WVI Co-management Update 2012

Ming Wang, MD, PhD
Clinical Associate Professor of Ophthalmology, UT
International President, Shanghai Aier Eye Hospital
Director, Wang Vision Institute
Attending Surgeon, Saint Thomas Hospital

Drs. Helen Boerman, Amy Waymire, Sarah Connolly, and Bryce Brown

- *LenSx all-laser cataract surgery*
- *Premium IOLs*
- *Intralase* LASIK
- Implantable Contact Lenses
- INTACS for Keratoconus
- Cross-linking coming 2012
- DSAEK/ PKP/ Boston K Artificial cornea

Wang Vision is Tennessee's only center to offer all laser cataract surgery

http://wangvisioninstitute.com/video_lensx_laser.html

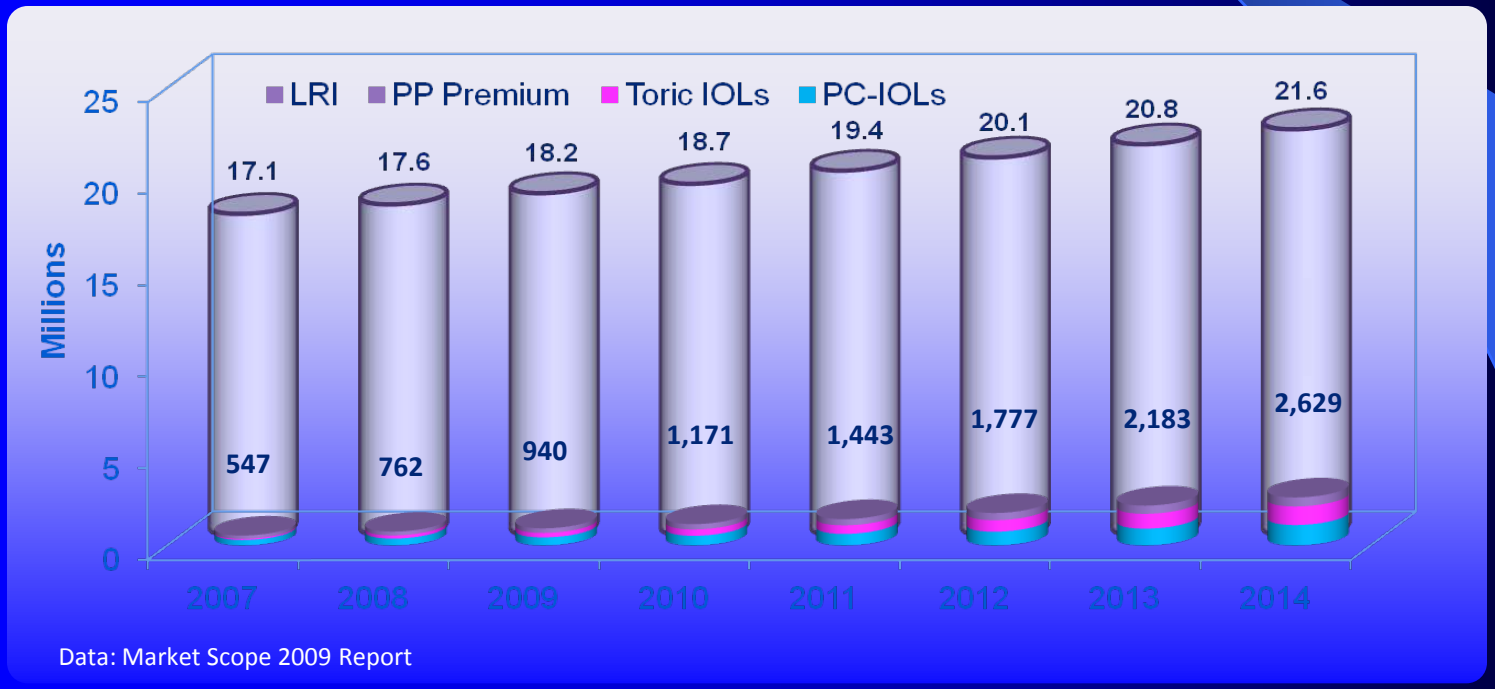
http://wangvisioninstitute.com/video_cataract_lowres_dec2011.html

July 6th 2010

- Alcon announced it entered into a definitive agreement to acquire LenSx Lasers, Inc, a privately held company that developed the first Femtosecond Laser to receive U.S. Food and Drug Administration (FDA) clearance for use as part of cataract surgery.

Market for Refractive Cataract Surgery

Global Cataract Surgery Forecast



Data: Market Scope 2009 Report

Limitations of Traditional Cataract Surgery

- Capsulotomy size directly related to Effective Lens Position[1,2]
- Corneal incisions are manually executed and imprecise
- Extensive phaco power associated with corneal burn, corneal edema and endothelial cell loss
- Cataract surgery complications are 10x that of LASIK[3,4]

Common	Incidence	Vision Threatening	Incidence
Posterior Capsular Opacification	10-30%	Retinal Detachment	0.6-1.7 %
Cystoid Macular Edema (transient)	2-10%	Cystoid Macular Edema (persistent)	1-2%
Vitreous Loss	1-5%	IOL Malposition	0.3%
Corneal Endothelial Cell Loss	4-10%	Need for Corneal Transplant	0.3%
		Endopthalmitis	0.1%

[1]Norrby S. Sources of error in intraocular lens power calculation. J Cataract Refract Surg. 2008 Mar;34(3):368-76.
[2]Cekiç O, Batman C. The relationship between capsulorhexis size and anterior chamber depth relation. Ophthalmic Surg Lasers. 1999 Mar;30(3):185-90.
[3]Pereira et al. JCRS 2006 Oct;32(10):1661-6
[4]Park et al. Ophthalmic Surg Lasers Imaging. 2010 Mar-Apr;41(2):236-41

Laser Refractive Cataract Surgery

Laser Cataract Surgery

Designed to deliver femtosecond precision

to Refractive Cataract Surgery:

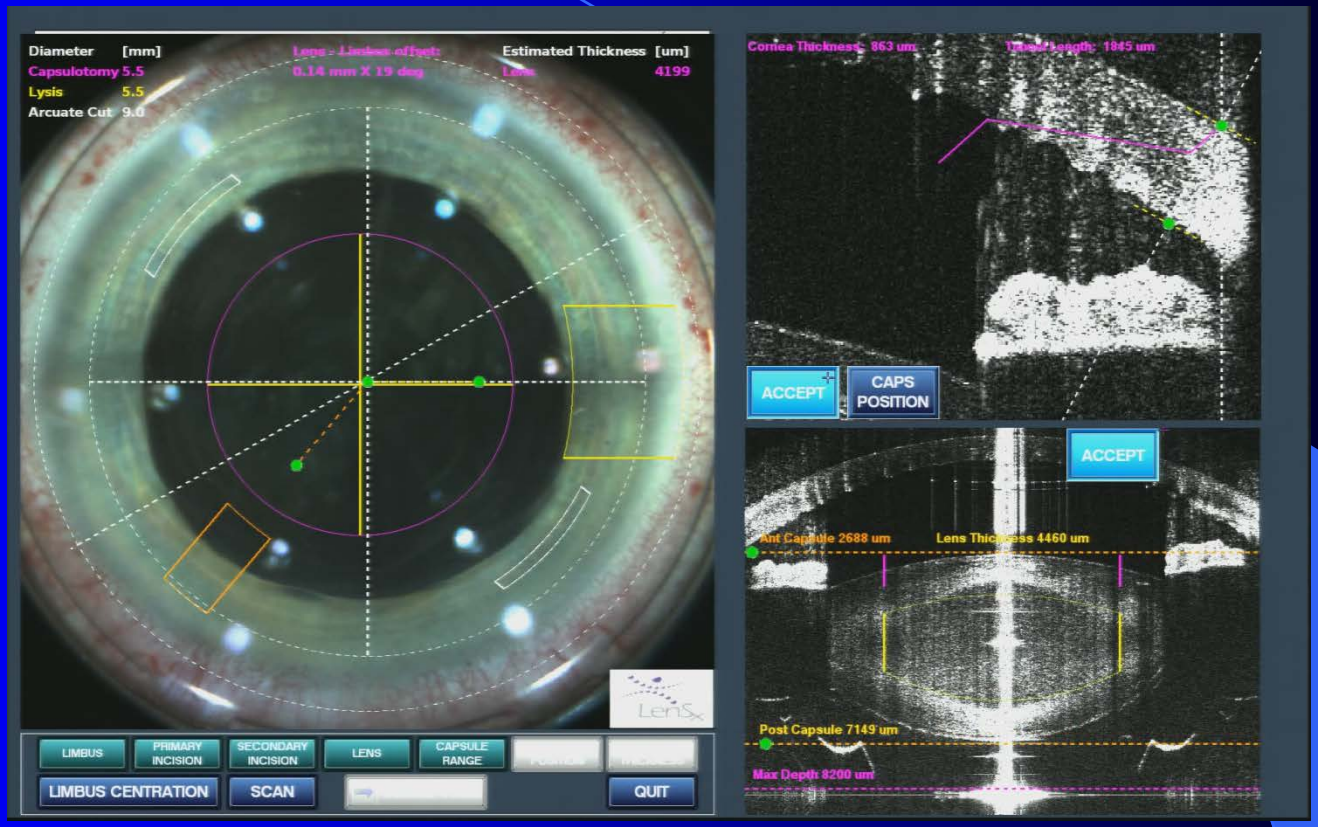
- Automates most challenging steps of

  traditional cataract surgery
- Provides image-guided, surgeon

  control to perform

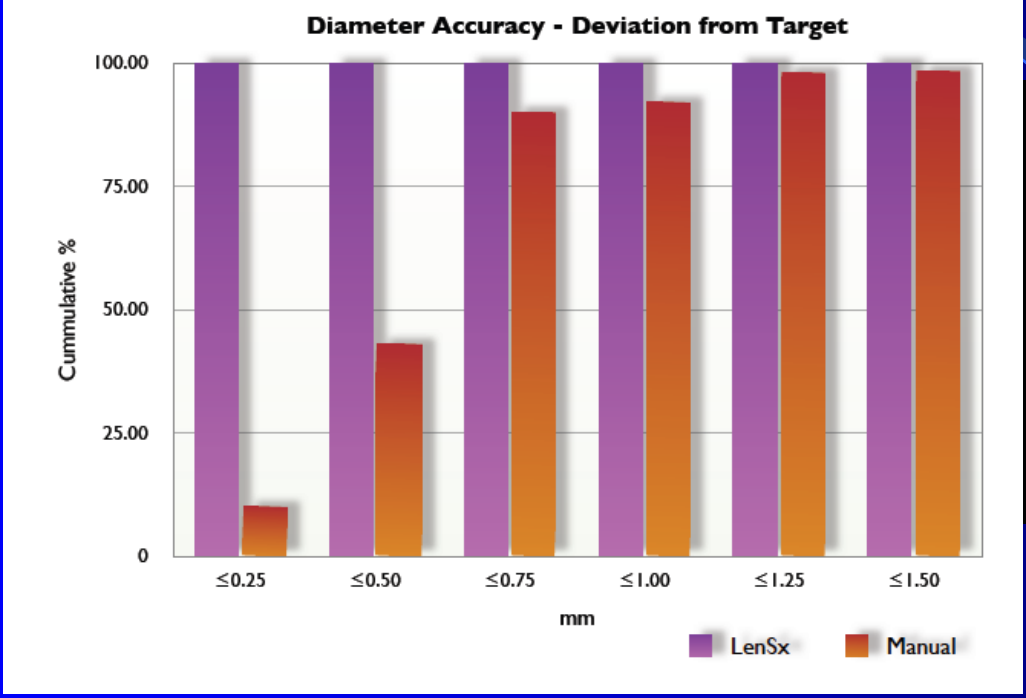
  - anterior capsulotomy
  - lens fragmentation
  - all corneal incisions

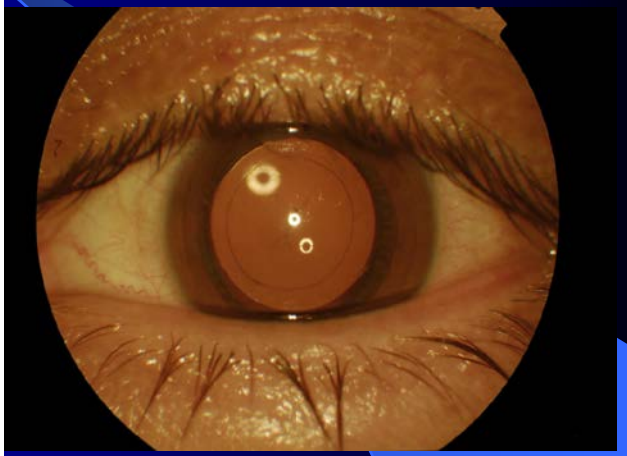
Laser Image Guided Surgery



- OCT displays real-time image to guide surgeon for proper alignment during docking procedure
- Integrated OCT projects images of cornea, lens, iris, capsule onto video microscope
- Surgeon selects cornea incisions & lens treatment; images overlayed onto live video OCT images

Highly Reproducible Capsulotomy





- 100% of LenSx® Laser procedures achieved an accuracy of ± 0.25 mm
- Only 10% of manual procedures achieved an accuracy of ±0.25 mm
- No radial tears

Nagy Z, Takacs A, Filkorn T, Sarayba M. Initial clinical evaluation of an intraocular femtosecond laser in cataract surgery. J Refract Surg. 2009;25(12):1053-1060

