ABO NON-CLINICAL IMPROVEMENT IN MEDICAL PRACTICE ACTIVITY

Topic

Title of Project:	Using Tele-Retinal Screening to Improve Hospital Primary Care Referral of Diabetic Patients to Ophthalmology

Project Description

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	Currently, my hospital system's standard-of-care is to refer all patients with diabetes seen in Primary Care Clinic to Ophthalmology yearly for retinal exams. This mass referral leads to long wait times for appointments to see the ophthalmologists and appointments being filled with "normal" retinal screenings. By having Primary Care Clinic screen diabetes patients with a retinal camera (and photos being read remotely by an ophthalmologist), those with positive findings only can be referred quicker for full eye exams. That should decrease wait times for appointments (and, consequently, improve no-show rates) and link the patients most likely to need ophthalmologic intervention to the Ophthalmology Department. This will increase quality while reducing cost to the hospital system.
Background Information: The month you pulled the baseline IRIS performance report and any additional information that me be pertinent:	My hospital will provide a retinal camera to the Primary Care Clinic to pilot tele-retinal screening for diabetic patients. The hospital will also train primary care techs to use the camera and to link the resulting photos to the electronic health records system so ophthalmologists can access and read them. Ophthalmology will develop a system to inform the Primary Care Department and the patients of the findings from the photos. Resulting ophthalmology appointments will be handled by the Ophthalmology Department. Wait times to get an appointment and percentage of patients who require intervention will be measured by the Ophthalmology Department to understand the effectiveness of this intervention.
Project Setting: (Please select from options below): • Group Practice • Healthcare Network • Hospital • Multi-Specialty Group • Solo Practice • Surgical Center • Other	Hospital
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 with diabetes seen in the Primary Care Clinic of an urban hospital will get photographs of their retinas yearly, whether or not they have ever been seen by the Ophthalmology Department.

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**: Percentage of patients with diabetes referred photographed in primary care over three months. **Numerator Statement:** Number of patients with diabetes referred photographed over three months**.** **Denominator Statement**: Number of patients with diabetes referred for photography in primary care over three months. **Measure Type:** Outcome **Measure Name**: Percentage of patients with positive diabetic tele-retinal findings receiving ophthalmology appointment within one month. **Numerator Statement:** Number of patients with positive diabetic tele-retinal findings receiving ophthalmology appointment within one month. **Denominator Statement**: Number of patients with positive diabetic tele-retinal findings receiving ophthalmology appointment. **Measure Type:** Outcome **Measure Name**: Percentage of patients with positive diabetic tele-retinal findings receiving ophthalmologic intervention for diabetic retinopathy over a three-month period. **Numerator Statement:** Number of patients with positive diabetic tele-retinal findings receiving ophthalmologic intervention for diabetic retinopathy over a three-month period**.** **Denominator Statement**: Number of patients with positive diabetic tele-retinal findings examined by ophthalmology over a three-month period.

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:	Primary Care Clinic will utilize a tele-retinal camera to screen all diabetics yearly. Positive findings (as determined by an ophthalmologist reading photos weekly) will lead to referral to Ophthalmology. This new process will prioritize for Ophthalmology appointments those who are more likely to require ophthalmologic intervention for sight-threatening problems. A system will be developed for easy referral of patients with positive findings. The Ophthalmology Department will inform Primary Care Clinic and the patient of positive findings and will work directly with the patient for a convenient appointment time, targeted for within one month. The more severe the problem, as determined by the ophthalmologist reading the photograph, the Ophthalmology Department will prioritize examining that patient. As this is an busy urban hospital, currently, the wait for a general Ophthalmology appointment often exceeds 6 months. This change will allow those who need an exam the most to get earlier appointments.
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.	The Project Team will be made up of myself (ophthalmologist), the Ophthalmology Dept Chair, one Ophthalmology nurse, one Ophthalmology front desk staff member, two primary care physicians, and two primary care techs who will take the photographs.
Will any other ophthalmologists be requesting MOC credit for participation in this SD-PIM?	No

