CATARACTS, LASERS, & REFRACTIVE LENS IMPLANTS
A Guide for Patients and Their Families

Dedicated
To our families, patients, and employees

written by
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It is estimated that nearly 3,000,000 cataract operations are performed annually in the United States, making it one of the most frequently performed of all surgical procedures. For many patients and their families, there appears to be a lack of understanding about cataracts and cataract surgery. It is the intent of this book to help these individuals better understand what lies ahead in their treatment. The more informed the patient is, the easier it will be for him or her to make the proper decisions about cataract surgery such as when to have surgery, where to have surgery, and which doctor and procedure to select. Those who are close to or who will be helping to take care of the patient will also benefit from this book.

The biggest decision a patient must face is choosing the right surgeon. We believe that one of the most important factors, besides good surgical technique and ability, is to find someone who genuinely cares about you and is willing to put your health and welfare above everything else. Many surgeons can perform good surgery but, may not be able to respond to you as an individual. Techniques are changing and evolving monthly and your surgeon must keep current, even if it means spending a considerable amount of time and money attending courses, seminars, and meetings. Make sure that the surgeon you choose is a board certified eye surgeon and that he or she trained at a reputable residency program. Your surgeon should have access to excellent equipment and facilities.*

Make sure the fees are reasonable and in line with others in the area. Today, there are a number of technically superb surgeons around the country and no one single surgeon or group of surgeons should charge astronomical fees that are out of line with what others charge. Ask if he or she accepts Medicare assignment. If they do, it will be a tremendous financial savings to patients who have Medicare and will tell you that the doctor is genuinely concerned about your personal situation. It will also tell you that your doctor is doing his or her part to help decrease rising health care costs.

Today, there is no reason to delay treatment and surgery until the cataract completely takes away vision. With our present technology and improved techniques, cataract surgery should be welcomed, not feared.

*Does your surgeon have or participates in a clinical research center where new technology and implants are studied and compared?
Chapter 1

TYPICAL PATIENT ENCOUNTER

James Barnett nearly ran the stop sign. He didn’t see it clearly until it was almost too late. As he and his wife, Eilene, continued down a street they had taken so many times before, Eilene pointed to a sign announcing new construction. “Look what they are building in the old ball field,” she said.

James squinted at the large sign, but the letters were blurry. “I didn’t see what it said,” James responded, “We went by too fast.”

Eilene knew that her husband’s vision was poor, and for months she had refused to go anywhere with him at night unless he let her drive. Now she knew his vision was getting worse. However, it wasn’t something he wanted to talk about. He was afraid something was seriously wrong with his eyes, and remembered what his mother had gone through when she had to have cataract surgery many years ago.

Not only was glare bothering James’ eyes, especially from headlights and street lights when he drove at night, but also colors seemed more faded. The roses Eilene grew did not appear nearly as bright red this year as years before. James was also having trouble seeing small letters and words in the newspaper, as well as feeling embarrassed by misreading the numbers on his cell phone. He initially thought his bifocals needed strengthening, but a change in glasses didn’t help.

After dropping Eilene off at home (much to her relief), James drove to the golf course. He watched more carefully for stop signs and found that he was awfully close to an intersection before the sign was clear. On the golf course, James hit the golf ball down the fairway but lost track of it after about thirty yards. The other members of his group applauded loudly, so he assumed he had made a good shot, smiled thankfully, and waved. He drove the golf cart straight down the fairway, hoping he was going where his golf ball might be. He wasn't even close, and one of the foursome mocked, “Are you blind, Jim?”

James knew then that it was time to make an appointment to see Dr. Mitchell and have his eyes checked.
THE EYE EXAMINATION

James’ son-in-law drove him and Eilene to the office of Dr. Mitchell, the optometrist who had performed James’ annual eye exams for years. Once there, they had a brief wait in the reception area before they were escorted to an examination room filled with machines and equipment. As Dr. Mitchell entered the room he asked, “How are things going, James?”

“Just fine, Doc. Except everyone is bugging me about my poor vision.”

“Do you think your sight has gotten worse since I last saw you?” asked Dr. Mitchell.

“Well, reading is harder and it takes a real effort, but I didn’t think things were too bad until I noticed I was having trouble seeing the road signs when I was driving the other day.”

“It sounds as if your cataracts are progressing, but let’s make sure nothing else is wrong.”

After covering James’ left eye, Dr. Mitchell instructed him to read the eye chart at the end of the room.

“Huh!” exclaimed James. “I can only see the third line from the top.”

“That’s 20/100 vision. How about the other eye?” asked Dr. Mitchell, as he covered James’ right eye.

“That’s much better,” James said. “E, G, N, U, S.”

“That’s the 20/50 line, which means you can see letters at 20 feet that the average person can see at 50 feet.”

“That sounds pretty bad.”

“It’s gotten worse since the last time I saw you, James. Legally, 20/40 vision is required for driving during both day and night, so you really shouldn’t be driving at night anymore.”

Dr. Mitchell then checked James’ eyes with a small bright light, looking for problems related to eyelids, the size and reaction of his pupils, muscle balance, and eye movement. He next asked James to place his chin in an instrument called a ‘slit-lamp’, a type of microscope that allowed Dr. Mitchell to look at James’ eyes under high magnification.

After using the slit lamp and swinging it to one side, Dr. Mitchell placed drops in James’ eyes.

“That stings a little bit,” said James with a frown.

“Yes,” said Dr. Mitchell, “but it will only last a few seconds. Now, gently blot your eyes with this tissue. I’m going to perform a glaucoma test, which measures the fluid pressure in your eye.”
Chapter 2: The Eye Examination

After that test, Dr. Mitchell said, “In order for me to get a look inside your eyes and to see your cataracts more fully, I need to place another drop in each eye to dilate your pupils. This drop will take about 30 minutes to work.”

After Dr. Mitchell put in the drops, he left to examine another patient. When he returned, he again checked James’ eyes with a light, this time with an instrument called an ophthalmoscope. Later, he put on a strange-looking headband with a bright light on it (known as an indirect ophthalmoscope) and looked at each of James’ eyes through a small hand-held lens. He asked James to gaze in various directions so he could see into the ‘corners’ of James’ eyes. He then took the head lamp off and said, “The back of your eyes and the optic nerves look healthy. You don’t have glaucoma or any other form of deterioration in the retina or the macula.”

“The macula?” James asked.

“The macula is an area near the center of your retina. It’s responsible for providing the sharpest, straight ahead, central vision. Yours are perfectly healthy. I can’t improve your sight any more by changing your eyeglass prescription. I think the time has come for you to consider having your cataracts removed.”

“You mean surgery?” Eilene and James asked together.

“Yes. There are no medicines, diets, vitamins, or exercises that will help a cataract. Because I don’t perform surgery, I want to send you to a specialist who does nothing but eye surgery and is up on all of the best and newest treatments.

“Dr. Baker is the ophthalmologist I usually refer my patients to. He specializes in surgery on the anterior portion of the eye, which includes cataract surgery, implants, cornea transplants, and laser surgery. I refer to him because I believe he is the most skilled surgeon that I know of and his employees always treat my patients well. Most of my patients thank me for sending them to Dr. Baker and his staff. Unless you prefer someone else, I’ll ask my secretary to make an appointment for you with Dr. Baker. While you’re waiting to see him, I want the two of you to talk this over, and if you decide to have the operation, to start thinking about a convenient time. I will leave the details about the operation to Dr. Baker and his staff. After your operation and when your condition appears stable, Dr. Baker will send you back to me so I can monitor your postoperative course and change the lenses in your glasses. I will also continue to see you and your family for routine eye care.”

