

KEEPING OLDER ADULT DRIVERS SAFE: AN INITIATIVE TO INCREASE SAFETY  
SCREENING IN PRIMARY CARE

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A Project Report Submitted to  
the Faculty of The School of Nursing at  
The University of North Carolina at Greensboro  
in Partial Fulfillment  
of the Requirements for the  
Doctorate in Nursing Practice

Greensboro  
2023

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## Table of Contents

Dedication and Acknowledgements.....	4
Abstract.....	5
Introduction.....	7
Background and Significance.....	7
Purpose.....	9
Review of Current Evidence.....	9
Importance of Driving to Older Adults.....	10
Risk Factors Affecting Senior Driving Ability.....	11
Impact of Driving Cessation for Older Adults.....	12
Evaluating and Advising in the Primary Care Setting.....	13
History of Screening the Older Adult Driver.....	14
Early Screening Benefits.....	14
Areas For Future Research.....	15
Conceptual Framework/Theoretical Model.....	16
Methods.....	17
Translational Framework.....	17
Population.....	19
Setting.....	19
Project Implementation.....	19
IRB Approval.....	20
Results.....	20
Data Analysis.....	20
Screening Data.....	20
Provider Data.....	21
Barriers to Success.....	22
Overcoming Barriers.....	23
Discussion.....	23
Interpretation.....	24
Conceptual and Translational Framework.....	25
Limitations.....	26

Recommendations For Future Study.....	26
Implications for Future Practice.....	28
Conclusion.....	28
Appendix A: Driving Safety Screening Tool.....	35
Appendix B: Pre Project-Implementation Provider Survey.....	36
Appendix C: Post Project-Implementation Provider Survey/Tool Evaluation.....	37

### **Dedication and Acknowledgements**

To my entire family who provided endless support and encouragement throughout this journey. And especially to my wonderful husband, Keith, for being my constant champion, and my daughters, Cecilia and Sophia, for being my loudest cheerleaders and a constant source of love and praise. I would not be here without you.

I want to acknowledge Dr. Rebecca Kalinoski, my faculty mentor, for believing this project would be a success and helping me see it through. Thank you to Dr. Carolyn Hoskins and Dr. Kathryn Lawrence for always being ready with a smile and word of encouragement. And finally, thank you to Dr. Autumn Henson for continually telling me to breathe and giving me the mantra, “You got this!”

## Abstract

**Background:** With the growing older adult population, and increased prevalence of driving longer, safety is an important consideration. Changes commonly experienced by seniors impact driving ability and the economic burden is great. Older adult drivers are more likely to sustain serious injuries when involved in motor vehicle collisions. Primary care providers face several barriers preventing consistent safety screening of licensed older adults.

**Purpose:** The purpose of this quality improvement initiative is to increase safety screenings by primary care providers of senior drivers in an outpatient setting. The project aimed to increase primary care providers' knowledge of older adult safe driving screenings with use of an efficient tool.

**Methods:** Implementation of the project took place over two months. The data collection included the number of completed screening tools compared to the number of patients over age 65 seen in the practice during implementation. Pre- and post-implementation surveys were administered to three providers.

**Results:** Thirty-five of 408 patients completed the safety screening tool. Providers expressed a favorable opinion of the tool with an average rating of 4.05 out of 5. There was a slight increase in discussions about driving safety.

**Conclusion and Recommendations:** Assessment, with the incorporation of provider education, acknowledging the barriers, and a driving safety screening tool, increased the early identification of older adults with safety concerns. An early driving screening process opens the line of communication for primary care providers to prepare older adults for driving retirement. Continued use of the screening tool in a larger practice can determine efficacy.

**Keywords:** safety screening in elderly drivers; elderly, aged, geriatric driving; fitness to drive in the elderly; driving cessation impact on the elderly; physician attitudes and elderly drivers; screening elderly drivers in primary care.

## **Introduction**

People are living longer, and the population of individuals over the age of 65 is growing. Nearly 17% of the United States population in 2019 was over the age of 65 (Statista, 2020b). As the aging population continues to drive, the question of safety needs to be further explored. Primary care providers are in a unique position to evaluate the safety of older adult drivers and provide subsequent recommendations to keep this population safely independent for as long as possible.

## **Background and Significance**

As of 2019, individuals aged 65 and older make up over 20% of the 229 million licensed drivers in the United States (Statista, 2020a). In 2019, the National Highway Traffic Safety Administration (2021) reported over six million motor vehicle collisions in the United States with just over 36,000 resultant fatalities, 20% of which involved drivers over the age of 65. In North Carolina, roughly 27% of accidents in 2019 involved drivers over the age of 60 (North Carolina Department of Transportation, 2020). Of the greater than 75,000 motor vehicle crashes in NC involving senior drivers approximately 23,000 resulted in injury and 433 in fatalities (North Carolina Department of Transportation, 2020).

Driving is a rite of passage that represents independence at any age. For the older adult, driving embodies independence and allows for a place within the community. Further, independent transportation represents the ability to continue to work or participate in activities outside of the home (Pomidor, 2019). Changes in health can impact driving safety. Diminishing reflexes, vision and hearing impairment, and polypharmacy are some of the factors contributing to the questionable safety of older adult drivers. The Centers for Disease Control and Prevention (CDC) reports 4 out of 5 senior drivers take more than one medication that can negatively impact

safety while operating a motor vehicle (2020). Each state has varying rules to determine fitness to drive. According to the Insurance Institute for Highway Safety (2022), out of the 50 United States and Washington, DC, 18 states have shorter renewal requirements for drivers over age 65. Seven states do not require verification of acceptable visual acuity at the time of renewal (Insurance Institute for Highway Safety, 2022).

