

Figure S1. Survey questions.

Telemedicine is defined as the use of technology to provide access to clinical care when distance separates patients and providers. Telemedicine can be used in place of what would otherwise be an in-person visit. This survey seeks to better understand how the clinicians in your practice currently use telemedicine for visits with patients with multiple sclerosis.

The major types of telemedicine include:

1. Video Conferencing: uses internet-based video-conferencing allowing providers and patients to communicate in real-time in a variety of settings outside the clinic (e.g. home, office or another health care facility).
2. Store-and-forward telemedicine: uses technologies to acquire and store information for later evaluation (e.g. surveys, videos, neurological tests such as optical coherence tomography or EEG).
3. Remote patient monitoring: involves the collection, transmission and evaluation of health data through electronic devices such as remote patient monitoring (e.g. Fitbit), and smart phone apps.
4. Telephone for counseling and surveys: uses telephone audio only to provide clinical services (e.g. quality of life survey or psychological counseling). This does not include routine telephone calls for scheduling or medical discussions.

Thank you for helping with this study!

Q1: This is an anonymous one-time survey that seeks to better understand how you and other clinicians in your practice use telemedicine for patients with multiple sclerosis (MS). You are being asked to participate based on your role as an MS health care provider.

Your participation is voluntary, and you do not have to take part in this survey. Data from the survey will be collected without unique identifiers and analyzed in aggregate.

This is a multi-site survey, and it will include approximately 200 health care providers throughout the USA. It was created through a grant from the National MS Society. Completion will take less than 10 minutes. The Principal Investigator (PI) for this study is Mitchell Wallin, MD.

If you agree to participate in this study, you will proceed to the online survey. If you have questions or you'd like to speak with someone about this study you may call the PI, Dr. Wallin, at 202-745-8146 or Research Director, Daniel Taub, PhD, at 202-745-8122.

I understand the purpose of this study and agree to participate by checking the box below

I agree to participate

I do not agree to participate

Please take a few minutes to answer the following questions concerning your practice and the implementation of telemedicine as it relates to patients with MS.

Q2: What is your specialty area? (Check all that apply)

Physician

- Neurologist
- Physiatrist (Physical Medicine and Rehabilitation)
- Psychiatrist
- Other Physician (Please fill in box with specialty)

Non-Physician

- Nurse Practitioner
- Physician's Assistant
- Physical Therapist
- Occupational Therapist
- Speech Therapist
- Psychologist or Neuropsychologist
- Social Worker
- Nurse
- Chiropractor
- Acupuncture Specialist
- Other Specialty (Please fill in box with specialty)

Q3: How many years have you been in clinical practice?

Q4: What is the zip code of your main clinical practice location?

Q5: Do you use telemedicine to evaluate or treat patients with MS?

- Yes
- No

The following questions relate to your experience with telemedicine in general in caring for patients with MS.

Q6: What percentage of your overall practice is devoted to telemedicine (0-100%)?

Q7: What types of telemedicine platforms do you use with your MS patients (select all that apply)?

- Real-time Videoconferencing
- Store-and-forward telemedicine
- Remote patient monitoring (e.g. Fitbit)
- Telephone for counseling or surveys

Q8: For your MS patients using real-time videoconferencing, where are they located?

at home, work, or elsewhere in the community
in a clinical setting

Q9: With your MS patients using real-time videoconferencing, have you encountered software or hardware problems?

Yes (please specify in box)
No

Q10: For your MS patients using store-and-forward telemedicine, what types of testing or surveys do you perform?

Patient specific tests related to MS read elsewhere (e.g. optical coherence tomography)
Surveys (e.g. Patient Determined Disease Steps, etc)
Other (please specify in box)

Q11: For store-and-forward telemedicine, have you encountered software or hardware problems?

Yes (please specify in box)
No

Q12: For remote patient monitoring, what types of remote monitoring devices do you use in your practice?

Patient wearable monitors (e.g. Fitbit)
Patient specific applications for smart phones or tablets (e.g. fall trackers)
Other (write-in)

Q13: For remote patient monitoring, have you encountered software or hardware problems?

Yes (please specify in box)
No

Q14: For telephone-based telemedicine, how does your practice use the telephone as a platform for treatment or evaluations related to MS:

Counseling or other type of psychological therapy
Conducting surveys (e.g. quality of life)
Other (write-in)

Q15: For telephone-based telemedicine, have you encountered problems in using this platform for care in your practice?

Yes (please specify in box)

No

Q16: Do you use telemedicine with patients who are in... (check all that apply):

Same state

Another US state

Another country

Q17: Do you feel as confident in your findings assessing and treating patients using telemedicine as you would in an in-person visit?

Yes

No

Not sure

In some situations (please specify in box)

Q18: Do you have formal procedures for managing emergency situations that may occur during a telemedicine visit (e.g. falls or suicidal ideation)?

