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Telehealth Assessment in the Elderly Using the 4Ms

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PERMISSION

Title: Telehealth Assessment in the Elderly Using the 4Ms

Department: College of Nursing

Degree: Doctor of Nursing Practice

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Name: _____Melissa Koehl_____
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Abstract

The current 2019 novel coronavirus, or COVID-19, has presented new threats and challenges in healthcare, especially when attempting to conduct wellness exams amongst the most vulnerable. Older adults with underlying medical conditions are at great risk for exposure and infection of COVID-19. The Geriatric Workforce Enhancement Program (GWEP) grant was given to the University of North Dakota (UND) to create a geriatric telehealth team and implement a telehealth project, promoting the use of telehealth technologies amongst older adults utilizing the 4Ms (mentation, medication, mobility, and what matters). A modified wellness assessment tool was created and administered through telehealth technology to five older participants. A pre-survey questionnaire was given asking about previous telehealth use and comfort level with technology use. A post-survey questionnaire was given to evaluate the participant's telehealth experience. Forty percent of the participants felt they received the same level-of-care using telehealth as if they had physically gone to their provider's office. Overall, 80% of the five participants felt telehealth would be beneficial to them in the future and 80% would also use it again. The project was successful in promoting telehealth while keeping vulnerable participants safely in their homes, reducing their risk of exposure to COVID-19.

Telehealth Assessment in the Elderly Using the 4Ms

Keeping elderly patients safe and healthy in their home during a time of crisis is what most healthcare providers strive for. It is also important those individuals receive the health services necessary to maintain their health. The need to keep elderly patients safe during the pandemic has been a huge concern as numbers continued to rise. As of March 9, 2021, there have been a total of 29,043,563 cases of COVID-19 within the United States since the beginning of the pandemic (NPR, 2021). Since January 2020, Minnesota has seen 490,483 cases with fewer numbers in North Dakota and South Dakota, 100,419 and 113,596 cases respectfully (NPR, 2021). Thankfully, COVID-19 numbers have been on the decline, especially now with three vaccines readily available to help slow the spread. Since December 14, there have been more than 92 million vaccines given within the United States, vaccinating roughly 18.1% of the population (NPR, 2021).

The Doctor of Nursing Practice (DNP) project focuses on the problem statement: will the promotion of telehealth in conducting assessments for the elderly, in their home versus going to the provider's office, reduce the risk of COVID-19 exposure? Our goal by the end of August 2021 is to promote the use of telehealth technologies to reduce the risk of COVID-19 through increased telehealth technology use.

Telehealth Use

The idea of providing care within an individual's home dates to the earliest of times. Throughout history, healthcare providers have been seeing patients within their homes and providing necessary care. House calls have adapted and changed as technology has progressed.

Telehealth has allowed healthcare providers to continue to see patients safely in their homes, especially now with the current coronavirus pandemic.

Telehealth is the facilitation and delivery of health services through digital and telecommunication technologies. Services include health information services, medical care, health education, and self-care initiatives (NEJM Catalyst, 2018). Telehealth services can be performed through remote patient monitoring, live video streaming, or mobile health apps. Telemedicine may be used interchangeably with telehealth, but telemedicine refers to the medical diagnosis and treatment through technology communication applications (NEJM Catalyst, 2018). Telehealth has further evolved, and use has increased immensely since the coronavirus pandemic started in January 2020. Telehealth use in January through March 2020 increased 154% (CDC, 2020). Restrictions previously placed on telehealth use were lifted and allowed providers to see patients in their living quarters, helping to reduce coronavirus exposure and possible spread.

The 4Ms

The 4Ms are four key concepts presented in an evidenced-based model to identify care gaps in geriatric health. It also provides healthcare providers with care interventions focusing on the 4Ms including what matters, medication, mobility, and mentation (Fulmer et al., 2019). What matters focuses on specific patient's goals and what matters most to them in their lives, whether health related or not. Mobility focuses on the patient's current mobility status and their ability to maintain and or prevent immobility (Fulmer et al., 2019). Medication use should focus on optimal use with reduction in adverse effects; also considering the impact medications may have

on the three other Ms. Mentation involves attention to dementia, delirium, and depression (Fulmer et al., 2019).

Theoretical Framework

Dorothea Orem's Self-Care Deficit Theory presents the idea of recognizing care individuals take to maintain and or improve their health and overall well-being (American Sentinel, 2020). The Self-Care Deficit Nursing Theory has three minor theories integrated into it including the theory of self-care deficit, theory of self-care, and theory of nursing systems (American Nursing History, n.d.).

Orem's Self-Care Deficit Theory has six core concepts and one overviewing concept:

1) Self-care includes initiating and performing activities that impact overall well-being, life, and health maintenance.
2) Self-care agency is the person's own ability to care for themselves.
3) Self-care demand includes a set of activities to meet self-care needs.
4) Self-care deficit places a gap between the self-care agency and the self-care demand. It also places a potential barrier between self-care activities the patient can perform, and the cares needed.
5) The nursing agency looks at the nurse's ability to meet self-care demands of the individual.
6) The nursing system includes the responsibilities, relationships, roles, and actions in order to meet the patient's self-care demand (Eldridge, n.d.).

When self-care becomes an issue, Orem's theory of self-care deficit is initiated. The theory of self-care deficit supports the nursing profession stepping in to aid the individual; it works to keep patients independent in their care, while aiding where necessary (American Nursing History, n.d.). The theory of nursing systems portrays what the nursing profession will do to meet the person's need to meet self-care. The nurse may guide, support, teach, or act to help overcome the deficit and keep the patient safe (American Nursing History, n.d.).

How does Orem's theory apply to the overall telehealth project? One goal of the telehealth assessment in the elderly was to keep elderly patients safely in their homes. The patient's self-care abilities determine how well they can care for themselves at home. Assessing what matters to the patient asked what activities of daily living (ADLs) they are able to perform themselves; it also identified what tasks they are unable to perform. Another aspect of Orem's theory refers to a nursing agency. In this project, the Doctor of Nursing practice (DNP) students would qualify as the nursing agency who assess and identify the patients' needs with intentions to find resources to meet those needs. Self-care deficits are identified and refer to the limitations impacting the person's ability to perform self-care needs; when assessing what matters or mobility, concerns could be seen and found as a deficit. If a deficit is identified during the assessment, then the DNP student was able to provide an intervention to help the patient complete the self-care. For example, mobility was assessed. If the patient was unsteady and unsafe, a physical therapy consult may have been suggested in addition to a walker. If the patient is at an increased risk of falls, the patient's home environment would also be assessed. Also, the DNP student reviewed their medications, looking for possible side effects that could contribute to falls.

Literature Review

Description of Search Strategies

A literature review was conducted utilizing the PubMed and CINAHL journal databases. Target words searched included “telehealth”, “depression”, “depression symptoms”, “mentation”, “4Ms”, “delirium”, “dementia”, “elderly”, and “older adults”. Information had to be published within the last five years, written in the English language, from an academic journal, and include the full text article. Articles that were published before 2015, did not include the full text, and written in another language were excluded. Credible websites were reviewed for more statistical information and depression symptoms, causes, and treatment options. In total, four scholarly articles were selected and applied to the literature review.