Economic cost is another factor that contributes to the concern for senior driver safety. Motor vehicle accidents impact the economy through lost earnings, healthcare expenditures, organizational costs, auto damage, and employer costs (The National Safety Council, 2021). The Association for Safe International Road Travel (2021) estimates the medical expenses incurred from motor vehicle accidents in the United States at greater than \$380 million. Senior drivers are more susceptible to sustaining serious injury in a motor vehicle accident compared to their younger counterparts (The Centers for Disease Control and Prevention, 2020).

While older adult drivers may change driving patterns and behaviors to increase safety on their own, that may not be adequate in determining fitness to drive (Millevill-Pennel & Marquez, 2020). Primary care providers can be the first line in safety screening despite barriers such as time constraints, decreased knowledge of the correct billing codes to use, and lack of a screening tool that can make the process easier to accomplish. The healthcare system is further burdened by state laws and policies that may not be entirely clear and easy to decipher (Pomidor, 2019). Providers must be familiar with laws and regulations outlined by the state that influence screening and reporting. While many states may have reduced renewal intervals in place for seniors, the majority of states do not require written experience testing or vision testing at in-person license renewal appointments (Shen et al., 2020).



The American Geriatrics Society (AGS) in conjunction with the U.S. Department of Transportation's National Highway Traffic Safety Administration created a guide to assist providers in evaluating older adult drivers. Included in the guide is the Plan for Older Drivers' Safety (PODS) algorithm that can offer guidance to providers (Pomidor, 2019). The algorithm leads the provider through an in-depth evaluation in areas such as visual acuity, cognition, and functional ability and makes subsequent recommendations for driving restrictions, rehabilitation, or behind the wheel testing. However, this type of evaluation typically occurs outside of routine visits, which begs the question, "Who requires further evaluation?" Currently, no unified guidelines or screening tool exists to direct medical providers in safety screening licensed drivers (Hill et al., 2019). Often screening and subsequent recommendations for behind the wheel testing or driving rehabilitation occur after a worrisome incident with the driver or when a family member expresses a concern. The responsibility of safe and independent mobility in the older adult population falls to healthcare providers.

### **Purpose**

Developing a safety screening tool that is quick and easy to implement during routine primary care exams has the potential to increase safety in older adult licensed drivers. The purpose of this quality improvement initiative is to increase the instances of primary care providers screening for safety in older adult drivers in an outpatient setting. The aim of this project is to increase knowledge of the importance of safety screening senior drivers during primary care visits and provide a tool that can accomplish this quickly and efficiently.

### **Review of Current Evidence**

To determine the body of evidence to support the aim and purpose of the project, the following databases were utilized: Cinahl, PubMed, and Google Scholar. Search terms included:

“Safety screening in elderly drivers” “elderly, aged, geriatric driving” “fitness to drive in the elderly” “driving cessation impact on the elderly” “physician attitudes and elderly drivers” “screening elderly drivers in primary care”. Thirteen articles were utilized meeting the inclusion criteria of: Peer reviewed articles written in English, studies on drivers over the age of 65 years, and studies that included evaluating cognitive and functional ability of elderly drivers. Exclusion criteria included drivers less than age 65, specific disease processes (i.e. stroke or dementia), and articles written before 2016. Articles focused on provider involvement in screening for fitness to drive, aspects of safety screening, evaluating and advising elderly drivers, and driving cessation.

### **Importance of Driving to Older Adults**

Whether it is necessity, independence, or participation in work or community, the aging population continues to drive. Region of residence, such as living in a rural area, plays a significant role in the continuation of driving (Betz et al., 2016b; Strogatz et al., 2019). Nearly 85% of older adult drivers residing in rural areas rated driving as highly crucial (Strogatz et al., 2019). The American Automobile Association (AAA) conducted a study to evaluate environmental, functional, and cognitive factors that impact senior drivers’ decision to continue driving and uncovered that women, unmarried individuals, and those who continued to work placed more importance on driving (Strogatz et al., 2019). Individuals unable to utilize alternative transportation methods, such as public transportation or family/friends, placed more importance on continued driving (Strogatz et al., 2019). Milleville-Pennel & Marquez (2020) determined that many senior drivers have adopted safety tactics to compensate for functional declines. Daytime driving, slower speeds, and sticking to familiar routes are just some of the self-imposed strategies utilized by older drivers to prolong driving activities (Milleville-Pennel & Marquez, 2020). Maintaining the self-sufficiency driving allows is an important premise

throughout life. As life expectancy increases more senior drivers will remain on the road, making safety a valuable topic to study.

### **Risk Factors Affecting Senior Driving Ability**

There are aspects of the natural aging process that expose aging drivers to hazards that may impact the ability to continue driving. Vision, physical function, and cognition are the main components evaluated when determining driving ability. The majority of states in the US require a minimum of 20/40 visual acuity to hold an unhindered license (Hill et al., 2019). Previous studies have highlighted the importance of cognitive functioning including memory, reasoning, decision-making, reaction time, and self-awareness as it relates to safe driving ability (Hill et al., 2019; Urlings et al., 2017). When evaluating automobile accident risk contributors, it was found that drowsiness and reduced capacity to focus were prevalent (Alkharboush et al., 2017).