James decided to see Dr. Baker and an appointment was set up for two weeks later. On that day, after Dr. Baker completed an examination of James’ eyes, similar to the one Dr. Mitchell had done, he talked with the Barnetts in his office.

“Mr. Barnett, I agree with Dr. Mitchell’s assessment about your eyes and the progression of your cataracts. I think you would benefit from cataract surgery. Certainly your eyesight isn’t going to get better until your cataracts are removed.”
“I am sure you have a lot of questions about cataracts and cataract surgery. To answer those, we have prepared special booklets and information on cataracts and cataract surgery. After you read them, I will answer any remaining questions you might have and discuss the surgery further so you won’t have any surprises on the day of your surgery.”

The next two chapters cover the information that James and Eilene Barnett received at Dr. Baker’s office.

Dr. Phillip C. Hoopes, Jr. performs a cataract examination
WHAT ARE CATARACTS?

For most of our lives our eyes provide us with good vision, although many of us, in time, require glasses, contact lenses, or refractive procedures such as LASIK to sharpen that vision. We take good vision for granted until it changes or is threatened, and then we quickly learn to appreciate the precious gift of sight. Surveys have shown that fear of blindness is second only to fear of cancer.

Cataracts are by far the most common treatable cause of poor vision. To better understand what a cataract is, it is helpful to know something about the eye and how it works.

The eye is actually a very complex structure, which is closely related to the structures of the brain. To put it simply, the eye is like a camera. Light enters through the clear front of the eye (the cornea), passes through the pupil (the opening in the center of the iris, or colored portion of the eye), and is focused by the lens, which lies behind the pupil and the iris, onto the retina. The pupil is similar to the aperture or opening of a camera. It gets larger or smaller depending on how much light the eye is exposed to.

The clear lens of the eye is like the lens of a camera, in that it focuses light to provide clear distinct detail. In the back of the eye is the retina, which is like the film in a camera. It receives the light, but instead of ‘sorting’ it to be developed into a photograph, it transmits the light to the brain through the optic nerve. If the retina is in good condition, the picture will be clear; if the retina is damaged or has aged considerably, the picture may not be so clear.
The lens is normally clear and surrounded by a special capsule that holds it in place and helps it change shape to focus an image. When the lens becomes cloudy, a cataract is present. The entire lens does not need to be cloudy. A cataract can have cloudiness or opacities anywhere in the lens.

Most cataracts are a natural part of the aging process and are found to some degree in up to 65% of persons in their sixties and in over 80% of persons older than 70 years of age. In one recent large study, 15% of persons 52 to 85 years of age had cataracts that reduced their visual acuity to below normal. It is estimated that 5 to 10 million persons throughout the world become visually disabled each year because of cataracts. In this country alone, some 3,000,000+ cataract operations are performed each year. Patients who refuse surgery for cataracts constitute the second largest group of blind persons in the United States.

Some cataracts advance rapidly and impair vision in a matter of months, while others progress slowly and take years before they cause any significant problems. A cataract may be present in only one eye, or if present in both eyes, may worsen at different rates. Those that develop on the back of or in the center of the lens are the ones that are usually responsible for vision being blurrier in the bright sunlight than in dim light.

Cataracts can be responsible for glare, haziness, difficulty in reading or driving, and halos around lights at night. If a cataract is more developed in one eye than the other, there may be a loss of depth perception. Only when a cataract is in an extremely advanced stage does it produce pain, discomfort, or red eyes.

Although cataracts are more common in older persons, people in their thirties or forties can develop cataracts. Some cataracts are associated with injuries, medications (steroids), inflammation, and certain systemic diseases such as diabetes.

We do not yet know exactly what causes the cataracts of aging, but we can summarize a lot of things we do know about them:

1. Cataracts would most likely develop in every person if he or she lived long enough.
2. Cataracts are not tumors or cancers. They cannot spread. They are not contagious.
3. A cataract is not a film or a growth over the surface of the eye, and thus it cannot be removed simply by peeling a film off the eye. A cataract is clouding in the lens, which is inside the eye.
4. Cataracts are not caused by eyestrain or using your eyes too much, such as in reading or watching television.

5. Cataracts progress differently in different people. They progress at their own rate regardless of whether the eyes are used or not. Not using your eyes will not slow down the progress or development of a cataract.

6. There is no proof that cataracts are related to diet or that special diets will prevent cataracts.

7. Cataracts are not caused by normal exposure to sunlight.

The only treatment for cataracts at this time is surgical removal. Other treatments, such as eye exercise, vitamins, diets, and special eye drops, have not been proven effective.
Cataracts, Lasers, and Lens Implants: A Guide For Patients and their Families

Chapter 4

TREATMENT OF CATARACTS

Cataract surgery has improved and advanced dramatically during the last several decades. Many patients recall how frightened their parents or grandparents were at the thought of having a cataract operation. Not only were they in the hospital for as long as several days, but the eye was usually painful after the operation and they had to lie still for several weeks and remain inactive for many months. Furthermore, their vision was not fully recovered until they had been fitted with thick, heavy cataract glasses. Often, after the first eye was operated, the visual symptoms were worse due to the confusion of the vision between the eye seeing through a thick cataract lens on the operated side, and the eye seeing through a regular thin lens on the other side. This often required covering one eye or the other to prevent double vision.

However, with today’s modern surgical techniques and scientific advances in technology, cataract surgery has become practically painless, is much easier on the patient, and provides better vision. The operation can be performed on an outpatient basis most of the time. The eye feels relatively comfortable soon after the operation, and the patient is able to return to regular activities quickly.

If you decide to have cataract surgery, yours will be one of the more than three million cataract operations performed each year in this country. The best way for you to see well after cataract surgery is to receive a man-made substitute for the natural lens that has been removed. Three kinds of substitutes for the natural lens of the eye are currently available:

1. Spectacles (thick cataract glasses).
2. Contact lenses.
3. Intraocular lens implants (IOLs).

Each of these three substitutes for the natural lens has certain advantages and disadvantages.

Cataract glasses are the oldest and most conservative way to restore sight after cataract surgery. Usually these glasses can only be used comfortably after a patient has had the cataract removed from each eye. Cataract spectacles have several drawbacks: they are extremely thick and heavy; they make objects appear about one-third larger than they really are; they make straight objects seem curved and they distort side vision; they can be difficult to get used to and some people never adjust to them. They can also cause difficulties when the wearer is going up or down stairs. No one really requests this method of correction and surgeons have abandoned this old method.
A contact lens is a small thin lens that rides on a layer of tears on the eye's surface. Several kinds of contact lenses are now available - hard, soft, and extended-wear soft contact lenses. However, many older patients are unable to wear contact lenses because of discomfort and irritation in addition to insertion and removal problems.

The third kind of man-made substitute for the eye's natural lens is the intraocular lens (IOL). This is a tiny synthetic lens made of plastic, silicone, or acrylic that is permanently inserted in the eye and will last indefinitely. Since this lens is placed in about the same place the cloudy natural lens had been, the restored vision is more natural. Side vision and image size are normal and there is no discomfort. There is no foreign body to irritate the surface of the eye.