Literature Synthesis

The 4Ms focuses on four core features that create a basis for older adult care. Mobility reviews the elder’s ability to move daily, while being safe to maintain their overall function (Pettis, 2020). Medication review ensures the medications are not causing any adverse effects, impairing their function, and contributing to the patient’s health goals. What matters gives the care team an approach to focus on the patient’s needs and goals of care (Pettis, 2020). Finally, mentation focuses specifically on dementia, delirium, and depression, assessing through their aspects of life.

Mentation will be the focus and further discussed. Depression is one of the most common mental health disorders among older adults, ages 65 and older. Roughly, six percent of older adults suffer from depression or depression like symptoms every day (Mental Health America,

2020). Symptoms more commonly seen in older adults include fatigue, trouble sleeping, or feeling irritable. Inability to concentrate or confusion can also be signs of depression; it could also appear like dementia (National Institute on Aging, 2017). Older adults may also experience appetite changes, thoughts of suicide, frequent crying, or a change or decline in their chronic illnesses.

Causes of depression could be from several factors including genetics and family history, cerebrum chemistry, personal experiences, and external stressors (National Institute on Aging, 2017). As the adults' number of chronic conditions increase, so does their risk of depression. One chronic illness affects 80% of older adults, while 50% have at least two or more conditions. It has been found a diagnosis of cancer and/or heart disease alone increases the likelihood of depression (CDC, 2017). Depression can be treated given the right diagnosis and treatment plan through medication and psychotherapy (National Institute on Aging, 2017). Older adults should not have to suffer.

Screening for depression is relatively straight forward. The Patient Health Questionnaire-2 (PHQ-2) asks two questions based on decreased in pleasure and depressed symptoms over the past two weeks (Levis et al., 2020). A score of three or more qualifies as a positive and further evaluation is encouraged. The PHQ-2 has a sensitivity and specificity has been found to be 91% and 67% respectfully. The Patient Health Questionnaire-9 (PHQ-9) includes nine questions based on symptoms/feelings over the past two weeks (Levis et al., 2020). Using the PHQ-2 and PHQ-9 together have an acceptable accuracy rate.

Assessing for dementia can be more challenging. The Mini-Cog is a simple two elemental exam to test cognition to help determine if an individual is suffering from early dementia (Dementia Care Central, 2020). It includes a three-word recall test to assess short-term memory, whereas the clock drawing test assesses more abstract thinking, verbal understanding, visual memory, and planning and understanding (Dementia Care Central, 2020). Results of the Mini-Cog identify dementia in roughly 75% of the individuals tested. It is a good starting tool to determine if further assessments and or interventions are necessary to diagnose dementia (Dementia Care Central, 2020).

The Mini-Cog exam could be considered first line when comparing to the other cognitive exams. The Self-Administered Gerocognitive Exam (SAGE) has more questions and takes on average 10 minutes. The Mini-Mental State Exam (MMSE) has 30 questions and the results do not confirm dementia alone; evidence has also found results to be less accurate in predicting dementia when compared to SAGE (Dementia Care Central, 2020). The Montreal Cognitive Assessment (MoCA) is also a 30-point test, takes at least 10 minutes to complete, and must be administered by a healthcare professional (Dementia Care Central, 2020). Studies have found it more accurate than the MMSE, but it does not allow individuals to assess themselves at home.

Delirium is more commonly seen in hospitalized patients but can also been seen in patients suffering from dementia. Symptoms are unrecognized in 60% of the cases; early diagnosis and initiation of treatment help to relieve delirium symptoms (McCabe, 2019). The Confusion Assessment Method (CAM) tool aids non-psychiatrically trained providers to recognize and diagnose delirium. It has sensitivity of 94-100% and specificity of 90-95% (McCabe, 2019).

Dementia, depression, and delirium should be assessed when signs and symptoms are seen. Early recognition and diagnosis will help to improve and aid the individual in living to the best of their care.

Project Purpose

The telehealth assessment DNP project brought a comprehensive wellness assessment to vulnerable elders living in rural North Dakota through telehealth technologies. Through this telehealth visit, the 4Ms were assessed using evidence-based tools. Based on the findings, a follow-up telehealth visit may have occurred to further assess deficits found with more detailed tools. Possible interventions to improve their well-being were also discussed and communicated to the participant to share with their healthcare provider if they chose to.

The project sought to answer the question: will the promotion of telehealth in conducting assessments for the elderly, in their home versus going to the provider's office, reduce the risk of COVID-19 exposure? By the end of August 2021, we were able to promote the use of telehealth technologies to reduce the risk of COVID-19 through increased telehealth technology use.

To meet this goal, there were multiple objectives supporting the project. The first objective was completed by September 2020 and included creating a geriatrics-based telehealth team via the Geriatrics Workforce Enhancement Program (GWEP) academic partners. This telehealth team includes telehealth program director, grant project director, physical therapy, occupational therapy, pharmacist, geriatric clinical nurse specialist, four DNP students, nurse educator student, and clinical site director. The next objectives were completed by December 2020. A comprehensive review of the literature was performed to create an evidence-based assessment

tool to conduct the telehealth visit; the tool needed to focus on the 4Ms. The second objective regarded training the telehealth ambassadors (DNP students) on teaching the older adults about telehealth and optimize its use while keeping the elder engaged.

The next objectives were met by August 2021. Once institutional review board approval was granted on April 27, 2021, the community stakeholders (home health aides) were trained on using telehealth technologies and what would be expected of them during the visit. The modified wellness exam was then conducted via telehealth video by the telehealth ambassadors (DNP students) with the participant and home care health aide present. The elder participants were also educated on importance of telehealth use and the healthcare services options available. Once the wellness assessment was completed, the telehealth ambassadors communicated with the GWEP grant team on assessment findings and results.

Design and Methods

Study Design

The study design is a mixed method study focusing on the 4Ms. It is a mixture of qualitative and quantitative study designs to allow data collection based on the research goal. The study included approximately 5 elders who participated in data collection through surveys and scores based on the research tools.

Project Setting

The setting was primarily in the participant's home environment. The participant was in their home along with the home care agent, while the DNP student was conducting the modified telehealth wellness exam through the electronic device.

Risk Analysis

The University of North Dakota institutional review board (IRB) approval was obtained prior to project implementation. It was a very lengthy process with multiple barriers due to a new computerized application system, several reworkings of the application, and the potential risks associated with project participation. Potential risks included physical, psychological, and privacy risks. Participants were at risk of experiencing distress if they have never seen a provider. While performing the Timed Get Up and Go (TUG) mobility test, the participant could be uncomfortable if they were afraid of falling; if there was any indication the TUG test should not be performed, then it will be deferred. The participants could also experience distress having an assessment conducted through telehealth. In the assessment, there were also a few questions involving alcohol and drug use/abuse that could be emotionally harmful. Participants were informed they may decline to answer any questions and were free to withdraw from the assessment process at any time.

Population & Sampling Type

The participants were older patients with underlying health conditions living in rural North Dakota. Inclusion criteria includes participants are age 55 years or older with underlying medical conditions, cognitively intact to verbally give consent for participation themselves (Appendix A), and had to be receiving home care through the home care agency. Individuals who did not meet the inclusion criteria were excluded from the study. Participate recruitment occurred through the home care agency care giver. She helped to educate the participants and promote the project amongst them. The researchers (DNP students) did not have access to the

participants medical records and medical information obtained was self-reported from the participant.

Implementation and Tools Utilized

Implementation of the project was conducted in a multi-step process. First, the home care agent arrived at the participant's home and gave the participant a copy of the pre-survey questions (Appendix B) prior to the telehealth visit. Once completed, the telehealth visit began. The initial visit took approximately 45 to 60 minutes, including 10 minutes to complete the pre and post surveys.