Ailments that affect vision, syncopal events, and seizure history are recognized as high-risk conditions related to traffic crashes (Alkharboush et al., 2017). Three hundred and thirty seven out of 2990 participants from the AAA LongROAD study admitted to altering driving habits secondary to medical illnesses (Kandasamy et al., 2018). Conditions affecting the joints and skeletal surgeries resulted in the highest self-imposed driving reduction followed by neurological diagnoses, vision concerns, and cancers (Kandasamy et al., 2018). The use of medications in older adults is a widely studied topic. Hill et al. (2019) found that certain classes of drugs could potentially impact the mental or physical performance needed to drive such as “anticholinergics/antimuscarinics, anticonvulsants, antidepressants, antiemetics, antihistamines, antihypertensives, antiparkinsonian agents, antipsychotics, hypoglycemics, sedative hypnotics such as benzodiazepines, muscle relaxants, opioids, and stimulants” (p. 1585). When considering risk factors, shared decision making becomes vital to get a true understanding of how

transitioning from driver to nondriver will affect the individual.

### **Impact of Driving Cessation for Older Adults**

Determining when to stop driving has far reaching implications not just for the driver but for close family and friends. Strogatz et al. (2020) found senior drivers responsible for transporting another individual regarded driving cessation as more impactful. Loss of independence, community exclusion, and becoming a burden on loved ones are just some of the concerns when faced with driving retirement. A study with community dwelling Japanese older adults found a high occurrence of frailty in once non-frail individuals within four years of driving cessation when compared to those who continued to drive (Ishii et al., 2021). A significant incidence of depression was found among nondrivers in Australia (Challands et al., 2017). It was found that online social interactions resulted in less depressive symptoms among elder individuals no longer driving thus highlighting the importance of socialization among older adults (Challands et al., 2017). Analysis of the National Health and Aging Trends Study (NHATS) participants found that 35% of the individuals who considered themselves socially isolated had not driven in the last year (Qin et al, 2019). Schryer et al. (2017) conducted a study over two years that determined a lower quality of life experienced by individuals who relied on family and friends for transportation. Further, social partners of individuals who stopped driving also experienced a decreased quality of life (Schryer et al., 2017). Clinical researchers studying driving cessation found that capitalizing on time periods when ceasing to drive is temporary may open discussions regarding permanent driving retirement and buffer the shift to that phase of life (Liddle et al., 2016). The provider-patient relationship lends itself to a positive way to ease the transition from driver to ex-driver.

### **Evaluating and Advising in the Primary Care Setting**

Primary care providers have an opportunity to open communication regarding driving safety by utilizing a screening process that leads to conversations about driving decisions. A study conducted through a documentation audit of 240 adult patients over the age of 65 determined that less than 25% participated in conversations about driving with providers over a one-year period (Betz et al., 2016b). A potential explanation for this may come down to who the provider feels bears the responsibility. Alkharboush et al. (2017) determined that primary care providers in Saudi Arabia felt driving agencies should carry the burden of establishing driving fitness. Providers and patients were found to have a positive view of implementing safe driving screening during primary care visits, however many providers, particularly in bucolic areas, reported hesitation secondary to impeding the patient's self-reliance (Betz et al., 2016a; Huseth-Zosel et al., 2016). Further, older drivers expressed concern over having their privilege to drive revoked if they reported problems with driving (Liddle et al., 2017). It was found that specific health ailments were the most common reason to discuss driving (Betz et al., 2016b). A strong provider-patient relationship can contribute to early driving safety screening to improve outcomes such as delaying driving retirement, referring to driving rehabilitation for further assessment and potential modifications to continue driving, and allowing the senior driver time to develop a strategy for driving cessation (Betz et al., 2016b; Hill et al., 2019). However, there are concerns amongst patients and providers alike that having these conversations can result in senior drivers losing their license (Betz et al., 2016a). Other impediments to screening faced by providers include absence of universal screening tool, time constraints, patient's refusal to discuss the topic, and lack of provider familiarity on how to evaluate driving ability and what local services are available to assist senior drivers (Betz et al., 2016a; Hill et al., 2019). While many primary care providers acknowledge the importance of screening older adult drivers, the

barriers often seem insurmountable.

### **History of Screening the Older Adult Driver**

Over the years, numerous outpatient screening tools have been introduced to provide preliminary assessment of driving ability for individuals over age 65. Many of the screening tools were developed as a way of determining if a behind the wheel test was required. However, none of these screening tools have been validated for general use in primary care. While there are functional and cognitive tests that potentially determine driving fitness, many are time consuming or not conducive to the primary care setting. In a study of older drivers, the self-assessment CRASH survey was unable to accurately calculate the need for behind the wheel testing (Betz et al., 2017). A study conducted with focus groups of primary providers and senior drivers found support among both groups for performing routine screening in the primary care setting that could result in a referral for more in-depth driving evaluation (Betz et al., 2016a). This tiered screening approach was proposed as potentially becoming a routine part of a primary care visit (Betz et al., 2016a). Despite acknowledgement of the importance of driving safety in senior licensed drivers, no practice standards currently exist to guide providers in the screening process.

