

INTRODUCTION



Donnelly-Deroven, Clarissa "Vaccines become more accessible to farmworkers, but many still struggle with internet access." NC Health News, 10 Jan 2022. Accessed 26 Jul 2023. <https://www.northcarolinahealthnews.org/2022/01/10/vaccines-become-more-accessible-to-farmworkers-but-many-still-struggle-with-internet-access/>

Migrant farmworkers in North Carolina face a multitude of barriers in accessing and receiving regular, reliable healthcare. These typically include lack of transportation, financial insecurity, and little control of work schedules. Increasingly, mobile clinic programs are attempting to address problems in accessing care, but are often limited in resources, providers, and the amount of clinical information that can be gleaned in these settings.

REVIEW OF LITERATURE

- Studies have demonstrated clinical usefulness for fundus photography in detecting retinal arteriolar narrowing and microvascular abnormalities.¹
- Microvasculature changes, such as in retinal capillary beds, provide insight to the progression of systemic disease like hypertension or diabetes and may be predictive of cardiovascular death.²
- In patient populations experiencing greater-than-average barriers to care, such as migrant farmworkers, there are less clear determinations about the most effective and efficient ways to diagnose and encourage follow-up for the development of chronic disease.³

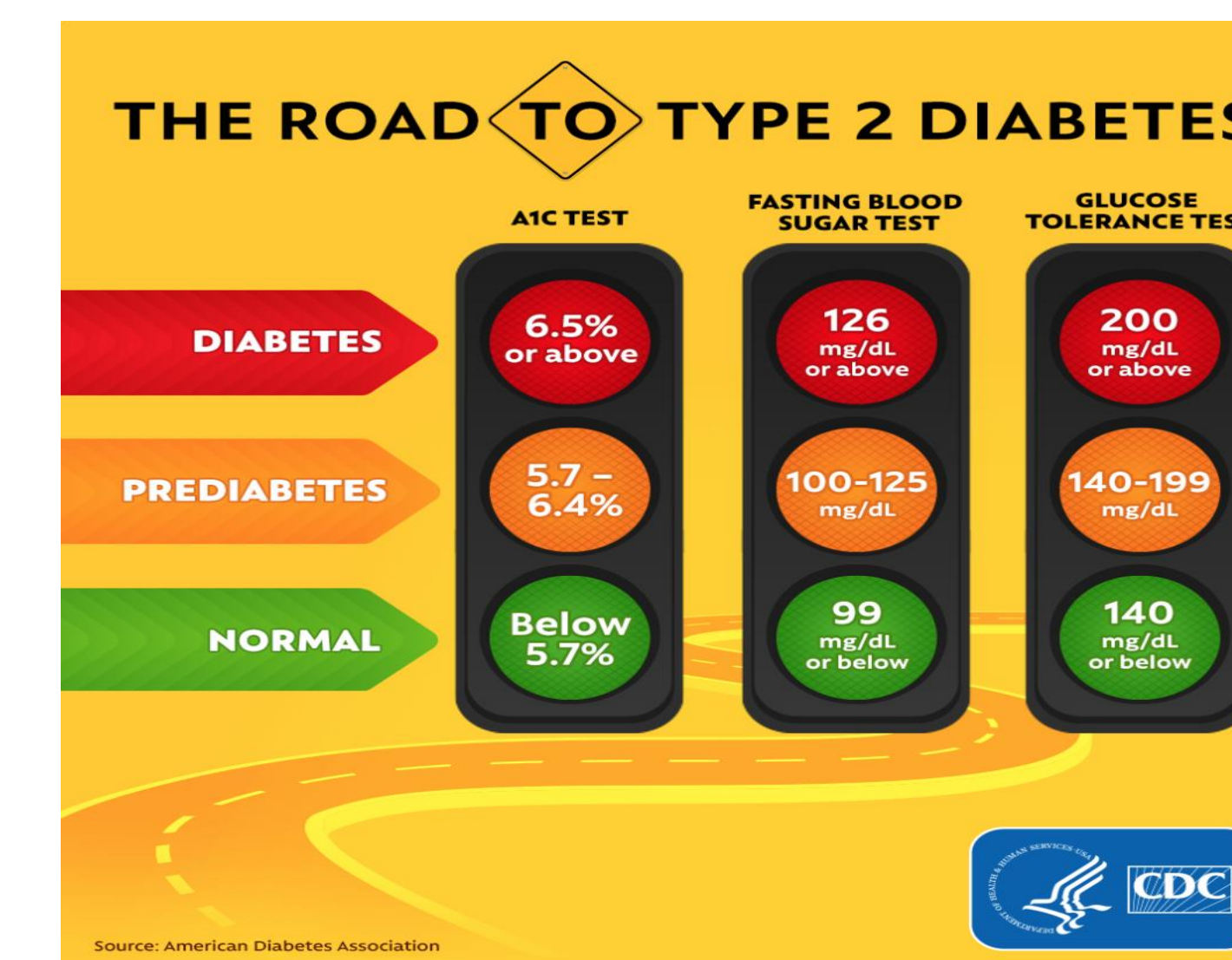
METHODS AND MATERIALS

Data collection will begin in August 2023, pending IRB approval.

