



## Outline

- ✓ Nomenclature: “Telemedicine” vs “virtual visits” vs “digital phenotyping”
- ✓ Leading benefits/advantages of remote over in-person care
- ✓ Limitations of remote care
- ✓ Conclusions:
  - ✓ For follow-up care remote is preferred, when feasible
  - ✓ It is inevitable

## Introduction

- When we use the word “telemedicine” we often times refer to so-called virtual visits or video visits or synchronous video visits
- But telemedicine, which certainly includes those, may also be inclusive of a number of other methods and techniques
- Also, to some degree, there is a breakdown of sharp distinction between in-person care versus telemedicine – in many cases it is not truly a sharply distinct “either/or” choice, but it is a “both” – with various degrees of technicalities and specifics, depending on each setting, each patient’s needs

## Telemedicine in Movement Disorders: *Current Applications*

1. Remote synchronous follow-up visits, assessment, at home, nursing homes, remote care site especially set up for telemedicine delivery
  1. Phone call
  2. Simple video call (with the patient by themselves or a care partner)
  3. Advanced video call (with a professional tele-presenter)
2. Asynchronous motor assessment of PD
3. Telemetry, integration of wearable sensors & at home devices
4. Telerehabilitation of specific symptoms; speech, dysphagia, gait
5. Follow-up advanced therapies of PD, DBS, infusion pumps
6. Access to Interdisciplinary Care – ability to see multiple team members via multiple video conf.
7. Clinical research visits – complex needs – the way study visits are designed is evolving rapidly





Contents lists available at ScienceDirect

## Parkinsonism and Related Disorders

journal homepage: [www.elsevier.com/locate/parkrelidis](http://www.elsevier.com/locate/parkrelidis)



Point of view

### Digital phenotyping in Parkinson's disease: Empowering neurologists for measurement-based care



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#### ABSTRACT

There remains a significant mismatch between the complexity and variability of symptoms and disabilities in Parkinson's disease (PD), and the capabilities of existing validated assessment tools to objectively measure and monitor them. However, with the advances of circuit and sensor technologies, it is now possible to apply the concept of digital phenotyping to PD, providing a moment-by-moment quantification of individual patient phenotypes using personal digital devices, such as smartphones. Such technology holds considerable potential if a patient-centered multidisciplinary team is able to select digital outcomes that are not only clinically relevant, but also provide measurement-based care results that support individual patient clinical decision making. However, it is likely to be a long road, requiring large collaborative efforts to undertake a number of essential steps before full integration and synchronization of these outcomes into patient management platforms that can deliver individualized data to patients, caregivers, and treating neurologists. In the meantime, both neurologists and patients can empower themselves with digital technologies, working as a team to define the ways that new technologies can be most powerfully employed in PD management. Once digital phenotyping becomes feasible and widely adopted in PD communities, it is likely to expand our understanding of individual PD patients' lives and priorities, leading to targeted treatments and better outcomes for PD patients and their families.

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## Benefits/Advantages of Telemedicine

*Studies confirmed that telemedicine for PD is*



**Feasible – even more so than in-person clinic care (e.g. scheduling is not dependent on availability of staff + access to multiple team members on the same call)**



**Cost effective; saving time, travel miles & costs**



**Comparable health outcomes (to traditional care)**



**High Patient satisfaction**



**Favorable perception by Physicians**



**Limits physical contact in the age of a pandemic**

## Limitations of Remote Care

- Presumed “less personal” connection – this is likely mostly perceptual, as the whole society gets used to virtual meetings and keeping in touch, perceptions can be transformed
- Lack of technological preparedness and potential technical problems – with the explosive growth of user base and awareness + improving technology, this barrier is already melting rapidly
- Lack of ability to conduct a full exam (e.g. rigidity) – the value of a spot physical exam is quickly diminishing – replaced by objective measures that are ecologically valid and sample far more reliably and extensively
- Limited ability to make adjustments for advanced therapies (DBS, Duopa) – unlikely to remain a barrier thanks to advances in technology and the introduction of visiting tele-presenter networks

## Summary

- Remote care offers multiple tangible benefits over in-person care including reduced cost & burden, greater feasibility, and safety
- While remote care won't replace in-person care wholesale and right away, when available as a choice, it is preferred for follow-up care
- It is difficult to imagine how remote care wouldn't become the preferred option for follow-up care in the near future – it is not if, it is just when

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\*Contributed substantial content to slides (significant amount of text, slides, or multimedia)

## Resources & References

- International Society for Telemedicine and eHealth: <https://www.isfteh.org/>
- American Academy of Neurology COVID-19 Telemedicine Page: <https://www.aan.com/tools-and-resources/practicing-neurologists-administrators/telemedicine-and-remote-care/>
- United States CMS Telemedicine Health Care Provider Fact Sheet: <https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet>
- United States COVID-19 Emergency Declaration Health Care Providers Fact Sheet: <https://www.cms.gov/files/document/covid19-emergency-declaration-health-care-providers-fact-sheet.pdf>
- United States HHS FAQs on Telehealth and COVID-19: <https://www.hhs.gov/sites/default/files/telehealth-faqs-508.pdf>
- American Telemedicine Association: <http://www.americantelemed.org/>
  - American Telemedicine Association State Policy Resource page: <http://www.americantelemed.org/policy-page/state-policy-resource-center>
- Center for Connected Health Policy: [www.cchpca.org](http://www.cchpca.org)
- Center for Telehealth and e-Health Law: <http://ctel.org/>
- Israeli Telemedicine Guideline: [https://www.health.gov.il/hozer/mr15\\_2012.pdf](https://www.health.gov.il/hozer/mr15_2012.pdf)
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- Australasian Telehealth Society: <http://www.aths.org.au/>

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