IOL implants have been performed in increasing numbers over the last 35 years. Older lens types and techniques were not uniformly successful, but with modern, high quality IOLs and highly sophisticated surgical techniques, most patients can achieve excellent vision. Almost all patients now receive an implant at the time of their cataract surgery. The most recent IOL advancements are multifocal or pseudo-accommodative lenses that allow patients to see close up and in the distance. Technology continues to improve implants and there will be changes and improvements yet to come.

In the spring of 2005, the FDA approved several new lens implants that allow the patient to see both in the distance and close up. The usual standard implant would only allow distant vision and the patient would have to use reading glasses for reading. Medicare pays the cost of the standard implant but does not pay the additional cost associated with these new implants. In the beginning, the FDA would not even allow Medicare recipients to have these new implants as they did not want to create a system that would allow those who could afford the new implants to pay extra for it while those who couldn't afford it wouldn't be able to receive them. However, they now allow those who want these new high-technology implants to pay extra for this improvement. The extra cost to the patient for these new implants ranges from $1,500 to $2,500 per eye; most patients are well pleased with their results. Clinical studies used to support the March 2005 FDA approval showed that 80 percent of people who received the lens didn’t use glasses for any activities after their cataract surgery; 84 percent who received the lens in both eyes had distance vision of 20/25 or better, with near vision of 20/30 or better, well enough to read newspaper print. Chapter 5 discusses these new lenses in more detail.
How is the cataract removed?

Modern cataract surgery has been made possible by the operating microscope. This high-powered microscope allows the surgeon to see better to remove the cataract and implant the IOL into the eye. In addition to using the operating microscope, the modern cataract surgeon uses an extracapsular surgical technique. This means that the surgeon removes the lens contents but leaves the back portion of the natural lens capsule in place. Although this technique is much more difficult for many surgeons to perform, it provides the patient with many benefits.

The old cloudy lens can be removed by several different techniques. The technique chosen depends on the type of cataract and other factors about the patient. The whole lens can be removed (intracapsular technique) or only the cloudy central portion can be removed (extracapsular technique). Another extracapsular technique is phacoemulsification, where a tiny ultrasonic, vibrating instrument is placed into the cataract to break it up into fragments that are liquefied and suctioned out through a small incision in the eye. This is sometimes mistakenly called the ‘laser technique’, but that is not an accurate description. Phacoemulsification (ultrasonic) cataract removal with intraocular lens implantation gives excellent visual results, but the ophthalmologist must weigh all factors before he or she can tell their patient which technique will be best for them. We personally favor performing phacoemulsification because it allows for a smaller incision and usually no stitches. Dr. Hoopes, Sr. did fellowship training in
phacoemulsification cataract removal and was the first Kansas City eye surgeon to use it routinely with implant surgery.

Recently, lasers have been introduced to perform several of the steps of cataract surgery. Hoopes Vision has become a leader in this new method and was the first eye clinic in the world to have two such lasers. The next chapter describes this new and exciting approach to cataract removal.

With outpatient cataract surgery, it is possible to resume most normal activities by the following day after surgery. Follow-up visits to the eye doctor over the next six to eight weeks are extremely important. In many cases, vision can be restored to normal levels long before the end of that time, but the healing process, regardless of the technique, will take about four to six weeks. Observation and counseling of the patient during the postoperative visits are critical.
Anesthesia

Local anesthesia (a painless injection beneath and behind the eye) is usually used, in combination with topical anesthetic eye drops. After talking with the patient and the patient's family, the ophthalmologist will choose the type of anesthesia that will make the patient most comfortable.

In all cases, a specialist in anesthesia monitors the patient for safety during the period of surgery. The actual operation usually takes about ten minutes or less.
Near and intermediate vision result from the action of the focusing muscle in the eye, called the ciliary muscle. This muscle changes the power and thus the focus of the natural lens. Over time, however, the natural crystalline lens becomes larger and harder. This prevents your lens from changing shape and focusing as it once did and is why you may need glasses or bifocals to read as you get into your 40’s. This inability to focus, or accommodate, is called presbyopia and its earliest symptom is difficulty seeing things up close. With age, your lens will continue to harden, eventually turning cloudy as it becomes a cataract. It is a natural process that occurs in most everyone over 60 years of age. Eventually, cataracts will need to be removed if you want to see better and be able to pass the driver’s license vision test.

In the past the only option for replacing the natural lens during cataract surgery was a single focus implant. Patients could choose to have both eyes corrected to distance vision, or if they wanted to maintain some reading ability without glasses could choose to have their non-dominant eye corrected for near vision and their dominant eye corrected for distance (frequently referred to as mono vision or blended vision). However, new lens options are now able to provide a greater range of vision and help patients see better both near and far.

New multifocal lens implants such as TECNIS® Multifocal (AMO) and ReSTOR® (Alcon Laboratories, Inc.) create good near and distance vision by combining diffractive and refractive optics. Diffraction is the bending or slowing down of light as it comes in contact with a “step” or edge of something. By gradually decreasing the step heights of the center of the implant,
light is harmonized between two primary focal points depending on the light conditions the patient is exposed to.

What is unique about the TECNIS® Multifocal Lens? The lens has the ability to consistently offer patients improved vision at a range of distances, from close-up to middle and far. Because the TECNIS® Multifocal lens doesn't work with the muscles of the eye, it is not dependent on a mechanical process or the movement of the lens to give clear vision.

The TECNIS® Multifocal lens is similar to two lenses in one. One, a refractive lens, is for distance; the other is a lens for near vision. This gives the TECNIS® Multifocal IOL more consistent results and more satisfied patients who can enjoy activities like reading, sewing, seeing your smartphone or looking at the fine print on documents, all without the hassle of reading glasses, bifocals, progressive lenses or contact lenses. Clinical data demonstrates that the TECNIS® Multifocal IOL greatly reduces dependence on glasses or bifocals:

- Over 94% of patients said they would choose the TECNIS® Multifocal lens again.
- Nearly 9 out of 10 patients enjoy freedom from glasses after receiving the TECNIS® Multifocal lens.

Most people will be able to see clearly in the distance, have very good reading vision and functional intermediate vision without glasses, but some people may be more comfortable with additional correction, particularly for long periods of computer work.

With the ReSTOR® lens, the circular zone widths and step height both decrease moving away from the center of the lens. A look at the optic's surface shows the rings coming closer together at the periphery. The circular zone beyond the 3.6 mm diameter produces distance vision, while the center of the implant gives close up vision. This implant has had several improvements and the current third generation lens also gives good intermediate vision. In the FDA clinical study of this implant, 81% of patients implanted with the lens never needed to wear glasses. When asked if they would have this implant again, 95% said yes.

What about patients with astigmatism? Astigmatism is a common eye condition and refractive error marked by an irregular curvature of the cornea and occurs in nearly everyone to some degree. If the cornea is significantly irregular the condition must be treated. A person’s eye is usually spherical or round in shape. However, the eye of a person with astigmatism is shaped more like a football or the back of a spoon. When light enters the eye, it is refracted or bent more in one direction than the other, allowing only part of the object the be in focus at a time. Objects at any distance can appear blurry and wavy. Astigmatism can be hereditary and is often present at birth. It can also be the result of pressure from the eyelids on the cornea. People with undetected astigmatism often experience headaches, fatigue, eyestrain and blurred vision.
at all distances. Treating astigmatism with patients undergoing cataract surgery or lens exchange surgery has always been a challenge. In the past, doctors relied on incisional techniques such as astigmatic keratotomy (AK) or limbal relaxing incisions (LRI) to reduce or eliminate astigmatism. These techniques require the surgeon to make two incisions perpendicular to the astigmatism on the surface of the cornea. These are highly variable as different surgeons will use different lengths, depths, configurations, and locations. Coupled with the fact that all patients heal differently, the results are often variable. Over the past decade the precision of LASIK has been used to treat leftover astigmatism and the surgeon plans on two separate surgeries (IOL first, LASIK second). This process is called “Bioptics”.