### **Early Screening Benefits**

The literature shows that routine conversations about driving abilities and concerns smooths the transition to driving adaptations and driving retirement. Screening early has the potential to embolden the senior driving through mutual judgment and developing a feasible plan for the future (Hill et al., 2019). While screening has more of a generalized approach, physicians and patients agree if practiced routinely the conversation can become more individualized with recommendations developed through shared decision making (Betz et al., 2016a). Further, early

screening may not equate to driving cessation but rather prolonging independent driving through adaptive devices and behaviors (Hill et al., 2019). Screening may result in further functional testing by the primary care provider, recommendations for behind the wheel testing, or referral to driving rehabilitation specialist for further driving evaluation (Betz et al., 2016a; Hill et al., 2019; Kandasamy et al., 2018). Discussing the results of the early screening may also increase self-awareness in the driver of medical conditions, medications, and functional decline that impact driving allowing the driver to self-regulate driving times or conditions to increase safety. The need for individualized early conversations regarding driving that include a plan for the potential need for decreasing and forgoing driving make primary care visits the ideal setting.

### **Areas For Future Research**

The literature supports many avenues of future research that can assist primary care providers in screening older adult drivers for safety. Current studies reflect the need for further research into provider education to increase comfort and improve incidents of screening. Research can focus on various approaches to screening that considers diversified providers (Betz et al., 2016b). However, a systemized screening tool and subsequent recommendations algorithm may also improve the provider's ability to assess senior drivers more frequently (Betz et al., 2016a). Current literature calls for further investigation into the benefits of recognizing comorbidities and conditions that potentially impact driving in the older adult and addresses the minute changes early to maintain mobility longer (Betz et al., 2016A; Ishii et al., 2021; Kandasamy et al, 2018; Urlings et al., 2018). Additionally, scrutiny into community resources for transportation options may enhance provider comfort in suggesting driving retirement, increase the older adult's willingness to agree to driving cessation, and show a decline in feelings of seclusion (Betz et al., 2016A; Qin et al., 2020; Schryer et al., 2017). Further research is

important to increase the breadth of evidence to guide providers in screening older adult drivers.

### **Conceptual Framework/Theoretical Model**

The conceptual framework chosen for this project is Kurt Lewin's Change Model. The three-step model of unfreeze, change, and refreeze has been proven to lead to effective and enduring organizational change (Crosby, 2020). This framework supports determining that a change needs to be made to the current process, implementing the change, and moving into the realm of the new process becoming the norm. Buy-in for the change with key stakeholders is paramount for the transformation to be successful and lasting.

For this project, step one looked at the current process for safety screening older adult drivers in the primary care setting. It was found that this was not being done frequently or with any consistency. Barriers were discussed and key stakeholders were interviewed as to the changes they would like to see in current practice. It was determined that no procedure for screening existed, therefore it was not being performed. The unfreeze process involved acknowledging the need for a better screening method and the desire from stakeholders to implement a process.

Step two of Lewin's Change Model involves implementing the change. This transition period will take place for two months to establish if outcomes improve. An educational session will be held to introduce the safety screening tool and answer questions. Planned meetings will be held at key periods throughout the transition to address implementation obstacles and concerns.

Step three is the re-freezing phase of Lewin's model. The goal of this project is to provide a process that can be incorporated as a routine part of the primary care visit of the older adult patient. This can only occur after proof that procedures are not only easy but effective in



improving patient outcomes. Debriefing at the end of the transition period occurred to determine best practice moving forward.

### **Methods**

Research indicates drivers over the age of 65 will continue to increase as the older adult population grows. Senior licensed drivers delay driving retirement to continue as a self-sufficient community participant despite risk factors of polypharmacy, cognitive declines, and functional limitations. Primary care providers are continuously faced with redefining the needs of this vulnerable population during routine care visits. The lack of guidelines and a standardized initial screening tool are significant barriers to establishing the level of safety for individuals continuing to drive. The purpose of this quality improvement project is to increase the instances of screening for safety in senior drivers in the outpatient setting. The aim of this project is to increase knowledge of the importance of routine safety screening by providing a tool that can accomplish this quickly and efficiently.

### **Translational Framework**

This quality improvement project was guided by W. Edwards Deming's Plan Do Study Act (PDSA) Model. The PDSA Model is constructed as a cycle to constantly build knowledge and perfect a procedure or approach (Crowfoot & Prasad, 2017). The PDSA cycle was further enhanced by considering the questions posed by Langley et al. (2009) in the Model for Improvement: "What are we trying to accomplish? How will we know that a change is an improvement? What changes can we make that will result in improvement?". The four steps of the PDSA cycle are meant to organize a structured framework, after the need for change is identified, to: Outline goals and stakeholders for the project as well as create result hypotheses; implement the procedural changes and document barriers, achievements, and failures of the

process; analyze the outcomes of the change; and determine if the change can become a permanent process (Christoff, 2018).

In answering the questions of The Model for Improvement as it applies to senior licensed drivers, this project aims to increase screening of drivers 65 and older in the outpatient primary care setting by supplying a quick screening tool to primary care providers that can be adopted as part of the routine care of this population. Exhaustive research of the current evidence contributed to establishing the improvement project by identifying the lack of current safety screening occurring in the primary care setting. For the plan phase, informal conversations took place with primary care providers regarding safety screening of senior drivers. It was determined that secondary to the main barriers of lack of universal guidelines and time constraints, screening was only taking place with specific medical diagnoses or when family asked for the provider to intervene. Further, current literature was studied to corroborate informal discussions. In addressing the “do” phase of the cycle, a quick screening tool was developed to be used during the routine office visit of an individual over the age of 65 and still operating a motor vehicle (See Appendix A). Information packets were collated for participants to provide DMV forms for behind the wheel testing, current procedural terminology (CPT) code information for billing, and references for driving rehabilitation. Implementation was kicked off with a provider meeting to review the packet and screening tool as well as discuss the target population. A Likert-scale survey was conducted to determine provider feelings about safety screening and the project (See Appendix B). During the study phase, two visits occurred at the site to check in, replenish screening supplies and DMV forms, address potential issues, and answer questions. A second Likert-scale survey was provided to determine feelings post-intervention as well as a survey to evaluate the screening tool (See Appendix C). During the final “act” phase of the cycle, a

meeting was held with the provider participants to go over Likert-scale surveys and discuss the frequency of screening utilization throughout the two-month project period.