- Participants are migrant farmworkers at Tull Hill Farms in Kinston, North Carolina, over 18 years of age.
- Participants will be screened for diabetes and hypertension, according to the following guidelines:

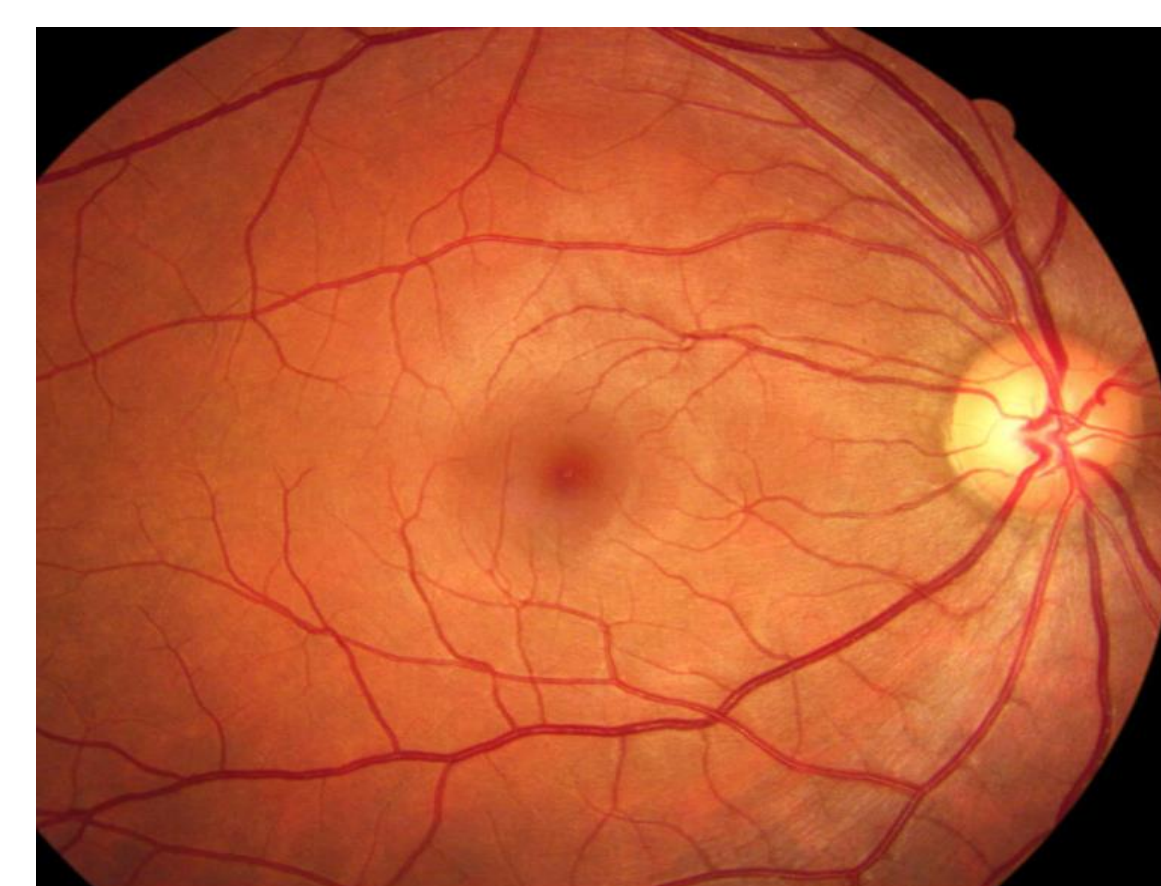
BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)	and/or	DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

"Understanding Blood Pressure Readings," American Heart Association. Last Reviewed: May 30, 2023. Accessed 26 Jul 2023. <https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings>

