

Organizing Operating Room to Deliver Quality Eye Care



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Ensuring Quality in Clinical Outcomes

- **Infrastructure**
- **Systems to ensure quality**
- **Monitoring outcomes**
- **Continuous Improvement**

Infrastructure

- Size of the operating room
- Air lock to segregate from unsterile areas
- Areas for sterilisation
 - Vacuum based sterilisers
- Ventilation & Air purification
- Water supply
 - RO sterile water for all purposes
- Adequate number of instrument sets

Systems to Ensure Efficiency & Quality

- **Clinical Protocols**
- **Standardization of procedures**
- **Delegation of work**
- **Quality & reliability of resources**
- **Documentation Systems**
- **Staff Training & Discipline**

Clinical protocols

Guidelines for clinical areas

- **Anaesthesia protocol**
- **Protocols to ensure safety of the patient**
- **Pre op preparation for complicated cases**
- **Post op. follow up / guidelines**

Standardization of Systems

- To ensure efficiency across different surgical teams
- Every aspect of the procedure is standardized,
 - preoperative patient preparation
 - Instrument sterilisation
 - Surgical steps
 - Follow up activities



Standardisation of Procedures

- **Essential to streamline workflow**
- **Person responsible for each task/process identified.**
- **Expected outcomes quantitatively & qualitatively well defined**
- **Clarity is achieved by frequent discussion and re-emphasis**

Delegation of work

- **Routine skill based repetitive work are delegated to paramedical staff**
 - Preparation
 - Checking case records
 - Draping & Application of speculum
 - Writing surgery notes
 - Post op counseling

Delegation of work

- Help clinician to focus on critical areas like decision making, counselling, surgery etc.
- Increases out put & Reduces cost
- Maintains quality of skill at high level
- Eliminate non-productive activities
- Increases job satisfaction

Doctors; Paramedical; Support staff; 1:5:4

Quality of Resources

Equipment & Instruments



- **Purchase of Quality & reliable equipment**
- **In house biomedical maintenance team**
 - For common Equipment / Instruments
 - Periodic calibration of instruments
- **Service contracts with vendors for high end technology equipment**

To Minimize Equipment Down-time

Ensuring surgical Supplies



- **Check adequate supplies are available for surgery like IOL's, Viscoelastics etc.,**
- **Sub store located within OR**
 - **Helps to get supplies immediately**
 - **Standardization of stock levels**
- **Allot instruments sets to each OR depending upon productivity of surgeon (6-8 sets)**

Monitoring surgical supplies

- **Checking irrigating solutions**
 - **Black/white Illuminated cabinet**
- **Periodic QC of the supplies used**
- **Use the same source**
- **Build relationship with dependable manufacturers & vendors**



Supply of Sterile Instruments for Surgery

- **Good co-ordination between the circulating & sterilization nurse**
- **Adequate instrument sets depending upon the efficiency of the surgeon**
- **No compromise on time for autoclaving or cleaning of used instruments**

Documentation Systems

- **Medical Records**
 - Essential in high volume / multi provider set up
 - Linking process for various clinical personnel
 - Continuity of care
 - Monitoring of outcomes

Pre-operative Assessment Form

Designed to identify

- One-eyed status, APD
- Ocular co-morbidity
- Conditions requiring surgeon to modify surgical technique
- Systemic diseases