### **Population**

The study population included three providers in a primary care office who volunteered to participate. The providers administered the screening tool to any patient over the age of 65 who operate a motor vehicle seen between August 2022 and October 2022. Individuals younger than 65, those within the age group who do not drive, and those with specific disease processes such as stroke or dementia were excluded from participation. No demographic information of the providers or screened patients was collected.

### **Setting**

The project took place at an outpatient family medicine practice in North Carolina. The practice is an affiliate of the local hospital run by a large medical organization with multiple locations throughout North Carolina. There are three primary providers seeing patients of all ages. Of the 80,652 residents in the county 20.4% are over the age of 65 (United States Census Bureau, 2021; United States Census Bureau, n.d.).

### **Project Implementation**

Prior to starting the project, a 5-point Likert scale questionnaire was distributed to the providers to survey current driver safety screening practices. Screening tools were printed and placed in each exam room for easy access. Providers were equipped with packets containing DMV forms for on-the-road testing recommendations, resources for driving rehabilitation specialists, and CPT codes to assist with billing. A brief in-service was conducted for the providers to go over the screening tool and packet prior to implementing the project. The screening tool was implemented from August 2022 through October 2022. At the end of the

project, the number of patients over the age of 65 seen at the practice was compared to the number of patients screened. The same 5-point Likert scale questionnaire given to the providers pre-implementation was given again to determine if attitudes about safety screening senior drivers changed. Providers also received a 5-point Likert scale survey to rate the screening tool.

### **IRB Approval**

The project proposal was approved by UNCG IRB in April 2022 and by UNC IRB in June 2022. Provider and patient privacy was protected throughout the project. Demographic information for individuals undergoing screening was not collected. The completed screening tools did not include the name of the patient or provider. Provider Likert scale surveys pre- and post-implementation were completed anonymously.

## **Results**

### **Data Analysis**

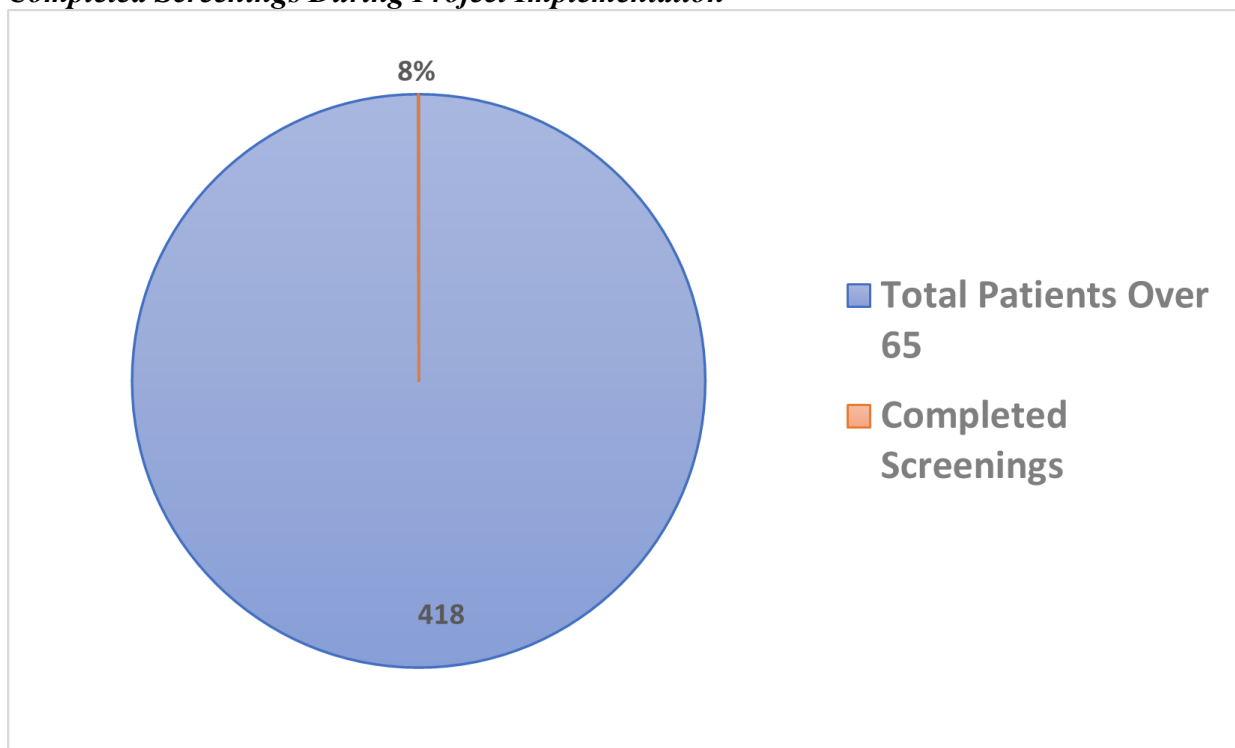
Using descriptive statistics, the collected data was analyzed with two methods. The total number of patients over the age of 65 seen during the implementation period was used to calculate the percentage screened. Provider attitudes regarding safety screening senior drivers based on a Likert scale survey pre and post implementation was also analyzed.