The modified telehealth wellness exam focused on the 4Ms, and tools were used to assess each one. First, participants were asked what matters most in their day-to-day life and to state a goal for their life. Then, they were given a list of activities of daily living (ADLs) to review and scored the activities as important to them and their ability to complete on their own (Appendix C). Next, mentation was assessed using the Patient Health Questionnaire-2 (PHQ-2) for depression and the Mini-Cog exam for dementia. The participant was then asked to partake in the Timed Up and Go (TUG) mobility test; again, if the participant is afraid of falling, this exam was deferred. Finally, medications were discussed and reviewed based on patient report. The latest Beers Criteria was utilized to improve prescription safety and medication effectiveness amongst the elderly participants after the visit.

After the telehealth assessment had been conducted, the home care agent helped administer a post-survey (Appendix D) to review how the experience went. The participant's scores on the assessment tools were calculated and reviewed amongst the DNP students. A

follow-up telehealth assessment, approximately 30 minutes, was scheduled to discuss participant findings and further assess mobility, mentation, and medication interventions/recommendations if necessary and if time allowed (Appendix E).

Outcomes

Overall, the outcome of the telehealth project was to provide 100% of the participants with a modified wellness exam and potential interventions to improve their health and well-being. The assessment tools utilized could support potential diagnoses based on patient scores. The PHQ-2 has a sensitivity and specificity of 91% and 67% respectfully; when used in combination with the PHQ-9, the accuracy was acceptable (Levis et al., 2020). As mentioned previously, the Mini-Cog will identify dementia in roughly 75% of those assessed. The TUG test has limited abilities to predicting falls with a specificity of 74% and sensitivity of 31% in community living individuals (Barry et al., 2014).

Data Analysis & Interpretation

Project Purpose

The purpose of this project wase to promote the use of telehealth technology services through providing a modified telehealth wellness exam to older patients who are more vulnerable to the COVID-19 virus. These interventions helped support the project goal: by the end of August 2021, we would be able to promote the use of telehealth technologies to reduce the risk of COVID-19 through increased telehealth technology use.

Results

Data was collected on five participants, two males and three females. The pre-survey questionnaire found 40% or two out of five participants were comfortable using technology while the remaining 60% felt very comfortable with technology (table 1). Forty percent had also used telehealth previously. One of the individuals who had previously used telehealth did not care for it but was willing to participate in our study.

Table 1: L1. I am ___ using technology.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Comfortable	3	60.0	60.0	60.0
	Very Comfortable	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

Of the data available, results were encouraging. By using telehealth, 40% felt they were getting the same level-of-care as if they had gone to their provider's office; an additional 40% felt they had gotten a higher level-of-care using telehealth (table 2).

Table 2: L4. By using telehealth, I will be getting the same level-of-care as if I went to a doctor's office.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less Level-of-Care	2	40.0	40.0	40.0
	Same Level-of-Care	2	40.0	40.0	80.0
	Higher Level-of-Care	1	20.0	20.0	100.0
	Total	5	100.0	100.0	

Forty percent of participants felt telehealth would make it easier to connect with their provider, while 20% did not think it would make a difference. The remaining 40% felt telehealth

would actually make it more difficult to connect with their provider (table 3). Upon further discussion with those individuals, one person likes the face-to-face interaction while the other person would struggle with the technology aspect involved (table 4).

Table 3: L5. Telehealth will make it ___ to connect with my provider.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	More Difficult	2	40.0	40.0	40.0
	No Change	1	20.0	20.0	60.0
	Easier	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

Table 4: In response to #5 (Telehealth will make it ____ to connect with my provider)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I don't do this after I play cards via technology with family can visit.	1	20.0	20.0	20.0
	It doesn't look too difficult. I can still read.	1	20.0	20.0	40.0
	Likes face-to-face.	1	20.0	20.0	60.0
	When COVID started – did some telehealth but couldn't via screen or comp sent pictures on phone.	1	20.0	20.0	80.0
	Would need help with it.	1	20.0	20.0	100.0
	Total	5	100.0	100.0	

Four of the participants felt the technology was easy to use (keep in mind, there was a home care agent present to help with the technology aspect). Overall, 80%, would use telehealth again and 80% also felt telehealth would be valuable to them in the future.

Influences on Results

There could potentially be influences on the results. First, one participant had previously used telehealth and did not care for it. Another possible influence on the results was having a home care agent present to help with using technology. If the participant had to use the iPad on their own and struggled, then their opinion of using telehealth again in the future may have been skewed. Overall, the technology worked well and if there had been issues, it could have led to poorer results.

Implications and Future Directions

The project findings support the results found in the literature. Using the 4Ms provides a well-rounded approach to modified wellness exam. The tools utilized throughout the assessment have strong literature support. The tool created to assess what matters gave an overview of the participant's self-care abilities; this tool could easily be used again and potentially even become a "standardized" tool.

Telehealth is likely going to continue to grow and expand across healthcare. Project participants stated telehealth was convenient, kept them safe within their homes, was more efficient use of time, and allowed the telehealth ambassadors to spend more one-on-one time with them. Telehealth also allows for collaboration between providers and patients in various specialties, giving patients in rural areas to access specialties. It is also cost effective for the patient; additional costs are not spent on travel costs.

There are a few limitations noted during the project that may limit future telehealth experiences. Not all participants are willing to see their providers via telehealth. During the

recruitment process, a few clients declined when they were first told it would be a telehealth visit. When the project was first described to the patient and then told it would be performed via telehealth, older adults were more willing to participate. A second limitation are the insurance and healthcare policies associated with telehealth. Prior to COVID-19, insurance coverage was not comprehensive with telehealth coverage; it will be determined if the coverage remains once the pandemic is over. Participants may be limited due to their own constraints including limited access to high-speed internet or an electronic device. Another limitation may be the individual's ability to use the technology on their own; the project had a home care agent present to assist with technology. One participant did state they would not be able to use telehealth again if they had to perform it on their own. Overall, telehealth has many more advantages than limitations when the goal is bringing healthcare to vulnerable elders.

Conclusion

Telehealth is an effective resource for vulnerable individuals to receive quality healthcare from the safety of their home. The 4Ms provide an evidence-based care model focusing on geriatric care with focus on mentation, medication, mobility, and what matters. If future pandemics were to occur, providing telehealth services to older adults has been proven to provide at least the same level of care patients have received when seeing their providers in the office.

References

American Nursing History. (n.d.). *Role of nursing theory and research in nursing practice.* https://www.americannursinghistory.org/nursing-theorists

American Sentinel. (2020, July 11). *Dorothea Orem: pioneer of the self-care nursing theory*. Dorothea Orem: Pioneer of the Self-Care Nursing Theory (americansentinel.edu)

Barry, E., Galvin, R., Keogh, C., Horgan, R., & Fahey, T. (2014). Is the timed up and go test a useful predictor of risk of falls in community dwelling older adults: A systematic review and meta-analysis. *BMC Geriatrics, 14*(14). https://doi.org/10.1186/1471-2318-14-14

Centers for Disease Control and Prevention (CDC). (2020, October 30). *Trends in the use of telehealth during the emergence of the COVID-19 pandemic.* https://www.cdc.gov/mmwr/volumes/69/wr/mm6943a3.htm#:~:text=During%20the%20early%20pandemic%20period%20in%202020%2C%20the%20percentage%20of,March%20(p%3C0.05).

