HEERSINK SCHOOL OF MEDICINE

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Manual of Procedures

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1. Aims of the Study

Aim 1: Implement and evaluate a remote optic nerve assessment (RONA) protocol using telemedicine to identify glaucoma-associated disease in at-risk rural patients using portable multimodal structural and functional assessment of the optic nerve and retina. Also assess for diabetic retinopathy, cataract, visual acuity impairment, and refractive error.

Aim 2: Identify and evaluate remediation strategies for the barriers to patient adherence with referral and follow-up appointments by comparing the effectiveness of financial incentives along with a validated patient education program versus a validated patient education program alone.

Aim 3: Investigate the cost-effectiveness of the telemedicine program in diagnosing glaucoma using RONA versus usual in-person care from a glaucoma specialist.

2. Background

Prioritizing Vision Health. Vision health is an important public health concern affecting Americans of all ages. The 2016 report from the National Academies of Sciences, Engineering, and Medicine (NASEM) elevated the importance of a population health action framework that would transform "vision impairments from common to rare and eliminate correctable and avoidable vision impairments in the U.S. by 2030".[1] The report also called on the Centers for Disease Control and Prevention (CDC) to develop a research agenda to provide evidence on effective policies, practices, and interventions that could delay the onset and progression of eye diseases and "achieve eye and vision health equity by improving care in underserved populations".[2] Improving the "visual health of the nation through prevention, early detection, treatment, and rehabilitation" is also a Healthy People 2020 goal.[3] Specifically, this research plan focuses on a novel telemedicine-based care delivery model for the detection and management of the eye diseases of glaucoma, primarily, as well as other eye diseases such as diabetic retinopathy (DR). The public health challenge is that if eye conditions such as glaucoma and DR had been detected early in the disease course, vision impairment would be preventable, and sometimes reversible, with currently available ophthalmic treatments.

Epidemiology of Glaucoma. Glaucoma is one of the most common eye diseases of aging and is the leading cause of irreversible vision loss and blindness in older African Americans. Primary open angle glaucoma (POAG), the most common form of glaucoma, is a chronic progressive optic neuropathy traditionally characterized by changes in the optic disk, thinning of the retinal nerve fiber layer, and gradual loss of vision, with both peripheral vision and central vision affected depending on disease severity. The prevalence of POAG increases with age, affecting more than 1.8% of the population over 40 but increasing to 23.2% among African Americans and 9.4% among non-Hispanic whites over the age of 75.[4] With the rapid growth in older populations, the number of POAG cases will increase 250% by 2050, directly affecting over 7 million lives.[5] These numbers are specifically for POAG and do not include those who are monitored and treated for elevated intraocular pressure or for glaucoma suspect status, which along with POAG can all be considered glaucoma associated diseases (GAD). While the number of patients with glaucoma will nearly double over the next 20 years, the number of US ophthalmologists is expected to grow only 0.67%.[4,5] The at-risk population for glaucoma in the U.S. is large, with older age as the primary risk factor as well as African Americans or Hispanics ≥ 40 years old, Asians, non-Hispanic whites ≥ 50 years old, older persons with diabetes, and those with a family history of glaucoma. POAG is at least 4-5 times higher in African Americans, progresses more rapidly and appears about 10 years earlier as compared to those of European descent.[6,7] Fortunately, vision loss from glaucoma can be prevented by early detection, consistent follow-up, and control of intraocular pressure with medication or surgery.

Epidemiology of Diabetic Retinopathy. Diabetes, and its ocular complications, is the leading cause of new cases of blindness in adults age 20-74 years in the US.[8,9] African Americans are 2 times more likely to have DR than whites.[10] In 2005-2008, 4.2 million (28.5%) Americans with diabetes ≥ age 40 had DR and of these, 655,000 (4.4%) had advanced DR that often leads to severe vision loss.[11] The number of people with DR is expected to increase more than 3-fold by 2050, creating an immense, costly public health problem.[9,12-14] Despite the risk of vision loss, only 50-60% of people with diabetes follow the recommendation to receive an annual dilated eye exam and this is even less in low-income and minority populations.[15-17] Successful management of DR includes early diagnosis, tight glycemic and blood pressure control, and medical or surgical treatment to prevent vision loss.[18-20]

Epidemiology of Cataract and Refractive Error. Cataracts are a major cause of preventable visual impairment and blindness, especially in African Americans, with over 24 million people in the US having cataracts.[10] A major risk factor for cataracts is aging and thus there is an expected 50% increase in cataracts by 2030.[21] Additionally, studies have shown that African Americans have a reduced likelihood for curative cataract surgery, highlighting possible racial disparities in access to care for a reversible cause of visual impairment.[22,23] Refractive error is another major cause of preventable visual impairment in the US. Over 48 million people over age 40 in the US have refractive error, with the majority having myopia. Uncorrected refractive error has also been found to be associated with racial disparities.[24]

Personal Burden of Eye Disease. The personal burden of eye disease and its accompanying visual impairment is undisputed and widely documented. Adults with glaucoma experience reductions in health-related quality of life and mobility problems including ambulatory and driving difficulties and limitations in physical activity.[25-41] Persons with vision impairment, regardless of etiology, are at increased risk for depression, social disengagement, employment challenges, and problems accessing health care.[40,42-45] Several studies have demonstrated an association between vision impairment in adults and increased mortality risk, including studies focused on persons with glaucoma, cataract, and refractive error.[46-52] Thus, interventions to improve early detection, effective follow-up and implementation of evidence-based treatments for glaucoma, and patients' adherence to medication plans will improve the health and well-being of persons with this condition and at-risk for the condition.