### **Screening Data**

Three providers in a family medical practice administered the driving safety screen to patients over the age of 65. Thirty-five patients completed the 15-question screening tool out of the 418 total patients aged 65 and older seen between August 30, 2022 and October 31, 2022. While providers discussed driving occasionally with senior drivers, no official screening was taking place within the family practice prior to project implementation. The percentage of screening that took place amongst the senior patients seen in the practice over a two-month

period is represented in Figure A.

**Figure A**  
***Completed Screenings During Project Implementation***

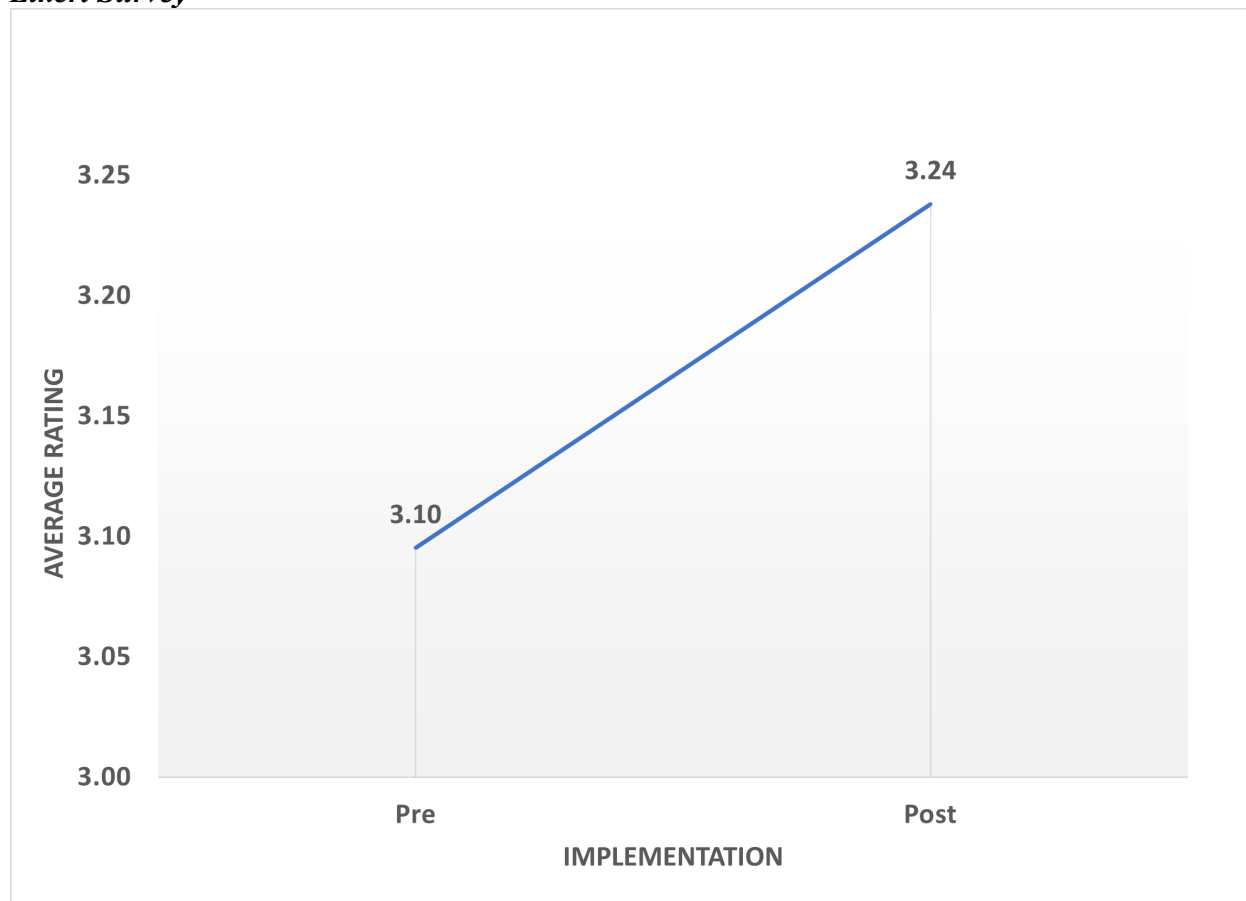


Note: Figure A depicts the percentage of screenings completed by the total number of patients, 65 and older, seen in the practice between August 30, 2022 and October 31, 2022.

### **Provider Data**

Three providers in an outpatient family medical practice volunteered to screen for driving safety any willing patient over the age of 65 utilizing a provided screening tool. Prior to project implementation, the providers completed a seven question 5-point Likert scale survey to determine frequency of discussions and safety screening of older adult drivers. The providers were administered the same Likert scale survey at the conclusion of the project. The average rating of the surveys was analyzed and showed a slight increase in screening and discussions (Figure B). Providers expressed a favorable opinion of the supplied screening tool based on a 5-point Likert scale survey post implementation with an average rating for the tool of 4.05.

**Figure B**  
*Provider Driven Safety Screening and Discussions Pre- and Post-Implementation Likert Survey*



Note: This figure demonstrates provider attitudes about screening and discussing driving safety based on surveys.

### **Barriers to Success**

The number of completed screenings proved to be a barrier to proving statistical significance. Three out of four providers participated in screening, which potentially decreased the number of administered screenings. Provider hesitancy to screen may have contributed to the limited number of screenings performed during the implementation phase. The small size of the

practice can also be seen as a barrier to statistically significant results.