Centers for Disease Control and Prevention. (2017, January 31). *Depression is not a normal part of growing older.* Centers for Disease Control and Prevention. https://www.cdc.gov/aging/mentalhealth/depression.htm

Dementia Care Central. (2020, May 28). *Mini-Cog test for dementia and alzhemier's: accuracy, administration & scoring.* https://www.dementiacarecentral.com/mini-cog-test-for-dementia/

Eldridge, C. (n.d.). *Nursing science and theory: scientific underpinnings for practice*. Jones & Bartlett Learning, LLC. http://samples.jbpub.com/9781449687137/87137_CH01_Pass2.pdf

Fulmer, T., Berman, A., Mat, K., & Pelton, L. (2019). *Age-friendly health systems: the 4Ms.* Hartford Institute for Geriatric Nursing. https://hign.org/consultgeri/try-this-series/age-friendly-health-systems-4ms

Levis, B., Sun, Y., & He, C. (2020). Accuracy of the PHQ-2 alone and in combination with PHQ-9 for screening to detect major depression. *JAMA, 323*(22), 2290-2300.

McCabe, D. (2019). *The confusion assessment method (CAM).* Hartford Institute for Geriatric Nursing. https://hign.org/sites/default/files/2020-06/Try_This_General_Assessment_13.pdf

Mental Health America. (2020). *Depression in older adults: more facts.* Mental Health America, Inc. https://www.mhanational.org/depression-older-adults-more-facts

National Institute on Aging. (2017, May 1). *Depression and Older Adults.* U.S. Department of Health and Human Services. https://www.nia.nih.gov/health/depression-and-older-adults

NEJM Catalyst. (2018, February 1). *What is telehealth?* The New England Journal of Medicine. https://catalyst.nejm.org/doi/full/10.1056/CAT.18.0268

NPR. (2021, March 9). *How severe is your state's coronavirus outbreak?* https://www.npr.org/816707182

Pettis, J. (2020). Nurses leading the way to age-friendly care using the 4Ms model. *Geriatric Nursing, 41,* 195-197. https://doi.org/10.1016/j.gerinurse.2020.03.010

Appendix A

INFORMED CONSENT DOCUMENT TEMPLATE

IC 701-B

01/21/2019

THE UNIVERSITY of NORTH DAKOTA
INSTRUCTIONS FOR WRITING AN INFORMED CONSENT DOCUMENT

INSTRUCTIONS:

- This consent document template is recommended for non-medical studies because it contains all required elements of consent.
- The highlighted text throughout this document offers suggestions and guidance. It should be deleted and replaced with information specific to your study and then un-highlighted. All other text on the document should remain.

CONSENT DOCUMENT INSTRUCTIONS:

- Consent documents should be written in the second person (e.g., "You are invited to participate"). Use of the first person (e.g., "I understand that…") can be interpreted as suggestive and can constitute coercive influence over a subject.
- The consent form should be written at about an eighth grade reading level. Clearly define complicated terms and put technical jargon in lay terms.

CONSENT DOCUMENT FORMAT:

- To facilitate the IRB review process, the sample format below is recommended for consent forms.
- Prepare the entire document in 12 point type, with no blank pages or large blank spaces/paragraphs.
- ***Do not change the margins on the document.*** They are set to allow room for the IRB approval stamp.
- Multiple page consent documents should contain page numbers and a place for the subject to initial each page.

CONCISE SUMMARY FOR ANY CONSENT FORM OVER 6 PAGES:

If your consent is more than 6 pages, provide a brief explanation of the project that is concise and focused, and that will most likely assist a prospective subject to understand the research and choose to participate. This presentation of information is to be short, and can summarize information explained later in greater detail. This summary should include:

- The purpose and expected duration
- Major requirements of the study
- The most important risks and/or benefits
- Other alternatives to participating, if appropriate
- Time commitment

ASSISTANCE

- If you have questions about or need assistance with writing an informed consent please call the Institutional Review Board office at 701 777-4279 or UND.irb@UND.edu.

THE UNIVERSITY OF NORTH DAKOTA
CONSENT TO PARTICIPATE IN RESEARCH

Project Title: **Geriatric Telehealth Assessment Project**

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What should I know about this research?

- Someone will explain this research to you.
- Taking part in this research is voluntary. Whether you take part is up to you.
- If you don't take part, it won't be held against you.
- You can take part now and later drop out, and it won't be held against you
- If you don't understand, ask questions.
- Ask all the questions you want before you decide.

How long will I be in this research?
We expect that your taking part in this research will include an initial wellness visit/exam and pre/post-test that will take approximately 60 minutes long. A separate follow-up visit/exam lasting approximately 30 minutes. The anticipated project end date is May 28, 2021.

Why is this research being done?
The purpose of this research is to determine the effectiveness of using telehealth in conducting assessments for the elderly who are too vulnerable to physically go to the provider's office. Ultimately, how effective is it for elderly to receive medical treatment in the home versus going into the provider's office.

What happens to me if I agree to take part in this research?
If you decide to take part in this research study, you will first be given a survey on your current knowledge of telehealth. An initial visit/exam time will be set up. The quality service provider (QSP) will come to your home the day of your scheduled initial visit/exam. They will first check

your vitals and set up the iPad that will be used for the telehealth visit with the nurse practitioner student. During the assessment, you will be asked a variety of questions on your health and a few interactive skill tests will be performed. The QSP will be with you the entire time during the visit. If at any time you feel uncomfortable, you are free to skip any questions/skills and stop the visit at any time. The initial visit will take approximately 45 minutes to complete and the entire visit will be recorded for educational purposes. After the visit is over, a second survey will be given to you to ask how you felt the visit went. Based on the nurse practitioner's assessment findings, a follow-up visit may be asked to be set up, again with the QSP and recorded, to further discuss any plan of care recommendations. The nurse practitioner students will only make recommendations; there will not be any medication or therapy changes made by the student.

Could being in this research hurt me?
The potential risks or discomforts that you may experience from taking part in this research include feeling uncomfortable when asked certain questions. There is also the risk of falling while performing the mobility assessments; there are alternative assessments available if falling is already a high concern and or your gait stability is unsteady at baseline.

Will being in this research benefit me?
The most important benefits that you may expect from taking part in this research include potential recommendations on improving your current plan of care, medication changes, and therapies you could benefit from. You will also receive an annual wellness exam in the safety of your home, limiting your exposure to COVID-19.

Possible benefits to others include a better understanding of benefits of receiving care through telehealth. Limitations of using telehealth could also be identified; this could be a potential benefit for future patients because those limitations will be identified and addressed.

How many people will participate in this research?
Approximately 30 people will take part in this study through the University of North Dakota. Participants that will be selected from a quality service provider (QSP) program are members of Spirit Lake Nation. Other participants will be selected through a home care agency in Grand Forks and Fargo, North Dakota.

Will it cost me money to take part in this research?
You will not have any costs for being in this research study.

Will I be paid for taking part in this research?
You will not be paid for being in this research study.

Who is funding this research?
The University of North Dakota and the research team are receiving no payments from other agencies, organizations, or companies to conduct this research study. The project is supported through the Geriatrics Workforce Enhancement Program Grant.