Economic Burden of Eye Disease. The economic burden of eye disease in the U.S. is staggering. Analyses commissioned by the Centers for Disease Control and Prevention and Prevent Blindness America estimate the annual cost of adult vision problems in the U.S. at about $139 billion.[53] In Alabama, the cost of vision problems is $2.2 billion.[53] This includes U.S. economic factors such as direct medical costs, other direct costs (e.g., nursing home care stemming from vision impairment), and productivity losses (i.e., lower wages for

visually impaired), as well as the financial burden incurred by the individual, caregivers, and other healthcare payers. The direct medical costs of glaucoma are $5.8 billion/year, which does not include indirect costs such as incremental nursing home placements and productivity losses.[53] For people aged 40- 64 years, the annual medical costs of glaucoma are $1490/person and for those aged ≥ 65 years, they are $2580/person.[53] The annual medical costs of blindness and low vision per person from all causes, including glaucoma, are $5870 and $10,020 for people aged 40-64 years and ≥ 65 years, respectively.[53] Cost-effective benefits to quality of life have been reported for early detection and treatment of eye conditions such as glaucoma.[54,55] Given projected Medicare shortfalls and potential reductions in Medicaid coverage, developing high quality and efficient means to provide care for these individuals will become increasingly important.

Barriers to Eye Care. Inadequate access to eye care delays diagnosis and increases the personal and economic burdens of eye disease and visual disability.[56] Problems accessing eye care are the most commonly cited barrier to care by African Americans in Alabama and elsewhere.[57-59] Older African Americans are less likely to receive routine comprehensive eye care, when damaging eye conditions could be detected and treated early, and less likely to adhere to prescribed glaucoma therapies, thus contributing to higher rates of eye disease.[10,60-63] The lower rate of receiving routine eye care may be contributing to higher rates of disability from eye disease. Factors underlying lower utilization include inadequate knowledge of basic symptoms, risk factors and available treatments; reduced financial resources; limited transportation; low trust in health care providers; and high cost.[57,64,65] Ophthalmologists rarely practice in rural areas where African Americans represent the majority of the population in Alabama.[66] This produces a problem accessing ophthalmological care, especially subspecialist care.

Alabama's Black Belt Region, named for its rich black soil, is a rural area with one of the highest poverty rates in the US. The Birmingham News has characterized it as America's Third World.[67] It has one of the highest concentrations of African American residents of any region of the country, representing over 50% of the population. In addition to having widespread poverty, the region is characterized by inadequate education, transportation, community resources, and a shortage of healthcare providers including a shortage of ophthalmologists and optometrists.[66]

To summarize, glaucoma is a blinding eye disease and a leading cause of irreversible vision loss in Americans, and THE leading cause in African Americans. In many rural counties in Alabama and the rest of the South, the majority of the population is African American. African Americans are less likely to receive routine, dilated comprehensive eye care that would facilitate early detection and thus prognosis. The number of cases of glaucoma and DR are expected to increase in the US. The personal burden of glaucoma, DR, cataract, refractive error, and vision impairment is heavy, with numerous negative implications for quality of life, and the economic burden is dramatically large. Ophthalmologists

specializing in glaucoma and retina are centered in urban areas, particularly in and around academic medical centers. Thus, all the factors we have discussed above -- the shortage of ophthalmologists in general but especially in communities with high concentrations of African Americans, the rising cost of care, and rapid growth in glaucoma prevalence in the population -- *clearly necessitates an alternative model of care for these individuals*.

Given the barriers to implementation of population-based screening for glaucoma, telemedicine is a potential strategy to improve disease detection and management as well as to improve effectiveness, access, and adherence with routine eye care. Telemedicine refers to the electronic communication of medical information from one site to another to improve a patient's clinical health status.[68] It has already been utilized in many healthcare fields and can improve health outcomes, increase accessibility to specialty care, and increase patient satisfaction.[68,69] By utilizing current technologies, telemedicine transmits patient data from a primary care clinic to another remote site for review by specialist physicians and thus, the standards of specialty care are more accessible to patients who live where no specialists practice. Telemedicine is well suited for the detection and management of certain eye conditions since there have been great strides made in the development of non-invasive ocular imaging devices that provide high levels of diagnostic reliability, ease of training of testing personnel, and electronically transmissible results. Telemedicine has been implemented in some areas of eye care but the vast majority of the literature on telemedicine for the chronic eye conditions of adulthood is focused on DR screening. Acceptance of telemedicine for DR using digital fundus photography has increased steadily around the world over the years stemming from its proven efficacy, cost-effectiveness, and ability to reach underserved populations.[70-72]