### **Overcoming Barriers**

A second stakeholder meeting was held to appeal to providers to increase the incidence of screening. Certified medical assistants were included in the meeting to create buy in to encourage implementing the screening based on the age of the patient. The screening tool was discussed and the importance of opening the door to driving conversations was reiterated. Although there was an increase in screening after the second meeting, barriers were not substantially surmounted.

### **Discussion**

The population of individuals over the age of 65 is growing worldwide increasing the population of older adult drivers. Currently, no standardized guidelines for safety screening of these drivers exist. Screening and counseling for modified driving behavior or recommendations for driving retirement often occurs after a safety incident or worrisome information provided by a family member. The quality improvement project was designed to provide an efficient safety screening tool to increase the occurrence of screening the older adult in the outpatient setting. Results showed that screening was increased with the utilization of the screening tool. Further, information conversations with stakeholders disclosed having the screening tool available made the topic of driving safety easier to broach. Findings from the project showed 8% of the total number of older adult patients (65 and over) seen between three primary care providers were screened with the driving safety tool. The number screened was a smaller amount than anticipated.

Project results were not statistically significant to show if having access to a quick screening tool increased the frequency of safety screening in older adult drivers. Post-

implementation Likert surveys showed a slight increase in provider perceptions on how often safety screening is occurring during routine office visits. All providers informally agreed the availability of the screening tool prompted conversations about driving habits and safety, particularly during annual visits, even if the screening was not filled out. This supports the aim of the project to increase awareness of the importance of evaluating the safety of older adult drivers.

### **Interpretation**

While the results were not statistically significant, the objective of the project to increase provider knowledge and awareness of the value of safety evaluation of the senior driver was met. Despite the limited number of screenings performed in the two-month long project, providers did feel conversations about driving cessation increased. The participating providers expressed many of the apprehensions found in the literature including concerns over obligation to report unsafe driving behaviors, dishonesty in patient provided information, and decreased knowledge of available services to assist older adult drivers. These concerns may account for the limited number of screenings administered. The literature uncovered an overall small number of older adults participate in driving conversations with care providers despite both providers and patients feeling routine driving screenings would be beneficial (Betz et al., 2016a; Betz et al., 2016b, Huseth-Zosel et al., 2016). Discovering functional limitations to driving through screening does not translate to immediate driving cessation but rather an opportunity to refer the individual for driving therapy or driving reeducation with adaptive tools (Hill et al., 2019). Unease was expressed by providers regarding referral to driving rehabilitation and the financial burden that may result for the patient and family. These factors could be related to the small number of screenings performed as well as impacting the lack of national guidelines and standardized screening.



## **Conceptual and Translational Framework**

Lewin's Change Model of unfreeze, change, and refreeze was utilized as the conceptual framework for this project. Key stakeholders were in agreement to unfreeze the current practice of inconsistent screening of older adult drivers for safety and utilize the developed screening tool as a means for process improvement. During the change period, providers in the family medicine practice administered the safety screening tool to drivers over the age of 65. Due to the lack of statistical significance of project, the refreeze phase will not occur as planned. While providers did express satisfaction with the screening tool, and felt driving conversations increased, more information is needed to achieve a permanent change in practice.

The conceptual framework was supported by W. Edward Demming's PDSA Model (Crowfoot & Prasad, 2017). The planning phase successfully uncovered the lack of an efficient screening tool or universal guidelines to determine driving safety based on thorough research of literature and informal conversations with stakeholders. A screening tool was developed and the most useful CPT codes were evaluated. Barriers were acknowledged and addressed during planning. During the Do phase a formal stakeholder in-service introduced the developed screening tool along with valuable information for referring to the DMV, billing through appropriate CPT codes, and driving rehabilitation resources. A Likert scale survey for the providers was completed pre-implementation. Contact was made through a check-in meeting midway through the implementation phase to answer questions and address concerns. During the Act phase, final Likert scale surveys were completed. One provider was available to debrief. The final screenings were collected, and data was analyzed.

## **Limitations**

Limitations to the project were influenced heavily by the already known barriers to screening such as time constraints, lack of provider knowledge of state driving laws, and the absence of guidelines. During stakeholder meetings in the early phases of project planning, providers expressed hesitancy to screen based on full schedules and shortened appointment times. This aligned with concerns found in the literature. The likelihood of driving conversations decreased if imminent factors, such as a recent accident or new diagnosis, were not present (Huseth-Zosel et al., 2016). One provider was concerned about obligations to report and the lack of knowledge in how to do so. Further, all providers expressed skepticism about patient honesty when filling out the screening secondary to fear of losing the ability to drive. An unexpected limitation involved staff shortages lengthening the time for patients to be roomed and ready for the provider. A fourth stakeholder who performs pre-screening for the medical providers during Medicare annual visits opted to not participate in screening, likely resulting in missed opportunities for screening. Lastly, initial project planning involved the desire to analyze CPT billing codes, pre and post implementation, to determine if safety screening contributed to practice revenue. Due to staff shortages and restructuring, the reports were unable to be obtained.

### **Recommendations For Future Study**

Recommendations for the project site include continued utilization of the screening tool. Incorporating the tool into all annual visits of individuals 65 and older can create routine evaluation of driving safety. Further, Medicare assessments performed by the practice social worker can increase the use of safety screening tool as part of the annual wellness visit.

