#### 5441 - B0332



DEPARTMENT OF Ophthalmology and Visual Sciences UNIVERSITY OF WISCONSIN SCHOOL OF MEDICINE AND PUBLIC HEALTH

## Purpose

Teleophthalmology is an evidence-based form of diabetic eye screening that is underutilized in U.S. primary care clinics. This technology is particularly well-suited to rural areas, which have less access and greater travel distances to obtain eye care than those in urban areas.

We hypothesized that engaging patients and stakeholders (i.e., primary care providers (PCPs), patient care staff, and administrators), to test intervention strategies directly targeting provider and patient-level barriers would increase teleophthalmology use and diabetic eye screening rates in a rural U.S. primary care clinic.<sup>1,2</sup>

## Methods

Stakeholders were recruited in March 2017 from the Mile Bluff Medical Center (MBMC), a U.S. health system where a rural teleophthalmology program was established in 2015 for all primary care clinics. The teleophthalmology program<sup>1</sup> utilized a Topcon NW400 non-mydriatic fundus camera (Topcon Medical Systems, Inc., Oakland NJ, USA) located at the Main clinic to obtain single-field, 45-degree photos of the disc and macula for diabetic eye screening.

In this study, we recruited adult patients with diabetes who had previous teleophthalmology imaging or expressed interest in participating in research when contacted in a prior diabetic eye screening survey. PCPs and patient care staff were recruited during a staff meeting, while administrators were selected by clinical leadership.

We used the *NIATx Model*,<sup>3</sup> a systematic healthcare process improvement framework, to guide stakeholder meetings and test strategies for increasing teleophthalmology use at one (Main) of 5 MBMC primary care clinics (Fig. 1). Strategies were targeted to directly address barriers to teleophthalmology use identified in our prior work.<sup>1</sup>

This study was reviewed by the UW Human Subjects IRB and was determined to be exempt from full IRB review.

## **Funding Sources**

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Table 1. Patient (n=9) and Clinical Stakeholder Demographics (n=22)		
Patient Stakeholder Demographics (n=9)	Median or percentage	
vge (Average)	63.9 years	
/lale	77.8%	
ype II Diabetes	100%	
Experience with teleophthalmology	55.6%	
Ethnicity		
White (Non-Hispanic)	88.9%	
White (Hispanic)	11.1%	
Socio-economic Status		
Household Income <sup>6</sup>	\$48,117 (range: \$37,396 - \$52,526)	
Education		
Some high school	11.1%	
High school graduate or GED	44.4%	
Some college or technical school	22.2%	
College graduate	22.2%	
Health Literacy (Single Item Literacy Scr	eener) <sup>7</sup>	
Low	22.2%	
Moderate	55.6%	
High	22.2%	
Clinical Stakeholder Demographics (n=22)	Median or percentage	
/lale	13.6%	
Clinical Role		
Primary Care Providers (PCPs)	36.3%	
Physician (MD/DO)	22.7%	
Physician Assistant (PA-C)	4.5%	
Nurse Practitioner (APNP/DNP)	9.1%	
Medical Assistants (MAs)	18.2%	
Clinical Administrator	22.7%	
Diabetes Educator	4.5%	
IT/ Medical Records	13.6%	
Registration Director	4.5%	

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## **Engaging Patients And Clinical Stakeholders to Increase Teleophthalmology Use** for Diabetic Eye Screening in Rural Primary Care Clinics

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**6.** Patient Reminder Calls



	Patient Re
Description	Initial Adoption
Provider and Patient Care Staff meeting presentations to provide education about teleophthalmology	X
Patient Rooming Checklist reminds for PCPs/MAs to ask patients about diabetic eye screening Patient Education Handout and scripts for PCPs/MAs to discuss teleophthalmology with patients	Х
Monthly meetings and newsletters to obtain ongoing input on implementation and maintain engagement	X
PCPs could choose to have their quality performance financial bonus linked to diabetic eye screening	Х
Audit and feedback of ordered and completed teleophthalmology referrals for each PCP	
Yearly reminder calls to patients who had teleophthalmology and are due again for diabetic eye screening	



Healthcare evolving for life

# minder Calls Sustain Adoption Х Х Х

## **Results/Discussion**

Nine patients and 22 clinical stakeholders participated in separate meetings (n=18) from May 2017-October 2018 to identify barriers and develop strategies to increase teleophthalmology use.

Teleophthalmology use increased 5-fold at the Mauston clinic compared to 0.4-fold at the other clinics (p < 0.0001) (Fig. 2). There was a trend towards a greater increase in diabetic eye screening rates at the Mauston clinic (15%) versus the other clinics (10%) three years after teleophthalmology was introduced (p = 0.08) (Figs. 3 & 4). The increase in screening rates at the Outreach clinics in 2018 was likely due to a spillover effect of the intervention strategies on the Outreach clinics since we were unable to isolate all interventions to the Main clinic. Among patients adherent with diabetic eye screening in 2018, the majority had clinical dilated eye exams (94.1%) rather than teleophthalmology (5.9%).

Interventions with the greatest impact on increasing teleophthalmology use were Provider Financial Incentives, Clinical Stakeholder Meetings, and Patient Reminder Calls. The majority of strategies were useful for both initial and sustained adoption of teleophthalmology.

A major challenge for engaging clinical stakeholders was the lack of regular meetings during work hours to facilitate group discussions between providers and clinical staff to provide input and feedback on workflow improvements.

## Conclusions

We engaged stakeholders to develop an implementation program to substantially increase teleophthalmology use in a rural primary care This approach may clinic. for the allow implementation of strategies tailored to an clinic's needs and individual resources to teleophthalmology use and expand increase to diabetic eye screening in rural access communities<sup>4,5</sup>.

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