Ophthalmology Surgical Competency Assessment Rubric (OSCAR)

"Ophthalmology Surgical Competency Assessment Rubrics" (OSCARs) are designed to facilitate assessment and teaching of surgical skill. Surgical procedures are broken down to individual steps and each step is graded on a scale of novice, beginner, advanced beginner and competent. A description of the performance necessary to achieve each grade in each step is given. The assessor simply circles the observed performance description at each step of the procedure. The OSCAR should be completed at the end of the case and immediately discussed with the student to provide timely, structured, specific performance feedback. These tools were developed by panels of international experts and are valid assessments of surgical skill.

OSCAR Instructor Directions

1. Observe resident phacoemulsification surgery.
2. Ideally, immediately after the case, circle each rubric description box that you observed. Some people like to let the resident circle the box on their own first. If the case is videotaped, it can be reviewed and scored later but this delays more effective prompt feedback.
3. Record any relevant comments not covered by the rubric.
4. Review the results with the resident.
5. Develop a plan for improvement (e.g. wet lab practice/tips for immediate next case).

<u>Suggestions</u>:

- If previous cases have been done, review OSCAR data to note areas needing improvement.
- If different instructors will be grading the same residents, it would be good that before starting using the tool they grade together several surgeries from recordings, so they make sure they are all grading in the same way.

Ophthalmology Surgical Competency Assessment Rubric: Phacoemulsification (OSCAR: Phaco)						
Date _____ Resident _____ Evaluator _____		Novice (score = 2)	Beginner (score = 3)	Advanced Beginner (score = 4)	Competent (score = 5)	Not applicable. Done by preceptor (score= 0)
1	Draping:	Unable to start draping without help.	Drapes with minimal verbal instruction. Incomplete lash coverage.	Lashes mostly covered, drape at most minimally obstructing view.	Lashes completely covered and clear of incision site, drape not obstructing view.	
2	Incision & Paracentesis: Formation & Technique	Inappropriate incision architecture, location, and size.	Leakage and/or iris prolapse with local pressure, provides poor surgical access to and visibility of capsule and bag.	Incision either well-placed or non-leaking but not both.	Incision parallel to iris, self sealing, adequate size, provides good access for surgical maneuvering.	
3	Viscoelastic: Appropriate Use and Safe Insertion	Unsure of when, what type and how much viscoelastic to use. Has difficulty accessing anterior chamber through paracentesis.	Requires minimal instruction. Knows when to use but administers incorrect amount or type.	Requires no instruction. Uses at appropriate time. Administers adequate amount and type. Cannula tip in good position. Unsure of correct viscoelastic if multiple types available.	Viscoelastics are administered in appropriate amount and at the appropriate time with cannula tip clear of lens capsule and endothelium. Appropriate viscoelastic is used if multiple types of viscoelastics are available.	
4	Capsulorrhexis: Commencement of Flap & follow-through.	Instruction required, tentative, chases rather than controls rhexis, cortex disruption may occur.	Minimal instruction, predominantly in control with occasional loss of control of rhexis, cortex disruption may occur.	In control, few awkward or repositioning movements, no cortex disruption.	Delicate approach and confident control of the rhexis, no cortex disruption.	
5	Capsulorrhexis: Formation and Circular Completion	Size and position are inadequate for nucleus density & type of implant, tear may occur.	Size and position are barely adequate for nucleus density and implant type, difficulty achieving circular rhexis, tear may occur.	Size and position are almost exact for nucleus density and implant type, shows control, requires only minimal instruction.	Adequate size and position for nucleus density & type of implant, no tears, rapid, unaided control of radialization, maintains control of the flap and AC depth throughout the capsulorrhexis.	
6	Hydrodissection: Visible Fluid Wave and Free Nuclear Rotation	Hydrodissection fluid not injected in quantity nor place to achieve nucleus rotation.	Multiple attempts required, able to rotate nucleus somewhat but not completely. Tries to manually force rotation before adequate hydrodissection.	Fluid injected in appropriate location, able to rotate nucleus but encounters more than minimal resistance.	Ideally see free fluid wave but adequate if free nuclear rotation with minimal resistance is achieved. Aware of contraindications to hydrodissection.	