Applying Previous Experience in a New Way. This project focuses on the development and implementation of a community-based detection model for the two most common vision-threatening eye diseases in the African American population, POAG and DR. This will be achieved through a novel telemedicine program using RONA, based on integrated and collaborative partnerships, to improve both the quality of and access to eye care. The program will use advanced eye imaging technology to remotely assist in the detection and management of POAG, DR, cataract, and refractive error in a predominantly African American community receiving primary care through FQHC's in rural counties of Alabama, where African Americans represent 56% of the population.[73] Many of these rural counties are in Alabama's Black Belt Region that was described in detail above. Compared to many other states, Alabamians, particularly African Americans, have a disproportionately high prevalence of many risk factors for POAG and DR. Alabama has a higher prevalence of diabetes than any other state (~13%), and African American Alabamians have a diabetes mortality rate 2.5 times greater than white Alabamians.[74] The relative lack of specialists in communities with high concentrations of African Americans, combined with the rapid growth in glaucoma and diabetes prevalence, clearly necessitates an innovative and community-based approach to eye care.

Achieving high levels of adherence to recommended health interventions has long been a challenge, particularly in rural, underserved populations. One method to try to increase adherence levels has been through financial incentives. Previous research in rural populations with improving adherence to preventive services such as mammography and influenza vaccination has shown that financial incentives are the only method to increase adherence compared to other behavioral interventions.[75] In addition to showing effectiveness of financial incentives, there are ethical considerations as to the appropriateness of incentivizing health behaviors through financial means. Shea et al. found that patients were willing to engage in incentive programs and had a positive experience without impact on the relationship with their physician.[76] In relation to eye care, Tan et al. found improved adherence to tertiary eye care services after community-based screenings in low socio-economic areas with the addition of an incentive care scheme.[77] That study provided a one-time transportation allowance to the appointment and a subsidy for the first tertiary eye care consultation.[77] In our proposed study, in addition to providing the eye health education program, financial incentives will also be used in the study sites in order to encourage patient adherence to referral and follow-up appointments.

2. Protocol

Source Population. This consisted of patients seeking healthcare at three FQHCs in north central Alabama. The three FQHCs are part of the Cahaba Medical Care Foundation, an Alabama-based FQHC. They care for a population of approximately 16,000 patients per year, including 58% who are African American, 38% White, and < 3% Hispanic. Among the active patients in these FQHCs, health insurance status is 25% Medicaid, 30% Medicare, 25% private insurance, and 20% uninsured. The study clinics are in rural Alabama towns: Centreville (Bibb County), Maplesville (Chilton County), and Marion (Perry County). This region of Alabama borders or is part of the region known as the Black Belt named for its rich black soil that supported cotton agriculture. In the 19th century, the agricultural workers were enslaved African Americans. The Black Belt consists of 9 of 10 of the poorest counties in the state. Poverty is directly link to health disparities in the Black Belt.[78] Today this region's population is over 50% African American.

Inclusion criteria. Patients presenting at these clinics were eligible to participate if they had one or more risk factors for GAD[79] and volunteered to participate: (1) African American or His-panic ≥40 years of age; (2) White ≥50 years of age; (3) anyone ≥18 years of age with diabetes, (4) anyone ≥18 years of age with a GAD; and (5) anyone ≥18 years of age with a family history of glaucoma. All participants spoke and understood English.

Exclusion criterion: If patients did not complete written informed consent to participate, they did not participate.

Study Design. This study had two arms. The protocol, as described below, was identical in both arms, except for the following. One arm consisted of participants not receiving any financial incentive for attending recommended follow-up care with an optometrist or ophthalmologist based on positive eye screening results. The other arm had a financial incentive, that is, participants recommended to attend a follow-up care exam with an optometrist or ophthalmologist received $50 for attending the appointment. In the second arm, we confirmed with the eye care provider through the optometrist's or ophthalmologist's electronic medical records (EMR) whether the participant attended the follow-up appointment. We considered randomizing patients to each of the two arms. We decided not to use this approach because we were concerned that patients may talk among themselves (they live in small rural communities) about some receiving a financial incentive to attend recommended follow-up visits versus others not receiving a financial incentive. This was viewed as causing a potential conflict for patients in terms of their participating in the study and viewed as potentially unfair by patients. Thus, our approach was to first enroll half of the total number of patients in the non-financial incentive arm, and then when that was complete, to enroll the second half of the total number of patients in the financial arm. The goal was to enroll 500 patients in each arm.

Protocol Measurements. These are each described below. All were completed in a single visit to the FQHC. All eye and visual function measurements were performed on each eye separately. The clinical coordinators (certified ophthalmic technicians) collected all data including questionnaires.

