What the Doctor Expects from the Tech During the Eye Exam

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Financial disclosures

- Shana Barrett Zeitlin, O.D. has no financial interests to disclose.
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Goals

- List the skills necessary to perform the duties of an ophthalmic tech
- Discuss how the irreplaceable tech does his or her job
  - Your input, please
- Examine case studies where tech input assisted in diagnosis and management

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What does the doctor <u>really</u> want?

- A mind reader
- Someone with 4 hands
- Ability to be in 2 places at one time
- Skin as thick as leather
- Always full of sunshine and happiness

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The irreplaceable tech

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These are tough times…

- In a volatile economy it pays to have job security
- If the doc feels you're irreplaceable, it's less likely that you'll be involved in downsizing
- You can command a higher salary if the doc is afraid of losing you
- The staff needs to be involved in maintaining patient base

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What the doc should expect

- The doc would love for all the techs to be of equal quality
  - Knowledge, dependability, motivation, personality
- Self starter
- Anticipates well, troubleshoots systematically
- Takes ownership of matters
- Represents the practice even better than the doc
- Cares about the success of the practice

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Ophth techs have amazing jobs

- Medical knowledge
  - Ophthalmic examination
- Technical skills
- Practice management
- Coding and billing
- People skills
  - Patients and coworkers

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The irreplaceable tech has all of these skills

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Medical knowledge

- A good listener, excellent history taking skills
- Understanding of diseases
- Anticipating appropriate diagnostic testing
- Triage – handling urgencies and emergencies
- Pharmacology – ophthalmic and systemic
- Broad knowledge of medical terminology – ophthalmic and non-ophthalmic

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Medical knowledge

- Understanding of significance of ophthalmic signs and symptoms
- Knows causes of red eye
- Knows causes of sudden vision loss
- Understanding headache causes/management
- Understanding neuroimaging
- Understanding ptosis

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Ophthalmic examination

- Vision assessment
  - Children, illiterate or non-English speaking adults
- Refractions (retinoscopy)
- Pupil testing
- Motility testing
- Confrontation visual field testing
- Color tests
- Amsler Grid testing

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Ophthalmic examination

- Tonometry
- Evaluating stereo vision, binocular vision
- Tear film assessment
  - Tear break-up time, tear lake, RPS screening
- Tests for epiphora
  - Dye disappearance test, Schirmer testing, basal tear secretion
- Diplopia assessment
- ***ADD special populations modifications PEDIATRIC AND GERIATRIC, handicapped

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Technical skills

- Autorefraction
- Advanced axial length measurements
- Corneal topography
- Anterior segment OCT
- Posterior segment OCT
- B-scan ultrasound
- IVFA – preventing and responding to complications
- Fundus photography

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Technical skills

- Visual field testing
  - Humphrey, FDT, Goldmann
- Electrodiagnostic testing – ERG, VEP
- Corneal pachymetry
- Contact lens fitting
  - (RGP, Ortho-K), troubleshooting, therapeutic
- Minor surgical assisting
- Low vision therapy

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Practice management

- Coding and billing
- Good chart documentation, EHR entry
- Scribing
- Equipment maintenance
- Office maintenance – infectious disease control
- Surgery scheduling
- Informed consent

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Practice management

- Handling biopsy or clinical specimens
- Obtaining lab results, reports
- Optical dispensing
- Maintaining contact lens inventory
- Cross-trained in front desk, clerical activity

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People skills

- Provides good first and last impressions
  - Utmost in professionalism
- Provides warm environment for patients
- A good patient educator
- Surgical information regarding cataract, refractive, glaucoma surgery
- Post-op instructions
- Discussing newer treatments for AMD, DME (injections/implants)

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People skills

- Good with patients – no matter what
- Demonstrates empathy for patients
- Sensitive to patient needs, fears, concerns
- Managing the unhappy patient
- "Hand holding" the patient with difficult post-op course

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People skills

- Excellent doctor : technician communication
- Demonstrates good teamwork
- Works at improving efficiency
- Arrives at work, ready to go, on time every day
- Being consistent, a non-complainer
- Sensitivity to personal doctor's needs, foibles

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Clinical cases

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50 yo woman with redness OD for several weeks

- HPI – No change in vision, no pain, discharge, tearing, photophobia. Recently fell while riding bike, hitting head on pavement. No LOC, headaches. Notes occasional "whooshing" sounds
- PMH – negative
- Exam –
  - VA 20/20 OU
  - IOP – 26 mmHg OD, 16 mmHg OS
  - Slit Lamp – corneas, AC – normal; mild cataracts OU
  - External exam:

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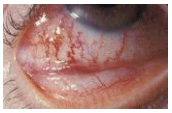

What do you observe?

