**ABO IMPROVEMENT IN MEDICAL PRACTICE ACTIVITY**

**(CLINICAL)**

**Topic**

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| **Title of Project**: | Improvement of Dry Eye Management After PRK Surgery |

**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 | Many patients who have PRK surgery have post-op dry eye symptoms and are recommended to undergo punctal occlusion by plugs. This project will evaluate the effectiveness of this treatment in improving dry eyes after PRK surgery. Depending on the results, changes to protocols for dry eye management for patients undergoing PRK may be made. |
| **Background Information**:  The month you pulled the baseline IRIS performance report and any additional information that me be pertinent: | Previous studies indicate that 95% of patients experience dry eye symptoms after refractive surgery (Yu EY, Leung A, Rao S, Lam DS, "Effect of laser *in situ* keratomileusis on tear stability," Ophthalmology. 2000;107(12):2131-2135). This project will evaluate dry eyes in patients after PRK surgery at the 1-month post-operative exam to determine the effectiveness of punctal occlusion by plugs for dry eye management after PRK surgery. |
| **Project Setting**: (Please select from options below):   * Group Practice * Healthcare Network * Hospital * Multi-Specialty Group * Solo Practice * Surgical Center * Other | Solo 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: | Twenty most recent patients who have undergone PRK surgery prior to entry of data for this activity. |
| **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:** Dry eyes after PRK surgery * **Numerator Statement:** Number of patients who had increased TBUT at 1-month post-op exam * **Denominator Statement:** 20 most recent patients undergoing PRK surgery |
| 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: | At the 1-month post-op exam after PRK surgery, each patient will be evaluated for dry eyes, specifically via TBUT (tear breakup time) measurement. Data will be collected for patients who have undergone punctal occlusion by plug and for patients who have not undergone punctal occlusion by plug. Depending on analysis of the data, strategy may be altered for future patients undergoing PRK surgery to better manage dry eyes after surgery, to improve patient comfort and to improve dry eye symptoms after surgery. |
| **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. | Solo project with optional office staff who may assist with consent forms |
| 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. | During the project period, 9 patients who had PRK surgery did not undergo punctal occlusion by plug (dissolvable, 3-month duration). At their 1-month post-op exam, 8 out of these 9 patients had tear break-up time (TBUT) of less than 10 seconds OU and complained of dry eye symptoms. Thus, 8 out of 9 patients equals 89%. |
| **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). | During the project period, 11 patients who had PRK surgery underwent punctal occlusion by plug (dissolvable, 3-month duration). At their 1-month post-op exam, 2 out of these 11 patients had tear break-up time (TBUT) of less than 10 seconds OU and complained of dry eye symptoms. Thus, 2 out of 11 patients equals 18%. |

**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. | At their PRK 1-month post-op exam, TBUT of patients who did not undergo punctal occlusion by plugs was significantly less than in patients who underwent punctal occlusion by plugs. Among patients without plugs, 89% had TBUT of less than 10 seconds, whereas among patients with plugs, 18% had TBUT of less than 10 seconds. On average, patients without punctal plugs had TBUT of 7.6 seconds OU, whereas patients with punctal plugs had TBUT of 13.2 seconds OU.  As a result of this project, I am inclined to recommend that all patients considering PRK surgery undergo punctal occlusion by plug to help manage dry eyes after surgery. |

**Project Reflection**

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| Did you feel the project was worthwhile, effective? | YES |
| How might you have performed the project differently? | I might have collected data for patients who chose to undergo punctal occlusion by permanent, non-dissolvable plugs as well, to see if their TBUT is longer or shorter than patients with dissolvable plugs. However, there were no patients who chose to get permanent plugs during the project period. |
| Please offer suggestions for other ophthalmologists undertaking a similar project. | One suggestion I might make is that if they have a larger patient population to evaluate, ophthalmologists could analyze data among different age groups undergoing PRK surgery. |