7	Phacoemulsification Probe and Second Instrument: Insertion Into Eye	Has great difficulty inserting the probe or second instrument, AC collapses, may damage wound, capsule or Descemet's membrane	Inserts the probe or second instrument after some failed attempts, may damage wound, capsule or Descemet's membrane.	Inserts probe and second instrument on first attempt with mild difficulty, no damage to wound, capsule or Descemet's membrane.	Smoothly inserts instruments into the eye without damaging the wound or Descemet's membrane.	
8	Phacoemulsification Probe and Second Instrument: Effective Use and Stability	Tip frequently not visible, has much difficulty keeping the eye in primary position and uses excessive force to do so.	Tip often not visible, often requires manipulation to keep eye in primary position.	Maintains visibility of tip at most times, eye is generally kept in primary position with mild depression or pulling on the globe.	Maintains visibility of instrument tips at all times, keeps the eye in primary position without depressing or pulling up the globe.	
9	Nucleus: Sculpting or Primary Chop	Frequently incorrect power used during sculpting, applies power at inappropriate times, excessive phaco probe movement causes constant eye/nucleus movement, unable to engage nucleus (chop method) or the groove is of inadequate depth or width (divide and conquer), cannot control Phacodynamics. Unable to correctly work foot pedals.	Moderate error in power used while sculpting, tentative, frequent eye/nucleus movement produced by phaco tip, difficult to engage nucleus (chop technique) or groove adequately after many attempts (divide and conquer), poor control of phacodynamics with frequent anterior chamber depth fluctuations. Has difficulty working foot pedals.	Uses correct power with minimal error when sculpting, occasional eye/nucleus movement caused by phaco tip, some difficulty in engaging or holding nucleus (chop method) or groove adequate with minimal repeat attempts, fairly good control of phacodynamics with occasional anterior chamber depth change. Minimal mistakes using foot pedals.	Sculpting is performed using adequate ultrasound power regulated by the pedal, with forward movements that do not change the eye position or push the nucleus, the nucleus is safely engaged (with chop method) or the groove is appropriate in depth and width (divide and conquer technique), phacodynamics are controlled as evidenced by the internal anterior chamber environment. Adept at foot pedal control.	
10	Nucleus: Rotation and Manipulation	Unable to rotate nucleus.	Able to rotate nucleus partially and with zonular stress.	Able to rotate nucleus fully but with zonular stress.	Nucleus is safely and efficiently manipulated producing minimal stress on zonules and globe.	

11	Nucleus: Cracking or Chopping With Safe Phacoemulsification of Segments	**CRACKING**: Grooves are not centered or deep enough and go into epinucleus, nucleus is constantly displaced from central position, unable to crack nucleus at all, eye constantly moving. **CHOPPING:** Always endangers or engages adjacent tissue, unable to accomplish chop of any piece. **SEGMENT PHACOEMULSIFICATION**: produces significant wound burn, great difficulty pursuing fragments around the anterior chamber and into the bag, poor awareness of second instrument tip and difficulty keeping the second hand instrument under the phaco tip,	**CRACKING**: Some grooves are centered and deep enough and some go into epinucleus, displaces nucleus in most grooves, attempts to split nucleus with instruments too shallow in groove, able to crack portion of nucleus, eye often moving. **CHOPPING:** endangers or engages adjacent tissue in most chops, able to accomplish chop of some pieces. **SEGMENT PHACOEMULSIFICATION**: produces light wound burn, pursues most fragments around the AC and into the bag, the second hand instrument is sometimes under the phaco tip	**CRACKING**: Most grooves are centered and deep enough, rarely goes into epinucleus, rarely displaces nucleus, sometimes attempts to split in mid-nucleus but succeeds, eye usually in primary position. **CHOPPING:** endangers or engages adjacent tissue in some chops, able to accomplish chop of most pieces. **SEGMENT PHACOEMULSIFICATION**: produces minimal wound burn, pursues some fragments around the AC and into the bag, the second hand instrument is usually under the phaco tip	**CRACKING**: Grooves are centered, deep enough to ensure cracking, length does not reach epinucleus, nucleus is not displaced from central position, places instruments deep enough to easily and successfully crack nucleus, eye stays in primary position. **CHOPPING:** Nucleus engaged and vertical or horizontal chop technique undertaken with no inadvertent engagement of adjacent tissue (especially capsule). Full thickness nuclear chop of all pieces in a controlled and fluid manner. **SEGMENT PHACOEMULSIFICATION**: No wound burns, Pieces are "floated" to the tip without "pursuing" the fragments around the anterior chamber and the bag, The second hand instrument is kept under the phaco tip to prevent posterior capsule contact if surge arises.	
12	Irrigation and Aspiration Technique With Adequate Removal of Cortex	Great difficulty introducing the aspiration tip under the capsulorrhexis border, aspiration hole position not controlled, cannot regulate aspiration flow as needed, cannot peel cortical material adequately, engages capsule or iris with aspiration port.	Moderate difficulty introducing aspiration tip under capsulorrhexis and maintaining hole up position, attempts to aspirate without occluding tip, shows poor comprehension of aspiration dynamics, cortical peeling is not well controlled, jerky and slow, capsule potentially compromised. prolonged	Minimal difficulty introducing the aspiration tip under the capsulorrhexis, aspiration hole usually up, cortex will engaged for 360 degrees, cortical peeling slow, few technical errors, minimal residual cortical material.	Aspiration tip is introduced under the free border of the capsulorrhexis in irrigation mode with the aspiration hole up, Aspiration is activated in just enough flow as to occlude the tip, efficiently removes all cortex, The cortical material is peeled gently towards the center of the pupil, tangentially in cases of zonular weakness.	