AEH - Free Section

Preoperative Record		Camp	Direct		
Name : _____	Age : _____	Sex : M/F			
MR. No. _____	IP No. _____				
Admitted for :	Eye to be operated				
Cataract exten. only <input type="checkbox"/>	Right <input type="checkbox"/>	One Eyed YES / NO			
Cataract + IOL <input type="checkbox"/>	Left <input type="checkbox"/>				
Others :					
Diagnosis	RE	LE	Associated Conditions	RE	LE
Immature	<input type="checkbox"/>	<input type="checkbox"/>	Corneal disease	<input type="checkbox"/>	<input type="checkbox"/>
NS	<input type="checkbox"/>	<input type="checkbox"/>	High myopia	<input type="checkbox"/>	<input type="checkbox"/>
Mature	<input type="checkbox"/>	<input type="checkbox"/>	Lens induced glaucoma	<input type="checkbox"/>	<input type="checkbox"/>
NS+PSCC	<input type="checkbox"/>	<input type="checkbox"/>	Post. synechia	<input type="checkbox"/>	<input type="checkbox"/>
Hyper-mature	<input type="checkbox"/>	<input type="checkbox"/>	PXF	<input type="checkbox"/>	<input type="checkbox"/>
PPC	<input type="checkbox"/>	<input type="checkbox"/>	Retinal pathology	<input type="checkbox"/>	<input type="checkbox"/>
Nuclear	<input type="checkbox"/>	<input type="checkbox"/>	Shallow AC	<input type="checkbox"/>	<input type="checkbox"/>
PSCC	<input type="checkbox"/>	<input type="checkbox"/>	Subluxated lens/photododosis	<input type="checkbox"/>	<input type="checkbox"/>
Traumatic	<input type="checkbox"/>	<input type="checkbox"/>	Pupil	NS, RL	<input type="checkbox"/>
Complicated	<input type="checkbox"/>	<input type="checkbox"/>		Sluggish	<input type="checkbox"/>
Congenital	<input type="checkbox"/>	<input type="checkbox"/>		RAPD	<input type="checkbox"/>
Aphakia	<input type="checkbox"/>	<input type="checkbox"/>			
Pseudophakia	<input type="checkbox"/>	<input type="checkbox"/>			
Vision RE Unaided : _____		LE Unaided : _____			
Aided : _____		Aided : _____			
K-reading : _____					
Axial length : _____					
IOL power AC : _____ PI-convex : _____					
Bi-convex : _____					
Systemic Illness					
Diabetics <input type="checkbox"/>	Hypertension <input type="checkbox"/>	BP : _____			
Asthmatic <input type="checkbox"/>	Cardiac <input type="checkbox"/>	U. Sugar : _____			
Special Instructions					

Activities following Surgery

- **Data entry; Pre op & surgical information**
 - **Additional medications to be administered**
 - **Separate log maintained for cases with complications**
- **Sterilization of instruments & packing**
 - **Planning for the following day**

Staff Training & Discipline

- **Systematic procedure for training**
- **Individual skills are continuously upgraded by training to reach acceptable levels**
- **Motivating the staff to train others, pushes them to higher levels of competence**

Surgical Training for Physicians

- Start wet lab surgery in the third month
- Step Surgery during the 4th month
- Operate every day during the 5th or 6th month
- Develop the capacity to do good quality surgery at the earliest



Monitoring Outcomes

- Reasons for postponement
- Discharge without surgery
- Monitoring complications
- Re-surgery rate
- Visual outcome
- Accuracy of biometry

Grading & scoring of complications

- Complications grouped into three grades
 - Grade I, II, III (Mild, Moderate & Severe)
- Each complication is given a score
- Grading and scoring of complications were based on OCTET study, MIOL study & on our experience

Intra-op complication Scores

Complication	Grade	Score
Positive pressure	I	0
Bleeding into AC	I	0
Sphincter tear	I	2
Iridodialysis	I	4
PC rupture w/o vit. Loss	II	6
Zon.dialysis w/o Vit. Loss	II	6
PCR / ZD with Vit. loss	III	10
Nucleus / IOL drop	III	10
Failure to implant	III	10

Post-op complication Scores


Complication	Grade	Score
Oedema / SK 1+	I	1
Minimal cortex	I	2
Iritis 1+	I	2
Hyphema < 3mm	I	3
Significant cortex	II	6
Broken sutures	II	5
Elevated IOP	II	6
Haptic in AC	II	6
Iritis 2+	II	6

Post-op complication Scores

Complication	Grade	Score
Shallow A/c / wound leak	II	5
Hyphema > 3 mm	II	6
SK / Edema 2+	II	3
DM tear > 1/3	II	6
Vitr.in wound / Decentred IOL	II	8
Hypopyon uveitis	III	12
SK / edema 3+	III	10
Endophthalmitis/wound Infection	II	13
	II	10