What happens to information collected for this research?
Your private information may be shared with individuals and organizations that conduct or watch over this research, including:

- The research sponsor, Donald Jurivich, DO
- People who work with the research sponsor
- The Institutional Review Board (IRB) that reviewed this research
- The research advisor

We may publish the results of this research. However, we will keep your name and other identifying information confidential. We protect your information from disclosure to others to the extent required by law. We cannot promise complete secrecy.

Data or specimens collected in this research might be de-identified and used for future research or distributed to another investigator for future research without your consent.

As a participant, you have the right to review the recordings. The information will be used for educational purposes, to allow the nurse practitioners students to review the assessment together along with their project advisor. Once the video has been reviewed and recommendations have been concluded, the video recordings will be deleted. It is expected the information will remain in a secure location and be deleted upon anticipated project completion date of May 28, 2021.

What if I agree to be in the research and then change my mind?
If you decide to leave the study early, we ask that you notify the QSP agency, the Tribal Health office, or the home care agency. There are not any consequences in withdrawing from the project.

Who can answer my questions about this research?
If you have questions, concerns, or complaints, or think this research has hurt you or made you sick, talk to the research team at the phone number listed above on the first page.

This research is being overseen by an Institutional Review Board ("IRB"). An IRB is a group of people who perform independent review of research studies. You may talk to them at 701.777.4279 or UND.irb@UND.edu if:

- You have questions, concerns, or complaints that are not being answered by the research team.
- You are not getting answers from the research team.
- You cannot reach the research team.
- You want to talk to someone else about the research.
- You have questions about your rights as a research subject.

Date: _____
Subject Initials: _____

- You may also visit the UND IRB website for more information about being a research subject: http://und.edu/research/resources/human-subjects/research-participants.html

Your signature documents your consent to take part in this study. You will receive a copy of this form.

Subject's Name: _____

_____ _____
Signature of Subject Date

I have discussed the above points with the subject or, where appropriate, with the subject's legally authorized representative.

_____ _____
Signature of Person Who Obtained Consent Date

Appendix B

Pre –Survey Questions:

1. Are you comfortable using technology?
    a. Very uncomfortable
    b. Uncomfortable
    c. Comfortable
    d. Very comfortable

2. Have you ever used telehealth? Y/N

3. What do you know about telehealth?

4. Do you feel that by using telehealth you will be getting the same level of care as if you went to the doctor's office?
    a. Less level of care
    b. Same level of care
    c. Higher level of care

Why or Why not?

5. How do you think it will affect your ability to connect with your provider? Y/N
    a. More difficult
    b. No change
    c. Easier

Please explain your answer

Date: _____
Subject Initials: _____

Appendix C

Patient Information:

Name:

DOB:

General Questions:

Diet

Activity Level Sedentary Light Physical Moderate Physical Vigorous Physical

How would you rate your health? Poor Fair Good Very Good

Vaccination history

Past medical history

Past surgical history

Vital signs taken prior to assessment:

BP:

HR:

RR:

Oxygen saturation: on room air?

Temperature:

Height:

Weight:

Date: _____
Subject Initials: _____

What Matters?

What matters most in your day to day life?

What matters most to you about your health?

The elder would state their main goal. Based on their goal and health condition (diagnosis), then questions will focus on what matters most to the elder.

Goal:

****If the goal is not health related, then will ask if they have any goals related to their chronic illness**

Example: Diabetes (improving fasting levels), HTN (eating less salt to help lower BP)

Activities	Important to Me Yes or No	Able to Do on My Own Yes or No	Comments
Managing my Health			
Dressing or grooming myself			
Bathing or washing myself			
Going to the bathroom			
Sleeping			
Preparing meals or cooking			
Nutrition			
Taking care of the home			
Doing laundry			
Going to the store or shopping			
Driving			
Managing finances			
Living situation			
Socializing or spending time with loved ones			
Participating in hobbies			
Working or volunteering			
Able to walk			
Able to go up and down stairs			
Spiritual or religious participation			
Cultural participation			
Other			

Date: _____
Subject Initials: _____

***** What is the most important thing you want to continue to do or be able to do?

Psychosocial

Have you ever had any thoughts of hurting yourself?

Do you feel safe at home?

Do you drink alcohol? Yes/No

If so, how many drinks in a week?

Do you smoke? Yes/No

If so, how many packs in a day?

Do you use recreational drugs? Yes/No

Mentation

Patient Health Questionnaire-2 (PHQ-2)

OVER THE LAST *2 WEEKS*, HOW OFTEN HAVE YOU BEEN BOTHERED BY ANY OF THE FOLLOWING PROBLEMS?	NOT AT ALL	SEVERAL DAYS	MORE THAN HALF THE DAYS	NEARLY EVERY DAY
1. LITTLE INTEREST OR PLEASURE IN DOING THINGS	0	1	2	3
2. FEELING DOWN, DEPRESSED, OR HOPELESS	0	1	2	3

Total score:

PHQ-2 Scores and Proposed Treatment Actions

The PHQ-2 consists of the first 2 questions of the PHQ-9. Scores range from 0 to 6. The recommended cut point is a score of 3 or greater. Recommended actions for persons scoring 3 or higher are one of the following:

- Administer the full PHQ-9

Date: _____
Subject Initials: _____

- Conduct a clinical interview to assess for Major Depressive Disorder
https://aidsetc.org/sites/default/files/resources_files/PHQ-2_English.pdf

Mini-Cog™

Instructions for Administration & Scoring

ID:_____Date: _____

Step 1: Three Word Registration

Look directly at person and say, "Please listen carefully. I am going to say three words that I want you to repeat back to me now and try to remember. The words are [select a list of words from the versions below]. Please say them for me now." If the person is unable to repeat the words after three attempts, move on to Step 2 (clock drawing).

The following and other word lists have been used in one or more clinical studies.[1-3] For repeated administrations, use of an alternative word list is recommended.

Version 1	Version 2	Version 3	Version 4	Version 5	Version 6
Banana	Leader	Village	River	Captain	Daughter
Sunrise	Season	Kitchen	Nation	Garden	Heaven
Chair	Table	Baby	Finger	Picture	Mountain

Step 2: Clock Drawing

Say: "Next, I want you to draw a clock for me. First, put in all of the numbers where they go." When that is completed, say: "Now, set the hands to 10 past 11."

Use preprinted circle (see next page) for this exercise. Repeat instructions as needed as this is not a memory test. Move to Step 3 if the clock is not complete within three minutes.

Step 3: Three Word Recall

Ask the person to recall the three words you stated in Step 1. Say: "What were the three words I asked you to remember?" Record the word list version number and the person's answers below.

