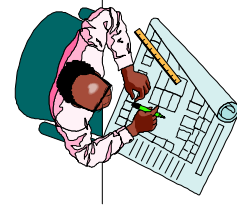


SCENARIO 3 “APPLE OF MY EYE” – NEW APPLICATIONS AND TECHNOLOGIES

Key Driver:

Market Forces: Patient Demand
People want a quick, painless, and reversible procedure.



Narrative & Implications:

- Technological competition will come from Intraocular Lenses (IOLs) and Intrastromal Corneal Ring Segments (ICRSs).
- Patients will have a reversible procedure with the possibility of future “upgrades.”
- The costs per procedure will be cheaper than laser treatments.
- Doctors will embrace new technologies quickly due to skill base requirements.
- Doctors will begin performing procedures quickly due to equipment needs.

Time Frame:

Six months to Three years

The two most threatening technologies to laser vision correction are IOLs and ICRSs. IOLs already have FDA approval and have been used for several decades with cataract patients. It will only take a short amount of time to perfect the procedure for use in a healthy eye. ICRSs will gain FDA approval within the next few months and promises to be very inviting. Both of these technologies have the same benefits: reversibility and cost.

Patients will have a reversible procedure, unlike with any type of laser procedure. If the patient has been under or over corrected, the doctor simply removes or replaces the IOL or ICRS to correct the vision. This will be comforting to the patient. Costs will be considerably less than a laser procedure mainly due to the equipment costs and the several decades of IOLs experience.

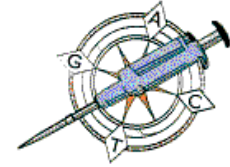
Doctors will embrace these technologies more quickly than the laser procedure for two main reasons: skill base requirements and equipment needs. The skills necessary to perform an IOL or ICRS procedure are already known to ophthalmologists. They are well practiced and easily trained. Equipment needs are minimal: a new type of microkeratome and some additional tools are all that are necessary.

SCENARIO 4 “IT’S ALL IN THE GENES” – GENE THERAPY

Key Driver:

Market Forces: Patient Demand

A one-time procedure to permanently correct vision forever.



Narrative & Implications:

- Therapy will be administered between 0 - 2 years of age.
- The scarcity of trained personnel in the gene therapy field will cause latent progress in the ophthalmic world.
- Ethical questions will abound.

Time Frame:

Forty-five to One Hundred-Fifty years

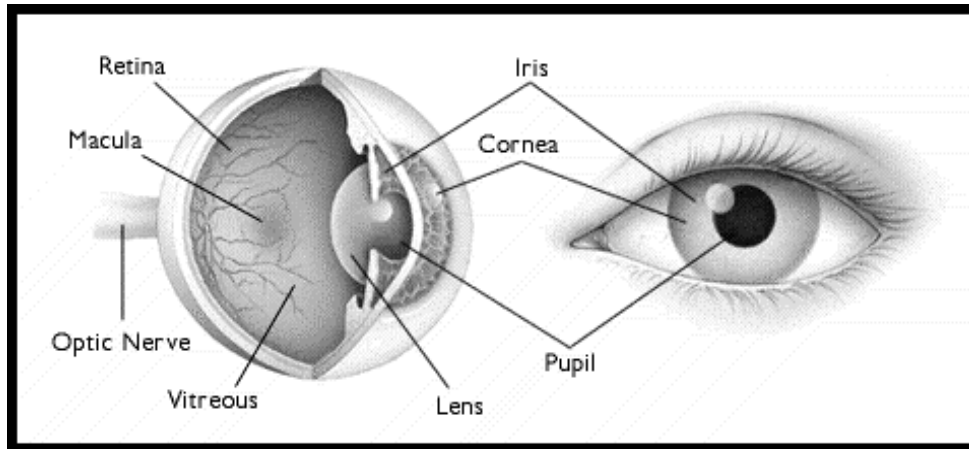
Gene therapy is already beginning to open doors to new forms of patient care and recovery in many fields. The human genome will be completely mapped by about 2003 and at that time there will be a proliferation of efforts to rid humans of diseases such as heart disease, liver failure, nervous system defects, etc. We see an application in the ophthalmic world as well.

The human eye develops its shape during the first two years of growth (birth to 24 months). It is during this time that neurological changes take place to facilitate accommodation (focusing powers). The eye will gradually change shape until the infant is about 24 months old.

We foresee a gene technology therapy that will manipulate specific optical genes. This therapy will be administered much like current vaccinations that infants receive (polio, MMR, etc.). This therapy will be designed to optimize focal power and to shape the eye into a state that does not require any future correction. In addition, we foresee the development of a method to prevent presbyopia using a similar therapy.

There will be a short period of time in which trained personnel will be absorbed in other gene therapy work. Heart disease and other threats rank much higher than optical perfection. It will take time to train more personnel in the field, perhaps a couple of generations as the field grows as a whole. Ethical questions will be debated, politics will be played out, companies will accomplish much, and consumers will want this type of new medicine. It is for these reasons that we have determined forty-five to one hundred and fifty years will probably have to pass before these obstacles are encountered and overcome.

APPENDIX A – ANATOMY OF THE EYE & DEFINITIONS



From: <http://www.eyenet.org/public/anatomy/anatomy.html>

Eye Terminology Definitions

20/20

20/20 is described as normal vision or vision not requiring additional correction. The first number indicates that a specific patient is able to see standardized symbols on an eye chart 20 feet away. The second number is the distance that the “average person” would be from the chart to read the same symbols. For example, 20/40 means that a specific patient can see standardized symbols at 20 feet, the average person can see at 40 feet.

Astigmatism

Astigmatism is an irregular curve of the cornea that prevents a sharp focal point on the retina.

Hyperopia (Farsightedness)

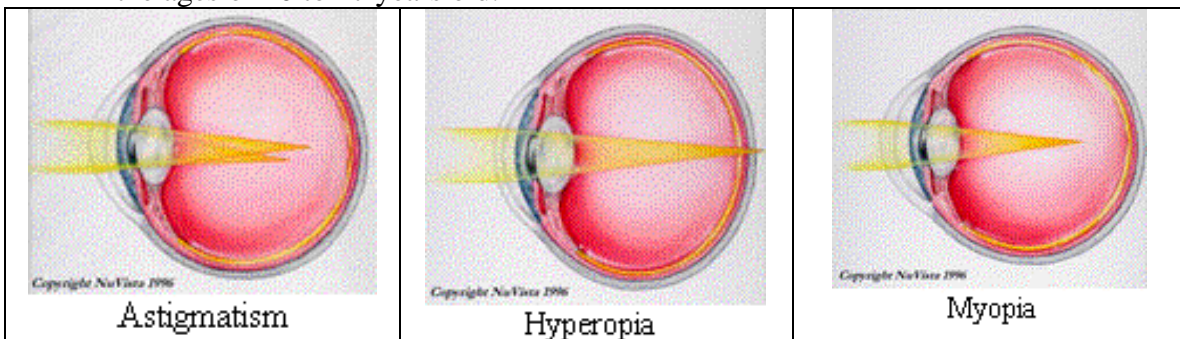
Light rays focus behind the retinal wall. Near and distant objects are blurred without correction.

Myopia (Nearsightedness)

Light rays focus in front of the retinal wall. Distant objects are fuzzy without correction.

Presbyopia

Loss of ability to focus on close objects, generally happening in people between the ages of 40 to 47 years old.