Demographic review. Questionnaires obtained information on birthdate, gender, race, ethnicity, marital status, medical insurance status, transportation availability, education level, employment status, whether they received an eye examination in the past two years, reasons for not seeking an eye examination in the past two years, and contact information (address, phone number).

Self-reported clinical characteristics. Questionnaires obtained information on the following: smoking status, family history of glaucoma or blindness, and ocular history of major chronic eye diseases or conditions. Family history of glaucoma was considered positive if a participant reported a glaucoma diagnosis for a first degree relative (parent, sibling, child).

Ocular screening. All measurements were completed under undilated conditions, as follows. (1) Distance visual acuity was assessed using a Snellen chart presented at 20 feet while participants wore whatever correction (if any) they were habitually wearing for distance. (2) Autorefraction was carried out with the QuickSee (PlenOptika Inc) or Retinomax (Nikon). (3) Intraocular pressure (IOP) was measured with the iCare portable rebound tonometer (iCare USA). A second measurement was taken if the IOP was > 21 mm Hg. If these 2 IOPs differed by more than 2 mm Hg, a third measurement was taken. If IOP was measured twice, the mean value was used as the IOP; if it was measured 3 times, the middle value was used. Participants with IOP ≥30 mm Hg were referred to an optometrist or ophthalmologist in our fast-track protocol: IOP > 30 mm Hg within 2 weeks; IOP > 35 mm Hg, within 1 week; and IOP > 40 mm Hg, an urgent referral within 1 day. (4) Visual field was assessed using three methods: the Humphrey Field Analyzer 3 (HFA3) using the Swedish Interactive Threshold Algorithm Fast screening strategy (Carl Zeiss Meditec), the Melbourne Rapid Fields, a tablet-based perimetry test (M&S Technologies), and the Alleye test (Oculocare Medical).

Retinal imaging. Spectral domain optical coherence tomography (SD- OCT) was performed using the Maestro2 (Topcon Medical Systems), measuring the thickness of the retinal nerve fiber layer of the optic nerve head and of the macula by a single widefield OCT scan measuring 12 ×9 mm (512 ×128 pixels). This encompassed both the macula and disc. The Maestro2 also provided high-resolution fundus photographs encompassing both the optic nerve and macula.

Telemedicine. All the above ocular screening data and retinal imaging, as well as the medical and ocular history and demographics (age, gender, race, ethnicity) were

electronically transferred to a remotely located glaucoma-fellowship-trained ophthalmologist for reading and interpretation. With respect to visual field data, only HFA3 data were transferred since the other two field tests are not routinely used in standard of care in glaucoma assessments. The ophthalmologist made the following diagnostic judgments based on the screening in terms of the presence of the following conditions: glaucoma, glaucoma suspect, ocular hypertension, diabetic retinopathy, cataract, refractive error, or any other ocular conditions identified through the above screening data.

Diagnoses for GAD conditions are as follows. Ocular hypertension is defined as no glaucomatous appearing disc changes (described below), a normal visual field (described below), and statistically elevated IOP ≥23 mm Hg. Glaucoma suspect is defined as the presence of glaucomatous-appearing disc changes (de- scribed below), normal visual field (described below), and statistically normal IOP < 23 mm Hg. Glaucoma refers to the presence of glaucomatous appearing disc changes (de- scribed below) and an abnormal visual field (described be- low). A glaucomatous appearing optic disk is defined as evidence of excavation, neuroretinal rim thinning or notching, localized or diffuse retinal nerve fiber layer (RNFL) defect, or a between-eye asymmetry of the vertical cup disc ratio > 0.2. A glaucomatous visual field defect is defined as a reliable SAP Humphrey 24-2 field (defined as < 33% false- positives results, false-negative results, and fixation losses) that exhibits a pattern standard deviation outside of the 95% normal limits, or a glaucoma hemifield test outside of the 99% normal limits consistent with an RNFL defect pattern based on clinical review. A normal eye that meets none of these definitions of GAD is defined as not having glaucomatous-appearing disc changes and having a normal visual field and statistically normal IOP < 23 mm Hg (both described above). Diagnoses of DR were made based on the National Health Service Grading Classification System.[80]

Each participant, the FQHC primary care provider, and their eye care provider (if they had one) received the final report about the ophthalmologist's screening-based diagnoses. These were sent out electronically within 14 days of the participant's screening visit date. The report contained diagnostic information on the conditions mentioned above plus visual acuity, IOP, recommended treatment, and whether a follow-up exam was recommended.

Recommendations from the telemedicine ophthalmologist. Participants whom the ophthalmologist clinically judged as normal were recommended to undergo an annual comprehensive eye examination on a routine basis. The following participants were recommended for a follow-up examination visit with an optometrist who was partnered with the FQHC (located in a separate office), or an ophthalmologist at the Glaucoma Service at UAB, the Lions Eye Clinic at UAB, or an ophthalmologist whose clinic was located in the FQHC geographic area: participants with 20/40 or worse visual acuity and/or with an IOP ≥23 mm Hg in either eye, as well as those with GAD (glaucoma, glaucoma suspect, or ocular hypertension), DR, and/or other ocular condition that the ophthalmologist viewed as needing to be examined in per- son. The FQHC staff scheduled

the appointment and communicated the details to the participant. The study coordinator followed up with the clinic where participants were scheduled for the follow-up examination to determine whether they actually attended the appointment by contacting the eye clinic and getting confirmation through the EMR.