Severity score

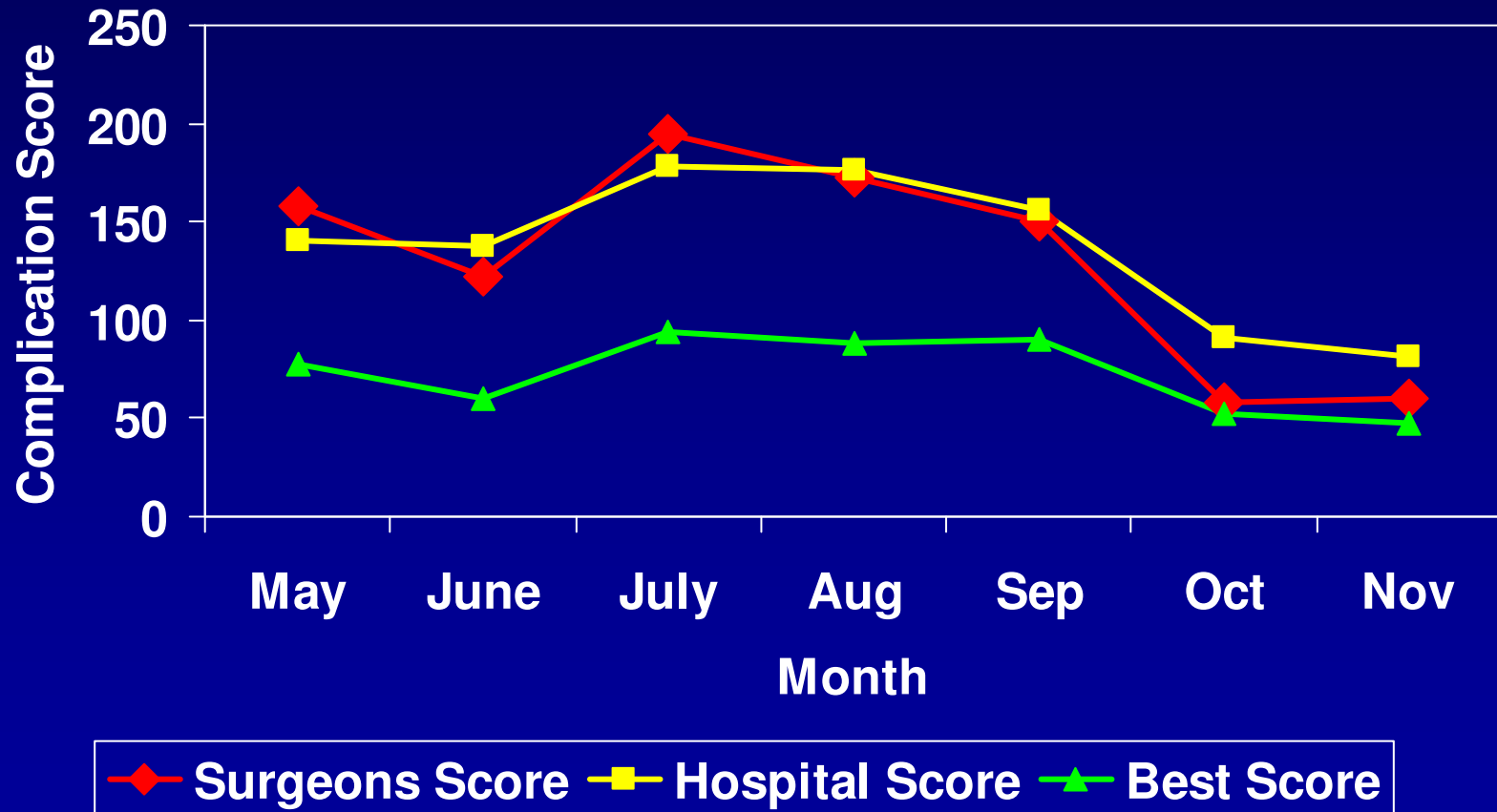
$$\text{Score} = \frac{\sum \text{Complications Severity score}}{\text{No. of surgeries performed}} \times 100$$