			attempts result in minimal residual cortical material.			
13	Lens Insertion, Rotation, and Final Position of Intraocular Lens	Unable to insert IOL, unable to produce adequate incision for implant type **NON-FOLDABLE:** unable to place the lower haptic in the capsular bag, unable to rotate the upper haptic into place **FOLDABLE:** unable to load IOL into injector or forcep, no control of lens injection, doesn't control tip placement, lens is not in the capsular bag or is injected upside down.	Insertion and manipulation of IOL is difficult, eye handled roughly, anterior chamber not stable, repeated attempts result in borderline incision for implant type **NON-FOLDABLE:** repeated hesitant attempts result in lower haptic in the capsular bag, upper haptic is rotated into place but with excessive force on capsulorrhexis and zonules and repeated attempts are necessary **FOLDABLE:** difficulty loading IOL into injector or forcep,, hesitant, poor control of lens injection, difficulty controlling tip placement, excessive manipulation required to get both haptics into capsular bag.	Insertion and manipulation of IOL is accomplished with minimal anterior chamber instability, incision just adequate for implant type **NON-FOLDABLE:** the lower haptic is placed inside the capsular bag with some difficulty, upper haptic is rotated into place with some stress on the capsulorrhexis and zonule fibers **FOLDABLE:** , minimal difficulty loading IOL into injector of forcep, hesitant but good control of lens injection, minimal difficulty controlling tip placement, both haptics are in the capsular bag.	Insertion and manipulation of IOL is performed in a deep and stable anterior chamber and capsular bag, with incision appropriate for implant type. **NON-FOLDABLE**: The lower haptic is smoothly placed inside the capsular bag; the upper haptic is rotated into place without exerting excessive stress to the capsulorrhexis or the zonule fibers. **FOLDABLE**: Able to load IOL into injector or forcep, lens is injected in a controlled fashion, fixation of IOL is symmetric; the optic and both haptics are inside the capsular bag.	
14	Wound Closure (Including Suturing, Hydration, and Checking Security as Required)	If suturing is needed, instruction is required and stitches are placed in an awkward, slow fashion with much difficulty, astigmatism, bent needles, incomplete suture rotation and wound leakage may result, unable to remove viscoelastics thoroughly. unable to make incision water tight or does not check wound for seal. Improper final IOP.	If suturing is needed, stitches are placed with some difficulty, resuturing may be needed, questionable wound closure with probable astigmatism, instruction may be needed, questionable whether all viscoelastics are thoroughly removed, Extra maneuvers are required to make the incision water tight at the end of the surgery. May have improper IOP.	If suturing is needed, stitches are placed with minimal difficulty tight enough to maintain the wound closed, may have slight astigmatism, viscoelastics are adequately removed after this step with some difficulty, The incision is checked and is water tight or needs minimal adjustment at the end of the surgery. May have improper IOP.	If suturing is needed, stitches are placed tight enough to maintain the wound closed, but not too tight as to induce astigmatism, viscoelastics are thoroughly removed after this step, the incision is checked and is water tight at the end of the surgery. Proper final IOP.	

	Global Indices					
15	Wound Neutrality and Minimizing Eye Rolling and Corneal Distortion	Nearly constant eye movement and corneal distortion.	Eye often not in primary position, frequent distortion folds.	Eye usually in primary position, mild corneal distortion folds occur.	The eye is kept in primary position during the surgery. No distortion folds are produced. The length and location of incisions prevents distortion of the cornea.	
16	Eye Positioned Centrally Within Microscope View	Constantly requires repositioning.	Occasional repositioning required.	Mild fluctuation in pupil position.	The pupil is kept centered during the surgery.	
17	Conjunctival and Corneal Tissue Handling	Tissue handling is rough and damage occurs.	Tissue handling borderline, minimal damage occurs.	Tissue handling decent but potential for damage exists.	Tissue is not damaged nor at risk by handling.	
18	Intraocular Spatial Awareness	instruments often in contact with capsule, iris and corneal endothelium', blunt second hand instrument not kept in appropriate position.	Occasional accidental contact with capsule, iris and corneal endothelium, sometimes has blunt second hand instrument between the posterior capsule and the activated phaco tip.	Rare accidental contact with capsule, iris and corneal endothelium. Often has blunt second hand instrument between the posterior capsule and the activated phaco tip.	No accidental contact with capsule, iris and corneal endothelium, when appropriate, a blunt, second hand instrument, is always kept between the posterior capsule and the tip of the phaco when the phaco is activated.	
19	Iris Protection	Iris constantly at risk, handled roughly.	Iris occasionally at risk. Needs help in deciding when and how to use hooks, ring or other methods of iris protection.	Iris generally well protected. Slight difficulty with iris hooks, ring, or other methods of iris protection.	Iris is uninjured. Iris hooks, ring, or other methods are used as needed to protect the iris.	

20	Overall Speed and Fluidity of Procedure	Hesitant, frequent starts and stops, not at all fluid.	Occasional starts and stops, inefficient and unnecessary manipulations common, case duration about 60 minutes.	Occasional inefficient and/or unnecessary manipulations occur, case duration about 45 minutes.	Inefficient and/or unnecessary manipulations are avoided, case duration is appropriate for case difficulty. In general, 30 minutes should be adequate.	

Comments:

Golnik KC, Beaver H, Gauba V, Lee AG, Mayorga E, Palis G, Saleh GM. Cataract surgical skill assessment. Ophthalmology. 2011 Feb;118(2):427.e1-5.