Word List Version:_____ Person's Answers: _____ _____ _____

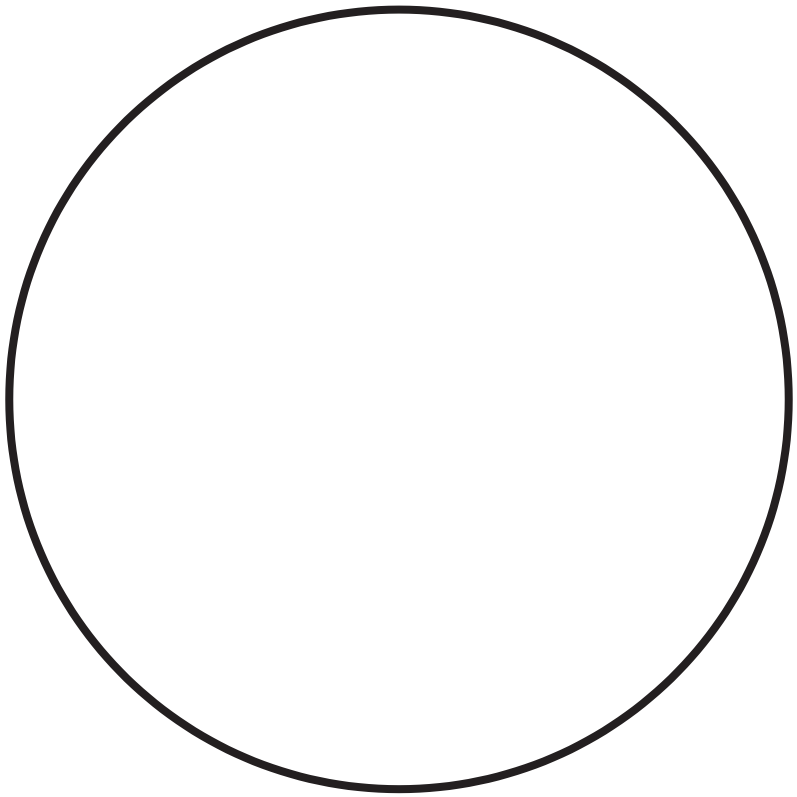
Scoring

Date: _____
Subject Initials: _____

Word Recall: _____ (0-3 points)	**1 point for each word spontaneously recalled without cueing.**
Clock Draw: _____ (0 or 2 points)	**Normal clock = 2 points. A normal clock has all numbers placed in the correct sequence and approximately correct position (e.g., 12, 3, 6 and 9 are in anchor positions) with no missing or duplicate numbers. Hands are pointing to the 11 and 2 (11:10). Hand length is not scored.** **Inability or refusal to draw a clock (abnormal) = 0 points.**
Total Score: _____ (0-5 points)	**Total score = Word Recall score + Clock Draw score.** **A cut point of <3 on the Mini-Cog™ has been validated for dementia screening, but many individuals with clinically meaningful cognitive impairment will score higher. When greater sensitivity is desired, a cut point of <4 is recommended as it may indicate a need for further evaluation of cognitive status.**

Date: _____
Subject Initials: _____

Clock Drawing



References

1. Borson S, Scanlan JM, Chen PJ et al. The Mini-Cog as a screen for dementia: Validation in a population-based sample. J Am Geriatr Soc 2003;51:1451–1454.
2. Borson S, Scanlan JM, Watanabe J et al. Improving identification of cognitive impairment in primary care. Int J Geriatr Psychiatry 2006;21: 349–355.
3. Lessig M, Scanlan J et al. Time that tells: Critical clock-drawing errors for dementia screening. Int Psychogeriatr. 2008 June; 20(3): 459–470.
4. Tsoi K, Chan J et al. Cognitive tests to detect dementia: A systematic review and meta-analysis. JAMA Intern Med. 2015; E1-E9.
5. McCarten J, Anderson P et al. Screening for cognitive impairment in an elderly veteran population: Acceptability and results using different versions of the Mini-Cog. J Am Geriatr Soc 2011; 59: 309-213.
6. McCarten J, Anderson P et al. Finding dementia in primary care: The results of a clinical demonstration project. J Am Geriatr Soc 2012; 60: 210-217.
7. Scanlan J & Borson S. The Mini-Cog: Receiver operating characteristics with the expert and naive raters. Int J Geriatr Psychiatry 2001; 16: 216-222.

Date: _____

Subject Initials: _____

Mobility

ASSESSMENT

Timed Up & Go (TUG)

Patient _____

Date _____

Time _____ ☐AM ☐PM

Purpose: To assess mobility

Equipment: A stopwatch

Directions: Patients wear their regular footwear and can use a walking aid, if needed. Begin by having the patient sit back in a standard arm chair and identify a line 3 meters, or 10 feet away, on the floor.

NOTE: Always stay by the patient for safety.

① **Instruct the patient:**

When I say "Go," I want you to:

1. Stand up from the chair.
2. Walk to the line on the floor at your normal pace.
3. Turn.
4. Walk back to the chair at your normal pace.
5. Sit down again.

② **On the word "Go," begin timing.**

③ **Stop timing after patient sits back down.**

④ **Record time.**

Time in Seconds: _____

An older adult who takes ≥12 seconds to complete the TUG is at risk for falling.

OBSERVATIONS

Observe the patient's postural stability, gait, stride length, and sway.

Check all that apply:

- ☐ Slow tentative pace
- ☐ Loss of balance
- ☐ Short strides
- ☐ Little or no arm swing
- ☐ Steadying self on walls
- ☐ Shuffling
- ☐ En bloc turning
- ☐ Not using assistive device properly

These changes may signify neurological problems that require further evaluation.

CDC's STEADI tools and resources can help you screen, assess, and intervene to reduce your patient's fall risk. For more information, visit www.cdc.gov/steadi

