher-volume cataract and/or more refractive-centric surgeons will continue to be the most likely new users, we anticipate that the collective group of laser cataract surgeons (which accounts for a higher-than-average volume of cataract surgery across the United States) will account for 5% of all cataract procedures being performed with a laser by the end of 2013 and 10% penetration by early 2015. Five to 10 years after the laser's commercialization (2015 and 2020), the market should settle in at 30% of all cataract surgery, with the overall market at that time reflecting what the early adopters have already accomplished.

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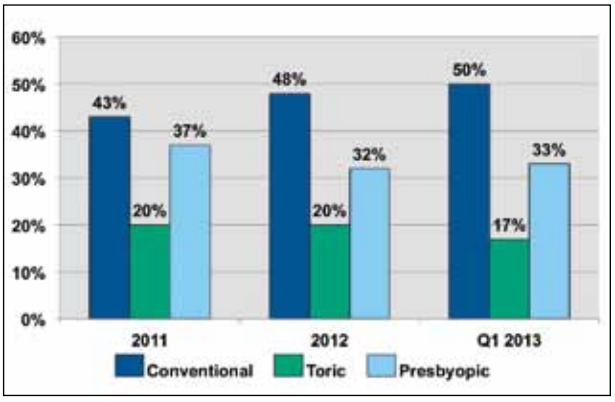

Figure 2. Mix of laser cataract procedures over time by type of IOL used.

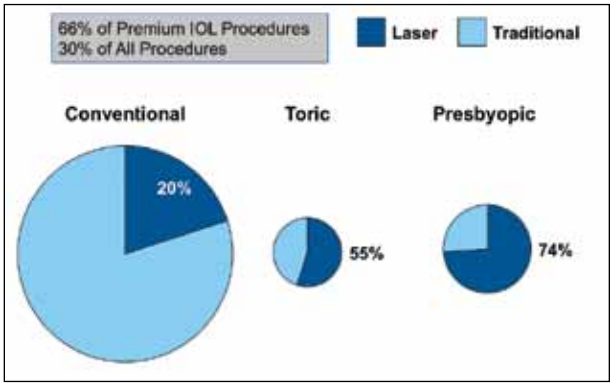

Figure 3. Percentage of cataract procedures using laser by IOL type (Q1-2013).

Figure 3 illustrates the penetration of the laser into cataract procedures involving different types of IOLs during Q1-2013, when all of the centers in the survey were actively using the lasers. The laser was used in two-thirds of procedures involving premium IOLs (74% of presbyopia-correcting IOL cases and 55% of toric IOL cases) and used in only 20% of cases involving conventional IOLs. Conventional IOLs, however, accounted for 78% of all cataract cases in these centers during Q1-2013 (the sizes of the three pie charts shown in Figure 3 represent the relative procedural volumes by IOL type). As noted previously, half of all laser procedures during this period utilized conventional IOLs, representing the impact of a small slice of a large pie.

REFRACTIVE PACKAGE FEE SCHEDULES BY TYPE OF IOL

Survey participants were asked to outline refractive package fees charged to cataract patients before they began using the laser and after adoption of the laser for each type of IOL implanted (Figure 4). The refractive package fees increased on average by $1,058 for conventional IOL cases, by $664 for toric IOL cases, and by $673 for presbyopia-correcting IOL cases. The procedure-weighted average increase in fees was $859. The smaller increase in fees for procedures involving premium IOLs is most likely due to the fact that patients were already paying more than $1,500, on average, for toric IOLs and more than $2,500, on average, for presbyopia-correcting IOLs. In contrast, patients were paying only $428, on average, for procedures that included conventional IOLs as well as non-covered diagnostics and/or astigmatic correction (ie, limbal relaxing incisions or astigmatic keratotomy).

Taking refractive package fees into account, the impact of the conventional IOL segment on the laser cataract market becomes more pronounced. Although conventional IOLs were implanted in 48% of all laser procedures in the survey database, they accounted for 61% of incremental fees associated with the laser that were generated by surgeons and centers.

RAPID PROGRESS TOWARD PROFITABILITY

Data collected in the survey permit a breakeven analysis based on actual fee-based revenues and the costs of the technology as reported by users (Figure 5). Fixed costs associated with the laser, including the purchase and servicing of equipment during years 2 through 5, result in a 5-year average fixed cost for the laser of $603,400. The average per-case margin of $532 represents the difference between the average per-case incremental fee revenue of $859 and the per-case disposable cost of $327. Based on these per-case figures, it would take 1,134 laser cases over 5 years to pay back the cost of the laser. This equates to a breakeven volume of 227 laser procedures per year or 19 laser procedures per month during this 5-year period.

The only costs included in this breakeven analysis are those associated with the laser and do not include any costs related to facilities or personnel associated with laser cataract services. Inclusion of any such additional costs would result in a larger number of procedures needed to be performed to break even. Conversely, allocating the purchase price of the laser over a period of more than 5 years would result in lower breakeven volumes.