APPENDIX B – TECHNOLOGIES HELD BY MARKET PLAYERS

Technologies Held By Each Company

COMPANY	SUBSIDIARY	TECHNOLOGY / ASSET	TRADE NAME
VisX , Inc.	(none)	Over 125 patents on systems and applications	20/20
			VisX STAR™ VisX STAR S2 Excimer Laser System™
Summit Technology, Inc.		Emphasis disc® technology	Apex Plus
		Programmable Microkeratome	ExciMed OmniMed
	Autonomous	Small spot shaping	LADARVison
	(acquired by Summit 10/98)	Eye tracking system	T-LASIK
	Krumeich-Barraquer (acquired by Summit 10/98)	Eye measurement technology	Custom Cornea™
	Lens Express	Computer controlled microkeratome	
	Summit Vision Centers	Demand pull Brand awareness	
Sunrise Technologies		LTK procedure	
		Holmium laser	
		Slit-lamp biomicroscope	
		Delivery optics	
Coherent, Inc.		Patented beam homogenizer	Refractive Laser
	Star Medical Technologies (acquired by Coherent 11/98)	Diode laser system	LightSheer™

APPENDIX C – OPHTEC’S “LOBSTER CLAW” IOL

From: *Eyenet Magazine*, American Academy of Ophthalmology, Vol. 2, No. 8, August 1998.

In a plaid suit and festooned with his portable collection of surgical paraphernalia, Jan. G. F. Worst, MD, might be one of those eccentric professors in an old Disney movie. Think of Ed Wynn, except with a pair of binocular surgical Loupes around his neck.

There’s even a twinkle in his eyes hinting at curiosity and ingenuity – the same qualities he used to create his first intraocular lens using a Swiss Army knife, a dental drill, and a matchbox.

Two decades after his first implants in a Pakistan missionary hospital, that “lobster claw” lens has begun its U.S. clinical trials under the name Artisan (Ophtec USA, Boca Raton, Fla.). And Dr. Worst is enjoying the second look that everyone is taking at his iconoclastic idea for an IOL.

“It’s pleasing to me to see that a subject I have been talking about for 20 years is now establishing itself. It’s gaining a foothold,” he said in an elegant blend of British and Dutch accents.

Using a Swiss Army knife he carries on a watch chain, Dr. Worst cuts a shape out of paper to demonstrate devising the iris-claw lens while doing mission work in Taxila, India.

“I had a handful of PMMA blanks for the factory, and I knew that I could cut them into any shape I wanted,” he said, taking out the tiny pair of scissors from his Swiss Army knife. “I did it with scissors – *these* scissors.”

He cut the blank into an ovalized rectangle, then thought he might use the plastic itself for iris fixation by cutting handles into each end. “But then came the next problem, the hole [to create the handle]. I had a small dental drill with me, to cut the holes. And then I cut a little slot in each end for the clasps.” With that, Dr. Worst had the basic shape. However, he needed to polish the cut edges. The solution: a matchbox’s striking side.

“That’s a perfect polishing surface,” he said with a characteristic chuckle. He estimates he’s implanted about 100 of the lenses in Pakistan and later thousands in the Netherlands, with one final piece of low-tech equipment – the binocular surgical loupes he still wears on a chain around his neck. “They are very, very important. They (mission hospitals and surgical centers) have no complex microscopes or good lighting systems, so I keep it simple,” Dr. Worst explains.

At home at Refaja Hospital in Stadskanaal, the Netherlands, Dr. Worst has used the more refined, phakic version of his IOL to give extreme myopes – even young children – a permanent alternative to ugly, distortion-producing glasses.

The supreme self-confidence that led Dr. Worst to stick by his ideas has gained him a cautious respect in the refractive surgery community. Said Los Angeles refractive surgeon Samuel D. Masket, MD: “Jan Worst has never listened to criticism that came from anywhere but his own head. That’s his greatest strength but it’s also a weakness. He’s a diligent, tireless worker, a tremendously gifted surgeon and a careful observer. But he is deaf to the criticism of others.”

Dr. Worst maintains a gentle good humor about such talk, preferring to concentrate on the benefits he believes his phakic IOL bring to patients. He points to a picture of his secretary's grandson, a toddler with thick spectacles.

"I want those glasses away, because it's not *nice* to have a little boy running around like that. It's dangerous, and children will tease him," he said. "He hasn't had implants yet, but in a few weeks time they will be done. I think it's *nice*."

With such surgeries, Dr. Worst is again bucking the establishment, which remains uncertain about the wisdom of phakic IOLs for children. But his trailblazing is par for the course of his inventive life.

APPENDIX D – INTERVIEW WITH DR. RICHARD BOWE

Ophthalmologist, Pacific Northwest Eye
November 3, 1998

How long have you been performing RK?

Mid-1980s. Dr. Leo Bores (Russian) studied under Dr. Fyodorov in 1978 – 1979 (Russian who created “production-line” eye surgery) and had come to America. Dr. Bowe observed him in 1981, when some of the tools that they used were crude and experimental (razor blades, etc.). He backed off until 1985 when newer metal disposable knives were created and used in the practice. Now everyone uses diamond blades. The “guru” of RK is Dr. Charles Casebeer of Flagstaff, AZ. He had done thousands of RK procedures and created a nomogram on the subject. (A nomogram is a graphical representation that consist of several lines marked off to scale and arrangement in such a way that other doctors can use it as a blueprint to their own surgeries). RK really took off in about 1990 and peaked in about 1993.

How many RK procedures were you averaging per month?

About 20 – 25. A lot of RKs had to be later touched up. The re-op rate was about 50%. With LASIK, for example, Dr. Bowe has done about 60 eyes with only 1 re-op, or about 1.67%.

What prompt you to use the laser (decision to use the laser)?

Two main reasons:

1. RK has its limitations. It can correct up to 5-6 diopters, and more than that is unreasonable.
2. Dr. Bowe wanted to get a leg up on the market (competition). Originally, ten doctors in his area purchased a Summit laser in 1993 after the FDA finally approved the process in the USA. The laser cost ~\$500,000 with about \$100,000 in annual maintenance costs. This proved to be difficult to pay for. But one year ago, a company called Clear Vision (in Colorado) approached them with a deal: they provide the equipment and the doctors pay them a 50% fee. The doctors do not own or maintain the laser. The laser they now use is the VisX Star excimer laser that is in a mobile trailer. It is very portable and they use the same laser in Spokane that they use here. Clear Vision needs a rate of about 500 procedures a month in order to maintain a laser at their site.

Advantages/Disadvantages

Advantages with PRK are this: it’s a “nightmare” for the patient. He explains that it’s somewhat like the equivalent of having someone scrape their thumbnail across your eye (it’s that feeling).

Disadvantages with LASIK are few and mostly center on the corneal flap. Suction can sometimes be a problem (it takes suction to “pull” the eye a little out of the socket).

There is the possibility of a little bit of debris getting between the stroma and the epithelium). Also, there can be epithelium growth into the flap area if you don't do the process quickly enough.

What is the “talk” among other doctors?

There are five doctors in his practice: only two of which perform LASIK and use the laser. The other three focus on other work: one is works on glaucoma treatments, one is 67 years old and performs surgeries infrequently, and the other does plastic work. He says that probably 20 – 25% of ophthalmologists use excimer lasers. This is partly due to the newness of the laser and part of it is a financial issue: a class to learn how to use the laser is \$2,500, and the machinery is costly.

Procedure Time	
Total Time Per Eye = 10 min.	
2-3d	20-30 sec.
6-7d	60 sec
10d	80 sec

Is there a replacement for LASIK on the horizon?

Not in the near term. Just on November 2, 1998, the FDA approved the use of excimer lasers for farsightedness (hyperopia). There are two other significant technologies on the horizon:

1. *Intrastromal Corneal Ring Segments (ICRS)*

These are rings that are inserted into the cornea that make a crater-like effect, thus depressing the cornea and correcting vision. There are special instruments for this procedure, including a device that looks a little bit like an apple-corer that creates the means by which the ring segments in the cornea are implanted.