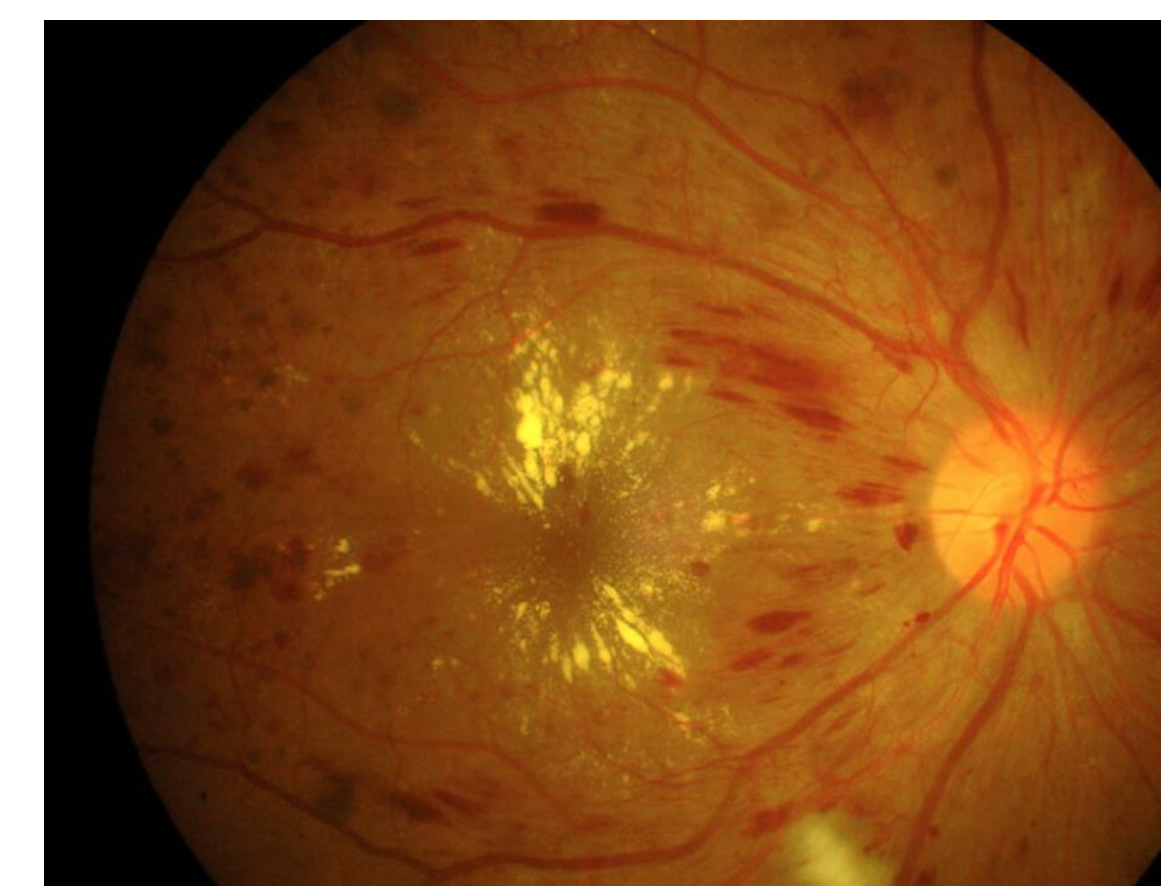


"Diabetes tests," Centers for Disease Control and Prevention. Last Reviewed: 28 Feb 2023. <https://www.cdc.gov/diabetes/basics/getting-tested.html>