Recently, IOL technology has improved for those who have pre-existing corneal astigmatism. Alcon announced the approval of their Toric IOL in 2007 called the AcrySof® Toric IOL. The AcrySof® Toric IOL has several important characteristics which make it an excellent option for the correction of astigmatism. It is a foldable, single-piece IOL which allows it to be placed into the capsular bag through a small incision during cataract surgery. With its 6.0 mm optic and STABLEFORCE® haptics and good adhesive properties, it will remain in position. Because astigmatism has an axis, it is important that a lens be placed on the correct axis at the time of surgery and stay there for the life of the lens. Axis marks are placed on the lens to help guide the surgeon in rotating the lens to the precise location in the eye.

Results have been excellent with patients receiving bilateral toric implants (one in each eye). In this group, 97% of patients saw 20/25 without glasses for distance vision compared to 77% of patients receiving standard implants without the toric correction.

There is an additional charge associated with each of these advanced technology lenses.
Chapter 6

WHEN TO HAVE SURGERY

After reading and studying the materials on cataracts and cataract surgery, James and Eilene felt they had a much better understanding about his condition and choices. However, James still had some unanswered questions.

“When do you advise that I have surgery?” he asked Dr. Baker.

“Cataract surgery is not like surgery for an emergency appendicitis attack. It can be done almost any time at your convenience, and there is no rush. If you would like, seek another surgeon’s opinion. Surgery always carries some risk and should not be undertaken unless it is necessary. The final decision is yours, because you, and you alone, know how much difficulty you are having with your vision and whether you need to see better.”

“As a rule, cataract surgery is a good idea only if your vision has worsened to the point that you are having trouble carrying on your normal daily activities. The person with special visual needs, such as an airplane pilot, truck driver, or accountant, will usually need cataract surgery sooner. Often, patients with a cataract in one eye function well with the vision provided by the better eye. Others find the poor vision in the blurred eye worrisome.”

“Choosing cataract surgery is an individual decision. If a person has a cataract but can still see well enough to live and work normally, we recommend that he or she think about putting off surgery until the cataract really starts to hinder daily life.”

“In your case, Mr. Barnett, it is obvious that the cataracts are interfering significantly with the quality of your life and are keeping you from doing and enjoying many of the things you normally do, such as driving, playing golf, and reading. Your cataracts certainly won’t get any better; they will only get worse. You’re 67 years old, in good health, and should have many years ahead of you. The sooner you have them removed, the sooner you will have a return of useful vision. Also, if you wait, you will probably just worry and fuss about your vision.”

James grinned ruefully at Eilene and said, “You’re right, Dr. Baker. I know I need the cataracts removed to see better, but I’ve been concerned about the operation itself. I had a friend who had a cataract removed last year and didn’t see well afterwards.”

“Unfortunately, Mr. Barnett, although cataract surgery is one of the most successful and safest of all operations, some patients end up not seeing any better after surgery. There usually is an answer for this. It might be due to conditions that existed before the cataract was removed, such as macular degeneration, glaucoma, or diabetes. We will talk more about those problems when we go over possible complications.”

“That’s fine, let’s go ahead and schedule surgery. Which eye will you do first, Doc?”
“We almost always do the worst eye first, which in your case would be your right eye, the one with the 20/100 vision.”

“I don’t want to wear those thick cataract glasses. Do you suggest that I have an implant or a contact lens?”

“Your eye is perfectly healthy and there is no reason why you couldn’t have an implant. In fact, it is by far the best of the three choices for you and most patients. Your eyes seem to be somewhat dry, and you have some arthritis in your fingers. Those two things would probably make it difficult for you to use a contact lens. With an implant, your vision will be more like what you are used to. I would strongly suggest an implant, and a posterior chamber IOL would be best. It will be placed behind the pupil and will not be visible. Because you enjoy activities such as reading and crossword puzzles that require good close vision, I recommend a multifocal IOL. That should give you great distance vision for activities like golf and driving, but will also give you improved close vision. In fact, most of my patients who opt for multifocal implants find they don’t need reading glasses at all!”

“It would be great not to need readers,” James replied. “Will you operate at the hospital?”

“Thirty years ago, we always operated at the hospital. We then began operating on patients on an outpatient basis, so they came into the hospital on the morning of the operation and left shortly after their operation. Recently, we have equipped our own surgery center apart from the hospital. It is located conveniently next to our office, and is devoted solely to eye surgery and eye surgery patients. Your operation will usually be performed in the morning and you can usually leave for home shortly thereafter. The total amount of time you will spend in the surgery center is about two hours. Our patients have preferred this arrangement to the extent that we are now performing the majority of our operations there. The surgery center has comfortable furnishings and the best operating equipment and instruments available. Only if a patient has serious medical problems, or if he or she specifically requests it, do we perform surgery at the local hospital. Your insurance carrier may dictate that you go to one of their “provider hospitals” to have surgery. This makes no financial sense since it usually costs the insurance company two to three times as much to have your surgery at a hospital than at our surgery center, and they currently do not have any cataract lasers in any of the hospitals in Utah. You should also be aware that under the Affordable Care Act, some of those provider panels could also restrict which surgeons and hospitals or surgery centers you are allowed to go to.”

“In your case, Mr. Barnett, because you are healthy and because I understand that you are not very fond of hospitals, I would suggest that your operation be performed at our own outpatient surgery center. In addition, our on-site surgery center is equipped with a cataract laser, which none of the local hospitals have. Laser-assisted cataract surgery is an exciting new development. In this kind of procedure, a fast, accurate, computer-guided laser automates the first few steps in the surgery, ones that I used to perform with hand-held blades. The laser creates the initial incisions, including incisions to correct astigmatism,
opens the capsule so that the cataract can be extracted, and even breaks up the cataract for easier removal. This means I don’t have to spend as much time with the ultrasound probe, which can make for a more comfortable procedure and quicker healing. In your case, where you have some astigmatism, I recommend the laser procedure, as I think it will give you better vision after surgery."

“That sounds great, but let’s go over again how long I will be laid up and when my eye will be fully recovered.”

“The operation usually takes less than ten minutes and, with outpatient surgery, you should be able to resume most of your normal activities by the next day. The eye is generally healed and the vision stable between four to six weeks after the operation. At this time, the lens in your old glasses may have to be changed in order for you to see as clearly as possible.”

“All this sounds good, Dr. Baker, and I’m sure I’ll be helped by the surgery.” James paused and cleared his throat. “However, I can’t help but worry about how much it is going to cost.”

“And,” added Eilene, “we read about complications and you’ve mentioned complications, even though you’ve said the operation is safe. I think we need to know what could go wrong.”

“You need the answers to both of those questions before you can make a final decision. If you don’t mind, I’ll ask our surgery counselor, Mrs. Green, to go over the cost with you and she can explain the ramifications of Medicare much better than I can. Then you’ll come back here and we’ll go over the complications.