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Carotid cavernous fistula

- Communication between carotid artery and cavernous sinus (venous channel)
- Vision loss, proptosis, lid swelling, diplopia, tinnitus
- Technician saw the pupil change, asymmetric IOP, dilated conjunctival vessels
  - Alerted ophthalmologist immediately, who arranged immediate referral to neurosurgeon for surgical repair
  - Did not dilate the pupils which would affect diagnostic finding as well as constrict the blood vessels

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37 yo man with redness, ↓ vision photophobia, and eye pain

- HPI – contact lens wearer, developed blurred vision with extreme pain (9/10) of OD about a week ago
- PMH – negative
- Exam –
  - VA – 20/60 OD, 20/20 OS
  - Pupils – normal
  - Slit lamp – see picture

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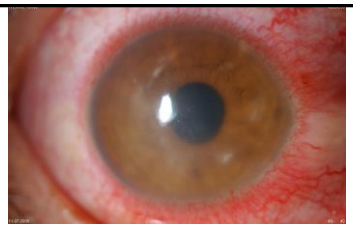

Technician noted pain seemed out of proportion to clinical findings. What question helped make the diagnosis?

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Differential diagnoses?

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Early Acanthameba keratitis

- Technician asked the questions:
  - Do you swim or use a hot tub?
  - Do you wear your contacts while swimming?
- Knowing this history led to the doc obtaining the appropriate referral for testing for Acanthameba, rather than treating for bacterial keratitis
  - Confocal microscopy, corneal biopsy are needed for diagnosis
  - Treatment is with anti-protozoa agents – biguanides and diamidines
- Delay in treatment significantly worsens prognosis

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28 yo woman with a history of HSV keratitis OD c/o worsening vision

- HPI – initial presentation of HSV keratitis was 4 months ago, treated with topical trifluridine, oral valcyclovir. Acute infection resolved; vision remained moderately blurred. Pt presents complaining of progressively worsening blur.
- PMH – none
- Meds – none
- Exam –
  - VA – 20/60 OD, 20/20 OS
  - External – mild injection
  - Pupils – normal
  - Slit lamp:

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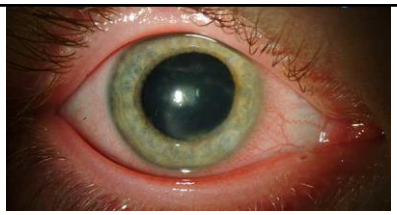

Because the technician knew the possible diagnosis she chose not to perform one routine portion of the exam. Which test?

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Neurotrophic keratitis

- Any condition affecting CN V can cause corneal anesthesia, resulting in neurotrophic keratitis
  - H simplex, H zoster
  - Trigeminal neuralgia surgery
  - Acoustic neuroma
  - Topical anesthetics
  - Diabetes mellitus, MS
  - Contact lens wear, LASIK
  - Chemical burns
- Treatment
  - Tears, ointments, tarsorraphy, Mucomyst, tetracyclines

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Neurotrophic keratitis

- In the setting of a red eye, check slit lamp exam for diffuse SPK prior to checking IOP
- Because in this case the tech knew of the possible diagnosis, she anticipated the need to check corneal sensation
  - Checked for fluorescein staining with fluorescein strip and NOT Fluress, which contains the anesthetic Benoxinate
  - Using Fluress would have removed ability to check for corneal desensitivity

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35 yo female calls the office…

- Vision has been really foggy
- Night sweats have been really prominent
- Patient doesn't really want to come in because she thinks that she is coming down with the flu
  - Nightsweats
  - Flu-like symptoms
- Is this an ocular emergency or not?

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What could night sweats indicate?

- Flu
- Infection
- Tuberculosis
- All of the above

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What could foggy vision indicate?

- Inflammation
- Infection
- Change in refraction
- An emergency requiring immediate attention

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Patient comes in to the office…

- Informs the tech that she recently had sinus surgery and had a major ear infection to her left ear
- Has noticed severe night sweats
- Family history of lupus

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Pre-tests show…

- BVA 20/50 OD and 20/30 OS
- Very red, painful, irritated eyes
- EOM's and confrontation fields were within normal limits
- Pupils showed PERRL (-) APD

What additional tests should be done and what tests should be avoided?

