**Camera Types**

- Point and shoot digital
- Digital with close-up setting
- Point and shoot (non-digital)
- 35 mm (non-digital)
- Digital SLR

**Point and Shoot Digital**

- Simple
- Inexpensive
- Good general quality
- Only fair for extremes (near & far)
- May need to rely on software to enhance
Some are point and shoot
Available close lenses on some
You can make the camera a myope
No software
Digital Camera with Slit Lamp Adapter

- Many Canon and Nikon cameras have available adapters for the slit lamp
- The slit lamp eyepiece is removed
- The adapter (a tube) screws onto the camera front and is inserted into the eyepiece socket
- The slit lamp will provide extra magnification and/or illumination

Slit Lamp Adapter

- May cost more than the camera! Differs with camera ($389)
- Zarf Enterprises
  - www.zarfenterprises.com or adapters@zarfenterprises.com
- Choose your camera with the available adapter in mind
- Nikon CoolPix P5100 with adapter

Nikon CoolPix P5100

- 12+ megapixels
- Very small and lightweight
- Comes with many add-ons, although not necessary with slit lamp photos
- The camera is set on a large aperture with the flash off. No adjustments needed unless you want to zoom with the camera rather than the slit lamp
- Priced from $277–360

Procedure

- After camera with adapter is inserted into the slit lamp eyepiece socket...
- Focus with joystick and LCD screen on camera, not always easy; take several photos slightly varying the focus
- May connect to computer for help focusing
- Each picture may show a clear image of a specific tissue
- Lighting

Lighting

- Diffuse is good for most pictures
- High contrast is less effective
- Reading lamp works well...try different angles
- External lighting.....even transilluminator works
Digital SLR

- Interchangeable lenses
- More expensive
- Micro/macro lenses ideal

Digital SLR with 300mm Lens

- Great for far off shots
- High magnification
- Can make distant objects different sizes behind portrait shot
- Poor for close up shots
Digital SLR with Macro Lens

- Great for extreme closeups (eyes!)
- Small depth of field
- Fair for distance pictures
- Sometimes called micro lens
- Some point and shoot cameras will let you screw a close up lens on your camera (highly recommended)
Set-Up

- Best with tripod
- Flash presents problems
- Pre-set tripod height to match eyeline on slit lamp
- Needs to swivel
- Unequal leg lengths desirable
- Recommend "Cullman Mini Magic"
- Bhphotovideo.com
**Illumination**

- Use slit lamp and near point lamp if necessary
- VERY IMPORTANT for good results
- Try adjusting lights and looking at target first...then set up camera
- Thin or thick beam
- Cobalt filter
- Wratten filter?

**Focusing**

- Set camera for closest setting
- Do not refocus
- Move tripod slightly in and out to focus
- Iris, cornea? Neo?...get exact focus
- Take three pictures
- With non SLR cameras, will need to find out how close you can get before blur...
- ...try pictures at slightly different distances
**Procedure**

- Have camera set on tripod, screws in bottom of camera
- Set lighting before setting camera on slit lamp stage
- Find best fit for tripod
- Rotate camera on tripod until it is aimed at eye
- Move tripod slowly in and out to get best look

**Procedure con’t**

- What is the main target...not the eye!
- A blood vessel? A bubble? Need exact focus
- Take photo
- Timers reduce “shake”
- Take 3 pictures
- Download picture to computer

**Tips**

- 1/60 rule (the hippy hippy shakes)
- Hyperfocal distance
- Light has color we don’t always see
- The best light is early morning or late afternoon
- The worst is noon
- Fun filters...pantyhose, screen
- No flash at concerts!
Software

- Can make or break picture
- Different cameras have different ways to download pictures
- Some have docking station
- Some use USB cables
- You can also put the memory card in your printer for easy prints, but then your editing is limited

Editing

- Crop photo to enlarge and show more detail
- Adjust brightness/contrast
- Adjust color
- Adjust sharpness
- Store in your camera software or in “my documents”
- Print picture or burn cd/dvd
Reimbursement

- Code #: 92285
- Our fee: $60.00
- Medicare: $50.00