**ABO IMPROVEMENT IN MEDICAL PRACTICE ACTIVITY**

**(NON-CLINICAL)**

**Topic**

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| **Title of Project**: | Improving Surgery Timeout Performance  |

**Project Description**

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| Describe the quality gap or issued addressed by this activity. (Included in your response to this question should be a description of the resources that informed your decision to pursue this topic, a description of what the literature says about the issue you identified, and the rationale for choosing to address this clinical project | Incorrect treatment in refractive surgery is a devastating but preventable treatment error. Our goal is to develop a refractive surgery checklist that will be used consistently and accurately to decrease this error and increase patient satisfaction. I work in a high-volume refractive surgery center that has the potential to make human errors in patient data and treatment. Data such as incorrect eye, patient, left/right eye confusion, incorrect power calculations, plus/minus error, monovision treatment or not, corneal flap depth and width, and axis of cylinder treatment can all be confused leading to treatment errors.My plan is to develop and implement a written surgery checklist to be used on all surgery cases and to develop specific duties for each staff member to assure that this is done flawlessly. Currently we have an oral timeout process that works well but we have made treatment errors in the past. I will calculate the percentage of accurate treatments over the previous 90 days and then measure the percentage of accurate treatments after our written checklist is implemented. My goal is to reduce treatment errors to as close to zero as possible. By working with my optometrists, laser and surgical technicians I will develop a written surgical checklist protocol that will improve accurate treatment rates and improve patient safety. |
| **Background Information**: The month you pulled the baseline IRIS performance report and any additional information that me be pertinent: | With 6 optometrists and 3 surgery centers I treat approximately 500 eyes per month. The advantage of a written surgical checklist is that it will standardize our current oral time out process and identify each potential step that needs to be performed accurately. Human error is a small but significant problem in ophthalmic surgery. All of the advances in technology can be thwarted by an errant keystroke, calculation or numerical error. |
| **Project Setting**: (Please select from options below):* Group Practice
* Healthcare Network
* Hospital
* Multi-Specialty Group
* Solo Practice
* Surgical Center
* Other
 | Group Practice |
| **Study population**: (describe the type of patient for whom the care process will be improved, e.g., all patients in your practice, patients with diabetes, patients presenting for emergency care: | All patients having refractive surgery. I will measure the number of eyes treated over the past 90 days and the number of incorrectly treated eyes. I will determine the percentage of accurately treated eyes and compare that to the next 90 days of treatment after the written surgical checklist is implemented. |
| **Quality Indicators / Performance Measures**:It is important to carefully define outcome or performance measures that will be quantified at baseline (before the care process is changed) and at re-measurement (after you have implemented the proposed improvement) to quantify the impact of your care process change. There are two basic types of performance measures - process of care measures and outcomes of care measures. . Process of care measures (e.g. timely treatment of diabetic retinopathy) can influence outcome measure (e.g. decreased risk of severe vision loss); . Outcome measures can be linked to processes of care that can be improved. Generally, performance measures are expressed as rates, often as percentage rates. For example, if the intent of a project is to improve the quality of glaucoma care in your practice, you may choose to improve your rate of establishing a goal IOP in patients with newly diagnosed glaucoma, measured over a 3-month period. . The numerator of this process measure would be the number of newly diagnosed patients during this time who have a goal IOP recorded in the medical record.. The denominator would be the total number of patients diagnosed during that same time period. Continuous variables (e.g. the refracted spherical equivalent after cataract surgery) can often be simplified and transformed then into percentage rates by setting a quality threshold (within 0.5 diopters in the intended spherical equivalent) which, if attained, would qualify the patient to be in the numerator (e.g. number of patients within 0.5 diopters / total number of patients). It can be advantageous but not mandatory to have more than one quality measure in order to gauge the impact of your process change. In the example above, an additional outcome measure might be the percentage of patients in whom the goal IOP is attained within the first 6 months after diagnosis. If possible, measure quality indicators for at least 30 individual patients or data points during the baseline and again during the follow up period.  | * **Measure Type:** Process
* **Measure Name:** OR Timeout check list
* **Numerator Statement:** Number of eyes treated accurately
* **Denominator Statement:** Number of eyes treated
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| We realize that this may not be feasible or appropriate for all projects. Please indicate at least one measure below; either a process or outcome measure: **Example Measure**:. Measure Type: Process Measure. Measure Name: Patient pain level during intravitreal injection. Numerator Statement: Number of patients in who pain levels decreased by 2 points on a 1-10 scale. Denominator Statement: 30 consecutive patients undergoing intravitreal injection. |  |
| **Project Interventions**:Quality improvement requires that you analyze your care delivery processes and identify changes, which if implemented, will improve care and outcomes. Generally, educational interventions are thought to be weak and demonstrate little impact. The introduction of tools, strategies or systematic approaches to care delivery is more powerful. A tool is a thing, for example a preoperative checklist, or written standardized process or protocol. Strategies include changes in procedures or policies like the introduction of a surgical time out before surgery is initiated. Systematic approaches to care delivery involve a comprehensive analysis of care process and the introduction of a combination of tools and strategies designed as a complete process. Please describe the changes to your care processes you intend to introduce: | Currently we have an oral and written timeout process which has limited error but is not perfect and not used consistently. With 3 LASIK centers I need to standardize this process with an improved written surgical checklist that my optometrists and technicians all approve of and use. I will write a surgery checklist and edit it based on technician and optometric feedback to produce a one sheet flow list that will be utilized in every case effectively and consistently. Hopefully, this will be measured by improved treatment accuracy. |
| **Project Team**:(include roles for yourself and all members of your team):List the individuals who will be involved in your quality improvement project (i.e., solo project, partners in practice, office staff, OR personnel, anesthesiologists) and the roles they will contribute. | Me:* Write first draft of surgery checklist
* Review and re-write surgery checklist based on technician and optometric feedback
* Measure accuracy of treatment data input and delivery over the proceeding 90 days
* Measure accuracy of treatment data after written checklist implemented.