2. *Phakic IOL (Intraocular Implant)*

This is a procedure normally done on patients with glaucoma. The procedure involves implanting a lens into the eye - - not unlike implanted contact lenses. Phakic lens implantation uses skills many doctors use already -namely cataract surgery techniques- and will be a viable option to a wide variety of surgeons, not just refractive professionals

What types of crossover applications are there for excimer lasers?

Not much. The lasers used for glaucoma, for example, are completely different than an excimer lasers (they are Argon or Krypton based). In addition, the delivery is completely different. For a glaucoma treatment, the patient sits up and has their head in a device that delivers the laser. In LASIK the patient needs to remain very still and is therefore lying down for the procedure.

Comment on the advancements in the last five years.

The FDA has taken a long time to approve excimer lasers when they have been used in other parts of the world for the past three to five years. There has been a lot of work done in the field without much American intervention, although two of the largest excimer laser manufacturers are U.S. companies (VisX and Summit). Regardless, there are many excimer laser manufacturers worldwide. The latest innovation is scanning lasers. They're easier to work with and better for the patient.

Do you foresee a shakeup in the industry?

Yes, given several years, as with many industries.

What impact do you see on everyday culture? What about insurance companies paying for the procedures?

This tends to be an expensive procedure (\$2,000 per eye in Dr. Bowe's case). If the insurance companies get into the act and start paying for LASIK, two things will happen: the volume of procedures will increase significantly, but the cost per procedure may fall to a low as \$500 per eye. This means less revenue per eye, but more eyes. There is also the possibility of the insurance companies introducing more regulations, etc.

Where do you see the field of laser eye care going in the future? In 10 years?

We wouldn't have guessed fifteen years ago that we'd be using lasers in this type of application, so it's really difficult to foresee where it will go. RK has only been around for about thirteen years as it is, with ALK and PRK following in the last five to ten years. LASIK seems to be the refinement of these prior advancements in the process of vision correction, so it may be around for quite a while.

Describe any type of "space age" or futuristic advancements or products in the field of vision correction.

1. One idea in the far future may be a vision correction center wherein the customer enters a small store (perhaps in a mall or shopping center) and sits in front of a machine that analyzes and takes precise measurements of the eye and a laser determines what treatments to deliver.
2. Clear-Lens-ekotomy wherein the protein matter of the lens is drawn out with a needle and a different protein is injected back into the eye, thereby correcting the person's vision.

APPENDIX E – INTERVIEW WITH TRACY BITTNER

Assistant to Dr. Bowe and patient.

November 4, 1998

Describe your background for us, please.

I've worked at Pacific Northwest Eye Associates since January of this year. Prior to joining PNW Eye, I worked in plastic surgery. I did everything from a medical assistant, to the front office, to an OR scrub tech, to billing. The plastic surgery was in the area of breast augmentation, and I counseled patients much like I do at PNW Eye.

Describe the process (eval., pre-op, op, post-op)

Many people come into the practice knowing quite a lot about laser vision correction and LASIK, and some not knowing anything at all. It's my job to describe the procedure, its costs, risks, benefits, and complications.

We do a pre-op exam about one week to one month before the procedure. During that time we do a corneal topography scan of the patient's eye, which helps to confirm astigmatism, and the shape of the eye. We also have them watch a consent video from Clear Vision.

The operation itself takes a very short time and we examine the cornea in the exam room post-op. We also follow up with exams at different times after the operations: one day, one week, one month, three months, six months, and one year.

When did you have your operation?

I had my LASIK done about a month ago. I had both eyes done.

What was your pre-op vision?

Counting fingers at four feet.

What is your post-op vision?

20/15 on the day of the operation, and 20/20 a week later. Currently I'm at 20/15 (one month later).

What side effects have you experienced?

I have experienced dryness of the eyes, which almost feels like I have contacts in one of my eyes. I take eye drops to help this. For a few days after the procedure, my eyes felt tired, as with eyestrain. For a week, I would see oncoming headlights as puffs of light, but it is fine now.

How do you feel about the procedure now?

Wonderful! I believe it will benefit a lot of people.

Would you recommend it to others?

Yes!

What type of relationship does the practice have with VisX or Clear Vision?

We have a close relationship with Clear Vision, but not much with VisX. I've traveled to Denver to visit Clear Vision, and they have good support at their call center.

What kind of impact do you see LASIK having on everyday culture?

There has been a progression from RK to ALK to PRK to, finally, LASIK over the last ten years. I see LASIK as the final procedure and the bugs have been worked out. As word gets out about the procedure, more and more people will want to have it.

APPENDIX F – INTERVIEW WITH DR. DEVIN HARRISON

Assistant Professor, Dept. of Ophthalmology, University of Washington
November 9, 1998

Have you performed PRK or LASIK?

I have performed about forty or fifty PRK procedures and I'm training to do LASIK next month.

What prompt the decision to use the laser?

It's mostly due to patient demand and hype about the procedure.

Describe the advantages/disadvantages of the laser.

There is a much faster recovery of vision with LASIK, and decreased pain for the patient versus PRK.

What general "talk" is there among other doctors using excimer lasers in their practice?

There has been a huge step from PRK and LASIK versus RK over the past few years. RK always had a problem with decreased stability of the cornea, although recovery from RK is faster than with PRK. Neither PRK or LASIK are perfect, but they're getting better. PRK tends to leave scarring and regression sets in. LASIK uses the microkeratome which creates the corneal flap that can cause some problems if it's not done correctly. Both are expensive.

Is there a procedure on the horizon that will eventually replace LASIK?

Perhaps Phakic IOL (intraocular Lens). This is because the LASIK procedure flattens the cornea and there is the possibility of degradation of vision, especially at night. We know from cataract surgery what an intraocular lens can do, but we're unsure of what happens on an healthy eye. There could be come cataract decomposition after five to ten years.

How would you describe the advancements in laser technologies over the past five years?

The application of new technologies has been "a tremendous advancement" in the field. Radial incisions (RK) didn't work too well, and sculpting of the cornea has been a very big step. nomogram have played an important part in this advancement. In fact, if we can refine the nomograms to target optimal vision regarding the surface of the cornea, then we will do much better. There are also advancements in using scanning lasers and eye tracking.

What impact on everyday culture do you see the excimer laser having?

People want instant solutions. The LASIK procedure is driven by patient demand. They want (1) low pain, (2) fast recovery, (3) and in the future they may want a reversible

solution if it doesn't work out. This isn't currently possible with LASIK, but it is with Phakic IOL.

Where do you see the field of vision correction going in the future?

“Who knows?” “It's really up in the air.” Most concern currently is around two things: (1) Optometrist want to do the procedures, (2) reversibility of the process.

There also tends to be some consumer confusion. Some know a lot about the procedures they're about to undergo and are much more savvy than most. They are in the minority, but this may change.

Are there any “breakthrough” or experimental procedures in the field?

Phakic IOL, Intracorneal Ring (ICR).

APPENDIX G – INTERVIEW WITH THE LASER CENTER

Dr. William Hancock, Medical Director, and Don Galer, Business Manager.
November 5, 1998

How long had you been performing RK?

Dr. Hancock: Since 1990

How many cases/procedures have you done?

Dr. Hancock: Under 1,000

>>Now Don Galer is interviewed<<

What is your role at TLC?

Don: Money

Are you a representative for TLC?

Don: We are all employed by TLC. TLC is a Canadian corp. We are a wholly owned subsidiary of the US wholly owned subsidiary of TLC. Owned outright by TLC US which is owned outright by TLC.

What is your function here?

Don: Basically all the non-medical stuff. All the financial things that go on in the clinic. All of the staffing.

Do you work directly with VisX?

Don: VisX is here, we work directly with VisX.

What kind of contact do you have with them?

Don: We pay more than \$5,000 a month to have a really good contact with them. The maintenance agreement on the laser means VisX never lets go of it. We own the laser and they own the function. If it doesn't work we call someone up and they have someone her almost immediately.