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

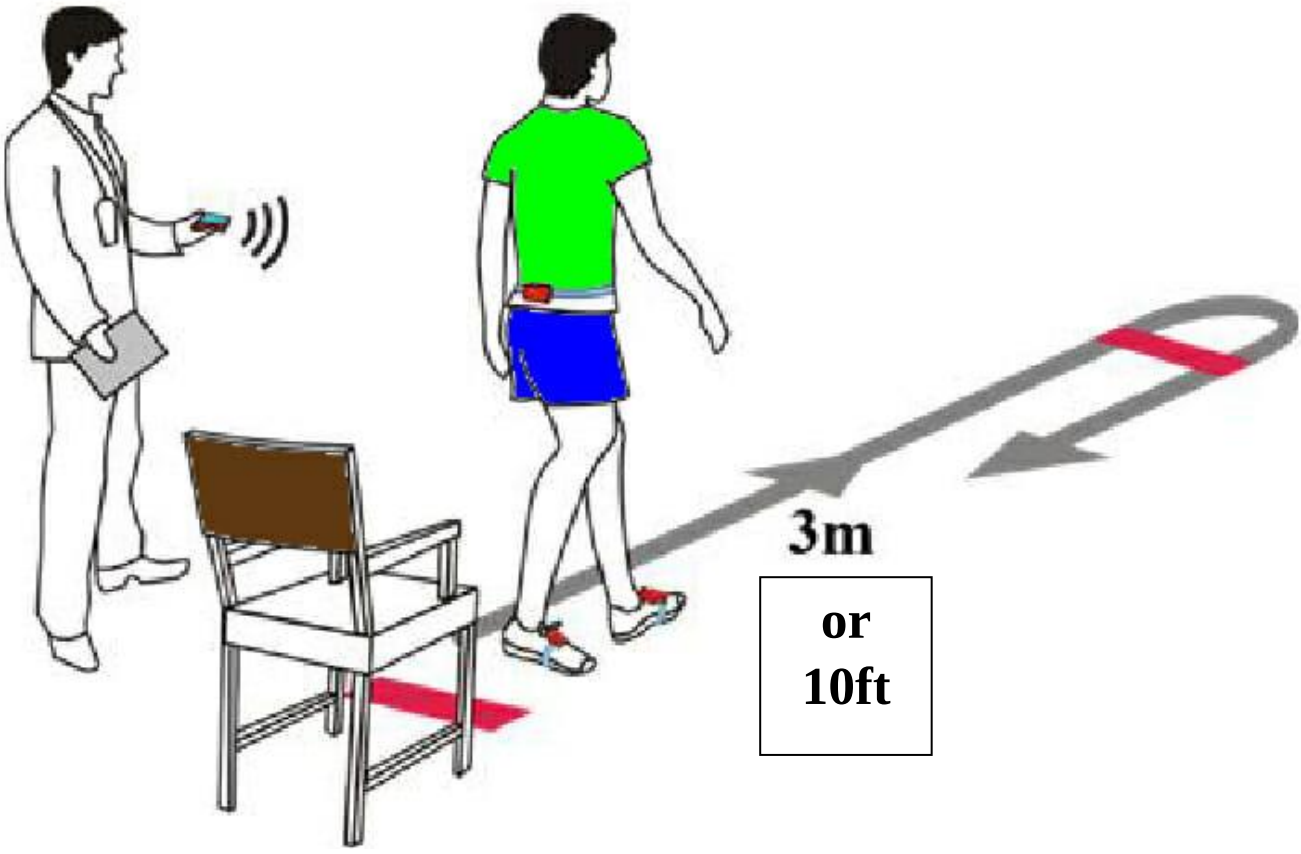
2017

STEADI Stopping Elderly Accidents, Deaths & Injuries

Date: _____

Subject Initials: _____

****For assessment, will want to use a chair with arms, but instruct the patient to stand without pushing off chair arms.**



Fall Risk Factors

Any falls in the last six months?

Any worries about falling?

Feel unsteady when standing or walking?

**Based on these answers, then could ask permission for home assessment and identify fall risks on follow-up visit

Date: _____
Subject Initials: _____

Medications

**Medications will include prescribed, over the counter, supplement, herbal, or homeopathic medications. Ask if they are consuming foods, drinks, teas, etc., for health purposes.

The following questions will be used during the initial assessment

Medication	Dose	Route	Frequency	Administered Time of Day	Experienced Side Effects	Do you feel like medication is working

**Do you feel like medication is working – for example, if patient is on Lasix, are their weights decreasing, is their breathing improving, legs less swollen, etc.

Barriers related to medication adherence:

Date: _____
Subject Initials: _____

Appendix D

Post – Survey Questions:

1. Would you ever use telehealth again? Y/N

    If no: please explain

2. Do you feel telehealth would be valuable for you in the future? Y/N

    If no: please explain

3. Was this important to you? Y/N

    If no: please explain

4. Was technology easy to use? Y/N

    If no: please explain what would make it easier?

Date: _____
Subject Initials: _____

Appendix E

Patient Health Questionnaire-9 (PHQ-9)

OVER THE LAST *2 WEEKS*, HOW OFTEN HAVE YOU BEEN BOTHERED BY ANY OF THE FOLLOWING PROBLEMS?	NOT AT ALL	SEVERAL DAYS	MORE THAN HALF THE DAYS	NEARLY EVERY DAY
1. LITTLE INTEREST OR PLEASURE IN DOING THINGS	0	1	2	3
2. FEELING DOWN, DEPRESSED, OR HOPELESS	0	1	2	3
3. TROUBLE FALLING OR STAYING ASLEEP, OR SLEEPING TOO MUCH	0	1	2	3
4. FEELING TIRED OR HAVING LITTLE ENERGY	0	1	2	3
5. POOR APPETITE OR OVEREATING	0	1	2	3
6. FEELING BAD ABOUT YOURSELF – OR THAT YOU ARE A FAILURE OR HAVE LET YOURSELF OR YOUR FAMILY DOWN	0	1	2	3
7. TROUBLE CONCENTRATING ON THINGS, SUCH AS READING THE NEWSPAPER OR WATCHING TELEVISION	0	1	2	3
8. MOVING OR SPEAKING SO SLOWLY THAT OTHER PEOPLECOULD HAVE NOTICED? OR SO FIDGETY OR RESTLESS THAT YOU HAVE BEEN MOVING A LOT MORE THAN USUSAL	0	1	2	3

Date: _____
Subject Initials: _____

9. THOUGHTS THAT YOU WOULD BE BETTER OFF DEAD, OR THOUGHTS OF HURTING YOURSELF IN SOME WAY	0	1	2	3

Total Score:

Scoring: Count the number (#) of boxes checked in a column. Multiply that number by the value indicated below, then add the subtotal to produce a total score. The possible range is 0-27. Use the table below to interpret the PHQ-9 score.

Not at all (#) _____ x 0 = _____

Several days (#) _____ x 1 = _____

More than half the days (#) _____ x 2 = _____

Nearly every day (#) _____ x 3 = _____

Total score: _____

Interpreting PHQ-9 Scores		***Actions Based on PH9 Score***
Minimal depression 0-4	**<4**	May not need depression treatment
Mild depression 5-9 Moderate depression 10-14	**>5-14**	Provider uses clinical judgement about treatment, based on patient's duration or symptoms and function impairment
Moderately severe depression 15-19 Severe depression 20-27	**>15**	Warrants treatment for depression, using antidepressant, psychotherapy and/or a combination of treatment.

* PHQ-9 is described in more detail at the McArthur Institute on Depression & Primary Care website www.depression-primarycare.org/clinicians/toolkits/materials/forms/phq9/

Date: _____
Subject Initials: _____

VAMC
SLUMS ExaMination

Questions about this assessment tool? E-mail aging@slu.edu

Name_____ Age_____

Is the patient alert?_____Level of education_____

__/1 (1) **1. What day of the week is it?**

__/1 (1) **2. What is the year?**

__/1 (1) **3. What state are we in?**

4. Please remember these five objects. I will ask you what they are later.

Apple Pen Tie House Car

5. You have $100 and you go to the store and buy a dozen apples for $3 and a tricycle for $20.

(1) **How much did you spend?**

__/3 (2) **How much do you have left?**

6. Please name as many animals as you can in one minute.

__/3 (0) 0-4 animals (1) 5-9 animals (2) 10-14 animals (3) 15+ animals

__/5 **7. What were the five objects I asked you to remember? 1 point for each one correct.**

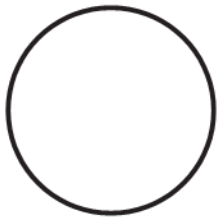
8. I am going to give you a series of numbers and I would like you to give them to me backwards. For example, if I say 42, you would say 24.

__/2 (0) 87 (1) 648 (1) 8537

9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.

(2) Hour markers okay

__/4 (2) Time correct



(1) **10. Please place an X in the triangle.**

__/2 (1) **Which of the above figures is largest?**

11. I am going to tell you a story. Please listen carefully because afterwards, I'm going to ask you some questions about it.

Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.

__/8 (2) **What was the female's name?** (2) **What work did she do?**

(2) **When did she go back to work?** (2) **What state did she live in?**

_____ **TOTAL SCORE**

SCORING

High School Education		Less than High School Education
27-30	Normal	25-30
21-26	mild Neurocognitive disorder	20-24
1-20	dementia	1-19

_____ _____ _____

CLINICIAN'S SIGNATURE DATE TIME

SH Tariq, N Tumosa, JT Chibnall, HM Perry III, and JE Morley. The Saint Louis University Mental Status (SLUMS) Examination for detecting mild cognitive impairment and dementia is more sensitive than the Mini-Mental Status Examination (MMSE) - A pilot study. *Am J Geriatr Psych* 14:900-10, 2006.