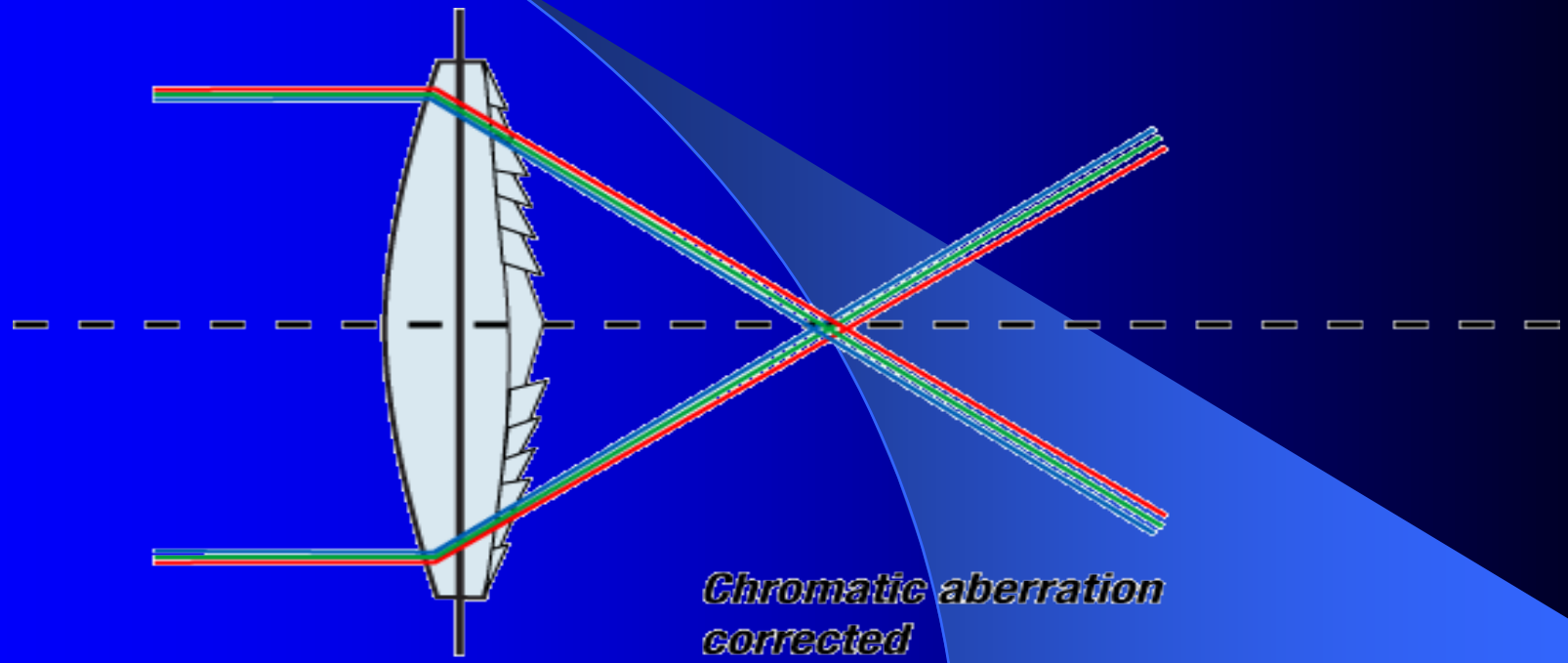
Laser Self-Sealing Incisions

PostOp OCT image of LenSx® Laser 2 plane corneal incision

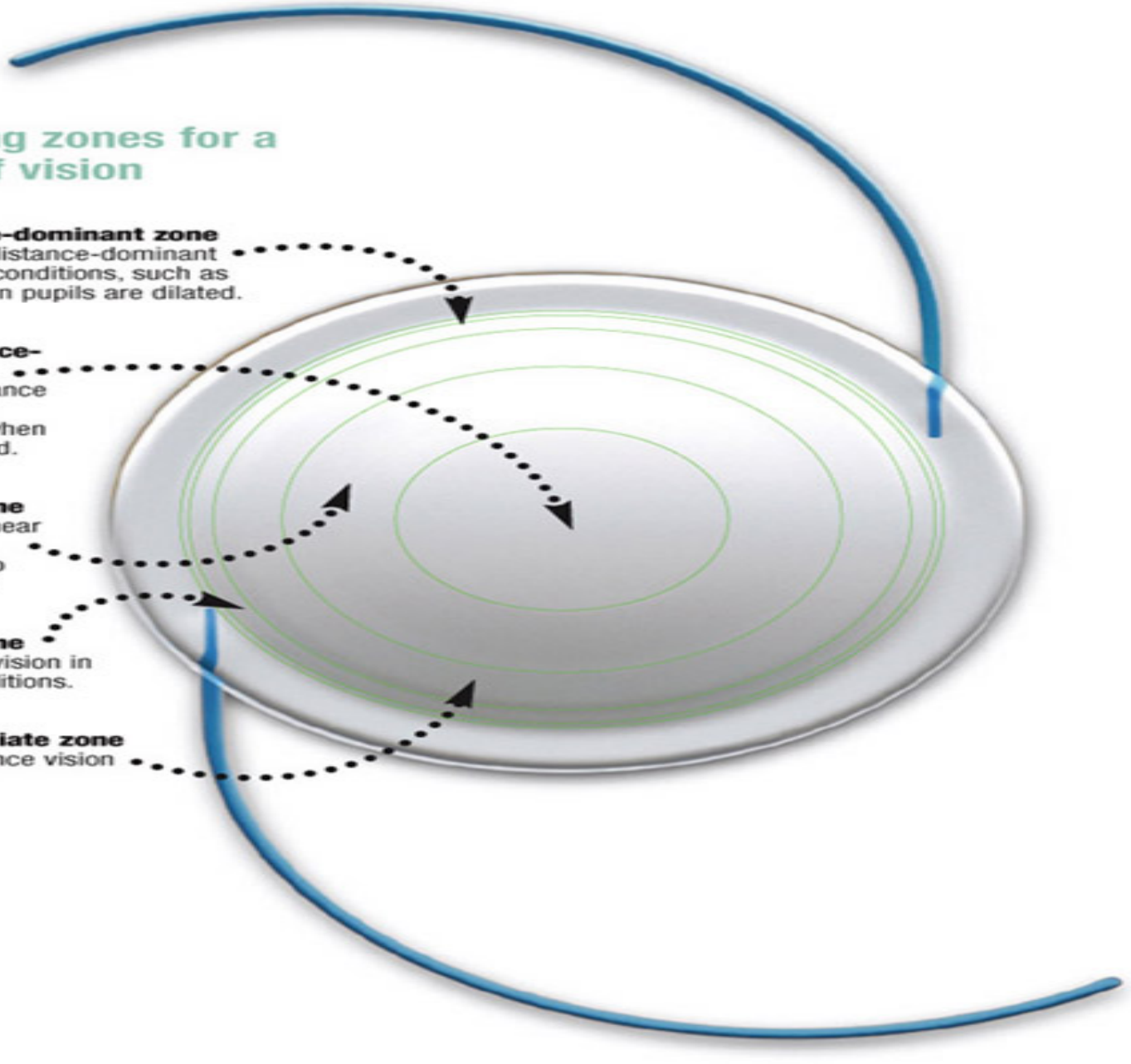
Laser Cataract Surgery
Development Milestones

- 1st femtosecond laser used clinically in EU for Laser Refractive Cataract Surgery (2008 Nagy, Budapest)
- 1st femtosecond laser to receive FDA clearance for cataract surgery (2009)
- Currently cleared for:
  - Anterior Capsulotomy
  - Corneal Incisions
  - Laser Phacofragmentation
- 1st Laser Refractive Cataract Surgery procedure performed in US on Feb 29, 2010 (Slade, Houston)
- US commercialization Q4 2010; CE certification Feb 2011

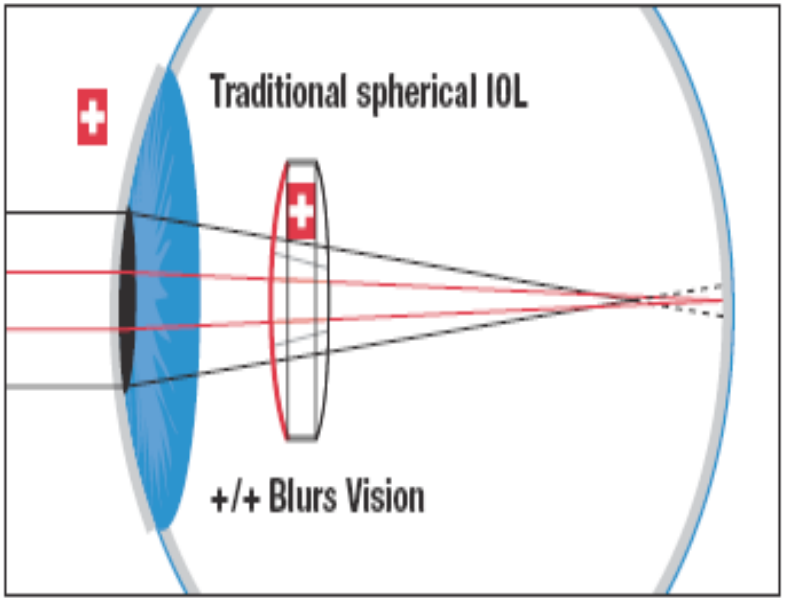
New multifocal lens cataract surgery



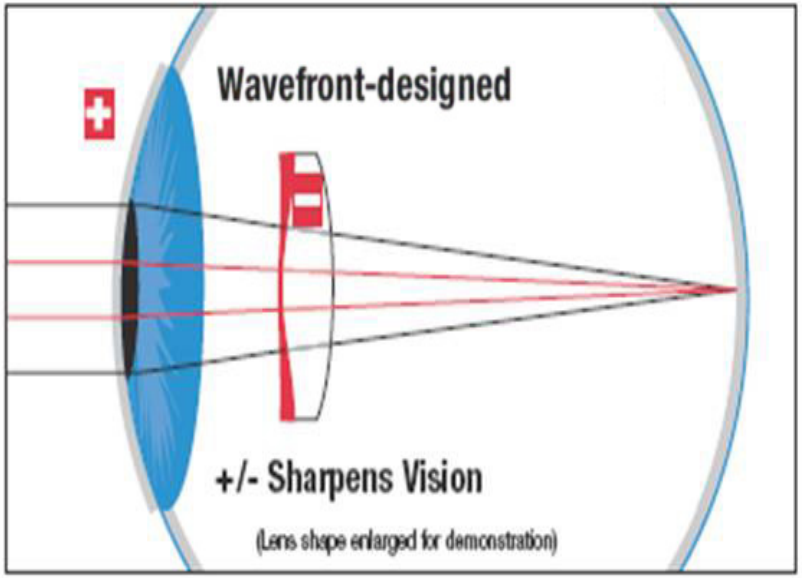
Five focusing zones for a full range of vision



Traditional spherical IOL



TECNIS® Multifocal Aspheric IOL



Tecnis IOL

- Excellent vision at near, intermediate, and distance
- Excellent vision at night and dim lighting
- Not affected by pupil size

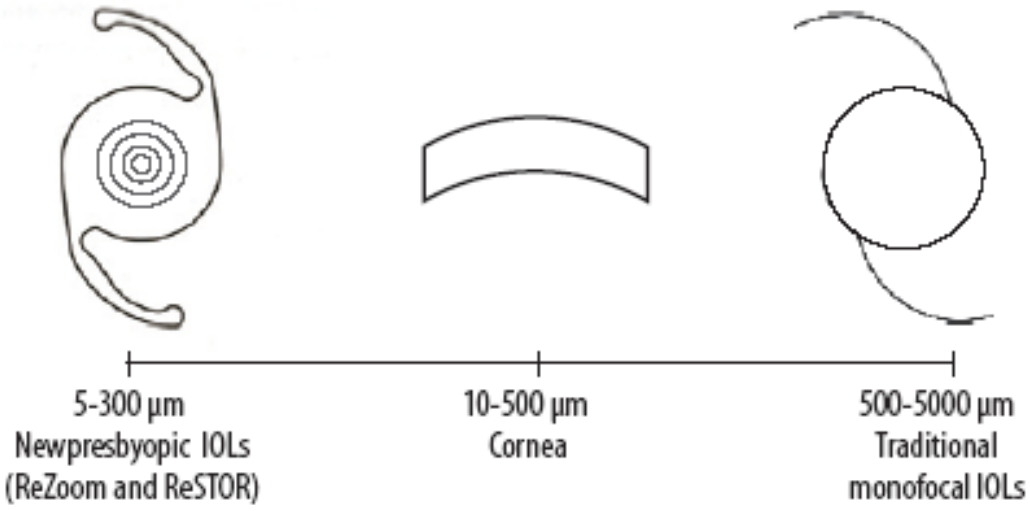


FIGURE 3 The shift from monofocal IOLs to multifocal IOLs has reversed the ranking of optical quality between the IOL and the cornea. With monofocal IOLs, the lens was the crudest part of the visual pathway, but with today's more spatially-refined IOLs, the cornea has now emerged as the new limiting factor.