What kind of opportunities do you have for upgrades?

Don: You pay the money, you get it. The S2 upgrade to that laser costs over \$60,000 which is about 10% of the purchase price of that equipment and they changed everything from the paint on the outside to the optics, software. They basically rebuilt the laser right where it stands. It came in two packing crates.

How many eyeballs a month do you need to break even?

Don: More than 100 less than 200.

Have you had the procedure done yourself?

Don: I am not a candidate.

Where do you see the excimer laser industry going in general? And to preface that, how long have you been with excimer lasers and TLC?

Don: I have been with TLC since it had 70 people. Now it has 9,000 doctors but actually 700-800 people are in the corporate entity.

About how many years is that?

Don: About 2 ½ years. Incredible growth, unbelievable. Accomplished primarily by absorbing our competitors.

What do you see this industry going?

Don: Well absent to the managed Health Care issue I think the excimer lasers is going to be a major part of vision medicine for a long time. I think there are a lot of other things that will come into play like rings and lenses but fundamentally its a safe, low cost effective means of correcting you look at the bell curve for vision correction it will probably always be between two standard deviations.

What happens if insurance decides to pay for the procedures?

Don: Two things will happen - it's a double edge sword. Because the insurance participation it has a tendency to do two things to the operation. One of them is increase overhead because they are like dealing with very small children.

Second thing is that the issue around price and therefore the necessity to advertise, that dynamic will flip. What that means is that the people that need the procedure done that can have it paid for by an insurance company will mean that they will go out and have the procedure done with who ever the insurance company is contracted with. They won't be looking in the paper you will not have to buy TV. time, you will be part of a P.P.O. that's basically going to funnel these people into you. So it will become a managed care kind of issue.

Do you see the cost per eye dropping radically or steady over time?

Don: That's a really hard question and the reason it is a hard question because there may be a model that says you can cut the level of care, cut the costs and still make money at a lower price. The people that are in our market today and are doing the most dramatic cost cutting are having incredible quality problems.

Why is that?

Don: Because they are not doing a very good job.

Dr. Hancock: Everything is how quickly can we get this done. Every blade that we use is used on only one patient. They reuse them.

Dr: If I have a busy day and I'm pushing, you see, there is a lot of detail to that procedure. Everything has to be done exactly right then it works great. You screw up one thing and you screw up a person's eye for life. I feel I have had a busy day if I do 30 cases. These people have to do 60-70 cases a day 5 days a week to do the volume that there doing. And there is a big question as to any support for R&D. You cut it (the price) as much as they are talking about and there is not going to be anymore R&D. TLC

has looked at it very carefully and said if a multi-tier market develops we will not go after that (Market). As he mentioned the quality problems may in fact put him out of business. If they were in the US they would be gone because of legal problems. It's an interesting question and in the open market what ever is going to happen will prevail but we looked at it very carefully and said there is a certain level at below which you can't give consistent quality care. I mean those technicians are going to be back working tomorrow morning they have to be just as meticulous on the last case tomorrow night as the first case tomorrow morning. You can not push and cut quality like they're doing. You can bet they are not paying their people top dollar.

Let me ask a question about the laser center itself. Financially the stock price is strong. Financially they seem to be beating the nearest competitor, Summit Tech.
Dr. Hancock: No, you're mixing apples and oranges.

Do you use both VisX and Summit?

Dr. Hancock: We don't.

You don't here but,

Don: In Canada they have other lasers. But in the US we can only have one or the other.

From a profitability standpoint you have 47 centers right now. Last year the Laser Center had an unprofitable year. Be it the stock price is strong, people tend to favor what is happening with the vision correction in general for TLC.

Don: TLC is basically the only large corporate survivor in the Laser Correction Business.

There has been a shake out...?

Don: A major shake out. TLC just bought Beacon and prior to that they bought 20/20. 20/20 was in the Northeast, Beacon was in Texas.

To return to the profitability issue, what do you see the Laser Center doing differently, now that they absorbed these smaller companies?

Don: The company is in an incredibly strong position I am sure you read the analyst reports. We have 40 million in the bank. We turned a profit for the first time last quarter. Two quarters earlier than predicted. I think that early on, two years ago they said there would be a curve on the number of procedures.

Looking a few years ahead what other countries in the world have been doing this laser correction?

Don: All of them. Particularly South America and South Africa.

We will be talking to Dr. Harrison tomorrow; he was in Saudi Arabia for three years.

Dr. Hancock: Of course Saudi Arabia has a King Khalid Hospital that's done all of this stuff. They drove us nuts. In the early times of this when the FDA study was going on they in their wisdom said we will let 2000 cases be done among 10 centers. Once again how much does this machine cost half a million? How do you amortize that with 200

cases? Forget that. They would sit back and talk about out of the 75 cases that we have done we had 3 complications and here is how we handled them. And then some little toad from Dublin stands up and says “ Well, in the last six months I have done 950 and I have 86 of those complications and this is how you handle them.” In other words we were at a huge disadvantage.

How does TLC address these types of issues as far as training or budgeting money for training of newer doctors?

Don: TLC has a really rigorous clinical affairs department that produces educational materials for surgeons and follow up care doctors as well as the technicians.

Dr. Hancock: I am one of the ten members of the TLC national medical board and we meet quarterly; there are surgeon courses quarterly. There are certain requirements from VisX and Summit for Surgeons for what they have to do. TLC standards are much more rigorous than what the average bear can go out and do. And they also track it and if there is problems with a person they are on it. Outcomes are very important in managed care and they are very important in this business too. They track it. I am not saying it is perfect. Any companies that’s expanding like this. Especially with acquisitions you get quality control issues. But like he said TLC is the only game in town right now.

Don, do you think TLC is expanding too quickly? Or not quickly enough?

Don: Fundamentally I’m amazed that TLC has managed to hold the line on quality and organizational integrity while going from what was 2 ½ years ago 7 centers to 50 plus centers it’s amazing. I think it has worked because they have allowed people to have a lot of local autonomy and it kind of helps in the line of the practice of medicine which if you think about it is rally a good combination. It is half a miracle that TLC has grown at the rate it has and held it together.

And the other half?

Don: The other half is they resisted the opportunity to grow faster.

Dr. Hancock: One of the things that has happened is the name in refractive surgery have gravitated to TLC. Stephen Slade was involved in the very beginning. He was the first person to do LASIK in the US. Jeff Machat is a very visionary young guy that came out of medical school and looked at Laser Vision Correction and said this is where its going. And focused just on that. He has never done cataract surgery, never routine eye care. He started his focus when nobody in the US could do it. So he set up in Windsor right across from Detroit and started passing himself off as the trainer. I mean here we were looking around and we couldn’t even see an excimer laser and he’s got four or five of them different brands up there and he is standing up giving talks. In fact, why did I become interested? Because, I watched him for a fair amount of time and that’s why they got good people. Now what just happened about 1½ years ago at one of the national board meetings was that Machat basically drew us together and said it’s growing too fast and I can’t do it all and you people have to take on these jobs. I said thank god because he can’t handle that all by himself. There has been an adaptability of the principals from the situation of small company to big company and that’s been a miracle.

What did you do before working for the Laser Center?

Don: My background is in industrial engineering. I spent either 8 or 10 years in startup companies.

Medical field or just manufacturing?

Don: Well, some of it. I came across NW Eye when I was running a training company.

How long ago was that?

Don: Was about 1994 and I got into marketing, publishing company and found that Beth Nye was going to run this center and she said do you want to come help.

How long has the center been here?