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Taking a closer look…

- Pinhole test
  - Should always be administered when VA's are 20/30 or worse in one eye in an eye where refraction will not be performed
- IOP's
  - IOP's need to be checked…but… what about the red eyes?
    - Tonopen
    - I-Care tonometer
    - Goldmann

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Pre-test Results

- Pinhole showed no improvement
- Pressures were OD 8 mmHg and OS 9 mmHg
- What is the doctor's diagnosis?

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Bilateral Anterior Uveitis

- Severe inflammation from uveitis can cause cloudy vision
- Other Signs and Symptoms:
  - Redness
  - Low IOP's
  - Pain
  - Light sensitivity

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How do we treat?

- Topical steroids
  - Durezol or Pred Forte
- Topical cycloplegics
  - Atropine, Homatropine
- Patient was Rx'd Durezol OU qid and asked to return to the office in 3 days for follow up
- Bloodwork ordered to rule out systemic cause of uveitis

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Cloudy Vision

- Cloudy Vision can be a sign of:
  - Elevated IOP's
  - Acute Angle Closure
  - Uveitis
  - Keratitis
  - Cataracts
  - PCO
  - Retinal Changes
  - The list goes on and on…

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43 yo woman presents with gradual vision loss OD after head injury

- HPI – patient was struck on head by heavy box while at work. Developed headache, severe vision loss afterward
- PMH – mild hypertension, chronic fibromyalgia
- Exam –
  - VA – Counting fingers OD, 20/20 OS
  - Pupils – equal, reactive, -APD
  - EOM – full, with pain on eye movement
  - Refraction - -0.75+0.50x180 OU (autorefraction)
  - Slit lamp exam – normal
  - Visual Fields -

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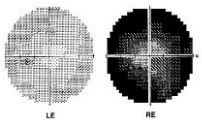

- The technician noted that the patient needed much more time for the test OD, with multiple stops to refixate
- Suspicious that the test was so difficult OD, she repeated the test with BOTH EYES OPEN, telling the patient the first part of the test was for the right eye and the second part for the left

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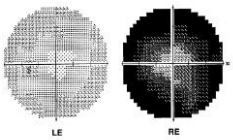
The results appeared the same



What does this tell you?

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Functional visual loss

- A decrease in visual acuity or loss of visual field without underlying organic or physiologic basis
  - Malingering – often in patients seeking disability or monetary gain
    - Caution with children (acuity, glasses)
  - Hysterical
- A diagnosis of exclusion
- Very time consuming and costly
- In this case, the technician monitoring the performance of the VF test detected inconsistency, pointing toward the diagnosis

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Tests for functional visual loss

When the complaint is binocular vision loss	When the complaint is monocular vision loss
Navigation	APD
Fingertip touching	Fogging
Mirror test	Titmus stereo test
OKN drum	Duochrome test
Shock test	Base out prism test

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72 yo man 3 weeks s/p cataract extraction OS with uncorrected postop acuity of 20/100 that corrects with -3.25+0.50x90 to 20/20

- Pre-op visual acuity – 20/50, no improvement with refraction
- No significant past ocular history
- PMH significant for hypertension, enlarged prostate
- Uncomplicated cataract extraction with lens implantation

Patient asks the technician what went wrong – is it possible I got the wrong implant? What do you answer?

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Technician – patient communication issues

- Always tell patient to discuss the issue with the doctor – no matter how much they press you
  - Patients will look for contradictions in information as fuel for litigation
- The patient is told that the best option is to exchange the intraocular lens. Once the doctor leaves and you go to schedule to exchange, the patient asks you, "If you were in my situation, what would you do?
- How do you respond?