Yes (please fill in box with type of emergency procedure)

No

Not sure

Q19: Have you received training for using telemedicine?

Yes (please fill in type of training in box (e.g., list topic covered or name of the course))

No

Q20: Where did you receive training? (check all that apply)

In my practice setting

At a conference on telemedicine

In my community

By a vendor

Q21: Does your practice offer training for providers who want to use telemedicine?

Yes (please specify in box)

No

Not sure

Q22: Does your clinic or group offer information technology support of your telemedicine services?

Yes (please specify type in box)

No

Q23: In general, how would you describe your level of comfort with using computers and telecommunications equipment?

- I am very comfortable using computers and telecommunication equipment
- I am somewhat comfortable using computers and telecommunications equipment
- I am uncomfortable using computers and telecommunications equipment
- I am very uncomfortable using computers and telecommunications equipment

Q24: How satisfied were you overall with your last telemedicine visit? (Choose one)

- Very satisfied
- Somewhat satisfied
- Neither satisfied or dissatisfied
- Somewhat dissatisfied
- Very dissatisfied

Q25: Would you like to continue using telemedicine for MS healthcare visits in the future? (Choose one):

- Yes, definitely
- Yes, probably
- Not sure
- Probably not
- Definitely not

Q26: Why have you not attempted to use telemedicine in your setting? (select all that apply)

- Difficulty convincing patients
- Lack of access to resources
- Lack of trained staff
- Challenges with billing and reimbursement
- Other (please specify in box)

Q27: What types of advantages do you think telemedicine could provide you? Check all that apply:

- Better access to services and/or specialists for patients
- Greater convenience for providers
- Lower costs for providers
- Better interactions with patients
- Other (please specify in box)
- I do not think telemedicine would provide any advantages for me
- Not sure

Q28: What types of disadvantages do you think telemedicine could present for your practice?
Check all that apply:

- More difficult to communicate with patients due to technological issues
- Concerns about privacy and security
- More difficult to receive a full examination using telemedicine
- High cost of delivery or lack of health insurance coverage is a problem
- Other (please specify in box):
- I do not think telemedicine would provide any disadvantages for our practice
- Not sure

Q29: What are the biggest barriers in providing telemedicine services to your patients with MS?
(select all that apply)

- Lack of information technology support
- Lack of reimbursement for telemedicine services
- Availability of hardware or software for telemedicine
- Lack of training in telemedicine
- Other (please specify in box)

Q30: If there were no barriers, how frequently would you use telemedicine in your MS practice?

- I would like to use telemedicine for most or all of my MS practice
- I would like to use telemedicine for some of my MS practice
- I would like to use telemedicine occasionally for my MS practice
- I would not like to use telemedicine for any of my MS practice
- I'm not sure

Figure S2. Respondents' likelihood to continue to use telemedicine.

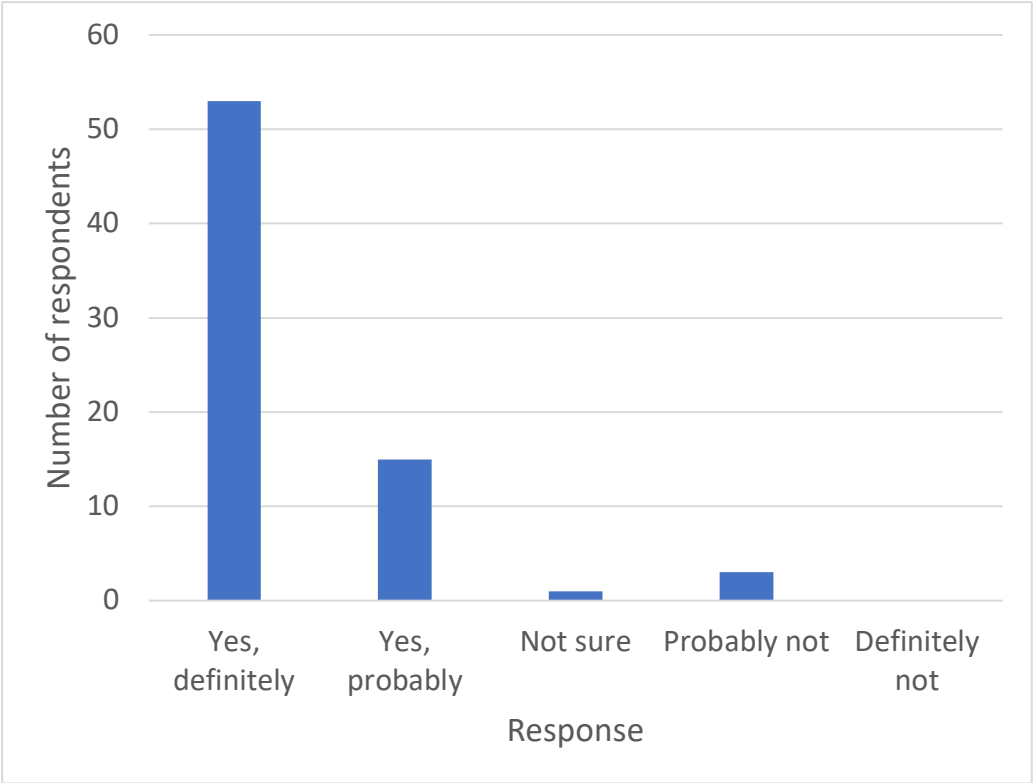


Figure S3. Respondents' utilization of telemedicine pre-pandemic vs peri-pandemic.