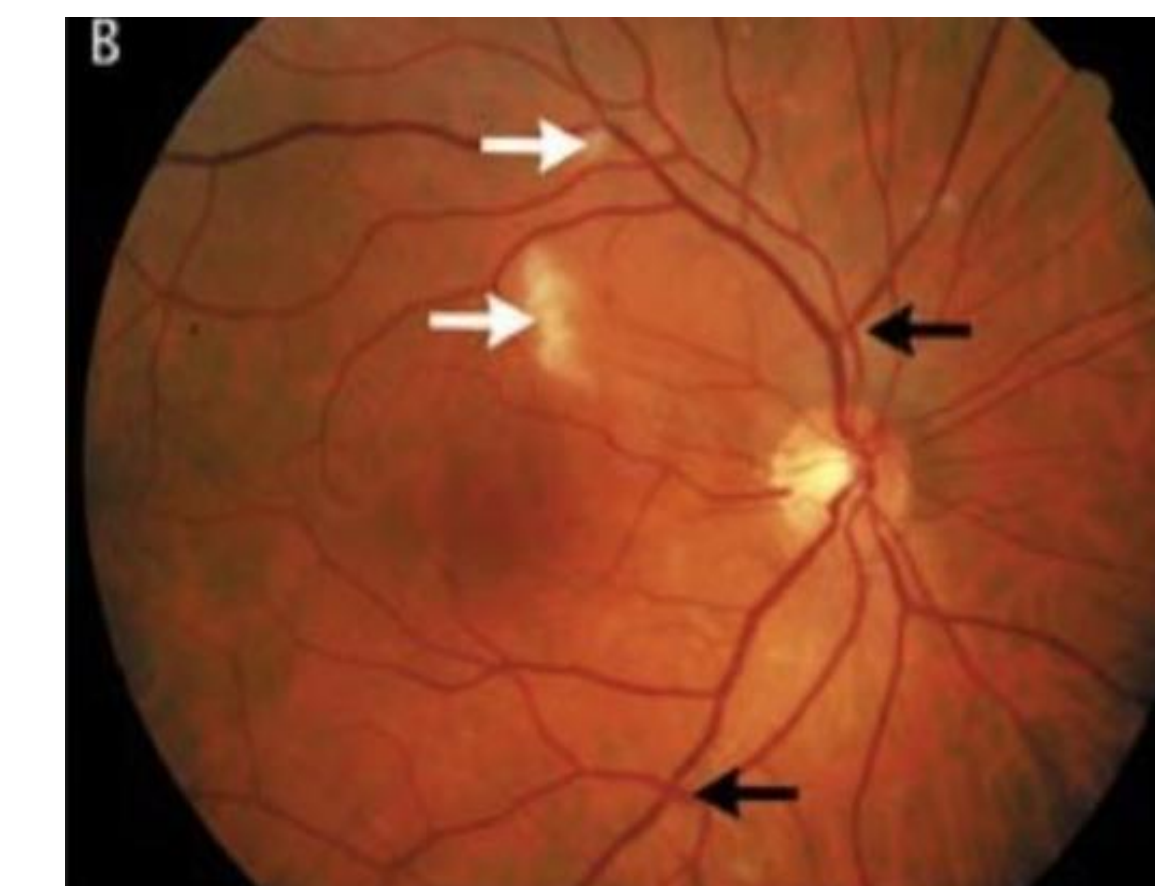
- Participants who screen positively for hypertension, and/or prediabetes or diabetes will have their retina imaged
- Images will be read by physician in the mobile clinic at the farms, and results will be interpreted to patients with assistance from outreach workers at the Kinston Community Health Center
- Retinal images will be examined for any of the following signs of damage due to hypertension and/or diabetes



Normal Retinal Image⁴



Diabetic Retinopathy⁴



Hypertensive Retinopathy⁵

- By analyzing the retinal blood vessels and the optic nerve, among other structures, potential signs of organ dysfunction or chronic disease could be identified, allowing for timely intervention and improved health outcomes.

GOALS OF STUDY

- We hypothesize that retinal imaging can serve as a non-invasive and easily accessible method for mobile clinics to detect early indicators of organ failure in H-2A farmworkers.
- Considering the challenges in administering regular primary care and preventative medicine in migrant farmworkers, the benefit of retinal imaging lies in its **portability** to be brought into fields, **non-invasiveness**, and relatively **low cost**, in addition to its ability to visualize the health of the eye and its vasculature.

REFERENCES

- ¹Liew G, Wang JJ, Mitchell P, Wong TY. Retinal vascular imaging: a new tool in microvascular disease research. *Circulation: Cardiovascular Imaging*. 2008; Vol 1 Issue 2: 156-161.
- ²Witt N, Wong TY, Hughes AD, Chaturvedi N, Klein BE, Evans R, McNamara M, Thom SA, Klein R. Abnormalities of retinal microvascular structure and risk of mortality from ischemic heart disease and stroke. *Hypertension*. 2006; Vol 47 Issue 5: 975-981.
- ³Anthony M, Williams JM, Avery AM. Health needs of migrant and seasonal farmworkers. *Journal of Community Health Nursing*. 2008; Vol 25 Issue 3: 153-160.
- ⁴"Understanding Diabetic Retinopathy (Diabetic Eye Care)," Raleigh Ophthalmology. Accessed 26 Jul 2023. <https://www.raleighop.com/retina/diabetic-eye-disease/>
- ⁵Wong Tien Y., M.D., Ph.D, Mitchell Paul, M.D., Ph.D. Hypertensive Retinopathy. *New England Journal of Medicine*. 2004; 351:2310-2317.

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Image retrieved from: <https://kinstonhealth.org/leaders/history/>

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