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 cataract 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).

Suggestions:

- 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: Pediatric Cataract Surgery (OSCAR: Pediatric Cataract Surgery)

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 the view.	
2	Incision (corneal or corneo-scleral) &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 valvular or of good internal length not both.	Incision parallel to iris, valvular and of good internal length provides good access for surgical maneuvering.	
3	Staining of the anterior capsule	Unsure about the technique of injecting 0.1%Trypan Blue dye, the amount to be injected and the waiting time before washing off the dye to stain the anterior capsule.	Knows the technique but requires instruction on injecting, waiting time. Anterior chamber fluctuates while injecting the dye. Does not use sterile air to protect the corneal endothelium. Administers incorrect amount or washes off the dye too quickly.	Requires no instruction. Uses adequate sterile air bubble to protect the corneal endothelium. Administers adequate amount and waits for adequate time. Washes off the dye with saline a little too early causing improper and patchy staining of the capsule. May cause endothelial staining due to excess trypan or inadequate air bubble.	Administers adequate amount. . Uses adequate sterile air bubble to protect the corneal endothelium Waits for one minute and or wait for the dye to stain the anterior capsule uniformly and then washes away the dye with saline. The anterior chamber remains stable during the whole process. There is no staining of the corneal endothelium.	
4	Viscoelastic: Appropriate Use and Safe Insertion	Unsure of when, what type and how much OVDto 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 OVD if multiple types available.	OVDs are administered in appropriate amount and at the appropriate time with cannula tip clear of lens capsule and endothelium. Appropriate OVDs used if multiple types of OVD are available.	

5	Anterior Capsulorrhexis: Commencement of Flap& follow-through.	With Forceps: Instructionrequired, tentative, chases rather than controls rhexis, lens matter disruption may occur. With Vitrector: Instruction required for initiation of capsulorrhexis, unsure of vitrectomy settings, anterior chamber (AC) fluctuates frequently.	With Forceps: Minimal instruction, predominantly in control with occasional loss of control of rhexis, lens matter disruption may occur. With Vitrector: Minimal instruction needed, has knowledge of machine settings for capsulotomy, AC is stable throughout.	With Forceps: In control, few awkward or repositioning movements, no lens matter disruption. With Vitrector: In control, No lens matter disruption or AC fluctuation, Few awkward movements noticed.	With Forceps: Delicate approach and confident control of the rhexis, no lens matter disruption. With Vitrector: Has a sound knowledge of vitrector machine settings for capsulotomy, well controlled initiation and completion of rhexis.	
6	Anterior Capsulorrhexis: Formation and Circular Completion	With Forceps or vitrector: Size and position are inadequate for a pediatric cataract.	With Forceps or vitrector: Size and position are barely adequate, difficulty achieving circular rhexis, tear may occur.	With Forceps or vitrector: Size and position are almost exact, shows control, and requires only minimal instruction. Nearly all of the optic edge covered by the capsule edge.	With Forceps or vitrector: Adequate size (5-6 mm) and position for pediatric cataract, no tears, rapid, unaided control of radialization, maintains control of the flap and AC depth throughout the capsulorrhexis.	
7	Hydrodissection:	Hydrodissection fluid not injected in sufficient quantity or place to achieve desired displacement of the soft nucleus. Unaware of contraindications to hydrodissection such as posterior polar cataract or a suspected preexisting posterior capsule dehiscence.	Multiple attempts required to achieve the desired displacement of the soft nucleus.	Fluid injected in appropriate location, has sound knowledge of contraindications to hydrodissection.	Adequate if free nuclear rotation with minimal resistance is achieved or adequate separation of nucleus and epinucleus from the cortex is obtained. Aware of contraindications to hydrodissection.	
8(a)	Aspiration 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(b)	Aspiration 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	Management of Lens: Aspiration Technique	Great difficulty in aspirating the nucleus, introducing the tip under the capsulorrhexis border, position of aspiration hole not controlled, cannot regulate aspiration flow as needed, cannot peel cortical material adequately, and 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 attempts result in minimal residual cortical material.	Minimal difficulty introducing the aspiration tip under the capsulorrhexis, aspiration hole usually up, cortex well engaged for 360 degrees, cortical peeling slow, few technical errors, minimal residual cortical material.	Aspiration tip is introduced into the nucleus to aspirate and then 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	
10	Primary Posterior Capsulorrhexis (PPC) initiation	Tentative, needs instructions, unable to clearly visualize the posterior capsule. **With Forceps:** Not sure if a nick has been made in the posterior capsule. Unable to grasp the lifted posterior capsule with forceps. **With Vitrector:** Struggles while making a sclerotomy site and inserting the irrigating cannula, Anterior chamber (AC) keeps fluctuating. Wrong site for initiating posterior capsulotomy.	Requires minimal instructions **With Forceps:** Able to clearly appreciate the posterior capsule and nick made with a cystitome and initiate PPC, moderate vitreous disturbance. Able to grasp the posterior capsule with minimal difficulty. **With Vitrector:** Needs minimal instructions while deciding the site and technique of sclerotomy, AC remains stable. Site of initiating the capsulotomy is correct.	**With Forceps:** In control, few awkward movements while making the nick and trying to grasp the posterior capsule, no vitreous disruption. **With Vitrector:** Performs proper sclerotomy and inserts infusion cannula with ease, AC does not fluctuate, visualizes the vitrector probe in the centre before starting capsulotomy, requires minimal instructions for initiating capsulotomy.	**With Forceps:** Able to grasp the posterior capsule with ease and at will. Delicate approach and confident control of the rhexis, no vitreous disruption. **With Vitrector:** Understands the difference in surgical anatomy of pars plana for age, makes a proper sclerotomy at the desired distance with an MVR blade, properly places the infusion port to maintain the AC, Starts posterior capsulotomy from the centre.	