“Before I take you to Mrs. Green’s office, here is some more information for you on the new cataract lasers I mentioned, as well as our surgical facility.”
Chapter 7

LASER CATARACT SURGERY

There has never been a surgery that has changed and improved as much as cataract surgery. In the 1970s, when Dr. Hoopes, Sr. first learned how to remove cataracts, the technique was to make a long 180° incision along the upper cornea, open the eye wide and freeze the cataract and pull it out. The incision was then closed with a dozen large sutures. There were no implants and so patients had to wear extremely thick magnifying lenses to be able to see. This method was called intracapsular surgery, where the entire lens was removed. Later, the extracapsular technique became popular, where an opening capsulotomy was made in the anterior capsule, and the inside nuclear portion of the cataract was removed and the softer portion, the cortex, was suctioned out. This was a much better method particularly when implants became popular as there would be a place for the lens to rest and stabilize.

The next big improvement was more controversial and consisted of placing a small ultrasonic needle into the center of the cataract to break it up and emulsify it. This technique was called phacoemulsification and was used early on by only a handful of surgeons who were publicly criticized and derided by the more conservative group of doctors. They felt this was too dangerous and would cause major problems later. However, these early pioneers embraced the procedure and made it better and safer. Dr. Hoopes Sr. recognized the advantages of this smaller incision method and accepted additional fellowship training in this technique in Georgia in 1982. He became the first phacoemulsification surgeon to routinely combine this with posterior chamber implant procedures in the Kansas City area where he practiced for 15 years. Some surgeons actually used deceptive advertising to promote this as “laser cataract surgery” when in reality it was an ultrasonic method.

Finally, in 2010, femtosecond lasers were developed that could be used to perform many of the five steps required in cataract surgery. Shortly thereafter, Hoopes Vision became one of the first practices in the country to become involved with laser cataract surgery and had the first surgery center in the world to acquire two different cataract lasers, the Alcon LenSx® and the OptiMedica Catalys® femtosecond lasers. This placed us in the unique position to be able to compare and study the results of these different lasers.

Lasers used in cataract surgery currently are able to perform 3 of the 5 steps normally required. Lasers can make the initial incisions into the eye as well as incisions to reduce astigmatism. They can perform the all-important circular capsulotomy, or opening in the anterior capsule surrounding the cataract. Finally, these lasers are able to fragment or break
up the inner hard part of the cataract, the nucleus. This makes it possible to use less ultrasonic energy when suctioning the cataract out of the eye which produces clearer corneas initially. The surgeon still needs to suction the softer cortex out of the eye as well as manually place the IOL into its place within the capsular bag. Hoopes Vision views laser cataract surgery as a significant improvement and advancement in cataract surgery and predicts a future where most cataract removals will utilize this amazing newer technology.

Sadly, Medicare and most insurance companies refuse to pay the additional costs to provide this newer and more precise way of removing cataracts. They will, however, allow the patients who can, to pay the extra cost and expenses to be able to have laser cataract surgery. We believe this is a more precise way to remove cataracts and will be the future of modern cataract surgery. We encourage our patients who can afford the extra expense to consider using our cataract laser during their surgery.
Chapter 8

EYESURG OF UTAH

Hoopes Vision moved into our new building in January 2013. We incorporated many changes and improvements learned from previous facilities and locations. With the recent advent of laser cataract surgery, this gave us the unique opportunity to design and build our new outpatient ambulatory surgery center (ASC), EyeSurg of Utah, around laser cataract surgery.

The new surgery center, located on the north end of the first floor, incorporates a special “laser room” adjacent to our four large operating rooms. Patients have the laser portion of the surgery in this room before being taken to the operating room for the final removal of the cataract and placement of the IOL.

This ultramodern facility is unlike any other surgery center in the state, if not the country. It houses the very latest and up-to-date equipment and lasers. It is spotlessly clean and the patient flow is efficient and comfortable. Our surgery center staff are exceptionally well trained and caring individuals who contribute to a warm and friendly environment. Since eye surgery is all we do, all of our training, equipment, and design is intended to deliver a quick, safe, comfortable experience for cataract patients.

Perhaps the most compelling reason to have surgery at EyeSurg of Utah is the tremendous cost savings patients will experience when compared to the much higher facility fees and charges routinely encountered and experienced at hospital-based surgery centers. The costs at area hospitals can be three to five times higher! We invite all potential surgery patients to visit and tour this amazing surgical facility.
“First let me say, Mr. Barnett, we’re glad you felt free to ask about the cost of your operation. Knowing the approximate amount and how it will be paid should help you feel less concerned about the operation itself.” Mrs. Green continued, “The rising cost of health care is a major concern for everybody. And, with the recent passage of the Affordable Care Act, nobody really has a good idea of what might happen in the future with reimbursements for procedures. Also, large health care monopolies and systems have taken control and decision-making away from doctors and, in my opinion, have made the situation even worse. To help you understand what to expect financially from undergoing cataract surgery, we’ll go over both the cost of your operation, Mr. Barnett, as well as current Medicare policy.”

“The total cost of cataract surgery across the country varies between $2500.00 and $5500.00, depending on where a person lives, where the operation is performed, whether a cataract laser is used, and the surgeon who does the operation.”

“The range in surgical charges does not necessarily reflect the skill or expertise of the surgeon. The fact that one surgeon charges $500 or $1000 more than another surgeon does not necessarily mean that he or she is that much better or that you will end up with a better result.”

“Because most people have health insurance, few have to pay the whole cost of the operation. However, most insurance companies, including Medicare, will not cover the full cost and therefore you will be expected to pay the remainder.”

“If you have Medicare and a supplemental insurance, usually all hospital and surgical fees will be paid after your deductible has been met. If you have only Medicare, then 80% of the allowable will be paid by Medicare and you will be responsible for the remaining 20%.”

“Medicare is all I have,” said James.

“That’s fine,” said Mrs. Green. “I’ll go on to explain what ‘assignment’ means. In an effort to hold down the costs of medical care, Dr. Baker and other physicians in the office have signed an agreement with Medicare to ‘accept assignment’ on surgical and office fees for Medicare patients. For you then, Mr. Barnett, as for all Medicare patients, this means that we will accept the amount that Medicare pays as full reimbursement for a specific procedure, even if that is less than we usually charge. You, of course, will still be responsible for paying 20% of the fee that has always been required by Medicare. If a patient selects outpatient surgery, as I believe you have, Medicare reimburses 80% of the allowable facility fee as well. Medicare and other insurances will also pay toward the new premium multifocal implants,
but usually only up to the same amount as for the traditional implants. The added expense for the premium multifocal lenses and associated additional services would be paid out-of-pocket by the patient.”

“Does that mean that we will have nothing to pay?” asked Eilene, looking puzzled.

“It is confusing, isn’t it?” said Mrs. Green. “Let’s look at an example.”

“If the surgery fee is $2000.00 and Medicare’s allowable is $1500.00, Medicare will pay 80% of the $1500.00 allowable (or $1200.00) and the patient or the secondary insurance is responsible for the remaining 20% (or $300.00). Your out-of-pocket expense will be higher if you choose to have one of the new premium intraocular implants.”

“Unfortunately for surgeons, Medicare has unrealistically reduced payment for cataract surgery nearly 75% and now only pays a little over $450 as the allowable fee. That is less than they paid eye surgeons 30 years ago! It is no wonder that so many ophthalmologists have given up performing cataract surgery or have retired early.”

“That’s terrible,” said James. “I would be willing to pay a lot more than that for good vision and a skilled surgeon!”

Mrs. Green then handed the Barnetts a sheet saying, “These are several questions that are commonly asked about Medicare coverage. They might help clarify some points.”