Don: We opened in June of 1996. What basically happened with the TLC setup was that TLC was three centers in Canada and as they saw approval of Laser Vision Correction coming to the US they saw a disappearance of some of their flow from across the boarder. So they naturally said they were going to do it in the US. Their model which was different from a lot of their models was to have a successful laser center you must have a supporting group of ophthalmologists. You just can't run through ophthalmologists and you can't just throw money at the media as your primary way of getting patients.

Dr. Hancock: I started NW Eye in 1975 with my wife. We had grown a fair amount and one of our models was doing cataract surgery on the basis of the same thing, a network of referring ophthalmologists in which we had maybe 200. We were, in fact, negotiating with TLC at that point to have them help us with starting this center. We basically looked at it at the point and said well, we were roughly equal in terms of size at that point and we said let's instead of that do a merger, a buy out and get an entity that's large enough to take on to the public markets. And that is what happened it was 2½ years ago I think that NW Eye and TLC merger into one entity and went on the Toronto exchange it was the best IPO in Canada that year and from those funds they were able to begin there acquisition process. And of course now its gone from what ever it was to start say 20 million to 400 million. They raised funds three times in the market. And better of a factor of two each time.

Dr. Hancock: And it was a big risk for us because we had one of the most successful processes in Washington State and we were selling out and we didn't know if the darn IPO would go like that. So I feel it was also a bloody miracle.

What are your other closes centers?

Answer: Vancouver and LA South. It takes 2 million eyes or a population of about 1 million people to open a center.

And where do you see them growing towards? Will you ride this out until some other technology 5 or 10 or 15 years?

Don: This is fun. If you think about it is a great medical market because you get to deal with well people, you get to make them happy and make them go away and don't come back.

Some of them you want to come back?

Don: No, we don't because everything after the first visit is free.

Dr. Hancock: And this is a process that is so good they don't have to come back.

Where do you see TLC going in the future? I mean to grow that same amount for X amount of years?

Don: The market is nowhere near saturation for good laser vision correction there are some other issues that cloud that though. You think about the point of time when this started up and there were eight lasers in Vancouver BC and there were three lasers in Washington State. Today there are 18 lasers in Washington State and every likelihood that their will be more and what that means is that the complexion of the nature of this market is undergoing an incredible change from where you literally had a big mass of people that had to go to a very limited number of places across the boarder in order to get the procedure done. And now you have a very dispersed ability to provide the procedure that is. I mean, you know the market is going to change.

Dr. Hancock: And it's very interesting because the people have a hard time judging. A case in point is the new advertising coming out of the U (University of Washington). "Come to the world class surgeons of the U." I mean that's fine but some of these guys that are being said are world class surgeons have done under 50 cases. The population doesn't know that. And this is a first class facility here but there is a certain minimum overhead that you have to have. Because he said how much do we pay VisX just to run the bloody laser? So there is a certain minimum number that is the problem is particularly with the number of large lasers out there. They are not all going to make it. And the real question is with how much grace will they go.

Don: If you consider that you have a half million dollar laser and you have it on a 60 month lease your making lease payments that are like \$12,000 or \$13,000 a month. And if you are just tinkering around in this market to product those margins you have to sell probably at least three times that. Just to keep your laser warm and so it doesn't take you very long to through the mechanics of a staff of maybe your...a staff of maybe five people some kind of facility that your insurance's. There is a ton of cash that gets sucked out of facility this size and a lot of it doesn't change because you have the square feet.

Dr. Hancock: See the model that they thought that originally was going to work was pumped by Summit. It was a expensive laser but it was easy to learn - you punch the button and do it. Therefore you guys that got left in the dust in cataract surgeries, you get the normal thing like a mom & pop office. Young guy with a young practice at your age - as you got older you start doing a few more cataract surgeries and that's the way it went. When I started doing cataract surgery I had state of the art technology that was in a little box that cost \$5,000 equipment now we have \$1 million and we had to be able to generate volume to handle that. The way to do that was with the optometric network that immediately earned us the higher than everyone else around but it worked. And our quality of surgery came second to none. Then laser surgery came around and we knew we could go back in surgery so you get about 25-30 guys together to all go in an buy a laser that's where a lot of these lasers come from as do PRK. While Summit sold a lot of lasers before approvals so that when the huge mass of patients came in as soon as it was open you could be in line well in the interval the rest of the world figured LASIK was the way to go. Then all of a sudden LASIK is a rather high skilled thing that demands high

volume and all of a sudden the groups are ready to do PRK all the patients are ready for LASIK. So all of a sudden you have a \$500,000 paper weight. What do you do? So, yes there has been tremendous changes back and forth and that's where you may see the technologies. The technology of the ICL is very interesting. Why? Because I do cataract surgery also and so do a lot of others and all you need to do an ICL, you don't need a laser, all you need is the technology to make a diamond cut in the eye, slip the lens in. But it raises a whole other bunch of questions. Nobody know what is that lens going to do twenty years from now. Will it cause cataracts? If the FDA approves this for general use it is purely politics. I am not impressed with ophthalmologist influence over the FDA.

The intracorneal ring - you're right back into high tech surgery. And it ain't that accurate and it ain't that easy to do. And you think about it. Would you rather have me do what you saw tonight or trust a ring of plastic all the way around in your cornea. It's an interesting thing but forget it. I mean its not going to work, the ICL. TLC is doing it. They are doing it up in Canada. I mean I could do it like that. I mean that's what I do cataract surgery. But, I'm not about to jump on that because I have another technology. There is PRK and there is LASIK. People say oh, LASIK that's really new how do you know what it's going to do. Well, PRK changes the anatomy of the eye it gets ride of that membrane. That's only been done since 1987. The process of making a cut with that cutter making a change in the power and putting the flap back down, well, that has been done for thirty years. Therefore I feel very safe talking to a 22 year old saying you can have LASIK because I know that when we do it your going to be okay down the road and I don't know that with PRK. And there is some data coming out that maybe the absence of this membrane is going to cause haze later on from ultra violet light. So that's why I believe LASIK is where it's going to be. We knew what the other technologies are on the horizon even if some wonderful thing came up immediately the FDA wouldn't let it in this country for ten years or six years. What may happen is technology may produce a less expensive and more portable laser it ain't done it yet. And I have gone down and visited the VisX plant and looked at their operation and R&D and there is a lot behind it. As far as something you can run day in day out it ain't that easy to make. But, eventually they will become less expensive. This thing (Excimer Laser) these gears if I let anything get in those gears we got a problem. They are working on a friction less device and when it gets easier to do then more people will be able to do it. But, in the mean time those of us that have been doing it. You know I was in RK a lot earlier than people around here thought about it. Therefore, before LASIK was approved here. I spent our money and went to China to get trained on it so we could hit the ground running. These guys are not suddenly going to jump up and have a big practice in terms of where it is going. And in other terms of where it is going this is a product that people like and they like it so much that they talk about it. I agree that we are just starting the acceleration phase of it. Yes, there was some other predictions of it first but we learned that in RK also. But, these guys go out and they talk. The most common reason when I talk to people here as to why they decided to have this done they say "I knew a friend that has it done" or contact lenses. Look how many people are in contact lenses and glasses - they all don't like them. They are a hassle and what keeps people away from LASIK is cost and fear. But, that fear gets knocked down when a friend walks up to them and says I have had it done and it was great.

Do you see a procedure on the horizon that would replace LASIK?

Dr. Hancock: One of the problems that cornea is that we would like to have all refractive surgery be plus or minus a quarter in accuracy. That guy that developed RK he basically started the ICL - why? Because he said we basically needed better accuracy and we can't get it with corneal surgery. We are pretty darn good with it now but there is a limit on how accurate you can be particularly you see when you go to the higher numbers. But then practically speaking -1 to -6 covers 95% of the market so you have some procedure that will handle the real high ones but if you got something that will do most of them in terms of the economics of it.

