

Nurse Practitioner Follow-Up Care Using Telehealth MMSE

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Acknowledgements



We declare that there are no conflicts of interest relevant to the content of this presentation.



This project did not receive any sources of funding.



The conclusions are those of the authors and do not necessarily represent those of any of their affiliations.



During the COVID-19 pandemic, many healthcare services moved to telehealth delivery for continuation of care.



A 3,060% increase in virtual health visits noted when comparing October 2020 to October 2019 ¹



The Mini Mental Status Examination (MMSE) has been used for follow-up assessment of disease progression and care planning after dementia diagnosis. No difference was found in MMSE scores when repeating a telehealth MMSE two weeks after a face-to-face visit².



A protocol was developed to conduct cognitive assessment via telehealth for nurse practitioner follow-up care



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Background



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Ethical Considerations

UVM IRB approval was obtained

Approval was received by the University of Vermont Medical Center (UVMCMC) Nursing Research committee.

Patients' private health information was deidentified during the data collection process and held secure during this project.



Project Aims/ Hypothesis

Assess the current practice of telehealth cognitive testing (MMSE) and determine characteristics that can inform selection of patients appropriate for this type of visit and cognitive assessment in the future

No significant difference will be found between the individuals rate of decline with in-person versus online MMSE by two nurse practitioners



Protocol Development



(Figure 1)

Figure 1: To prevent reading date from computer or calendar, the patient is asked to close their eyes for naming the date, month, and year.



(Figure 2)

Figure 2: The three step command is modified so that all parts of the command can be seen by the examiner. The assessor states, “pick up the paper with your right hand, hold it over your head, and drop it to the floor”.



Methods

Retrospective chart review of patients (N=90) seen via telehealth between April 2020 and September 2021

Patients fitting the inclusion criteria (n=45) were analyzed

Linear regression calculated individual patient MMSE slope per unit time (year) for all MMSE scores in face-to-face and telehealth assessments

Paired t test compared individual MMSE slope between face-to-face and telehealth assessment

Odds ratio determined given characteristic associated with not following predicted decreasing trend in MMSE score

Receiver operating characteristic (ROC) curve used to determine accuracy of model for predicting outcome




Individual MMSE Slopes

| NEUROPSYCH SUMMARY | 10/13/2017 | 8/10/2018 | 5/17/2019 | 2/19/2021 | 12/3/2021 | 9/9/2022 |
|-------------------------|------------|-----------|-----------|-----------|-----------|----------|
| Orientation/Time | 5 | 5 | 4 | 2 | 4 | 3 |
| Orientation/Place | 5 | 5 | 5 | 5 | 4 | 3 |
| Registration | 3 | 3 | 3 | 3 | 2 | 2 |
| Attention & Calculation | 5 | 5 | 5 | 5 | 5 | 5 |
| Recall | 0 | 0 | 0 | 0 | 0 | 0 |
| Language | 9 | 9 | 9 | 9 | 7 | 8 |
| MMSE (Total) | 27 | 27 | 26 | 24 | 22 | 21 |

In Person MMSE

Telehealth MMSE





Results

- ▶ The difference in individual rate of decline from in-person to telehealth MMSE assessment was not statistically significant ($p=0.10$)
- ▶ Assessments done during the pandemic revealed increased rate of cognitive decline in this patient population (but not significant)
- ▶ There was also no significant difference between MMSE slope of decline in each of the two nurse practitioner providers for in-person testing mean ($p=0.32$), telehealth mean ($p=0.34$) and difference in slopes ($p=0.27$).
- ▶ Odds ratio for Mild Cognitive Impairment (OR = 14.75) and vision loss (OR = 13.06) showed strong association of not following predicted decreasing trend in MMSE score

Conclusions

- These preliminary findings indicate that administering the MMSE via telehealth does not result in scores that are markedly different from in-person testing confirming the hypothesis.
- Therefore, it is reasonable to use a telehealth protocol (see Figure 1 and 2) for adapting the MMSE for follow up dementia care visits to provide an objective measure of cognitive decline to help guide family caregiving.



Limitations



Small sample size (n=45)



Limited timeframe of telehealth visits occurring



Data collected from an EHR within single hospital network

Implications for Practice

Creation of a telehealth protocol for administration of MMSE 2 is appropriate and should undergo future quality review

Individuals with severe vision impairment should be excluded from future telehealth MMSE assessment

Social activity, which was lacking during the COVID pandemic, is imperative to slow cognitive decline



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Implications for Practice

Telehealth may be a good alternative for patients and families who are unwilling or unable to travel to the clinic due to:

- health concerns,**
- poor weather,**
- long travel time or**
- agitation in a clinic setting...**

even when the pandemic has ended.



References

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