Project Outcomes/Results

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.	1. Percentage of patients with diabetes referred photographed in primary care over three months (3 months before intervention: Jan, Feb, March 2019). **Numerator:** Number of patients with diabetes referred photographed over three months (0). **Denominator:** Number of patients with diabetes referred for photography in primary care over three months (0). Calculated Percentage Rate: 0% (as no photographs were taken prior to the installation of the camera). 2. Percentage of patients with positive diabetic tele-retinal findings receiving ophthalmology appointment within one month. **Numerator:** Number of patients with positive diabetic tele-retinal findings receiving ophthalmology appointment within one-month (0). **Denominator:** Number of patients with positive diabetic tele-retinal findings receiving ophthalmology appointment (0). Calculated Percentage Rate: 0% (as there were no tele-retinal photos at baseline). 3. Percentage of patients with positive diabetic tele-retinal findings receiving ophthalmologic intervention for diabetic retinopathy over three-month period. **Numerator:** Number of patients with positive diabetic tele-retinal findings receiving ophthalmologic intervention for diabetic retinopathy over three-month period (0). **Denominator:** Number of patients with positive diabetic tele-retinal findings examined by ophthalmology over three-month period (0). Calculated Percentage Rate: 0% (as there were no tele-retinal photos at baseline).

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).	1. Percentage of patients with diabetes referred photographed in primary care over three months (3 months of intervention: April, May, June 2019). **Numerator:** Number of patients with diabetes referred photographed over three months (478). **Denominator:** Number of patients with diabetes referred for photography in primary care over three months (838). Calculated Percentage Rate: 57%. 2. Percentage of patients with positive diabetic tele-retinal findings receiving ophthalmology appointment within one month. **Numerator:** Number of patients with positive diabetic tele-retinal findings receiving ophthalmology appointment within one month (25). **Denominator:** Number of patients with positive diabetic tele-retinal findings receiving ophthalmology appointment (29). Calculated Percentage Rate: 86%. 3. Percentage of patients with positive diabetic tele-retinal findings receiving ophthalmologic intervention for diabetic retinopathy over a three-month period. **Numerator:** Number of patients with positive diabetic tele-retinal findings receiving ophthalmologic intervention for diabetic retinopathy over three-month period (22). **Denominator:** Number of patients with positive diabetic tele-retinal findings examined by ophthalmology over three-month period (25). Calculated Percentage Rate: 88%.

Project Impact

| 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. | By creating a system of tele-retinal photography, reading by Ophthalmology, quick referral for positive findings, and treatment if necessary, patients with retinal disease can be fast-tracked for therapy. Patients without retinal disease can postpone their encounters with Ophthalmology. This frees appointment space in the Ophthalmology clinic to treat those with retinal disease before it progresses.

In this three-month pilot, 57% of those referred for a photo by their primary care provider received one. This is likely because all the primary care technicians had not yet been trained fully, and patients themselves may not have understood the importance of the photo.

86% of those with positive diabetic retinopathy findings received an appointment in the Ophthalmology Department within one month of the photo. 88% of those examined required injection and/or laser treatment.

The success of this pilot has convinced the hospital system, one of the largest in the US, to invest in 14 retinal cameras to place in all its primary care sites. The goal is to send patients who need further exam and possible treatment to the system's Ophthalmology Departments quickly and efficiently. |
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Project Reflection

Did you feel the project was worthwhile, effective?	YES
How might you have performed the project differently?	This project would have benefitted from a longer pilot phase. As technicians become fully trained on using the camera and patients understand the importance of the photos, more referred patients would have photos taken. Also, as the Ophthalmology Department becomes used to reading the photos and making the follow-up appointments, efficiency would, likely, improve. A longer pilot would have given a better idea of how the process would function near its optimum.
Please offer suggestions for other ophthalmologists undertaking a similar project.	We invited 8 different companies to show us cameras simultaneously in the same conference room. Determine how much the technician may have to handle the patients to position them for photos, how easy is the camera to maneuver and take a photo (the simpler the process, the more buy-in from primary care technicians), who will be reading the photos ultimately (comprehensive ophthalmologists, retina specialists, and/or optometrists), and is the camera mainly for diabetes screening or for all retinal pathology. Be sure to include primary care providers and technicians in the discussion and camera testing and in the selection process. Include primary care providers when creating the Expected Process document for Retinal Screening for Diabetes. Hospital systems should understand that the cost of the camera will be covered, ultimately, by reimbursements for telehealth and the increase in treatments for those with diabetic eye disease.