Questions and Answers

Q: What does it mean when a doctor says that he will ‘accept Medicare assignment’?

A: Accepting assignment means that the doctor agrees to accept the amount allowed by Medicare as the total fee for services performed. This means that even if the physician’s fee is more than what Medicare allows, the doctor will accept the Medicare allowable and the patient, therefore, is only responsible for the 20% that Medicare does not pay under its covered services.

Q: How does Medicare determine the amount that is approved on covered services?

A: Medicare used to determine coverage by considering the most frequently made charge by all physicians for the same service in the previous calendar year and also allowing for inflation. Over the past decade or two, Medicare has cut their fee schedule for cataract surgery dramatically (close to 75%) with little consideration of the escalating costs of supplies and equipment that doctors face. Unfortunately, it has become a financial drain to many ophthalmology practices to continue to offer this valuable service.
Q: What is the difference between Part A and Part B Medicare coverage?
A: Part A covers hospital charges and Part B covers physician and outpatient facilities, such as cataract surgical centers.

Q: Does Medicare pay for prescribing glasses after cataract surgery?
A: Yes. Medicare will pay for a portion of the change in prescription that you will need following your cataract surgery. Usually your optician or optometrist will file the Medicare forms for you.

Q: Does Medicare allow patients to have multifocal implants?
A: Yes. While in the past Medicare patients were not allowed to upgrade to premium multifocal lenses, Medicare has now decided that patients may opt to have the new multifocal lens implants. Medicare will pay its usual fees associated with a traditional implant, and patients are responsible for the difference in cost associated with the new lens and procedure.

“That helped,” James told Mrs. Green after he read the information. “I appreciate the time you took to explain ‘the system’. Is it clear to you, Eilene?”

“Yes, but I wonder what people do who are too young for Medicare and who don’t have adequate insurance?”

Mrs. Green smiled. “We can almost always work something out,” she said. “We can usually help patients find affordable payment plans or other arrangements. It is our goal here that the physicians never delay, postpone, or decide not to perform surgery because of a patient’s financial situation. Now, I believe Dr. Baker wants to see you again.”
With the Barnetts back in his office, Dr. Baker began, “The chance of having a significant complication from cataract surgery is extremely small, but it does exist. You should realize, however, that cataract surgery is one of the safest and most successful operations known to man. I want to go over the possible complications as they are listed here.”

**Anesthetic Risk** A small portion of patients undergoing surgery may have a reaction to the anesthetics given before or during the operation. This is why we have qualified personnel and an anesthetist to constantly monitor the patient during the operation. The anesthetist will discuss those reactions with you on the day of the operation.

**Macular Edema** The macula is a small area located in the retina that is responsible for clear vision. This fluid swelling of the macula following cataract surgery occurs in about 5% of all cases. It usually goes away after several months and medication can clear it up sooner. Sometimes patients are referred to a retina specialist to diagnose and treat this swelling.

**Retinal Disease**

A retinal detachment or separation occurs in less than 1 of every 200 cases. This separation can cause a dark curtain to come across the vision and may be accompanied by flashing lights or floaters. Retinal detachments occur in people who do not have cataract surgery, but they are more common after a cataract operation. Approximately 90% of these detachments can be treated successfully by additional surgery. Therefore, it is extremely important that you contact your physician if you notice any of the above symptoms after your cataract operation.

**Cornea Disease** This usually causes a swelling and clouding of the cornea, which is the clear ‘front’ of your eye. If it does not improve with time, a cornea transplant may be required in order to restore good vision. This was more common twenty to thirty years ago, but with improved lenses and techniques patients today rarely require cornea transplants.
“In reality, Mr. Barnett, no ophthalmologist can give you a 100% guarantee of a perfect return of vision following cataract surgery. However, as was mentioned in our brochures, 90 to 95% of patients who have cataract surgery will have postoperative vision of 20/40 or better, depending on the health and condition of their retina. The complications we have just talked about that result in poor vision after cataract extraction occur in less than 1% of all cataract operations. Therefore, patients facing cataract surgery today usually have everything to gain and almost nothing to lose.”

“Well,” said James, “let's schedule the surgery as soon as possible.”

“I want you and Mrs. Barnett to read over this consent form for surgery. If you fully understand it, we need your signature at the bottom. This form is very concise and explicit. It is not meant to scare you, but since it does mention most of the complications we have talked about and the alternatives to this procedure, it does tend to sound quite legal. It is meant only to better inform you so you can make an intelligent decision and does not release us from our obligation to perform the best possible operation for you.”

James and Eilene returned home and talked about the events of the day. James, like many in his situation, felt frustrated. It was hard for him to accept the fact that he had cataracts, a condition that he had always associated with ‘older’ people. Most of his questions had been answered, but there still remained a few concerns. He was hopeful that the booklet on cataracts that Dr. Baker had given him would answer these remaining questions. “You know, James,” Eilene said, “We should feel lucky that something can be done to improve your vision. There are many afflictions that people have, or develop, that can’t be helped.”

“You’re right, dear. Also, I really liked Dr. Baker and his staff. They were warm and caring and certainly seemed to know what they were doing.”

**Inflammation and Infection** Severe infections after cataract surgery are very rare (1 in 2,000), but they can happen. We, of course, will take every precaution to prevent them during the operation, and will give you instructions on how to care for your eyes afterwards. Patients can help by washing their hands before using their eye drops or touching the eye area.

**Cloudy Membrane** With the modern extracapsular techniques, the lens envelope is often left in place. There are technical reasons for this and it is ordinarily done to increase the safety of the operation. In some cases (10-25%) this membrane may later cloud and a laser procedure will have to be done several months to years later to open the membrane. This procedure, called a YAG laser capsulotomy, is performed in our surgery center and is painless and quick. It is covered by Medicare and other insurance plans.
**Glaucoma**  Glaucoma is high fluid pressure in the eye. With special techniques and careful follow-up, eyes with glaucoma can undergo any type of cataract operation, and can have most types of available lens implants. Occasionally, following cataract extraction, the pressure can be elevated. This elevated pressure can be successfully treated with medication, usually only eye drops. This pressure rise following cataract surgery is brief, and the pressure usually returns to normal after a few days.

**Abnormal Pupil**  Most eye surgeons attempt to keep the pupil round. However, it is not unusual for the pupil to be somewhat oval, or ‘peaked’ postoperatively. This minor complication can occur with or without the implantation of the intraocular lens. Any abnormal pupillary position that results from surgery will rarely affect the final visual result.

**Hemorrhage**  It is not unusual to have a few blood cells floating in the eye after the operation. These usually clear within a week. A more serious hemorrhage can occur during cataract operations, and vision from such a massive hemorrhage usually remains very poor. Fortunately, this type of hemorrhage is extremely rare and occurs only in about 1 of every 2,000 operations.

**Double Vision**  Rarely, a patient might experience double vision after cataract surgery. This is usually temporary.

**Other Complications**  With an operation as complicated as this, there are a variety of things that can happen in theory, and that do occasionally happen in practice. Every effort is made to avoid these complications. We have access to the finest surgical equipment and the operating staff is of exceptionally high quality. These factors greatly reduce the risk of complications.
James Barnett was now fully prepared for his operation. He understood what a cataract was, what could be done about it, what a lens implant was, the costs involved, and the risks and complications. He had been told that he would need someone to drive him to and from the surgery, and that the person who drove him would need to remain at the surgery center while James was in surgery.