As of Q1-2013, the average center was performing 57 laser procedures per month, which is three times the 19/month breakeven level (Figure 6). Three out of four centers had already met or exceeded this rate, and another 8% of centers were close, with more than 15 laser procedures per month. Among the centers that had 15 or fewer laser procedures per month during Q1,

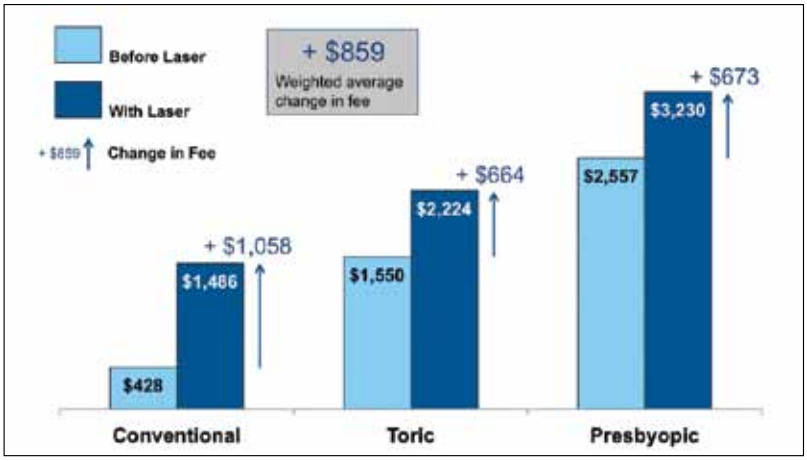

Figure 4. Refractive package fee schedules.

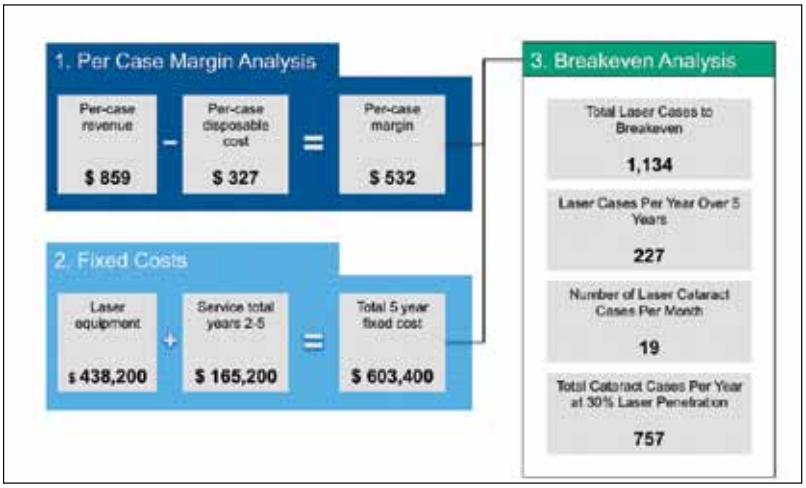

Figure 5. Breakeven analysis based on average costs and revenue.

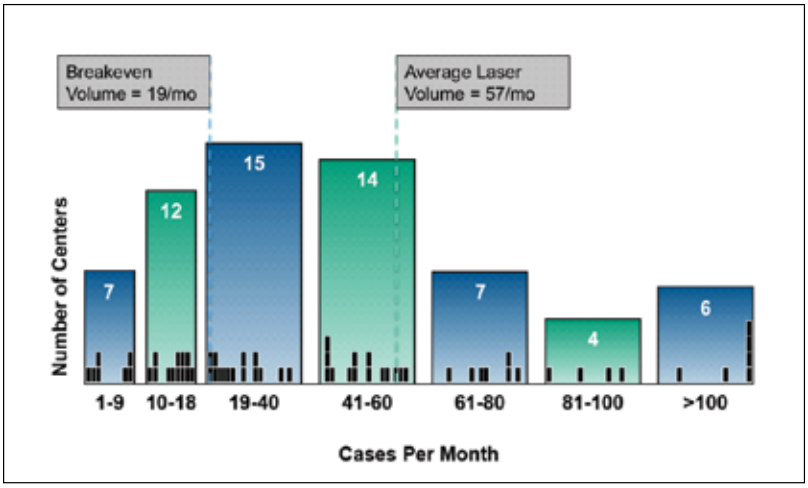

Figure 6. Distribution of monthly laser cataract procedures (Q1-2013).

nearly all had a single surgeon using the laser, well below the overall average of 3.2 surgeons per laser. This highlights the additional challenges faced by single-surgeon centers in terms of paying back the cost of the laser.

The overall favorable financial outlook that is illustrated by the breakeven analysis is also reflected in surgeons' perceptions. When asked about perceived return on investment, 86% of respondents said that volume has already surpassed the breakeven point or that the outlook is positive; only 14% said that it was too early to tell or expressed concern about payback. Similarly, 83% of respondents said that they would recommend to their peers that they get involved with laser cataract surgery (rating of 6-10 on a scale of 1-10).

PROSPECTS FOR CONTINUED GROWTH

Data from the survey suggest that, by the end of 2012, femtosecond lasers had penetrated practices that account for about 8% of all US cataract procedures. Given the average of 30% laser procedure penetration within those practices, survey results suggest that lasers had penetrated 2% to 3% of all US cataract procedures by the end of 2012 and could reach 4% to 5% by the end of 2013. Given the rapid uptake, favorable economics, and high level of satisfaction for most early laser users, along with increasing capacity and competition among laser manufacturers, market penetration of laser cataract surgery in the United States should continue to grow. ■

Michael Lachman, president of Lachman Consulting LLC, provides strategic advisory and market research services to companies in ophthalmology and other medical technology fields. He is a coauthor of the survey. Mr. Lachman may be reached at (925) 939-3899; michael@lachmanconsulting.com.