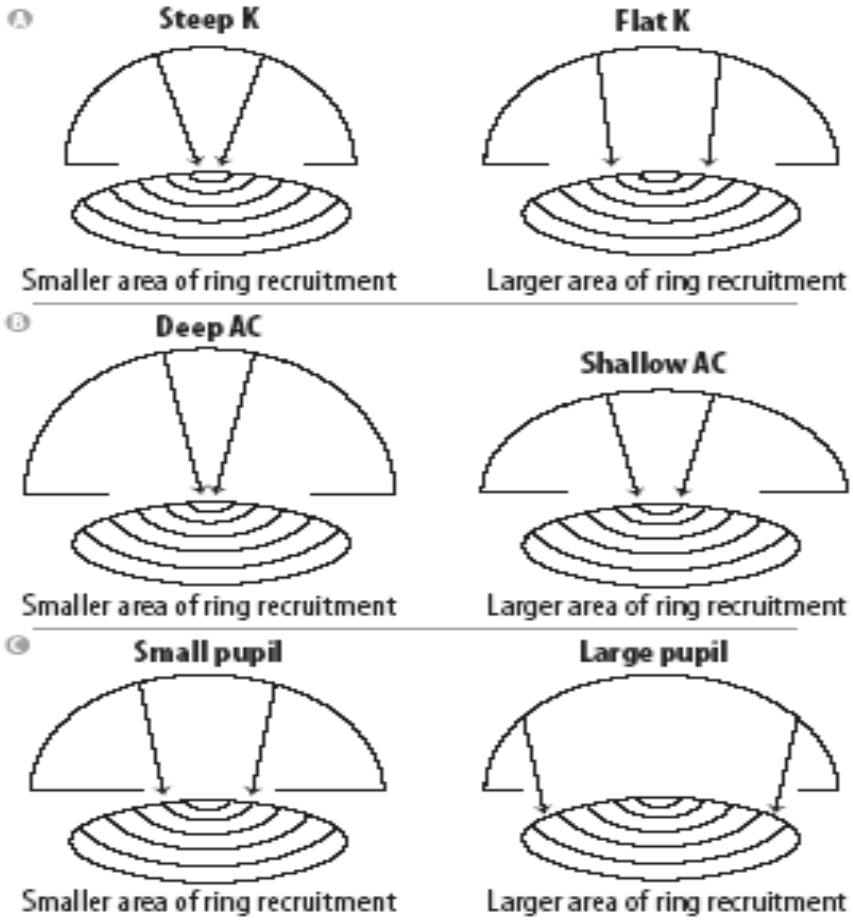
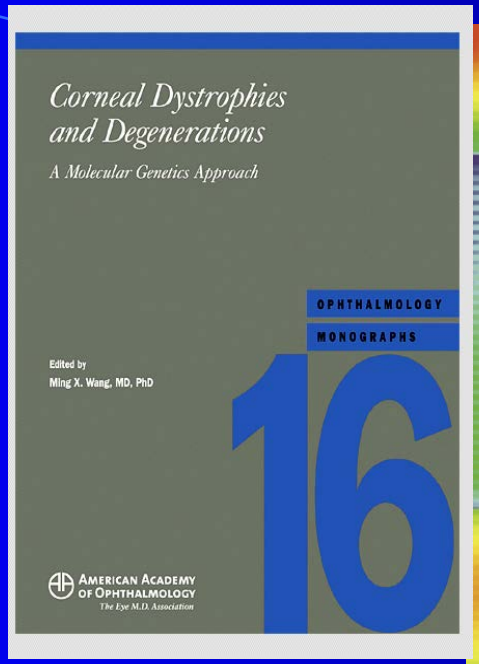
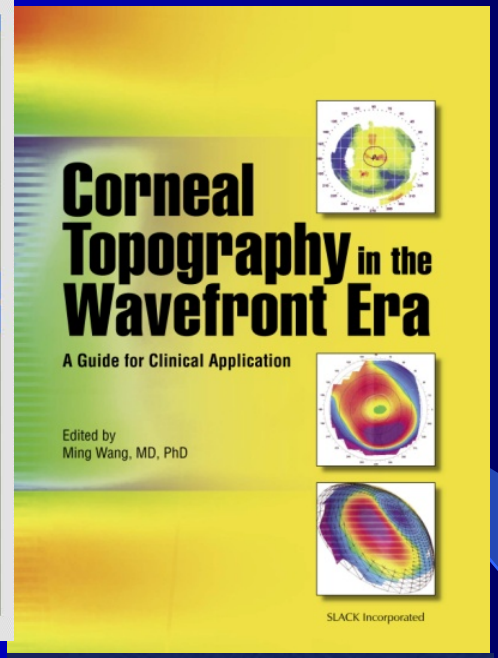


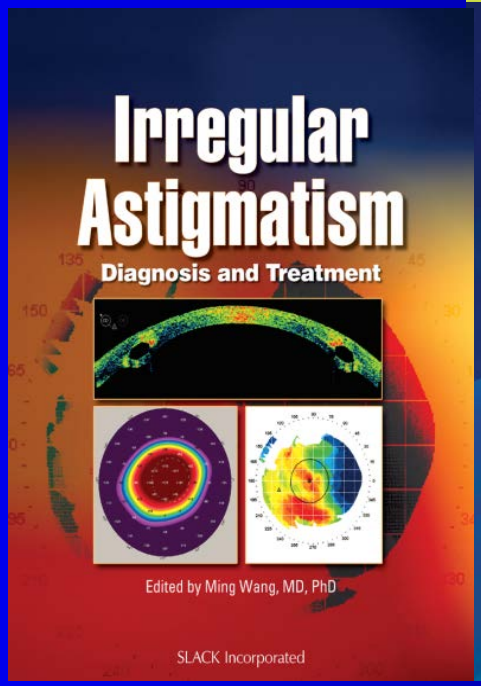
FIGURE 4 Corneal steepness, anterior chamber depth and pupil size can all affect where light hits the IOL optic. While not important considerations for traditional monofocal IOLs, these factors are important when implanting presbyopic IOLs.

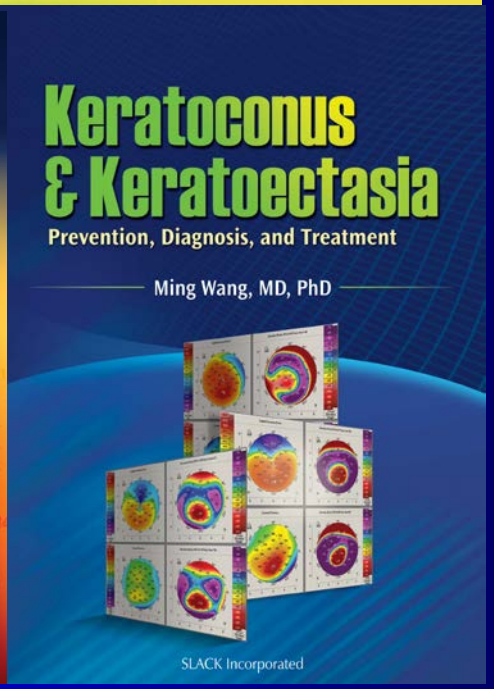
Reasons for unhappy premium lens patients from many cataract surgeons previously

- In-depth understanding of the engineering and optics of various types of premium IOLs, and hence appropriate indication and selection of patients. **Corneal topography and anterior segment geometry** in each patient are very important in the selection of the appropriate type of premium lens suitable for each patient (not one size shoe fits all);
- Appropriate expectation setting and **management of elective cash-paying patients** (traditional cataract surgery practice is really not well suited to manage elective cash patients)
- **Advanced keratorefractive surgery** management of post-cataract surgery patients (premium lens requires higher accuracy of postop refraction)


Corneal Dystrophies and Degenerations
A Molecular Genetics Approach
OPHTHALMOLOGY MONOGRAPHS
16
Edited by
Ming X. Wang, MD, PhD
American Academy of Ophthalmology
The Eye M.D. Association


Corneal Topography in the Wavefront Era
A Guide for Clinical Application
Edited by
Ming Wang, MD, PhD
SLACK Incorporated


Irregular Astigmatism
Diagnosis and Treatment
Edited by Ming Wang, MD, PhD
SLACK Incorporated


Keratoconus & Keratoectasia
Prevention, Diagnosis, and Treatment
Ming Wang, MD, PhD
SLACK Incorporated

Why WVI for cataract surgery?