James was glad he did not have to go to a hospital. He was nervous enough as it was and he felt he would sleep and rest much better in his own bed. The only thing he was required to do that night was not to eat or drink after midnight.

James awoke at 6:30 AM and prepared for his drive to the center where his surgery was scheduled for 9:00 AM. He showered, washing carefully around his face and eyes. After he had dressed in casual, comfortable clothing, James and his wife were picked up by their neighbor and driven to the center.

James checked in at the reception desk, where he signed his consent form and had a temporary identification bracelet placed on his wrist. He was then shown into a small office adjacent to the reception area, where a billing specialist collected his payment. A few minutes later, one of the nurses called him back into the preoperative area.

The nurses in the preoperative area helped him feel relaxed and comfortable. One of the nurses placed an intravenous line in his arm, so the anesthetist could administer a mild sedative before surgery. He began receiving antibiotic, numbing, and dilating eye drops in the eye to be operated on. After about half an hour, Dr. Baker entered the preoperative area.

“Good morning, Mr. Barnett. Are you ready for surgery?” Dr. Baker asked.

“Yeah, I’m about as ready as I’ll ever be.”

“Great. I’ll see you in the laser room in a few minutes, and we’ll get started.”

In the laser room, James laid down on a special operating bed under the laser. A gentle suction ring was placed on James’ eye and was used to position the laser over it. The laser treatment was painless, and it was over in just a few moments. James was then moved back to the main operating bed for anesthesia.

“Our anesthetist will go over the anesthesia risks with you,” Dr. Baker said. As you remember, we discussed some of them in my office earlier.”
The anesthetist explained that certain patients did react to the anesthesia and he went over the ways in which he could reverse that reaction. He then said, “I’ll be giving you some medicine to help relax you. It will be very important for you to hold your eye still during surgery and just look straight up into the operating microscope’s light. If you feel nervous or experience any discomfort or pain, make sure you tell the surgeon. We can give you more anesthetic or some additional sedation to help you through the surgery, if necessary. The doctor and his staff are very experienced and surgery shouldn’t take more than 10 minutes. It will be over before you know it!”

After about ten minutes, James was taken into the operating room and comfortably positioned on his back with his head slightly raised by a comfortable headrest. The nurse washed the area around the eye with a special antiseptic, to help reduce the chances of infection. Dr. Baker placed a sterile drape over James’ face and eye and supplied oxygen under the drape so James could breathe comfortably. Finally, the operating microscope was brought into position above his eye and adjusted.

As the operation began, James was amazed he felt no pain or discomfort; occasionally, he could hear Dr. Baker talking, and he heard noise from some of the instruments and machines that Dr. Baker was using. After 10 minutes, the operation was over and James was taken to the recovery area. He was allowed to sit up, have a snack, and drink some juice while a nurse explained postoperative instructions and care. She showed him how to apply the eye drops and how to tape the protective shield on at night. James was then given a set of instructions similar to the following:

1. You will be seen in the office 1 day after your operation.
2. You will need to protect your eye. We have provided you a special pair of sunglasses for this purpose, and we ask that you wear them any time you are outdoors for the first week after surgery.
3. Please wear your eye shield at night for the next week to avoid accidentally poking or rubbing your eye while you sleep. Do not wear an eye pad under the shield.
4. You may do most of your normal activities, as long as you do them in moderation. Bending over for short periods is allowed, such as to put on your shoes. Try to avoid lifting more than 25 pounds in the first week after surgery. You may wipe your eyelids gently with a clean, moist face cloth. Please keep your hands washed and clean when touching around your eye.
5. About one month after your operation, your glasses will need to be changed. It usually takes that long for the measurements to become stable and consistent. The new glasses you get will not be the thick cataract glasses that used to be required. Until you get your new glasses, you may wear your old glasses or go without glasses, whichever seems to give you better vision. Sometimes, the old lens from your glasses will need to be removed temporarily.
6. You may attend social activities, do light yard work, do light housekeeping, and shower and shampoo your hair. If you have your hair attended to in a hair salon, make sure you wear the shield while the stylist is working with your hair.

7. You may read and watch television. You may sleep either on your side or on your back. You may ride in a car, bus, or airplane. You may also go up and down stairs.

8. We may need to contact you during the period surrounding your surgery. If you are from out of town, please let us know where you will be staying and provide us with your cell phone number, if you have one, as well as the number of the home or hotel where you will be staying. After being seen on the first postoperative day, the patient is usually seen one week, three to four weeks, and two to three months after surgery for follow-up examinations.

Common Concerns:

1. It is normal to feel some mild discomfort and a scratchy sensation immediately after cataract surgery. It is also common to have excessive tears and a slightly droopy eyelid, as well as greater sensitivity to light in the operated eye. These problems all tend to go away quickly. They should not be cause of alarm or concern, and if they are minor, they do not necessitate a call or visit to the doctor. If they persist or worsen, a call to your doctor is warranted.

2. It is not uncommon to have or notice floaters (particles floating in the eye). However, if there are a great many floaters, or if there is a very large floater or persistent dark shade, you should call the doctor immediately. A black curtain or shadow progressing across the field of vision of the operated eye should receive prompt and immediate attention to make sure that this is not a retinal detachment or a similar problem.

3. The sensation of having a foreign body under the upper eyelid or to the side is common. This sensation usually goes away after several weeks. Most of our surgeries are now performed with the ‘no-stitch’ or sutureless technique and you will not usually experience this problem. However, if severe pain persists in the eye, especially pain associated with blurred vision, call the doctor immediately. If your vision was good initially but rapidly gets worse, this too should be investigated.

4. It is not unusual to have a mild discharge in the eye after surgery, but if there is excessive matter, crust, or crystals on the eyelashes and that condition does not clear up after several days, you may need to have your medications changed.

5. Some patients notice a red, orange or yellow tint in the operated eye for a few days. This will go away and is nothing to be worried about.

6. Although complications are rare following surgery, you need to use common sense
and certainly you should call the doctor’s office if you have any doubt or concern about the condition of your eye.

It is important for patients to place their antibiotic drops in the eye for several weeks.
At EyeSurg of Utah, patients are given a printed schedule to make it easy to remember how often to use the drops, and for how long. Patients should wash their hands and keep the area around the eye clean when placing the drops in the eye. It is important for patients to call the doctor if they experience severe pain, a decrease in vision, and extreme sensitivity to light. This triad of symptoms is often associated with an infection that gets inside the eye. This problem can usually be cleared up if the doctor can treat the infection early with the right medications. Some patients experience a rise or spike in eye pressure the day or night after surgery. This usually causes an ache or severe pain and the doctor should also be called early on for this problem.

Patients usually are given a metal or plastic “shield” to wear when sleeping so the patient does not accidentally rub their eye. This is usually worn only during the first week. They are also given wrap-around sunglasses to wear during the first few weeks to months after surgery. This gives some protection and comfort from sunlight.

Vision early on after surgery is usually blurry. This is often the result of normal swelling in the cornea from the fluids used during surgery, or caused by the ultrasonic probe used to break up and remove the cataract. This swelling usually goes away within a few days, which results in a clearing of the vision if the medicated drops are used correctly. Vision will improve during the first 1-2 weeks following surgery. It is very important for patients to keep their follow-up visits. Patients are routinely seen the day after surgery, one week later, one month later, and three months after surgery. This 3-month postoperative period and the follow up appointments are usually covered or are included in the cost of the original surgery. Usually, if glasses are needed afterwards, the glass prescription will be written after the one month follow-up visit.