The results of this project can be generalized outside of the primary care setting despite the lack of statistical significance of the project. Utilization of the screening tool opens the door for conversations about driving safety and can result in referral to primary care or occupational

health for further evaluation. The screening tool was specifically designed for the older adult driver, however, administration of the screening to those younger than 65 may still provide insight into driving safety.

There are many avenues of future research related to older adult driving. A possible study geared toward collaboration between primary care providers and driving agencies may result in a more unified and defined model for aging drivers. This type of research study has the potential to address concerns about which agencies and individuals bear the responsibility to keep senior drivers safe (Alkharboush et al., 2017). Additionally, state laws surrounding behind the wheel testing requirements, in association with provider recommendations, may increase screening and delay driving retirement by developing a plan for slow driving cessation (Betz et al., 2016b; Hill et al., 2019).

A longitudinal study would be beneficial in determining if screening on a larger scale over a longer period of time will result in a push for national guidelines and screening tool. Many providers cite decreased knowledge in services that can prolong older adults' ability to drive and lack of a universal screening tool as a barrier to screening (Betz et al., 2016a; Hill et al., 2019). Senior drivers are in support of routine screening with primary providers that results in recommendations for further testing and assessment through outside agencies such as the DMV or occupational therapy (Betz et al., 2016a). Developing a short form screening tool that can be expanded to more screening questions prior to performing time consuming and expensive functional testing may cut costs for the patient and increase reimbursement for the health system. Access to CPT code use for safety screening and counseling over an extended time period can evaluate how screening will impact billing and reimbursement.

### **Implications for Future Practice**

Future medical practice, particularly in primary care, will be impacted by the aging population and the need for seniors to drive at later stages of life. Screening for driving safety as an early intervention in routine annual visits has the potential to result in patient self-monitoring and regulation as well as self-referral for behind the wheel testing (Hill et al., 2019). Focus on developing a plan for eventual driving cessation eases the tension surrounding these talks and promotes shared decision making (Betz et al., 2016a; Hill et al., 2019).

### **Conclusion**

The increasing number of older adult drivers dictates the need for driving safety evaluation. A quick and efficient safety screening tool can contribute to increased discussions regarding driving retirement. The statistical insignificance of the results does not negate the relevance of safety among senior drivers. Participating providers showed an increase in screening and driving discussions with the older adult patient population throughout project implementation. Recommendations for further study may result in the development of a universal screening tool and guidelines to direct primary care providers in how to lead older adults in a smooth transition to driving retirement.

Dissemination of the project was done through poster presentation. Stakeholders were emailed the finalized poster along with communication regarding the results of the project. Recommendations were also suggested through email in how the project can be sustained through continued utilization of the screening tool.

Although lacking statistical significance, a great deal of insight was gained from the project. Driving safety and driving cessation will only grow in importance as the population ages. Early screening is the opening to communication for safe driving practices and preparation for eventual driving retirement.

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### Appendix A: Driving Safety Screening Tool

	Never	Sometimes	Very Often
I have a hard time turning my head to back up			
It is difficult to turn/grip the steering wheel			
I have difficulty pressing the gas pedal or brake			
I do not drive at dusk/nighttime			
I have difficulty reading street signs			
I get surprised by emergency vehicles because I do not hear them			
I get confused or “turned around” while driving			
I do not like music/talking while I drive			
I forget how I arrived at my destination			
I take medications that make me dizzy or sleepy			
I avoid/postpone taking certain daily medications if I plan to drive			
I tend to drive slower than the cars around me			
In the past six months I had an accident/near-accident			
I avoid driving at certain times of day or in certain weather			
My friends/family have asked me to stop driving			

### Appendix B: Pre Project-Implementation Provider Survey

<b>Pre-Implementation Provider Survey</b>					
	<b>Never</b>	<b>Almost Never</b>	<b>Occasionally</b>	<b>Almost Always</b>	<b>Always</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>I screen my patients for driving safety</b>					
<b>I discuss driving safety with my patients based on physical exam findings</b>					
<b>I discuss driving safety with my patient based on a family/friend request</b>					
<b>I advise patients to restrict or stop driving based on physical exam findings</b>					
<b>I have requested a driver reexamination through the DMV based on physical exam findings</b>					
<b>I have referred my patients to driving rehabilitation based on physical exam findings</b>					
<b>I discuss how new medications may impact my patient's ability to drive</b>					

### Appendix C: Post Project-Implementation Provider Survey/Tool Evaluation

<b>Post-Implementation Provider Survey</b>					
	<b>Never</b>	<b>Almost Never</b>	<b>Occasionally</b>	<b>Almost Always</b>	<b>Always</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>I screen my patients for driving safety</b>					
<b>I discuss driving safety with my patients based on physical exam findings</b>					
<b>I discuss driving safety with my patients based on a family/friend request</b>					
<b>I advise patients to restrict or stop driving based on physical exam findings</b>					
<b>I have requested a driver reexamination through the DMV based on physical exam findings</b>					
<b>I have referred my patients to driving rehabilitation based on physical exam findings</b>					
<b>I discuss how new medications may impact my patient's ability to drive</b>					

<b>Driving Safety Screening Tool Survey</b>					
	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neither Agree or Disagree</b>	<b>Agree</b>	<b>Strongly Agree</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>The tool was easy to use</b>					
<b>Patients appeared comfortable answering the screening questions</b>					

<b>The tool was helpful in determining safety concerns</b>					
<b>It was easy to incorporate the tool into a routine office visit</b>					
<b>I am more aware of safety concerns impacting the elderly population since using the tool</b>					
<b>I would like to continue using the tool</b>					