

# Improving diabetic retinopathy screening in a large ambulatory practice

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## Background

Diabetic retinopathy screening is important to prevent morbidity and improve outcomes. Screening can occur in an ophthalmology practice, as well as a primary care office with a retinal camera. We found that only 44% of Jefferson Family Medicine Associates (JFMA) patients with diabetes had up-to-date retinopathy screening as documented in the electronic health record (EHR), likely because there was no standardized process to upload results of completed retinal scans into the EHR.

- To be considered up-to-date in the EHR, a patient with diabetes needs to have had at least 1 retinal scan in the last 2 years.
- Based on a review of the process and stakeholder meetings, we decided that improving the completion rate of retinal scans in the office would be a logical first step to improving the rate of retinopathy screening.

## Aim

**Aim 1:** To increase the percentage of JFMA diabetic patients with up-to-date retinopathy screening to 60% by April 1, 2019.

**Aim 2:** To increase the utilization of an in-office portable retinal scanner by identifying current barriers to its use and developing a standardized workflow to overcome these barriers.

- Outcome measure:** The percentage of adult diabetic patients with a JFMA provider listed as the PCP who have been seen in the Jefferson health system within the last 24 months, who had retinopathy screening once in the last 24 months.
- Process measure:** The number of retinal scans completed each week.

## Methods

We engaged in a process improvement study using the PDSA approach in a large, urban, underserved, academic family practice.

- First, we met with stakeholders including practice clinical manager, RNs, MAs, population health specialist, attendings, and residents. We then created a process map and identified barriers to retinal scan completion.
- Barriers identified:**
  - Variability in MA ability to complete retinal scan correctly
  - Lack of provider time to address the issue
  - Lack of MA time to complete the retinal scan
  - Retinal camera availability
  - Retinal scans not uploaded into the EHR when completed
- Data collection:**
  - Diabetic retinopathy screening rates for JFMA patients, obtained monthly from Qlik database
  - Absolute number of retinal scans performed daily, obtained from retinal scan database
  - Missed opportunities data from obtained from chart review prior to and after clinic session

## Interventions

### PDSA #1

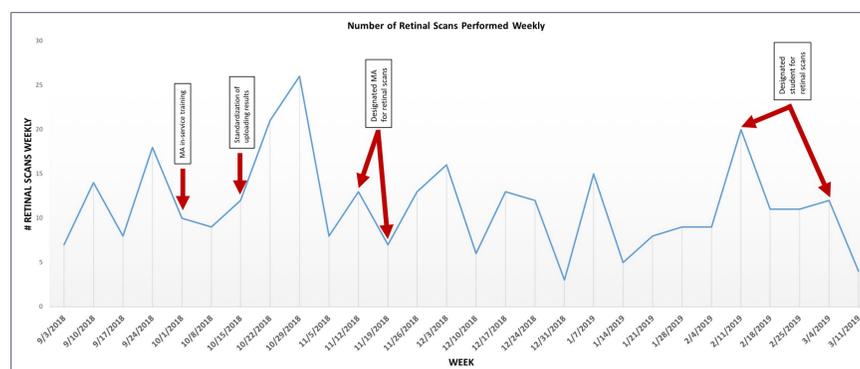
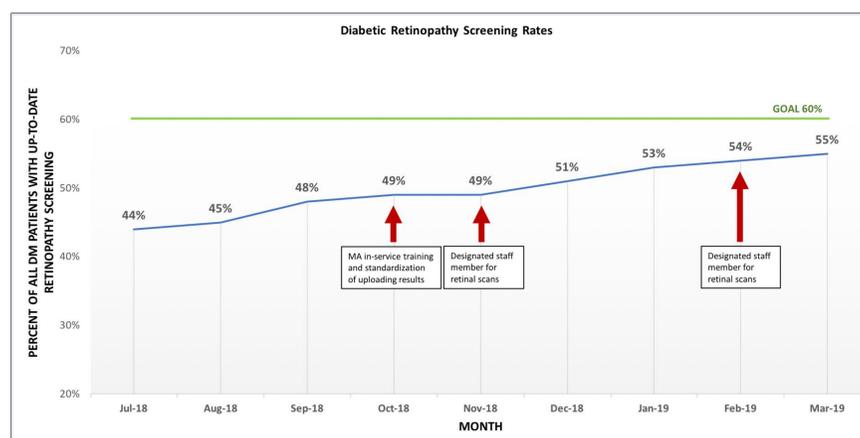
Train all medical assistants on how to perform retinal scans

### PDSA #2

Standardize the process for entering results into EHR

### PDSA #3

Designate one staff member to perform retinal scans



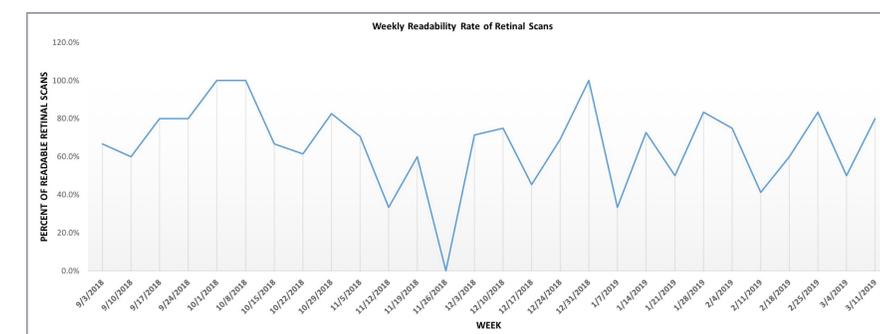
Percent of Missed Opportunities for Retinal Scan Completion			
	Number of DM Patients Due for Retinopathy Screening	Number of Retinal Scans Performed	Average of % Missed Opportunities
Non-Intervention Clinic Sessions (n = 4)	28	0	100%
Intervention Clinic Sessions (n = 8)	72	28	61.1%

## OTHER FACTORS TO CONSIDER

- Variability in the number of retinal scans needed each day
- Functioning of retinal camera on any given day
- Other interventions going on in the office by the office quality team
- Variable ability to access retinal scan database

## Results

- The percentage of JFMA patients with diabetes who had up-to-date retinopathy screening increased from 44% to 55%.
- The 3 PDSA cycles did not demonstrate any sustainable improvement in the absolute number of retinal scans performed weekly.
- Compared to a small sample of randomly selected pre-intervention clinic sessions, when a staff member was designated to complete retinal scans, we saw an increase in the number of retinal scans completed.



## Discussion

We successfully implemented a standardized process to upload retinal scan results to the EHR. By designating a staff member to complete retinal scans, we addressed multiple barriers: lack of time for MAs to complete the scans, variability in MA proficiency to complete the scans, and availability of the retinal camera. These interventions decreased the missed opportunity rate.

- There was no significant improvement seen in the absolute number of retinal scans performed weekly. This is likely because of the variability in the number of retinal scan opportunities each day.
- There was a sustained increase in our outcome measure. Although this may be related to our interventions, other factors may have affected the outcome. For example:
  - Best Practice Advisory notifications in the EHR were prompting providers to complete retinopathy screening
  - The retinal camera intermittently malfunctioned during our interventions
- We found that many patients have had retinal scans completed at outside ophthalmology offices, but no record in the EHR.
- Continuous involvement of stakeholders throughout a process improvement study is important to maintain buy-in, to understand secular trends, and to develop effective interventions.

## Future Directions

We plan to continue to have a designated staff member complete retinal scan and continue to improve the communication and workflow of this process. In addition, we hope to reliably obtain outside ophthalmology records and upload to EHR in a timely manner.