Vision-Specific Health-Related Quality of Life. This was assessed using the National Eye Institute Visual Function Question – 9.[81]

Satisfaction with the RONA screening. Following the ocular screening, participants' satisfaction with the telemedicine screening was evaluated by a questionnaire using Likert scales. Questions address satisfaction with the vision screening and the time that it took to complete it (very satisfied/satisfied/dissatisfied/very dissatisfied), as well as how convenient the venue was (very convenient/convenient/inconvenient/very inconvenient). Participants were also asked whether they would recommend the ocular screening to others, whether they could return to the same venue in 12 months for another screening, and whether they could make a follow-up visit to an optometrist or ophthalmologist if referred for a problem identified by the screening (very likely/somewhat likely/not very likely/not at all likely)

4. Statistical Analysis Plan

Demographic, socioeconomic, medical, and ocular factors were compared across groups who did and did not receive incentives for obtaining follow-up care using unpaired t-tests for continuous data and using the Fisher's exact test for categorical data. The proportion of individuals in each group who were recommended for a follow-up comprehensive eye exam and, among those individuals, the proportion who attended that exam was compared using chi-square tests. Given the demographic differences in the study groups, the impact of incentivization was evaluated using a subset of incentivized and non-incentivized patients matched on age, sex and race. The impact of COVID-19 on follow-up attendance was estimated by correlating the rate of COVID-19 deaths in Alabama obtained from the Alabama Department of Public Health and the average number of daily hospitalizations per month with the proportion of those attending follow-up referrals during each month of the study. P-values ≤ 0.05 (two-sided) were considered statistically significant.

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6. Data Collection Forms

Data collection forms are appended to this document.

Baseline Intake and Education Form

Record ID

START TIME Intake and Consent

Subject Name/Initials:

Study ID

(Study ID= CDC + Initials + Record ID)

Date of Baseline Intake

Form Completed By (Initials/#)

ELIGIBILITY CRITERIA

What is Your Date of Birth?
(If born after 2002 participant is not eligible)

(MM-DD-YYYY)

What is Your Age?

Which Cahaba Medical Care Clinic do you see your primary care provider?

- ◯ Centreville (405 Belcher Street, Centreville, AL 35042)
- ◯ Maplesville (9431 Alabama 22, Maplesville, AL 36750)
- ◯ Marion (1303 Washington Street, Marion, AL 36756)
- ◯ Woodstock (28921 Highway 5, Woodstock, AL 35188)
- ◯ West Blocton (319 Magnolia Street, West Blocton, AL 35184)
- ◯ Bessemer (975 9th AVE SW, Bessemer, AL 35022)

CONFIRM ADDRESS FOR ELIGIBILITY AND MAILINGS

Mailing address street and apartment number

(address and apartment number)

City, State, Zipcode

(city, state and zip code)

Source: Rhodes LA, Girkin CA, Owsley C. Manual of Procedures, Alabama Screening and Intervention for Glaucoma and Eye Health through Telemedicine (AL-SIGHT), Funded by Centers for Disease Control and Prevention (1U01DP006441), Department of Ophthalmology & Visual Sciences, University of Alabama at Birmingham, Heersink School of Medicine, 2024, Version 1.0.

Please ask subjects for phone numbers and email addresses so we can contact them after the eye screening with results and schedule a follow-up eye doctor appointment if needed.

If you have a telephone, what is the number (cell or home)?	_____
If you use text messaging on your cell phone, do you have an unlimited monthly plan?	◯ Yes ◯ No ◯ Not sure ◯ Getting new plan, so yes
If you use email, what is your email address?	_____
What are the best WAYS to reach you about your eye health?	☐ Phone call ☐ Mail ☐ Text Message ☐ Email
What are the best TIMES OF THE DAY to reach you about your vision health?	☐ Morning ☐ Afternoon ☐ Evening
Do you have a family member or caregiver that we can contact in case of an eye care emergency?	◯ Yes ◯ No
Names and phone number(s) of family or a caregiver that we can contact and how they are related to you (son, daughter, sister)?	_____
What is your gender?	◯ Male ◯ Female ◯ Other ◯ Prefer not to say
Do you consider yourself of Hispanic, Latino or Spanish Origin?	◯ Yes ◯ No
How do you self-identify your race?	◯ African American/ Black ◯ American Indian/ Alaska Native ◯ Asian ◯ Native Hawaiian or Pacific Islander ◯ White ◯ Multiracial ◯ Unknown/ Not Reported/ Refused to answer
What is your marital status?	◯ Single (never married) ◯ Married ◯ Domestic Partnership ◯ Divorced ◯ Widowed
Do you have health insurance?	◯ Yes ◯ No

Source: Rhodes LA, Girkin CA, Owsley C. Manual of Procedures, Alabama Screening and Intervention for Glaucoma and Eye Health through Telemedicine (AL-SIGHT), Funded by Centers for Disease Control and Prevention (1U01DP006441), Department of Ophthalmology & Visual Sciences, University of Alabama at Birmingham, Heersink School of Medicine, 2024, Version 1.0.