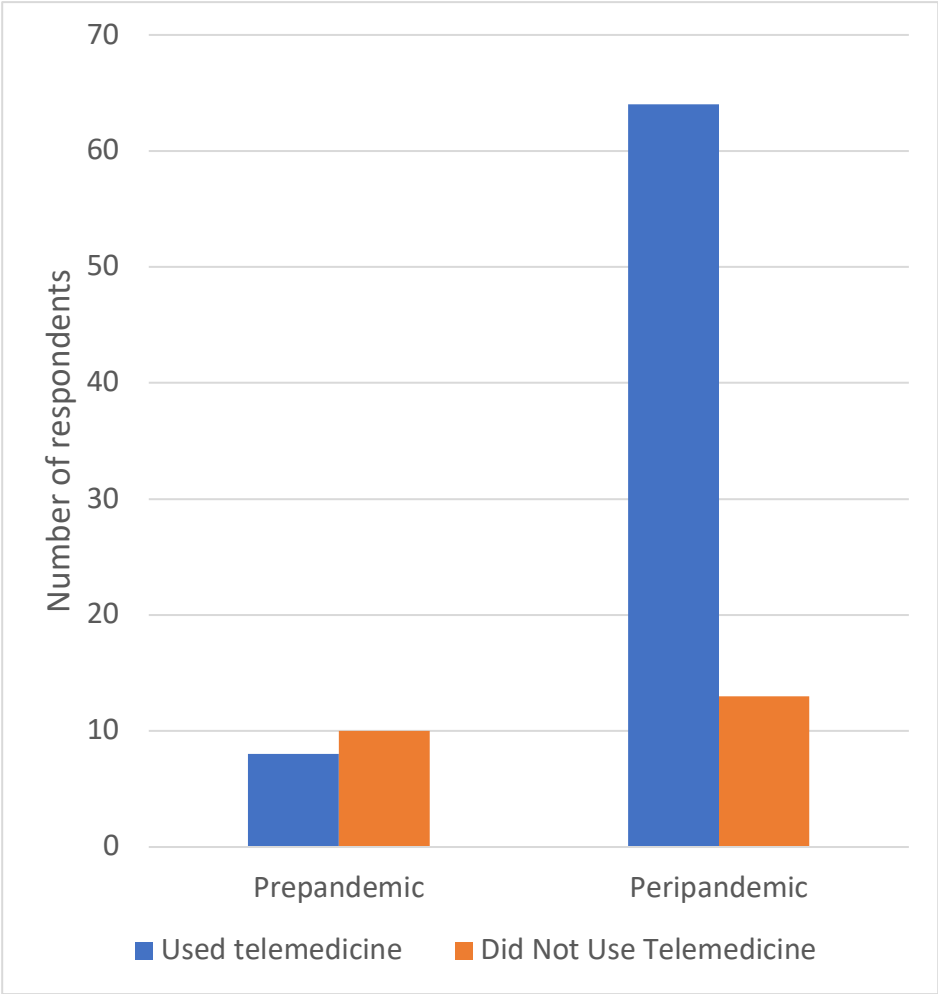


Table S1: Study overview.

Demographic or Clinical Variable	Results
Profession (N=94)	Neurologist: 40 (42.6%) APP: 26 (27.7%) Nurse: 13 (13.8%) Psychologist or psychiatrist: 7 (7.4%) Social Worker: 3 (3.2%) Physiatrist: 2 (2.1%) PT or OT: 2 (2.1%) Pharmacist: 1 (1.1%)
US region (All)	Northeast: 19 (20.2%) South: 42 (44.7%) Midwest: 14 (14.9%) West: 19 (20.2%)
Type of telemedicine utilized (All)	Clinical Video Telemedicine: 63 (87.5%) Telephone: 51 (70.8%) Store and Forward: 7 (9.7%) Remote Home Monitoring: 1 (1.4%)
Average years in practice (All)	Neurologist: 15.9 APP: 15.7 Nurse: 25.8 Psychologist or psychiatrist: 16.1 Social Worker: 20.7 Physiatrist: 23.0 PT or OT: 19.0 Pharmacist: 8.0

APP, advanced practice provider; CVT, clinical video telehealth; OT, occupational therapist; PT, physical therapist.