There is a lot of really high tech stuff out there. I mean I remember when excimer came out. Are you kidding the body will try to heal that and it does try to heal PRK but LASIK does it a beautiful way it just bypasses the healing process. So back to the question what technologies do I see? I go to meetings three times a year to find out. I can't think of anything on the horizon yet. The ICL is interesting but in terms of which one would I have done in my eye right now and even in the foreseeable future. There is no question I would have LASIK.

Protein Replacement?

Dr. Hancock: There is a possibility of that, but remember that is not for changing nearsightedness. You are not going to change the structure or the imbalance in the eye by changing the protein, what he's talking about (mentioned by Dr. Bowe) is to try and avoid the process of cataract surgery where I go in and remove the protein in the lens and put a plastic piece back inside it. So that's interesting that's exciting. One of the really interesting things that are actually happening is the optical system of the eye imperfect. Are you aware of the types of telescopes being used right now? There used to be a mirror now with the bigger the mirror the better resolution you get. But the bigger it gets the more imperfections it gets. But what you could do just the weight of the instrument and the terminal expansion changes things what you do now is that you break it up into about four hundred pieces you put each piece on a serial motor you tie to a computer and that little sucker keeps it perfect. This laser is a broad beam laser this goes down and hits one beam and then various different things shake the beam. There are scanning lasers. The scanning laser has a whole bunch of potential problems it is longer but it has the potential of being able, we use a thing out here called corneal topography it draws a topographic map of the surface of the eye. If you have an irregular surface this instrument won't take care of it. A topo-guided laser will take care of irregular stuff. By improving the ocular system you can actually improve the vision. That's far out. Then the question is when does it become economically viable. One of the things in terms of the business of laser surgery is that you don't have all the overhead of people that deal with insurance. One of the problems of course with insurance coming in. Why would an insurance company do that? I mean if it's a process that everybody wants what are they going to do? One reason HMO's want it is that the description of the ideal refractive surgery patient is young, healthy intelligent, rich that an exact description of the ideal HMO patient. They want them. I thought we were going to get out of the discount care business but there sniffing around saying give us a discount we will pump up the volume to you, we want to use it as a lost leader as a discount benefit to draw people into our program.

So where do you see the laser eye care surgery going in the future? You already answered that you expect to do 3000-4000 procedures this year, you did about 2500 last year do you expect your practice to maintain a pace of 3000-4000 each year for the foreseeable future? Do you see adding a few more doctors? Adding another laser after 3 or 4 more years or moving to a full workweek?

Dr. Hancock: Well, there is competition you see. You see the question is you aware of the organization up in Canada, that is offering laser surgery for half the price of us? Well, they will go unnamed but this is a very interesting thing in terms of the future. I lectured with this guy a number of times up at UBC and things like that. He was a normal guy, in fact he is one of these people that was going down in terms that he was almost broke at the end of January, I guess last year. He tied in with a marketing group they started putting nearly one million bucks into the market for advertising and then came on with a price that was half of what the rest of the world was charging. People came out of the woodwork for that. They now do more than three-quarters of all the Lasers done in Vancouver. It is a busy day for me if I do thirty eyes here but with their structure they have to do sixty a day five days a week, and they're doing it. And their coming down into this market and their advertising and the police force is going up there the fireman and patient after patient is going up there. Our center in Vancouver has done five corneal transplants on their patients since the beginning of this year. And there are thirteen more in the works and this one office accounts for almost all the complications that are seen in Vancouver (Not TCL Clinic) and they have generated more problems in the entire 15,000 cases done by TLC Nationwide. So this is a bloody disaster and yet the people are looking at price and its got so trivialized in some of their minds. It's so far a number of the ophthalmologists that these people have gone to before warn them "Don't do that. Your gonna have problems." He's on restriction by UBC and he's got suits right and left. Every patient that has a problem with him, his lawyer comes after them and says if you sue your dead meat. All the doctors up there have been threatened with suits. It's a travesty. But, like lemming's they keep going. So if you want to look that we said we absolutely were not going to go into that market. So in terms of the future of laser eye surgery what's going to happen and how gracefully some of these places go. We have people champing at the bit to join us. TLC is primary Laser Vision. On the reasons to get managed care contracts is you have to have a broad area of expanse and that was our strategy when we began to build the Laser Center I mean the surgery center. I mean the moment we do this we are pricing ourselves right out of the market to sell practices the way the old guys used to. You can't buy a \$20 million dollar facility so you have to do a different thing so TLC NW is not the typical operation of TLC National. There are others but this entity here is separate. I'm here Thursday-Friday and do laser surgery, Tuesday-Wednesday I'm in Squim at our surgical facility just doing cataract surgery. There are very few people that are able to do what I do which are donating a majority of my time to laser correction.

**Thank you for your time Dr. Hancock. We appreciate your help in our research.
(End of Interview)**

APPENDIX H – INTERVIEW WITH JOHN WALLACE

PRK patient.

November 13, 1998

What influenced your decision to have laser vision correction surgery?

I wanted to see better. I enjoy scuba diving and wanted to be able to actually see.

How much did your eyesight improve?

From 20/800 to 20/25 in one eye

And 20/900 to 20/40 in the other

So, you still need glasses?

Yes, but now I can see without them.

When did you have your operation?

I had PRK in Vancouver, B. C. in 1996.

What side effects have you experienced?

I am one of the 2% who experienced problems. I have seen halos and starbursts around lights at night, but it is getting better. It is not as bad as it was at first. I used drops for about a year, it took over a year for my eyes to heal.

Do you think that was related to your age?

No.

How do you feel about the procedure now?

I am 70% happy with the outcome. I am glad I did it, but if I were making the decision now, I would opt for the LASIK procedure.

Would you recommend it to others?

Yes.

APPENDIX I – TIMELINE OF OPHTHALMIC EVENTS IN HISTORY

460BC	Myopic slaves are sold at discount in the Roman Empire.
20BC	2000 years ago, spectacles are used in ancient Europe and China - as a fashion accessory.
1000	First formal vision aid, the reading stone, a primitive magnifying glass, is in use.
1100	Glasses come into use in Arabia to improve sight.
1268	Roger Bacon develops the first form of vision correction with lenses.
1260s	Marco Polo noted that the Chinese use framed lenses with weighted cords.
1317	Italian Armati died; His tombstone reads 'the inventor of spectacles.'
1508	Leonardo da Vinci sketches and described contact lenses.
1632	Rene Descartes describes a corneal contact lens.
1700s	Glasses become a fashion statement in London.
1784	Benjamin Franklin develops bifocals.
1801	Thomas Young develops Descartes' idea and used it to correct his own vision.
1827	English astronomer Sir John Herschel suggests making a contact lens to conform to the eye's surface.
1887	Adolph Fick develops the first contact lens..
1898	L.J. Lans, of The Netherlands, enunciates the basic principles of keratotomy.
1948	Kevin Tuohy develops the first contact lens made of plastic..
1950s	Dr. George Butterfield, an Oregon optometrist, designs a corneal lens, the inner surface of which followed the eye's shape instead of sitting flat.
	IOLs begin use in cataract patients.
1970s	Russian Professor Fyodorov successfully corrected shortsightedness by RK.
1973	Charles Brau and James Ewing (inspired by Donald Setser) start working on rare halides to produce laser action.
1975	Stuart Searles produces first excimer laser.
1979	First commercial laser system was made by Tachisto.
	RK is imported into U.S from Russia (Dr. Fyodorov of Moscow).
1981	IBM Researcher R. Srinivasan patent "photoetching" using the excimer laser. Taboada, Mikesell and Reed show that corneal epithelium is extremely sensitive to the 193nm light emitted by the ArF excimer laser.
1983	Stephen Trokel publishes first medical paper on the potential of PRK for humans.
	PRK patent is filed by Trokel in 1983; issued in 1990.
	PRK patent is filed by Francis L'Esperance in 1983; issued in 1987.
1985	Summit Technologies is established.
1986	Tauton Technology is founded.
	VisX is founded.
1988	Summit begins clinical trials.
1989	VisX begins clinical trials.
	First U.S. PRK patient is treated with Summit equipment.
1990	Taunton Technologies (L'Esperance) acquires VisX (Munnerlyn & Trokel).
1992	Summit and VisX establish Pillar Point Partners.
	The first astigmatic treatment is performed with Summit equipment.
1993	First hyperopia treatment is performed with Summit equipment.
1994	FDA conditionally approves the Summit laser for PRK.
	FDA approves the Summit excimer laser for treatment of myopia.
1995	FDA approves Summit laser for PRK and issued approval letter to VisX for PRK.
	FDA approves Summit excimer laser for PRK myopia correction. Practitioners are required to be trained in both laser refractive surgery and in calibration and operation of the laser.
1996	FDA Approves VisX laser for PRK to treat 1 to 6 D myopia in a 6 mm ablation zone.
1997	LTK (laser thermal keratoplasty) starts clinical trials.
1998	Pillar Point Partners dissolved by Summit and VisX.
	Sunrise Technologies submits FDA Premarket Approval (PMA) application for use of holmium YAG laser to correct low hyperopia.
	KeraVision® ICRS file for FDA PMA.
	Summit Technologies enters into negotiations to acquire Autonomous Technologies.
1999	FDA approves excimer laser for treatment of hyperopia (November 4).
	ICRS expects to receive FDA PMA and full approval (January).
	Phakic IOLs expected to receive FDA approval for treatment of high myopia.