If yes, which type(s)?

☐ Private insurance ☐ Medicare ☐ Medicaid ☐ Supplemental insurance ☐ Other

Do you have any type of health insurance coverage for eye care or vision?	◯ Yes ◯ No ◯ Not Sure

If our eye doctors recommend you need follow-up eye care, do you have a family, friend, or caregiver that could go with you?

◯ Yes ◯ No ◯ Maybe, Not sure

How did you travel to get here today?	☐ Drove myself ☐ Another person drove me ☐ Bus or other public transportation ☐ Walked ☐ Rode a bike ☐ Taxi ☐ Other:
If other transportation today, please specify	_____
If our eye doctors recommend you need follow-up eye care in Birmingham or Centreville, check all ways you may be able to travel there?	☐ Drive myself ☐ Another person will drive me ☐ Bus or other public transportation ☐ Walk ☐ Ride a bike ☐ Taxi ☐ Other:
If other transportation for follow up, please specify	_____
Employment status: please choose 1 response Are you currently:	◯ Employed full-time for wages ◯ Employed part-time for wages ◯ Self-employed ◯ Unemployed ◯ Retired ◯ Unable to work/disabled ◯ A caregiver/homemaker ◯ A student ◯ Other ◯ Prefer not to answer/don't know
Last level of education completed:	◯ Less than high school ◯ High school of equivalent ◯ Some college or associate's degree ◯ College graduate ◯ Graduate School ◯ PhD or other professional degree (MD, JD, etc) ◯ Prefer not to answer

Now I am going to ask you some questions about cost.	
Is the cost of an eye exam a problem for you?	◯ Not a problem at all ◯ A little bit of a problem ◯ Somewhat of a problem ◯ A big problem
Is the cost of buying eyeglasses a problem for you?	◯ Not a problem at all ◯ A little bit of a problem ◯ Somewhat of a problem ◯ A big problem
If the doctor prescribed eye drops for you in order to treat an eye problem you have, would the cost of prescription eye drops be a problem for you?	◯ Not a problem at all ◯ A little bit of a problem ◯ Somewhat of a problem ◯ A big problem

EDUCATION Questions	
1. It is important to go to the eye doctor at least once every two years.	◯ Strongly agree ◯ Somewhat agree ◯ Somewhat disagree ◯ Strongly disagree
2. A person can have glaucoma and not know it.	◯ True ◯ False ◯ Not sure
3. Glaucoma can be controlled.	◯ True ◯ False ◯ Not sure
4. Vision loss from glaucoma can be restored.	◯ True ◯ False ◯ Not sure
5. A complete glaucoma exam consists only of measuring eye pressure.	◯ True ◯ False ◯ Not sure
6. People at risk for glaucoma should have an eye examination through dilated pupils.	◯ True ◯ False ◯ Not sure
7. There is no need to go to the eye doctor if you are not having a problem with your eyes.	◯ Strongly agree ◯ Somewhat agree ◯ Somewhat disagree ◯ Strongly disagree
END TIME of Baseline Intake and Education	_____
Warning: It has been over 30 minutes since the start time. Please check the start time and end time on this form.	◯ Yes ◯ No (The time period is over 30 minutes.)

Medical and Ocular History

Record ID	_____
START TIME Ocular and Medical History	_____
Subject Name/Initials:	_____
Study ID	_____ (Study ID= CDC + Initials + Record ID)
Date Medical and Ocular History	_____
Medical and ocular history completed by	◯ UAB team ◯ Self-Administered
Form completed by (Name/#)	_____

MEDICAL HISTORY

Have you been diagnosed with any of the following medical conditions?

☐ None ☐ Diabetes ☐ High blood pressure ☐ Heart problems/arrhythmia ☐ Cancer
☐ Asthma, COPD/emphysema ☐ Insomnia ☐ Cognitive impairment ☐ Depression
☐ Arthritis or osteoporosis ☐ Hearing problems ☐ Foot problems ☐ Incontinence ☐ Other medical problems

If you have diabetes, do you know your last A1C level?	◯ Yes ◯ No
Diabetes (1=Yes, 0=No)	_____
If you have diabetes and know your last A1C level, what was your last A1C level?	_____
Do you currently smoke cigarettes?	◯ Yes ◯ No
Have you ever smoked a pack a day for more than one year?	◯ Yes ◯ No

OCULAR HISTORY

Have you ever had an eye exam? ◯ Yes ◯ No

If you have seen an eye care provider, we would be happy to send your vision screening results to this eye care provider. Would you like us to send your vision screening results to this eye care provider?"