Optometrists* Review and edit surgery checklist
* Watch surgery flow and technician utilization of flow sheet protocol

Technicians* Make suggestions for improvement in surgical flowsheet
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| Will any other ophthalmologists be requesting MOC credit for participation in this SD-PIM? | NO |

**Project Outcomes/Results**

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| **Project Summary** | In the following sections, please prepare a brief summary of the project highlighting the data collected, effectiveness of your measurement approach, interventions, and the overall impact of the project. |
| **Baseline Data**:Quantify each of the quality indicators / performance measures described above for the baseline period (before interventions for improvement were introduced). Report the numerator, denominator and the calculated percentage rate for each measure. | Baseline Data for 90 days prior to studyNumerator = Number of eyes treated without data treatment error Denominator = Number of eyes treated 99.7% treatment accuracy rate prior to study. |
| **Follow-up Data**:Quantify each of the quality indicators / performance measures described above for the re-measurement period (the period following implementation of the interventions for improvement). | Numerator: Number of eyes treated without data treatment error = 1838 Denominator: Number of eyes treated= 1838100% Treatment Accuracy rate post study 0% Error rate |

**Project Impact**

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| Compare the baseline data to the re-measurement / follow-up data and quantify the impact of the process of care changes (your project interventions). The project hopefully resulted in improvement; however, some projects may result in a diminution in quality. If a lack of improvement or reduction in quality occurred, suggest other strategies that might be more effective. | The zero-error rate produced by improving treatment accuracy to 100% was produced by the following process care changes in our time out process:* 1. Verification of data entered was visually and verbally confirmed and cross checked by the surgeon and 2 technicians. Formerly only the laser technician and the surgeon were involved in the time out process. The addition of the instrument technician added another set of eyes to prevent error.
1. The treatment axis was confirmed by placing check marks next to the treatment axis of all (auto, manifest, cycloplegic and any re-refractions). refractions to assure that the axis was consistent with all measurements. The checks let the surgeon know that the technician had done so. Prior to this study only the final treatment calculation and what was entered into the laser were compared. This process eliminated the human error of incorrectly writing the planned treatment axis.
2. All surgical plans were made at least one day prior to surgery. Prior to the study many treatments were made the day of surgery. Fatigue and rushing errors were eliminated by this change in protocol.
3. All treatment charts were reviewed by one of our doctors after surgery for the purposes of this study to assure that no errors were made. We will continue this process as an extra measure of safety. I believe that our technicians were more careful because no one wanted to commit errors that would be discovered and discussed with the entire staff the following day.
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**Project Reflection**

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| Did you feel the project was worthwhile, effective? | YES |
| How might you have performed the project differently? | I couldn't be happier with what I have learned. I had always thought that 99.7% accuracy was about as good as humans could get. With an improved timeout process and multiple lasers of cross checks, we were able to reduce errors to zero. |
| Please offer suggestions for other ophthalmologists undertaking a similar project. | It is just not enough to have 2 people confirming data entry. I have seen errors occur this way. You must have multiple layers of accountability. |