APPENDIX J – WORKS CITED

- Access Media, LLC 1998. “New Choice in Vision Correction.”
<<http://www.optistock.com/spolight.html>> (15 November 1998).
- American Academy of Ophthalmology Home Page. <www.eyenet.org> (28 November 1998).
- Anan, Barbara. “Orthokeratology: As a method to correct nearsightedness.”
<<http://www.haas.berkeley.edu/~dowis/eye/articles/ortho.html>> (13 November 1998).
- Assai, E.I., MD. “Guest Editorial: Accommodative Intraocular Lens: A Challenge For Future Development.” Journal of Cataract Refractive Surgery Vol. 23, no. 4, May 1997. <<http://www.ascrs.org/publications/jcrs/geuditmay7.html>> (15 November 1998).
- Bores, Leo, D. “FDA Statement on LASIK.” The Bores Eye Institute, 1996.
<<http://www.getnet.com/~labores/lasik1.html>> (11 November 1998).
- Bores, Leo, D. “LASIK—Laser assisted in situ keratomileusis.” The Bores Eye Institute, 1996. <<http://www.getnet.com/~labores/lasik2.html>> (11 November 1998).
- Brown, Andrew D, and Jennifer P Craig. “Laser in-situ Keratomileusis (LASIK): A contemporary overview.” Eye News Vol. 4, no. 4. <<http://www.eye-news.com/>> (15 November 1998).
- Burton, Jonathan. “Illuminating Lasers.” Streetnet Online Investors Guide, 10 October 1997.
<<http://www.streetnet.com/features/oct97/medical/medical04.html>> (22 November 1998).
- “Cataract Details.” <<http://www.getnet.com/~labores/cataract.html>> (15 November 1998).
- “Cataract Surgery Techniques.” <http://www.getnet.com/~labores/cat_tech.html> (15 November 1998).
- Christiansen, Ed. “Contact Lens Update.” Eye Care Associates Home Page.
<<http://www.eyecare1.com/prk/contactlens/html>> (18 November 1998).
- “Coherent Inc. Announces FDA Clearance of Holmium Laser Prostatectomy with the VersaPulse Select Holmium Laser.” Press Release no. 621, 28 May 1998.
<www.coherentmedical.com/bph.shtml> (18 November 1998).
- Constantine, Leanne. “Frost & Sullivan Takes Pulse of Refractive Surgery Industry.”
Frost & Sullivan Healthcare Market Engineering News, (January 1997).

<http://www.frost.com/verity/newsletter/healthcare/97-01/art06.htm> (14 November 1998).

Convey, Eric. "Summit Technology faces settlement with FTC." The Boston Herald 9 July 1998).

Delevett, Peter. "Recent FTC allegations against VISX may involve PTO: Patent and Trademark Office." The Business Journal 20 April 1998.

"Demand drives growth in microkeratome market." Editorial. Ocular Surgery News February 1998.

DePaolis, Michael D, OD. "Refractive surgery 1998: Let the games begin." Primary Care Optometry News January 1998.

Dunleavy, Brian P., et al. "State of the Market."
www.2020mag.com/issues/1998/feb/marketpart2.htm (16 November 1998).

Dunleavy, Brian P. "New Visions." 20/20 August 1998.
<http://www.2020mag.com/Issues/1998/August/technology.htm> (16 November 1998).

Durrie, Dan MD. "Current advances in PRK/LASIK refractive surgery technology." Ophthalmology Times 15 May 1998, pg. S-2.

Encyclopedia Britannica. www.eb.com (28 November 1998).

"Evaluate a center's philosophy before venturing into laser vision correction industry." Editorial. Primary Care Optometry News January 1998.

Eyecare Professionals Home Page. <http://www.visionsite.org/profes...> (16 November 1998).

"Eye Know Why Refractive Surgeons Wear Glasses."
<http://members.aol.com.eyeknowwhy> (16 November 1998).

Eyenet 1998. http://www.eyenet.org/public/museum/hist_century.html (15 November 1998).

Fanelli, James L., et al. "How Pachymetry Can Help You Project Patient Outcomes." Review of Optometry. <http://www.revoptom.com/> (18 November 1998).

"Focus on the future." Community Pharmacy April 1998, pg. 19.

Frost & Sullivan Company Press Release. "Lucrative Profits in Store for the U.S. Refractive Surgery Device Market." 23 November 1998.

Glenn, Christopher, and Jeffrey S. Eisenberg, and Lynda Liverpool. "Expanding the Horizons of Surgical Correction." <<http://www.revoptom.com/ISSUE/ro10f6.htm>> (19 November 1998).

Ignelzi, R.J. "Eye-opening advances make vision-correction surgery easier, but risks remain." The San Diego Union Tribune 09 August 1998, Sunday ed., pg. D1.

"Introduction to Laser Vision Correction." <<http://www.washingtoneye.com/ilvc.html>> (15 October 1998).

KeraVision Home Page. "FDA Advisory Panel Will Review KeraVision "Ring" Application." 17 November 1998. <http://www.keravision.com/si_981117.htm> (20 November 1998).

King, Ronette. "The Eyes Have It." The Times-Picayune 10 November 1998, pg. C1.

Kohnen, T., MD, Friedman, N., MD, Koch, D. D., MD. "Intraocular Lenses: Expanding the Horizon for Refractive Surgery." EyeWorld, December 1997. <<http://www.eyeworld.org/eyeworld/december/632.html>> (15 November 1998).

Kronemyer, Bob. "Analyst downgrades market demand for excimer laser" Ocular Surgery News 15 December 1995.

LASIK Vision Correction Center website. <www.lasikny.com> (15 November 1998).

Lee, Judith. "PRK Planner: Write a Business Plan that Works for You." Review of Ophthalmology February 1996.

Legerton, Jerome. "Pro forma helps calculate effects of PRK services on your practice." Primary Care Optometry News September 1997. <<http://www.slackinc.com/eye/pcon/199709/prk.htm>> (14 November 1998).

Lewis, Carol. "Laser Eye Surgery: is it worth looking into?" U.S. Department of Health and Human Services FDA Consumer 17 July 1998.