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Technician – patient communication issues

- Always tell the patient that everyone's circumstances are different
  - The factors that an individual uses to make a decision are based on each person's medical status, family history, visual demands
- Be empathic, but clear

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69 yo woman with complaint of chronic tearing

- HPI – several month history of excessive tearing OS greater than OD
- PMH – HTN, GERD, anxiety, hyperthyroid, seasonal allergies
- Meds – HCTZ, Xanax, Propylthiouracyl, Claritin
- Examination
  - VA – 20/25 OU
  - External exam – normal
  - Pupils – normal
  - Slit Lamp – cornea - clear, tear lake - overflowing

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Epiphora (excessive tearing) work-up

- What is tearing a result of?
- Overproduction
  - Dry Eye Syndrome
  - Lid Malposition – trichiasis, entropion/ectropion, lagophthalmos
  - Corneal disease
  - Conjunctival disease
- Under-drainage
  - Punctal stenosis
  - Nasolacrimal duct obstruction

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Epiphora workup

- Tests for tear overproduction
- Tests for under-drainage

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- Because the tech was aware of the different causes of epiphora, he prepared the patient for tests for both overproduction and under-drainage
- The appropriate testing materials were in place when the physician arrived, resulting in a "Wow!" response

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55 yo female with blurred vision

- Returns to office with complaints of blurred vision through her glasses
  - "Things are just blurry. Nothing is clear"
- VA with glasses is 20/25 with difficulty
  - Best corrected VA's OD 20/20 OS 20/20
  - Refraction shows no change
- Near VA's are 20/20 OU
- Optician has confirmed that all measurements are correct and the frame is adjusted properly

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Blurry Vision….hmmm

- Dry Eye Syndrome
- Mild cataracts
- Diabetic vision fluctuations
- Prescription Error
- Dirty eyeglass lenses
- I hate my frame choice OR MY HUSBAND HATES MY FRAME CHOICE

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Identifying the root of the complaint

- Do you like the frame style?
- Have you gotten compliments on your frame?
- Does the frame feel good when you have it on your face?
- Is there anything that you would change about the frame?

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32 yo man with complaints of progressive blurring of vision

- HPI – patient reports a history of progressive blurring of vision over the past several months. No complaint of pain, redness, photophobia, flashes or floaters. He also notes a history of requiring new glasses Rx 4 times in the past 5 years.
- PMH – Asthma, seasonal allergies, eczema of hands, elbows
- Meds – antihistamines, nasal steroids
- Examination
  - VA – 20/50 OD, 20/40 OS: no improvement with refraction (high cylinder)
  - External exam – quiet
  - Pupils – normal
  - Conj – quiet
  - Slit Lamp - normal

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In the setting of painless blurring of vision in a young patient where refraction does not improve the vision, what test would you perform next?

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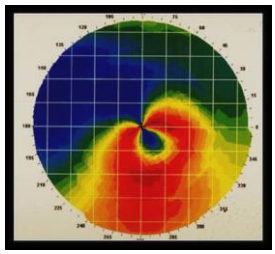
Keratometry, Corneal Topography



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Keratoconus

- Degenerative disorder causing thinning of the cornea
  - High astigmatism, severe distortion of vision
  - Younger to middle aged
  - RGP's, scleral lenses, intrastromal rings, cross-linking, riboflavin, corneal transplant

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47 yo woman with itchy eyes, blurry vision

- HPI – one week history of itching, blurred VA, mild redness. No known cause
- Past ophth hx – Optic neuritis due to MS since 2005, LASIK, dry eye syndrome
- PMH – MS, HTN, hypothyroidism
- Meds – levothyroxine, baclofen, simvastatin, lisinopril, Refresh
- Allergies - NKDA

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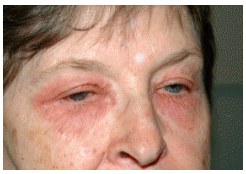
Examination

- VA 20/20 OU
- Pupils – normal, no APD
- IOP – 12 mmHg OU
- Lids – erythematous, thickened, scaly skin OU
- Conj – erythema
- Cornea – LASIK flap OU, diffuse SPK
- AC – quiet



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Differential diagnosis

- Allergic contact dermatitis
- Seborrheic dermatitis – chronic, recurrent
- Contact urticaria – within 30 minutes of contact, patients with significant allergy history
- Rosacea
- Psoriasis
- Food allergy/sensitivity

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What was the source of the skin change in this patient?

- Because the tech knew this was likely an allergic contact dermatitis, she questioned the patient about potential allergens
  - New soaps, shampoos
  - New cosmetics,
  - New detergents
  - New ophthalmic meds
  - Sunscreens
  - Acrylic nails, nail lacquer

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Conclusion

- The quality of your work can impact the doctor's ability to make a correct diagnosis
- You make a difference
- Read, ask questions, seek knowledge, be aware of new technology
- Grow an extra hand or two and work on cloning yourself

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Thank you!

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