- **A Harvard and MIT graduate (MD, *magna cum laude*), and one of the few eye surgeons in the world today who holds a doctorate degree in laser physics, Dr. Wang was one of the first surgeons in the state to implant the new premium IOL.**
- **Dr. Wang has been performing intraocular lens procedures for the past 15 years, and is one of the most active Implantable Contact Lens (ICL) surgeons in the US today.**
- **Currently, Dr. Wang is the only surgeon in Tennessee performing all laser cataract surgery.**
- **The new premium IOL technology requires the state-of-the-art LASIK/PRK technology--for which WVI is an international leader--to back it up. Dr. Wang was the first in the state to perform bladeless LASIK, and he has performed over 25,000 LASIK procedures, including on over 3,000 doctors. He was also the first in the world to perform a laser-assisted artificial cornea implantation.**
- **WVI is equipped with the most advanced corneal and lens imaging technologies. The successful performance of these new premium lenses depends critically on accurate measurement and imaging of cornea and anterior segment dimensions.**

Why WVI for cataract surgery?

- **For many years, WVI has been assisting a great number of regional cataract surgeons by performing IOL lens calculations for their cataract surgery patients.**

- **Dr. Wang has published five major textbooks in the corneal field:**
  - **Corneal Topography in the Wavefront Era**
  - **Irregular Astigmatism**
  - **Keratoconus and Keratoectasia**
  - **Corneal Dystrophy and Degeneration**
  - **LASIK Vision Correction**

- **Wang Foundation for Sight Restoration, a 501c(3) charity, has helped patients from over 40 states in the US and 55 countries worldwide, with all sight restoration surgeries performed free-of-charge.**

- **Dr. Wang's recent publications on the new premium IOL:**
  - "Understanding Problems with Presbyopic IOLs: Look to the Cornea"
  M. Wang, Refractive EyeCare, Vol 12, Num 11, Nov 2008, pp1-5.
  - "Corneal Topography and Refractive IOLs – What to Look For"
  M. Wang, T. Swartz, in Mastering Refractive IOLs, ed D. Chang, SLACK, 2008.

Anterior segment imaging is important in selecting the appropriate premium lens and the appropriate patient.

WVI's Full Panel of Anterior Segment Imaging Devices

CUSTOMVUE WAVESCAN

PENTACAM

HUMPHREY ATLAS

VISANTE OCT

TOMEY

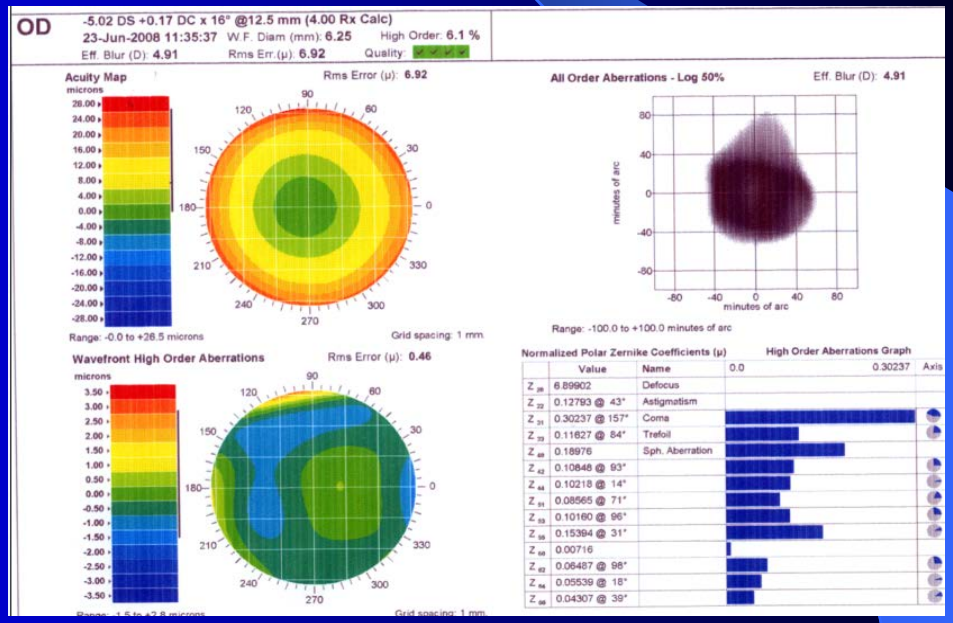
ASTRAMAX

ORBSCAN

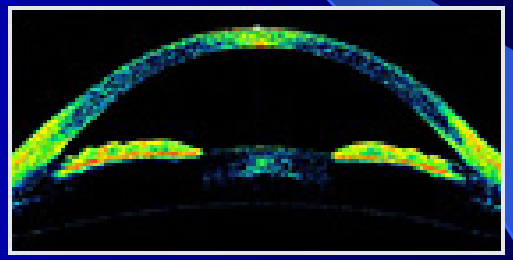
iTRACE

Ocular Response Analyzer

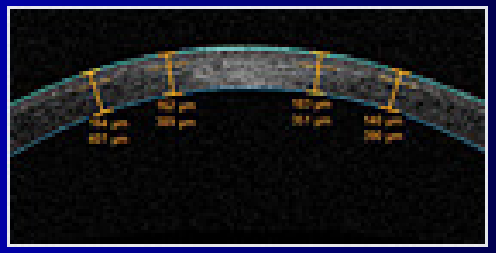
VISX CustomVue Technology
WaveScan Wavefront System