11	Primary Posterior Capsulorrhexis(PPC) formation and completion	**With Forceps:** Poor control when proceeding with the capsulotomy. Vitreous disturbance occurs. Inadequate size and position of PPC. **With Vitrector:** Does not have knowledge of machine settings while performing capsulotomy and vitrectomy. Improper technique and inadequate size of capsulotomy. Peripheral extension of posterior capsular tear may occur.	**With Forceps:** predominantly in control with occasional loss of control of rhexis. Size and position are barely adequate, difficulty achieving circular rhexis, tear may occur. **With Vitrector:** Moderate difficulty in performing capsulotomy and vitrectomy, unable to decide if size of capsulotomyis adequate. Knowledge on machine settings not complete. Difficulty in achieving circular rhexis and may cause peripheral tears.	**With Forceps:** Able to proceed and complete capsulotomy with minimal instructions. Size and position are almost exact, shows good control. Needs minimal instructions if capsulotomystarts extendingperipherally. Able to use appropriate OVD to help facilitate PPC at appropriate stage **With Vitrector:** Able to perform adequate capsulotomy with ease. Has a sound knowledge on the change in settings while performing capsulotomy. Needs minimal instructions if capsulotomy starts extending peripherally.	**With Forceps:** Adequate size and position for age, no tears, rapid, unaided control of radialization, maintains control throughout. Able to manage independently if posterior capsulotomy starts extending peripherally.Able to use appropriate OVD to help facilitate PPC at appropriate stage **With Vitrector:** Adequate size (4-5 mm) and position for age, no tears. Has a sound knowledge on the change in settings while performing capsulotomy. Able to manage independently if posterior capsulotomy starts extending peripherally.	
12	Anterior Vitrectomy	Needs Instruction, Difficulty in appreciating vitreous in anterior chamber or the bag, Technique of holding the bimanual irrigationcannula andvitrector is wrong, not sure of settings for vitrectomy. May cut the posterior capsule inadvertently.	Requires minimal instructions, holds the vitrector properly, minimal fluctuation in the anterior chamber during vitrectomy, able to appreciate the presence of vitreous. Unable to perform complete vitrectomy, stays too anterior in vitreous cavity. May cut the posterior capsule inadvertently.	Performs anterior vitrectomy with control, able to clear the anterior and posterior chamber free of vitreous but unable to judge if adequate vitrectomy has been performed, maintains the anterior chamber during vitrectomy. Maintains the posterior Capsulorrhexis margins intact. Peaking of posterior capsule due to inadequate vitrectomy may be noted.	Knows the goals of performing anterior vitrectomy in pediatric age. Knows the end point of complete anterior vitrectomy, Anterior and posterior chamber completely cleared of vitreous, adequate depth of vitrectomy performed in vitreous cavity all around the posterior Capsulorrhexis. Maintains the anterior chamber throughout.	

13	IOL Insertion, Rotation, and Final Position of Intraocular Lens	Unable to insert IOL, unable to produce adequate incision for implant **FOLDABLE:** unable to load IOL into injector or forceps, 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 **FOLDABLE:** difficulty loading IOL into injector or forceps, 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 **FOLDABLE:** minimal difficulty loading IOL into injector of forceps, 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. **FOLDABLE**: Able to load IOL into injector or forceps, 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 Securityas Required)	When 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 OVDs thoroughly. Unable to make incision water tight or does not check wound for seal. Improper final chamber depth IOP	When 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.	When 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.	When suturing is needed, stitches are placed tight enough to maintain the wound closed, but not too tight as to induce astigmatism, OVDs are adequately removed, and 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	Use of dilating agents and devices	Does not have knowledge of dilating agents or devices	Has a good knowledge of dilating agents or devices but unsure of dose and technique.	Has adequate knowledge of dilating agents, of dose and devices but needs minimal instructions while usage	Has adequate knowledge of dilating agents, of dose and devices. Needs no instructions while performing the technique.	

17	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.	
18	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.	
19	Intraocular Spatial Awareness	Instruments often in contact with capsule, iris and corneal endothelium,	Occasional accidental contact with capsule, iris and corneal endothelium.	Rare accidental contact with capsule, iris and corneal endothelium	No accidental contact with capsule, iris and corneal endothelium, when appropriate,	
20	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.	
21	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.	
22	Communication with surgical team	Does not know role of surgical team members. Lacks confidence or has too much. Does not establish good rapport with team. Unable to request instruments from scrub nurse using proper instrument and suture names and/or instructions to surgical assistant are vague or nonexistent.	Knows role of most surgical team members. Lacks confidence. Has difficulty establishing good rapport with team members. Able to request most instruments from scrub nurse using proper instrument and suture names but instructions to surgical assistant are inadequate to perform procedure safely.	Knows role of each surgical team member. Is somewhat confident and usually treats team with respect. Establishes good working relationship. Able to request most instruments from scrub nurse using proper instrument and suture names in correct order. Instructions to surgical assistant are adequate for a skilled assistant but inadequate for an unskilled assistant.	Knows role of each surgical team member. Is confident and treats team with respect. Establishes good working relationship. Able to efficiently request instruments from scrub nurse using proper names in correct order. Able to consistently give clear instructions to surgical assistant.	

Comments:

Swaminathan M, Ramasubramanian S, Pilling R, Li J, Golnik KC. ICO-OSCAR for pediatric cataract surgical skill assessment. J AAPOS 2016; 20(4):364-5.