Date: _____

Subject Initials: _____

Elderly Mobility Scale (EMS): EMS test is used to assess mobility in geriatric patients. The EMS **test examines transfer, gait, and balance (Soubra, Chkeir, & Novella, 2019).**

ELDERLY MOBILITY SCALE SCORE

Patient details.....

TASK	Date			
Lying to Sitting	2 Independent 1 Needs help of 1 person 0 Needs help of 2+ people			
Sitting to Lying	2 Independent 1 Needs help of 1 person 0 Needs help of 2+ people			
Sitting to Standing	3 Independent in under 3 seconds 2 Independent in over 3 seconds 1 Needs help of 1 person 0 Needs help of 2+ people			
Standing	3 Stands without support and able to reach 2 Stands without support but needs support to reach 1 Stands but needs support 0 Stands only with physical support of another person			
Gait	3 Independent (+ / - stick) 2 Independent with frame 1 Mobile with walking aid but erratic / unsafe 0 Needs physical help to walk or constant supervision			
Timed Walk (6 metres)	3 Under 15 seconds 2 16 - 30 seconds 1 Over 30 seconds 0 Unable to cover 6 metres *Recorded time in seconds.*			
Functional Reach	4 Over 20 cm. 2 10 - 20 cm. 0 Under 10 cm. *Actual reach*			
	SCORES	**/ 20**	**/ 20**	**/ 20**
	Staff Initials			

Scores under 10 - generally these patients are **dependent** in mobility manoeuvres; require help with basic ADL, such as transfers, toileting and dressing.

Scores between 10 - 13 - generally these patients are **borderline** in terms of safe mobility and independence in ADL i.e. they require some help with some mobility manoeuvres.

Scores over 14 - Generally these patients are able to perform mobility manoeuvres alone and safely and are **independent** in basic ADL.

Version 2

Home assessment tools based on quick fall risk screen:

https://www.cdc.gov/steadi/pdf/check_for_safety_brochure-a.pdf

Date: _____
Subject Initials: _____

https://www.cdc.gov/steadi/pdf/STEADI-Brochure-CheckForSafety-508.pdf

2019 Beers Criteria

American Geriatrics Society. (2019). American geriatrics society 2019 updated AGS Beers Criteria for potentially inappropriate medication use in older adults. *Journal of the American Geriatrics Society, 0*(0), 1-21. https://qioprogram.org/sites/default/files/2019BeersCriteria_JAGS.pdf

A Sampling of High-Risk Drugs* (continued)

Selected high-risk drugs to avoid or use with precaution	Potential side effects and harm	Possible alternatives/recommendations
Benzodiazepines including alprazolam (Xanax), chlordiazepoxide (Librium), clobazam (Onfi), clonazepam (Klonopin), clorazepate (Tranxene), and diazepam (Valium) Do not combine benzodiazepines with opioids	Confusion, cognitive impairment, delirium, falls, hip fracture, motor vehicle accidents	**For anxiety:** nondrug therapy such as behavior modification; buspirone (Buspar); SSRIs like citalopram (Celexa) or sertraline (Zoloft). Use these drugs with caution, especially if you have a history of falls. **For insomnia:** see sleep aid alternatives below.
Diabetes medications: chlorpropamide (Diabinese) and glyburide (Diabeta, Micronase)	Low blood sugar (hypoglycemia)	Short-acting sulfonylureas like glipizide (Glucotrol), gliclazide (Diamicron), or metformin (Fortamet, Glucophage, Riomet).
Digoxin (Lanoxin) as first-line therapy for atrial fibrillation or heart failure	Drug toxicity (a buildup of too much of the drug in the body); symptoms include nausea, vomiting, vision changes, anorexia, arrhythmia (irregular heartbeat)	Beta-blockers like acebutolol (Sectral), carvedilol (Coreg), metoprolol (Lopressor, Toprol-XL), or propranolol (Inderal LA, InnoPran XL); calcium channel blockers like diltiazem (Cardizem, Tiazac) or verapamil (Calan SR, Verelan).
Estrogen with or without progestin (menopausal hormone therapy)	Breast cancer, blood clots	**For hot flashes:** gabapentin (Neurontin); SSRIs like escitalopram (Lexapro); serotonin norepinephrine reuptake inhibitors (SNRIs) like venlafaxine (Effexor). But use SSRIs and SNRIs with caution, especially if you have a history of falls. **For painful intercourse:** low-dose prescription estrogen creams or vaginal tablets; OTC water- or silicone-based vaginal lubricants.
Muscle relaxants (skeletal), including carisoprodol (Soma), cyclobenzaprine (Flexeril), and methocarbamol (Robaxin)	Grogginess, confusion, constipation, falls, urination problems	**For acute mild to moderate pain:** short-term use of acetaminophen (Tylenol); NSAIDs like salsalate (Disalcid) or ibuprofen (Advil, Motrin). See NSAID precautions, below. If alternatives aren't an option, take with gastroprotective drugs, such as proton-pump inhibitor or misoprostol.
Nonsteroidal anti-inflammatory drugs (NSAIDs), including aspirin, ibuprofen (Advil, Motrin), naproxen (Aleve, Anaprox DS, Naprosyn), and celecoxib (Celebrex)	Gastrointestinal bleeding or peptic ulcers, increased blood pressure, kidney disease, water retention, worsening heart failure	**For moderate pain:** short-term use of acetaminophen (Tylenol); topical NSAIDs, capsaicin products, or lidocaine; SNRIs like duloxetine (Cymbalta) or venlafaxine (Effexor). Use SNRIs with caution, especially if you have a history of falls. To reduce bleeding risk when effective alternatives aren't available, take NSAIDs with misoprostol (Cytotec) or a proton-pump inhibitor like omeprazole (Prilosec). Avoid long-term use of NSAIDs.
Opioids, especially meperidine (Demerol), pentazocine (Talwin, Talacen), and tramadol (Ultram, ConZip) if you have a history of falls or fracture Do not combine opioids with benzodiazepines, gabapentin (Neurontin), or pregabalin (Lyrica)	Addiction, confusion, sedation, falls, impaired function, seizures, delirium, fainting, constipation, respiratory depression (life-threatening slow and shallow breathing)	Talk with your doctor about nonopioid pain medications as well as safe use of opioids. If non-narcotic pain relievers are not effective for acute moderate to severe pain such as from a recent fracture or joint replacement, consider morphine or oxycodone (OxyContin) immediate release with acetaminophen.
Proton pump inhibitors, including esomeprazole (Nexium), lansoprazole (Prevacid), and omeprazole (Prilosec)	Bone loss, fractures, risk of *Clostridioides difficile* infection	Do not use regularly for more than eight weeks unless advised to do so by your doctor.
Sleep aids, including "Z-drugs" such as eszopiclone (Lunesta), zaleplon (Sonata), and zolpidem (Ambien); products that contain the antihistamine diphenhydramine, such as OTC Tylenol PM	Cognitive impairment, delirium, falls, fractures, respiratory depression, increased emergency room visits/hospitalizations, motor vehicle accidents	Nondrug therapies such as cognitive behavioral therapy for insomnia (CBT-I); good sleep hygiene such as establishing a pleasant and relaxing sleep environment, getting exercise during the day, and following a regular sleep schedule.

*Not all brand names (in parentheses) are listed.

Sources: Beers Criteria 2019, Health in Aging Foundation, UpToDate.com

https://www.berkeleywellness.com/sites/default/files/High%20Risk%20Drugs_Chart_part%202.jpg