Liddane, Lisa Lytle. "Perfect vision quest; LASIK can work wonders, but candidates should take their time in learning about the procedure." The Orange County Registrar 21 October 1998, morning ed., pg. E01.

Lipner, M. "Phakic Dwellings: Redecorating the Ocular Interior with Vision-Boosting Designs." EyeWorld, November 1997. <<http://www.eyeworld.org/November/cover.asp>> (15 November 1998).

Marcus, M. B. "The Next Miracles." OnLine U.S. News 30 March 1998. <<http://www.usnews.com/usnews/issue/980330/30medt.htm>> (15 November 1998).

"Market Information on Laser Vision Correction." <http://www.autonomous.com/usa/inv_marketinfo.htm> (18 November 1998).

- “Market Trends in Optometry.” Review of Optometry on-line.
<<http://www.revoptom.com/>> (18 November 1998).
- McCarty, Catherine A., et al. “Prevalence of Myopia in Adults.” Journal of Refractive Surgery Vol. 13 no. 3, May, June 1997.
- McFadden, Murray. “Laser Eye Surgery, PRK, LASIK.”
<<http://www.prk.com/invention.html>> (16 November 1998).
- Medical Data International, Inc. “First KeraVision Ring Eye Surgeries Performed.”
Medical Industry Today 11 December 1996.
- Migneco, Mary K., and Jay S. Pepose. “Attitudes of Successful Contact Lens Wearers
Toward Refractive Surgery.” Journal of Refractive Surgery Vol. 12, no. 1, January,
February 1996.
- Mobile Surgical Lasers LTD. <<http://ourworld.compuserve.com/homepages/mslasers/>>
(19 November 1998).
- Monroe, L. R. “Phakic IOLs: The Future of Refractive Surgery?” Eyenet Magazine, Vol.
2, no. 8, August 1998. <<http://www.eyenet.org/member/products/eyenet>> (15
November 1998).
- Moretti, Michael. “Laser Center Companies Develop US Market.” Journal of Refractive
Surgery Vol. 12 no. 4, May, June 1996.
- Morgan, Erinn. “State of the Market.”
<www.2020mag.com/issues/1998/feb/marketpart1.htm> (16 November 1998).
- Muller, Joann. “Eye laser firms will dissolve partnership.” The Boston Herald 9 June 1998.
- Nataloni, R. “Corneal Ring Segments Offer Patients Quick Visual Recovery.” Primary
Care Optometry News January 1998.
<<http://www.slackinc.com/eye/pcon/199801/corneal.htm>> (15 November 1998).
- National Eye Research Foundation Press Release. “Euclid Announces Start of Clinical
Trials on the Euclid Orthokeratology Contact Lens.”
<<http://www.nerf.org/euclidpress.html>> (11 November 1998).
- “OptiStock Vision Care Industry Overview.” <www.optistock.com/overview.html> (8
November 1998).
- “Optistock 1998’s Top Stock Performers.” <www.optistock.com/perform.html> (8
November 1998).
- “Optometrists.” Bureau of Labor Statistics 1998-99 Occupational Outlook Handbook.
<<http://www.bls.gov/oco/ocos073.htm>> (16 November 1998).

Pacific Laser Eye Centre Home Page. <<http://www.pacific-laser.com/procedure.html>> (11 November 1998).

Pethokoukis, James M. "Eyeing the Bottom Line." U. S. News Online. <<http://www.usnews.com/usnews/issue/980330/30lase.htm>> (11 November 1998).

Primary Care Optometry News. <www.slackinc.com/eye/pcon> (15 November 1998).

Raviola, Elio, and Torsten N. Wiesel. "The Neural Basis of Myopia." The Harvard Mahoney Neuroscience Institute Letter. Vol. 4, no. 3, Summer 1995.

"Refractive Market Perspectives." Market Scope Vol. 3 no. 11, 4 November 1998.

"Refractive Surgery." <weber.u.washington.edu/~ophweb/refract.html> (15 October 1998).

Review of Ophthalmology Home Page. <www.revophth.com> (15 November 1998).

Robbins, Allan M. "The History of Laser Vision Correction." <<http://www.2020robbins.com/history.html>> (18 November 1998).

Rozakis, George W. "LASIK—the future of refractive surgery." The Bores Eye Institute, 1996. <<http://www.getnet.com/~labores/lasik3.html>> (11 November 1998).

Rozakis, George W. "LASIK—importance of the flap." The Bores Eye Institute, 1996. <<http://www.getnet.com/~labores/lasik4.html>> (11 November 1998).

Salz, J.J., MD. "Posterior Phakic IOL Shows Promise in Early FDA Trials." Primary Care Optometry News 26 January 1998. <<http://www.slackinc.com/eye/pcon/199801/iol.htm>> (15 November 1998).

Sandler, G. "Phakic IOLs: The United States Joins the Equation." EyeWorld December 1997. <<http://www.eyeworld.org/December/625.html>> (15 November 1998).

Shankarkumar, Sharmila. "Technological Change in Refractive Surgery." Frost & Sullivan Healthcare Market Engineering News October 1998. <<http://www.frost.com/verity/newsletter/healthcare/98-10/art02.htm>> (14 November 1998).

Sher, Neal A. "Will we ever be able to Help the Hyperope?" Review of Ophthalmology

Singer, Henry W. "Consolidation and predicted increase in demand challenge U.S. ophthalmology." Ocular Surgery News February 1998.

Singer, Henry W. "As Excimer use grows globally, U.S. companies battle at home." Ocular Surgery News International Edition September 1996. <<http://www.slackinc.com/eye/osni/199610/summit.htm>> (16 October 1998).

Singer, Henry W. "Embattled excimer companies still pursue market growth." Ocular Surgery News 15 September 1996. <<http://www.slackinc.com/eye/osn/19969b/excos.htm>> (28 October 1998).

Staar Surgical Co. Home Page 1998. <<http://www.staar.com/patf.html>> (15 November 1998).

Summit Technology Home Page. <<http://www.sum-tech.com/ast.htm>> (11 November 1998).

Summit Press Release. "Summit Technology Announces Acquisition of Krumeich-Barraquer Microkeratome." 28 October 1998.

TLC The Laser Center Home Page. <www.lzr.com> (28 November 1998).

Thompson, Alan K. "Refractive Surgery Medical Commentary." Army Link News 3 March 1997.
<<http://www.dtic.mil/armylink/news/Mar1997/a19970303medicalc.html>> (22 November 1998).

VanWestenbrugge, John A. "Our Experience with 5 Excimer Lasers." Review of Ophthalmology March 1995. <<http://www.revophth.com/RPC5F4.HTM>> (16 November 1998).

Vision council of America. "Vision Industry at a Glance."
<<http://www.visionsite.org/profes/glance.htm>> (16 November 1998).

Vision Surgery & Laser Center Home Page 1998. "New Technologies: Intraocular Lenses for the Correction of Myopia." <<http://www.vslc.com/newtechnologies.html>> (15 November 1998).

Vision Surgery & Laser Center Home Page 1998. "New Technologies: Intracorneal Ring (ICR)." <<http://www.vslc.com/newtechnologies.html>> (November 10, 1998).

"VisX Excimer gets FDA approval for PRK." Ocular Surgery News 15 May 1996.
<<http://www.slackinc.com/eye/osn/19965b/VisX.htm>> (28 October 1998).

VisX form 10Q. <sec.yahoo.com/e1/v/visx.html> (8 November 1998).

"VisX Laser Gains FDA Panel Review for Hyperopia." Editorial. Medical Industry Today 22 July 1998.

"What's Hot in Ophthalmic Development." Ocular Surgery News (March 1, 1998).
<<http://www.slackinc.com/eye/osn/199803a/hot.asp>> (November 10, 1998).

Yahoo! Finance. <<http://biz.yahoo.com/research...>> (3 November 1998).