◯ Yes ◯ No

Eye Care Provider
Name, Address
Telephone _____

Do you wear prescription eye glasses? ◯ Yes ◯ No

If YES, how old are your prescription eye glasses?

◯ Less than 1 year ◯ Less than 2 years ◯ More than 2 years ◯ Can't remember

When was the last time you saw any eye care provider to check your vision and glasses prescription?

◯ This year ◯ Within two years ◯ More than 2 years ◯ Can't remember ◯ Never had an eye exam

When was the last time you had an eye exam by any eye care provider where your eyes were dilated?

◯ This year ◯ Within two years ◯ More than 2 years ◯ Can't remember ◯ Never had an eye exam

What is the main reason you have not visited an eye care professional in the past 2 years? (1 response)

◯ Cost of eye exam
◯ Do not have vision insurance
◯ Do not have/know an eye doctor
◯ Cannot get to the office/clinic (too far away, no transportation)
◯ Could not get an appointment
◯ No reason to go (no problem)
◯ Have not thought of it
◯ Other

Do you have any of the following eye conditions?

☐ None
☐ Need Eye Glasses (Refractive error)
☐ Dry Eye
☐ Blurry Vision
☐ Double vision
☐ Cataract
☐ High Eye Pressure
☐ Glaucoma or Glaucoma Suspect
☐ Diabetic Retinopathy (diabetic eye disease)
☐ Macular Degeneration
☐ Floaters
☐ Narrow Angle
☐ Ocular Tumor or Melanoma
☐ Other

If you are using any medications for your eyes, please list the medications and describe how often your take them? _____

Source: Rhodes LA, Girkin CA, Owsley C. Manual of Procedures, Alabama Screening and Intervention for Glaucoma and Eye Health through Telemedicine (AL-SIGHT), Funded by Centers for Disease Control and Prevention (1U01DP006441), Department of Ophthalmology & Visual Sciences, University of Alabama at Birmingham, Heersink School of Medicine, 2024, Version 1.0.

If you have ever had eye surgery or laser treatment related to any eye condition, please describe.	_____
Does anyone in your family have glaucoma?	◯ Yes ◯ No ◯ Maybe, Not sure
If YES, who has glaucoma (relationship)?	☐ Mother ☐ Father ☐ Sister ☐ Brother ☐ Daughter ☐ Son ☐ Grandmother ☐ Grandfather ☐ Other
Does anyone in your family have a history of blindness?	◯ Yes ◯ No ◯ Maybe, Not sure
If YES, who has a history of blindness (relationship)?	☐ Mother ☐ Father ☐ Sister ☐ Brother ☐ Daughter ☐ Son ☐ Grandmother ☐ Grandfather ☐ Other
END TIME for Ocular and Medical History	_____
Warning: It has been over 30 minutes since the start time. Please check the start time and end time on this form.	◯ Yes ◯ No (The time period is over 30 minutes.)

Source: Rhodes LA, Girkin CA, Owsley C. Manual of Procedures, Alabama Screening and Intervention for Glaucoma and Eye Health through Telemedicine (AL-SIGHT), Funded by Centers for Disease Control and Prevention (1U01DP006441), Department of Ophthalmology & Visual Sciences, University of Alabama at Birmingham, Heersink School of Medicine, 2024, Version 1.0.

Vision Screening Snellen And IOP Results

Record ID

_____

Start Time Visual Acuity

_____
(Time CIRCLE am / pm)

Subject ID

_____
(Study ID= CDC + Initials + Record ID)

Visual Acuity and IOP completed by ◯ UAB team ◯ Self-Administered

Visual Acuity and IOP completed by (Name/#)

_____

Visual Acuity (Snellen Results): Look at the Medical and Ocular History to determine if the subject wears prescription eye glasses. Ask them towear their glasses when checking vision.

If the subject wears glasses, are they wearing them today for the visual acuity test?

◯ Yes (With Correction) ◯ No (W/O Correction)

Visual Acuity Right Eye

◯ 20/20 ◯ 20/25 ◯ 20/30 ◯ 20/40 ◯ 20/50 ◯ 20/60 ◯ 20/70 ◯ 20/80 ◯ 20/100
◯ 20/200 ◯ CF ◯ HM ◯ LP ◯ NLP ◯ 20/400 ◯ Prosthesis

Visual Acuity Left Eye

◯ 20/20 ◯ 20/25 ◯ 20/30 ◯ 20/40 ◯ 20/50 ◯ 20/60 ◯ 20/70 ◯ 20/80 ◯ 20/100
◯ 20/200 ◯ CF ◯ HM ◯ LP ◯ NLP ◯ 20/400 ◯ Prosthesis

Does the subject use any low vision aids for reading, using the computer, or telephone? Read the following choices.