Some patients are referred by their optometrist to the surgeon for surgery and early follow-up care. They are then sent back to their own optometrist by the surgeon after the patient appears to be stable and doing well. This type of referral arrangement is called comanagement and is recognized and paid for by Medicare and most private insurance companies. There is no additional cost for this type of care and it assures the patient that continuity of care can continue with their own chosen eye doctor. It is important that the comanaging doctor is properly trained and credentialed to perform this type of care.

Many times, patients will have a cataract in the other eye. After the first cataract is removed and the vision has improved, the second eye with a cataract can seem worse and very bothersome. Patients are usually anxious to have the second eye operated on. Most
doctors wait a few weeks before doing surgery on the second eye. They want to make sure that the first eye is doing well and seeing better first.

Cataracts do not “grow back.” However, quite often a clouding of the posterior capsule or membrane that holds the implant in place will occur that can lead to vision becoming blurry. This is easily treated with a YAG laser capsulotomy or opening in the membrane that takes just a few minutes to perform. Once done, this membrane stays open and the film does not grow back.
Patients over the age of 40 are often asked to accept a certain amount of compromise in their vision. This is because of presbyopia, the gradual loss of near vision that usually manifests itself starting in our 40s, regardless of our previous refractive state. For instance, a person with excellent vision throughout childhood and early adulthood might come to need glasses for reading and computer use, when they had never before needed vision correction. That person would be very likely to find those reading glasses annoying and inconvenient. Similarly, a nearsighted person who had always achieved good vision with glasses and contact lenses might, in their forties, need to change to bifocal glasses and contacts, which are more expensive than their single-vision counterparts and can be difficult to get used to.
Until recently, patients seeking surgical vision correction through refractive procedures such as LASIK, PRK, or ICL faced a similar compromise. Refractive patients over the age of 40 could choose to have a correction for optimal distance vision, leaving them dependent on reading glasses for close work, or choose a monovision procedure. Monovision, a type of correction in which one eye is left slightly nearsighted, was (and still is) a popular option for refractive patients over 40. By correcting the patient’s dominant eye for distance and non-dominant eye for near, most patients achieve very good results with monovision, reducing dependence on reading glasses while maintaining good distance vision. However, a number of monovision patients report issues with depth perception or distance vision.

In the last few years, a new option has been gaining in popularity worldwide: small aperture corneal inlays. These devices have been available in Europe and Asia for a decade, with impressive results. Hoopes Vision was involved in the FDA clinical trials for the KAMRA corneal inlay, the first of its kind in the United States, starting in 2009. Hoopes Vision was the largest trial site in terms of number of patients treated, and our surgeons had the opportunity to witness first-hand the outstanding results the procedure can provide.

In April 2015, KAMRA received final FDA approval, and Hoopes Vision began performing the procedure on patients in May, making us the first practice in the country to offer this revolutionary new technology to the public. Other similar inlay will be approved and available in the future.

![The KAMRA® Inlay](image)

- **3.8 millimeters in diameter, it is smaller than a contact lens and far thinner and lighter**
- **1.6 mm opening admits focused light into the eye**
- **8,400 tiny laser etched holes to facilitate passage of water and nutrients between the layers of the cornea**
- **Weighs about the same as a single grain of salt**
What is KAMRA?

The KAMRA corneal inlay is a small ring-shaped device with a hole, or aperture, in the center. At 3.8 millimeters in diameter, it is smaller than a contact lens and far thinner and lighter. In the KAMRA procedure, a femtosecond laser, like the ones used to create flaps in a blade-free LASIK procedure, creates a small “pocket” within the corneal tissue of the patient’s non-dominant eye. The surgeon then places the inlay into that pocket, centering it over the patient’s pupil. Once in place, the inlay creates a “pinhole effect,” admitting clearly focused light through the aperture while blocking unfocused light around the periphery. The result, in patients who are good candidates for KAMRA, is improved near vision that can reduce or eliminate the need for contact lenses, without the compromises in distance vision and depth perception that can sometimes be side effects of monovision.

What Does This Mean for Cataract Patients?

The advent of small aperture corneal inlays such as KAMRA is an exciting development for cataract patients because KAMRA can be implanted in patients who have had previous cataract surgery. This offers another good option for patients who are considering cataract surgery now. Perhaps even more importantly, it is a good option for patients who may have had cataract surgery years ago, and who received conventional IOLs either by personal choice, or because multifocal IOLs were not yet available. For those patients who are enjoying good distance vision but wish their near vision was better, KAMRA can be a way to reduce dependence on reading glasses.

The KAMRA Procedure and Recovery

On the day of surgery, the KAMRA patient experience is similar in some ways to that of a LASIK patient. Like LASIK, KAMRA is an outpatient procedure performed in a laser surgery suite, and involves spending about one hour at the clinic that day. Unlike most LASIK patients, who receive treatment on both eyes, KAMRA is implanted in one eye only – the patient’s non-dominant eye, as determined in the preoperative examination. The preoperative process is similar, with oral sedative being administered to the patient and numbing and antibiotic drops applied to the operative eye.

After being prepared for surgery, the patient is brought into the laser room and asked to lie on a treatment bed underneath a femtosecond laser, the same type of laser used to create the corneal flap in a blade-free LASIK procedure. The patient’s eye is docked to the laser using a soft suction ring, holding the eye in place gently. The computer-guided laser then creates a small pocket in the middle layers of the patient’s corneal tissue. Once the pocket is made, the surgeon uses a special tool to place the corneal inlay, being careful to center it over the pupil. The pocket closes and begins to heal with no stitches or adhesive needed. The total time spent by the patient in the laser room is usually between 5 and 10
minutes. Once the inlay has been placed, the patient is taken to a postoperative exam room near the laser room to recover and have a final brief examination before being sent home to rest.

Recovery varies by individual. The vision in that eye may fluctuate for several days as the cornea heals, and it may take several weeks to adjust fully to the change. Most patients achieve stable improvement in near vision within a month of the procedure. However, since KAMRA is implanted only in the non-dominant eye, leaving the dominant eye untouched for distance vision, most patients are able to return to normal activities, including driving, watching television, and work, within a day or two.

As with any vision correction procedure, an important way in which the patient can help assure a great result from KAMRA is to follow the postoperative instructions exactly. After the KAMRA procedure, the patient is discharged with a regimen of postoperative eye drops, including antibiotic and anti-inflammatory drops, and a schedule for their use. Following this schedule is extremely important not only in ensuring proper healing, but in achieving the best possible visual result. There is also a schedule of post-op checkups. Strict adherence to this post-op appointment schedule is vitally important to the patient's recovery and postoperative vision.

For patients over the age of 45 who are dependent on reading glasses, bifocals, or monovision, KAMRA is an exciting new option. At the consultation appointment, the vision correction specialists at Hoopes Vision will perform the necessary testing to determine whether KAMRA may be appropriate, and discuss the risks, benefits, and alternatives to the procedure so that each patient may make an informed decision about his or her vision.
Our purpose in preparing this book is to explain what a cataract is, what can be done about a cataract, what options are available to help a patient see well after an operation for a cataract, and what to expect during and after the surgical experience. As mentioned, cataract surgery is a relatively safe and effective operation to undergo, but it should be undertaken only if your vision has decreased to the point that it impairs your activities. We hope that you have found this book helpful in making your decisions about cataract surgery.