Visante OCT

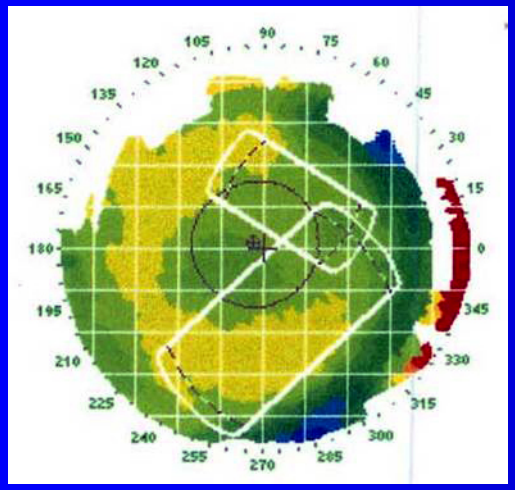


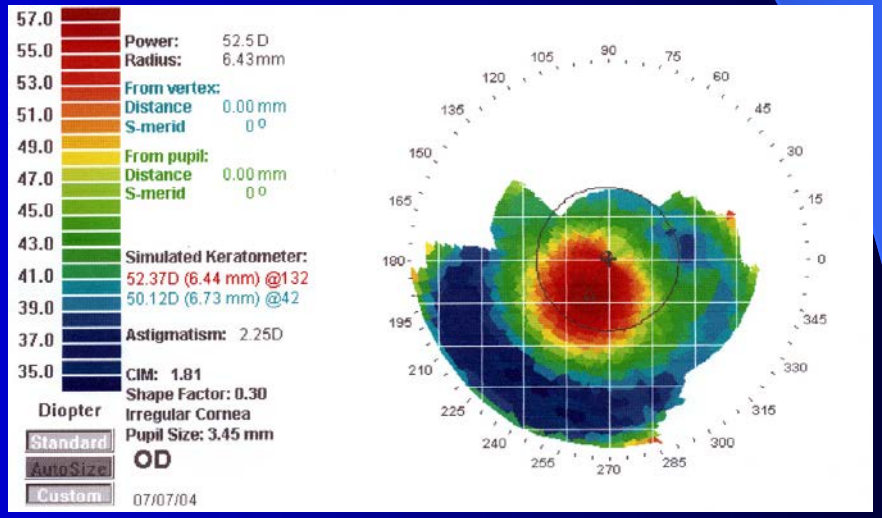
Anterior segment – OCT color



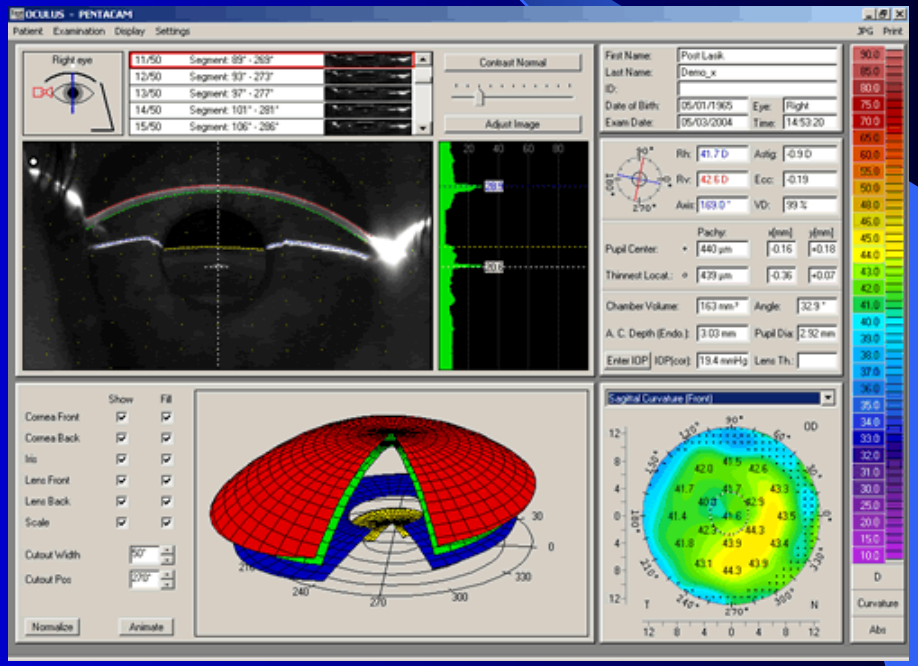
LASIK flap and stromal thickness

Humphrey Atlas

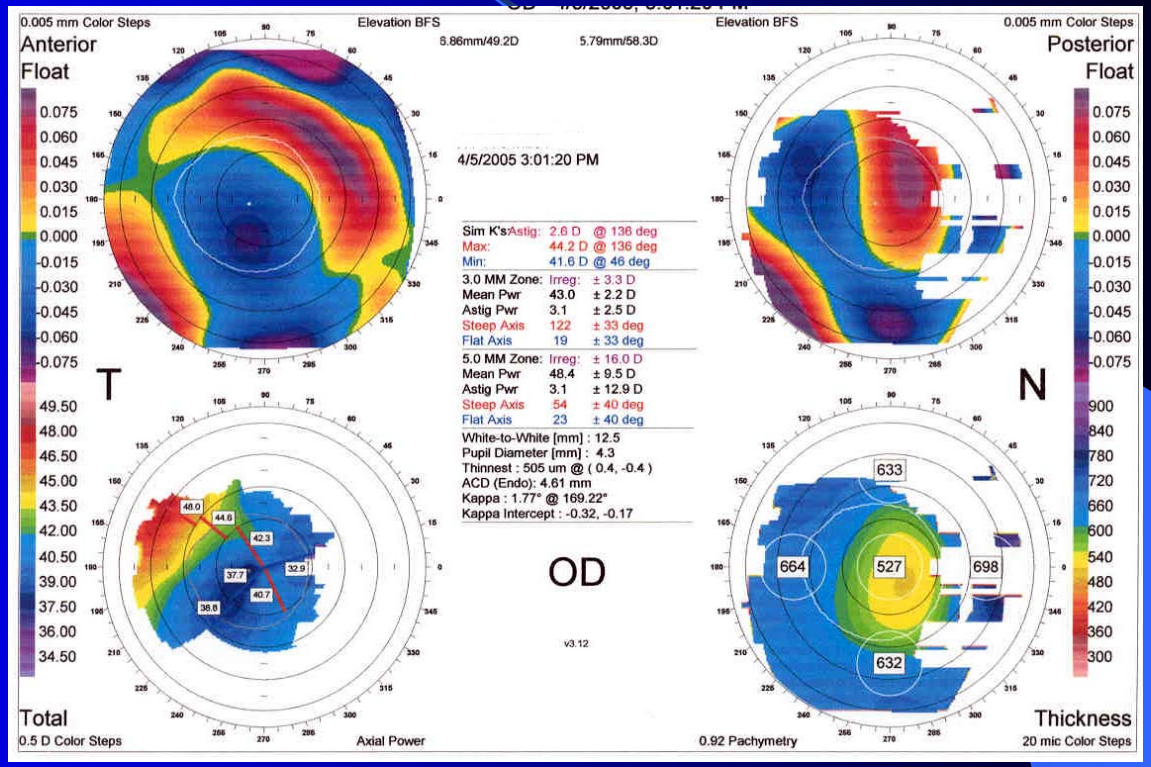




Pentacam Scheimpflug Camera



Orbscan


0.005 mm Color Steps
Elevation BFS
Anterior
Float
8.86mm/49.2D
5.79mm/58.3D
Elevation BFS
0.005 mm Color Steps
Posterior
Float
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0.060
0.045
0.030
0.015
0.000
-0.015
-0.030
-0.045
-0.060
-0.075
4/5/2005 3:01:20 PM
Sim K's Astig: 2.6 D @ 136 deg
Max: 44.2 D @ 136 deg
Min: 41.6 D @ 46 deg
3.0 MM Zone: Irreg: ± 3.3 D
Mean Pwr 43.0 ± 2.2 D
Astig Pwr 3.1 ± 2.5 D
Steep Axis 122 ± 33 deg
Flat Axis 19 ± 33 deg
5.0 MM Zone: Irreg: ± 16.0 D
Mean Pwr 48.4 ± 9.5 D
Astig Pwr 3.1 ± 12.9 D
Steep Axis 54 ± 40 deg
Flat Axis 23 ± 40 deg
White-to-White [mm] : 12.5
Pupil Diameter [mm] : 4.3
Thinnest : 505 um @ (0.4, -0.4)
ACD (Endo): 4.61 mm
Kappa : 1.77° @ 169.22°
Kappa Intercept : -0.32, -0.17
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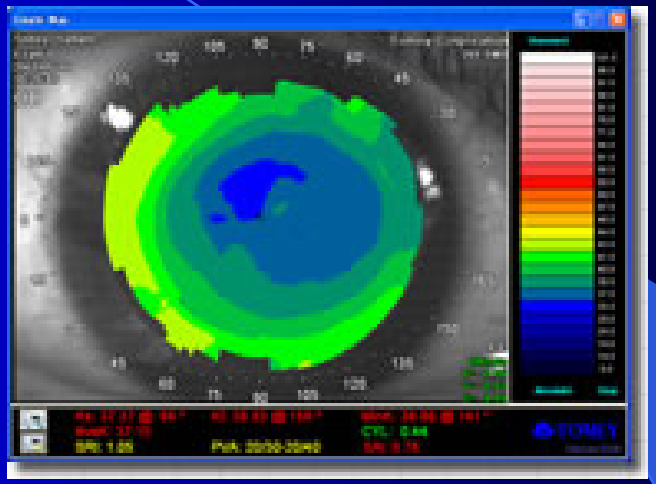
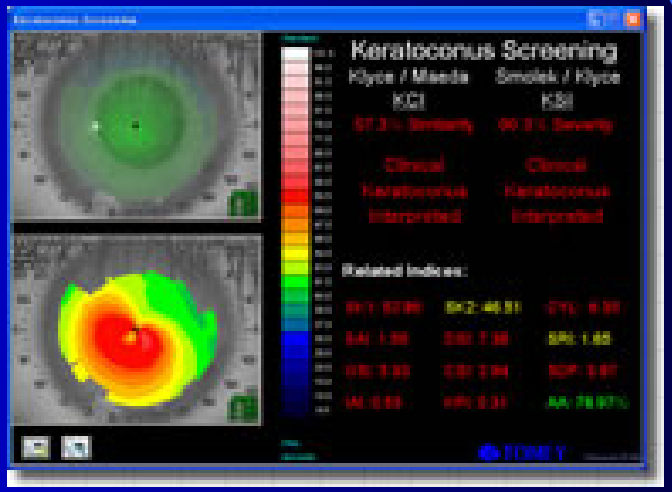
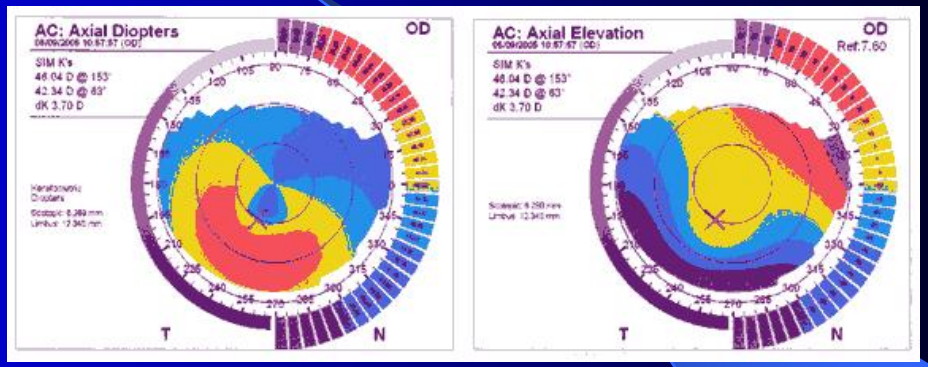
TMS-4




Keratoconus Screening
Klyce / Maeda
Smolek / Klyce
KCI
KSI
Clinical Keratoconus Interpreted
Clinical Keratoconus Interpreted
Related Indices:

Astramax


AC: Axial Diopters
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SIM K's
46.04 D @ 153°
42.34 D @ 63°
dK 3.70 D
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AC: Axial Elevation
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Ref:7.60
SIM K's
46.04 D @ 153°
42.34 D @ 63°
dK 3.70 D
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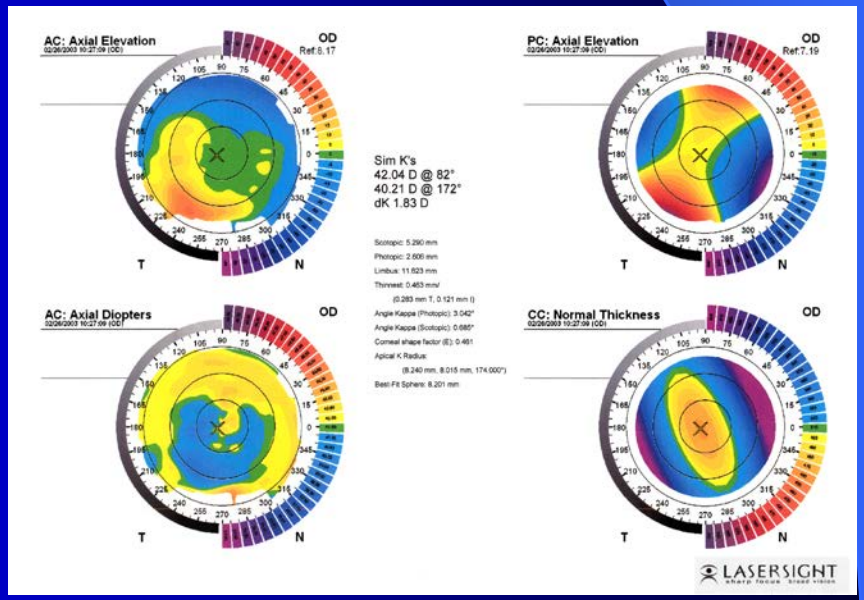
AC: Axial Elevation
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42.04 D @ 82°
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dK 1.83 D
PC: Axial Elevation
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AC: Axial Diopters
OD
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CC: Normal Thickness
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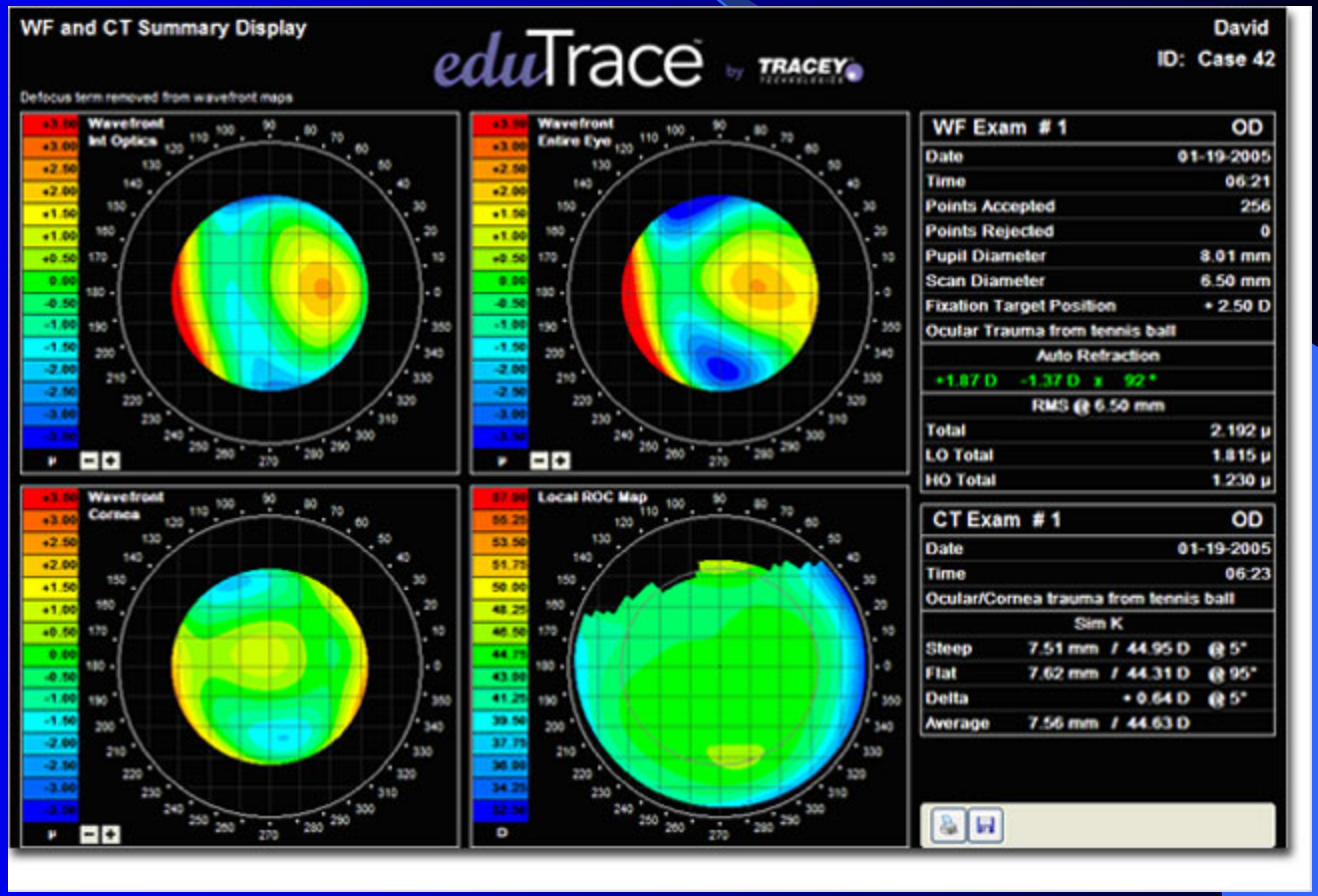
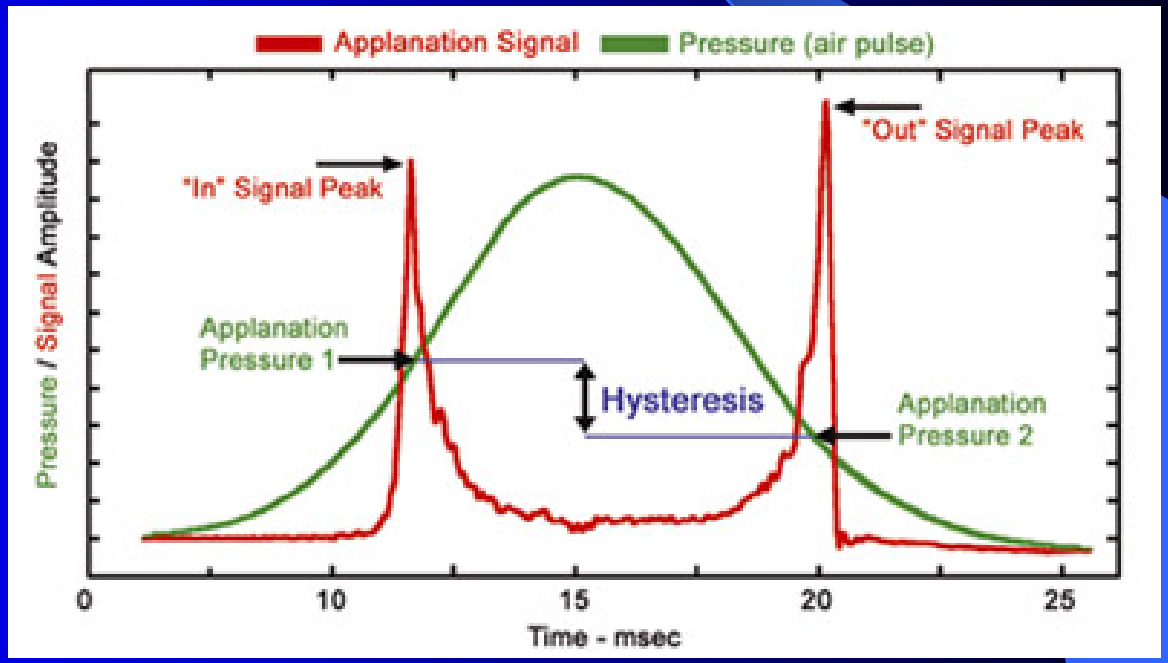
LASERSIGHT

iTrace ray-tracing aberrometer/topographer



Ocular Response Analyzer



Co-management Fees: Premium IOLs

- Total co-management fee: **$1,300/pt**

-$1000/pt from WVI;

-$300/pt from insurance (90-day global)

New Lifetime Guarantee for Bladeless All-Laser LASIK: EXCLUSIVELY for Co-managed Patients***

*** $2000 savings for bilateral Bladeless LASIK

***Free enhancements for life requires annual exams by OD

LASIK Co-management Program

- **Co-management fee: $1000/pt**
  - **We collect on day of surgery and send to your practice**
- **$2,800/eye for 3 yrs of enhancements**
- **3D LASIK *($2K savings for your pts ONLY)***
- **Free consultation with Dr. Wang if you have completed pre-op**
- **Enhanements for 3 yrs require documented *annual exams by YOU***