☐ Magnifying glass for reading
☐ Large font on the computer screen
☐ Large letters on the telephone
☐ Bright lighting at home
☐ White cane for walking outside
☐ Audio settings on computer or phone
☐ Other

Is the subject legally blind and requires referral for low vision services?

◯ Yes ◯ No

End Time for Visual Acuity

_____
(Time CIRCLE am / pm)

Warning: It has been over 30 minutes since the start time. Please check the start time and end time of visual acuity.

◯ Yes ◯ No
(The time period is over 30 minutes.)

Source: Rhodes LA, Girkin CA, Owsley C. Manual of Procedures, Alabama Screening and Intervention for Glaucoma and Eye Health through Telemedicine (AL-SIGHT), Funded by Centers for Disease Control and Prevention (1U01DP006441), Department of Ophthalmology & Visual Sciences, University of Alabama at Birmingham, Heersink School of Medicine, 2024, Version 1.0.

Autorefraction Results	
Autorefraction OD	_____
Autorefraction OS	_____

Eye Pressure (IOP) Using I-Care Tomometer	
Start Time Eye Pressure (IOP)	_____ (Time CIRCLE am / pm)

Intraocular Pressure (IOP)		
	Right Eye (OD)	Left Eye (OS)
IOP measurement 1	☐	☐
IOP measurement 2	☐	☐
IOP measurement 3	☐	☐

IOP Measurement (OD- right eye)	_____ (range 1-60 mmHg)
IOP Measurement (OS-left eye)	_____ (range 1-60 mmHg)
Since IOPs in First Reading >21, Measure Again	
IOP (OD-right eye): 2ND Reading	_____ (2nd Reading Range 1-60 mmHg)
IOP (OS-left eye): 2ND Reading	_____ (2nd Reading Range 1-60 mmHg)
The IOP Readings in 1ST and 2ND Time Differ More Than 2, Need 3RD Reading	
IOP (OD-right eye) : 3RD Reading	_____ (3RD Reading Range 1-60 mmHg)
IOP (OS-left eye): 3RD Reading	_____ (3RD Reading Range 1-60 mmHg)
Final IOP (OD-right eye) Reading: If IOP(OD) were measured 3 times, use middle value; If measured twice, use mean (average) value.	_____
Final IOP (OS-left eye) Reading: If IOP(OS) were measured 3 times, use median; If measured twice, use mean value	_____

IOP greater than 30, subject requires FAST TRACK

◯ Yes ◯ No

FAST TRACK RECOMMENDATIONS

◯ FAST TRACK- Schedule with eye care provider within 1 Day (IOP>40)
◯ FAST TRACK- Schedule with eye care provider within 1 Week (IOP>35)
◯ FAST TRACK- Schedule with an eye care provider within 2 Weeks (IOP>30)

When is FAST TRACK subject scheduled for eye exam?

_____
(Date and Time)

Where is FAST TRACK subject scheduled for eye exam?
(Date and Time)

☐ UAB Department of Ophthalmology
☐ UAB Lions Eye Clinic
☐ David Allgood, OD Centreville
☐ Own eye care provider (get record release)

End Time for IOP

_____

Warning: It has been over 30 minutes since the start time. Please check the start time and end time of IOP.

◯ Yes ◯ No
(The time period is over 30 minutes.)

Vision Screening Failure

Did subject meet any of the below criteria (Check all that apply):

☐ 20/40 or worse in either eye
☐ IOP > OR equal to 23 mmHg

Name of referral doctor or practice

_____

Nei Vision Function Quesionnaire9

Record ID	_____
START TIME NEI VFQ-9	_____
Subject Name/Initials:	_____
Study ID	_____ (Study ID= CDC + Initials + Record ID)
Date NEI-VFQ	_____
NEI VFQ-9 completed by	◯ UAB team ◯ Self-Administered
NEI-VFQ-9 completed by (Name/ #)	_____

1. GENERAL VISION: At the present time, would you say your eyesight using both eyes (with glasses or contact lenses, if you wear them) is:

◯ Excellent ◯ Good ◯ Fair ◯ Poor ◯ Very poor ◯ Completely blind

2. WELL-BEING/ MENTAL HEALTH: How much of the time do you worry about your eyesight?

◯ None of the time
◯ A little of the time
◯ Some of the time
◯ Most of the time
◯ All of the time

3. NEAR VISION, READING NORMAL NEWSPRINT: How much difficulty do you have reading ordinary print in newspapers? Would you say you have:

◯ No difficulty at all
◯ A little difficulty
◯ Moderate difficulty
◯ Extreme difficulty
◯ Stopped doing this because of you eyesight
◯ Stopped doing this for other reason or not interested in doing this

4. NEAR VISION, SEEING WELL UP CLOSE: How much difficulty do you have doing work or hobbies that require you to see well up close, such as cooking, sewing, fixing things around the house, or using hand tools? Would you say:

◯ No difficulty at all
◯ A little difficulty
◯ Moderate difficulty
◯ Extreme difficulty
◯ Stopped doing this because of your eyesight
◯ Stopped doing this for other reasons or not interested in doing this