- Higher score  increased severity of complications

Reports

- Consolidated
- Doctor

Complication Score Over a Time Period



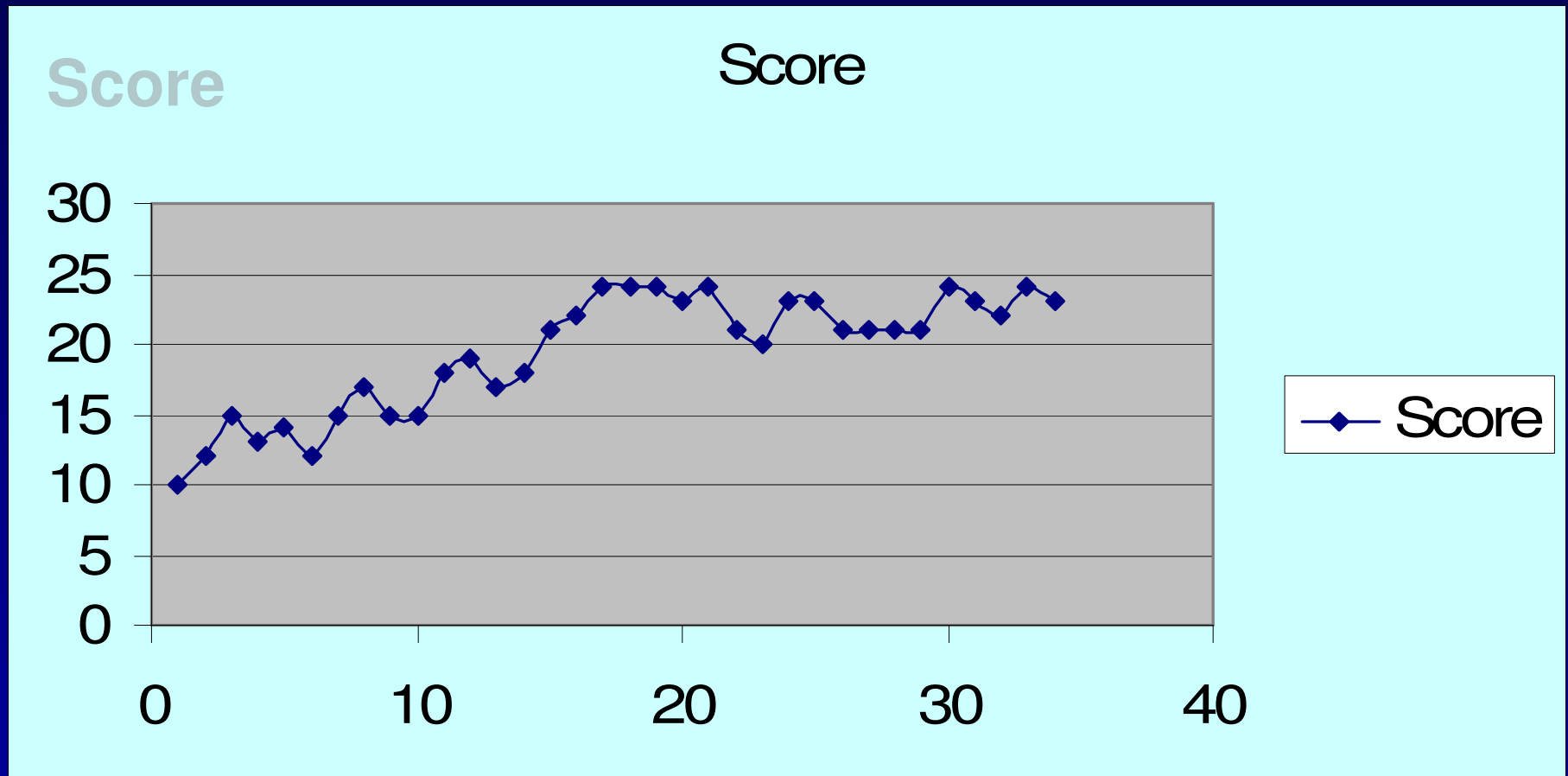
Critical Quality Indicators

- Endophthalmitis < 0.10%
- Nucleus / IOL drop < 0.05%
- PC Rupture < 2.00%
- Failure to implant < 1.00%
- Re-operations < 1.50%

Learning Curve for Trainees

- To assess the level of capacity to perform independently
- Major complications
- Monthly report

Learning Curve for Trainees



Case No

Monitoring

- Monitoring can bring out shortcomings in:
 - Surgeon's skill
 - Supplies & Procedure
 - Instrumentation & Technology

Improving Clinical Quality

- Based on patient level monitoring
 - Improving Counseling / Refining protocols
- Improving biometry
 - Post op SE within +/- 1.00 D in 92% of cases
- Minimizing re-operations
 - Less than 1.50%

Performance Review Meetings

- Regular infection & visual outcome audit meetings
- Review of procedures
- General surgical quality issues are regularly discussed & dealt with through peer group meetings
- Issues relating to specific staff are dealt with privately by senior staff and in a non-judgmental way

Refining Protocols

- CQI is linked to refinement of protocols / procedures
- Dissemination of intended changes, their rationale & expected outcomes
- Review of adherence to expected changes
- Emphasis is on improving procedures through intelligent managerial intervention, not blaming individuals for errors

Work Culture & Discipline



- **Commitment** of leadership
- **Attitude** for perfection
- **Passion** to eliminate needless blindness

Thank You



... in service for sight