INTACS for Keratoconus

WVI performed the world's first laser–Intacs for keratoconus graft

Co-management of Intralase-INTACS

- **WVI files letters of medical necessity on patient's behalf, and follows through with appeals for denials**

- **We accept: BCBS, Cigna, Aetna, Humana, PHCS, PPO USA, United Healthcare, Signature Health Alliance**

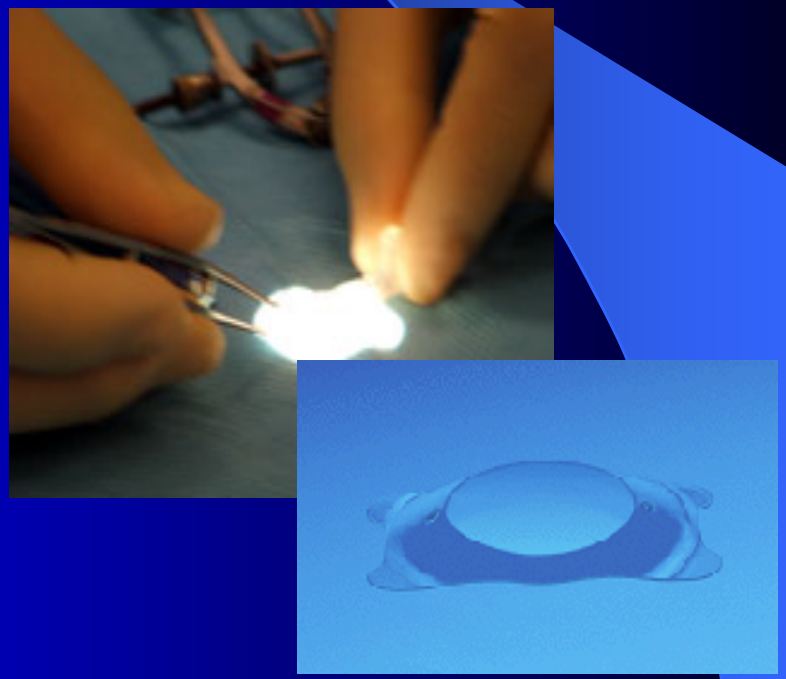
- **Coming Soon (July/Aug): Medicare (with selected supplementary plans)**

<u>Co-management Fees:</u>

- **If your patient has insurance: OD bills insurance for post-op care**
- **No insurance:**
  - **20% savings for your patients only**
  - **<u>All pts return to our comanaging ODs</u> for continued care.**

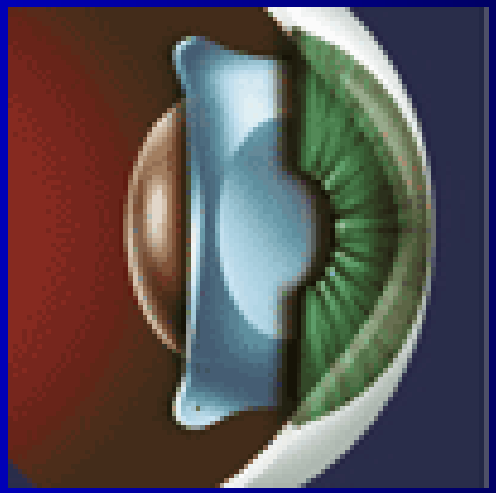
Implantable Contact lenses (ICL)

WVI performed the state's first ICL



Co-management Program: ICLs

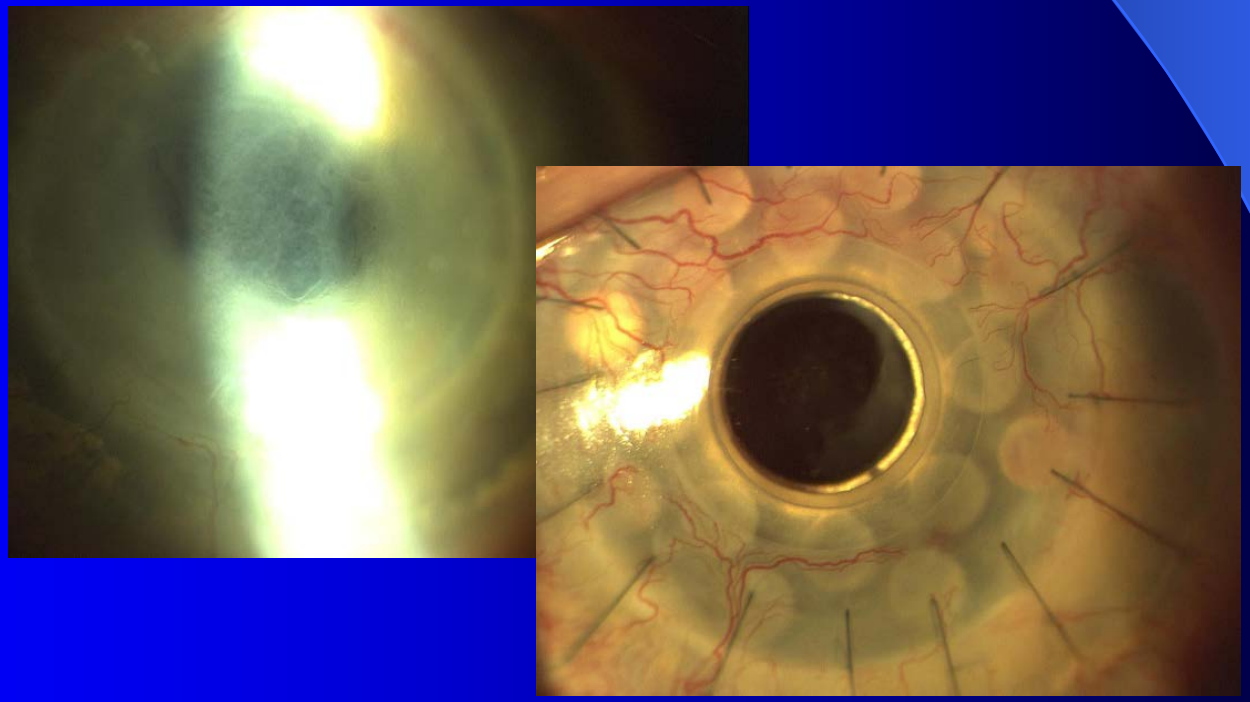
- **Co-management fee: <u>$1000/pt</u>**



For end-stage corneal blindness Charity eyecare

New Artificial Cornea Boston K

First in Middle TN



Charity Eye Care

International Charity Medical Care

40 states in the US and 55 countries

All physicians donate our services

Wang Foundation for Sight Restoration

EyeBall, 10/3/09, Sat, 5:30pm, Opryland

The Wang Foundation for Sight Restoration presents

5th Annual EyeBall 2009

Vision for the World

Spectacular dance performance by Dr. and Mrs. Ming Wang
&
The Chinese Arts Alliance of Nashville

Saturday • October 3, 2009 • 5:30pm

Gaylord Opryland Resort & Convention Center, Nashville

EyeBall 2009 Co-chairs: Rice and Jody Broocks

Foundation:
Founder & Chairman: Ming Wang, MD, PhD
Board of Directors: Rice Broocks, Kim Campbell, MaClin Davis, Libby Dayani, Barry Dotson, Patrice Gordon, Charles Grummon, Mark Hilliard, Monty Lankford, Dave Snodgrass, Ming Wang, Shirley Zeitlin

Medical Council Doctors:
Helen Boerman, OD, Dave Brown, OD, Greg Coley, OD, John Downing, MD, Matthew Drew, OD, Roy Ferguson, PhD, Shawna Hill, OD, Jeff Horn, MD, Jeffrey Kegarise, OD, Craig McCabe, MD, PhD, Azizur Rahman, MD, David Shen, OD, Robert Simon, OD; Rob Szeliga, OD, Ming Wang, MD, PhD

Since its inception in 2003, the Wang Foundation for Sight Restoration has helped patients from over 40 states in the US and 55 countries worldwide to undergo novel sight restoration surgeries performed by the foundation doctors free of charge. The foundation doctors published a paper in the world renowned journal "*Nature*" and three major textbooks in the corneal surgery field, hold several US patents for new biotechnologies to restore sight and performed the world's first laser-assisted artificial cornea implantation.

A black-tie event. All net proceeds benefit the foundation's patients.

Tickets:

VIP seating (on the perimeter of the dance show floor!) $200/ person
Regular seating $150/person (501c(3) charity contribution, tax-deductible)

RSVP: rachel@wangvisioninstitute.com • Please make checks payable to "Wang Foundation" and mail to: Ms. Rachel Sheridan, Wang Foundation for Sight Restoration
1801 West End Ave, Ste 1150, Nashville, TN, 37203 | 615-321-8881 (O) | 615-321-8874 (F)
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Questions?

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