

# Connecting Healthcare Providers with Patients Through Mobile Technology: Formula for Shared Decision Making and Improved Patient Outcomes



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IBM Watson™



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## Background

Integration of mobile devices and health-related apps into medical practice is transforming healthcare. A 2015 HIMSS technology survey of 238 respondents revealed ~90% of healthcare providers utilize mobile devices to engage patients in their healthcare.<sup>1</sup> Among the many benefits of these mobile devices and apps is increased access to point-of-care resources that has been shown to support better collaborative clinical decision making and improved patient outcomes.<sup>2-4</sup> In multiple sclerosis (MS), clinician and patient apps provide access to patient-reported outcomes and evidence-based information to enable clinicians to achieve new MS quality measures as outlined by the American Academy of Neurology (AAN) in their 2015 publication (including diagnosis, documentation of disability scale score, cognitive impairment, fatigue outcomes, and quality of life).<sup>5</sup>

*Multiple Sclerosis @Point of Care*, powered by IBM Watson, paired with the Multiple Sclerosis Association of America (MSAA) patient app, *My MS Manager*™, use a HIPAA-compliant mobile cloud platform to provide practice-based tools designed to enable shared decision making between the clinician and patient. These tools are designed to provide clinicians with access to evidence-based answers at the time it is actually needed—at the point of care—while incorporating patient-reported outcomes. The clinician platform contains up-to-date information ranging from etiology, epidemiology, pathophysiology, and diagnosis, to treatment and management of MS. *Multiple Sclerosis @Point of Care*'s cognitive learning tool, powered by IBM Watson, answers specific questions clinicians pose to improve patient outcomes. The patient app, *My MS Manager*, provides patients with the ability to collect and track timely data as well as utilize this organized data for follow-up discussion with their clinician.

## Objective

This analysis evaluates how clinicians use *Multiple Sclerosis @Point of Care*, utilize our trained IBM Watson corpus, and how the clinician benefits. In addition, how patients use and benefit from the companion app and how both apps are used for shared decision making to improve patient care are assessed.

## Methods

To assess how clinicians utilize/value *Multiple Sclerosis @Point of Care* and the companion patient app to record information and connect/interact with their clinicians, data was collected and analyzed from participating clinicians caring for MS patients (10,000+) and their participating patients (active users). Data included demographic information, clinicians' questions posed to *Multiple Sclerosis @Point of Care*'s Ask Watson cognitive tool, clinicians' self-reported impact of content on their patients' health outcomes, number of registered patient app users, average active users/month, patient access frequency, patient record entries, and proprietary patient survey findings that further assess how patients use the app and perceived benefits.

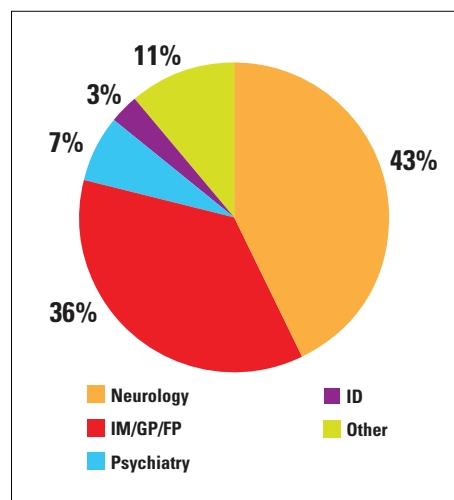
## Results

### Multiple Sclerosis @Point of Care: How Clinicians Use This Platform

Clinicians engaging in learning by utilizing *Multiple Sclerosis @Point of Care* currently number 10,627 unique users who spend an average of 8 minutes/visit. The value of this platform in the practice setting is further amplified by the fact that 77% of these users are repeat learners.

### Use of the Multiple Sclerosis @Point of Care IBM Watson Cognitive Learning Tool

- 79% of the IBM Watson users posing questions on demand were neurologists, internists, general practitioners, and family practitioners treating patients with MS.



### Examples of Clinician Queries

- What are the clinical criteria for MS?
- What are the findings of the TEMSO trial?
- What are the findings of the CAMMS223 trial?
- What does the RRMS ocrelizumab trial data show?

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## My MS Manager App: 300,000 Patient Interactions

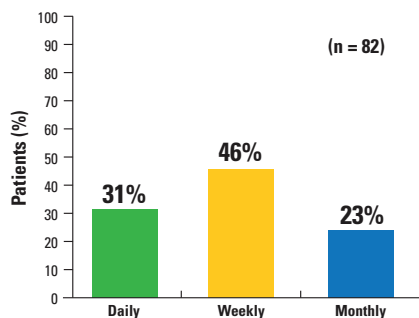
There are currently 6880 registered patient users for the *My MS Manager* patient app, with an average of 1022 active users per month. The app enables patients to enter and track their specific MS disease-related information, such as activities of daily living, fatigue scale records, medications, and other relevant information. The value of this app can be seen in the number of app interactions/user sessions on app (300,000).

To date, active use of the app by MS patients has resulted in 28,794 journal records for activities of daily living (average of 7 records/patient), 1897 fatigue scale journal records, and 3640 adherence journal records.

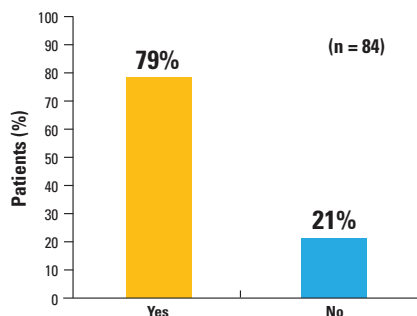
### Patient Perspective: My MS Manager Patient App Survey Findings<sup>6</sup>

To further assess the utility of the app from the patient's perspective, a proprietary survey was sent to 1309 MS patients who are active monthly users of the patient app. Patient responses are summarized (overall respondents to each question [(n)] varies).

#### How Frequently Do Patients Use the My MS Manager Patient App?



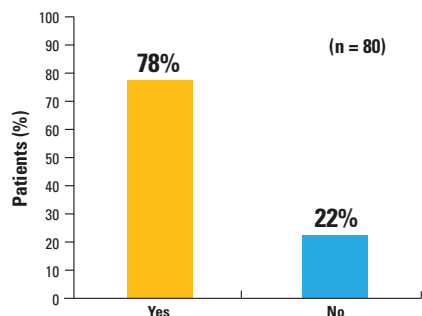
#### Does the Patient App Help Patients Better Track How They Are Doing?



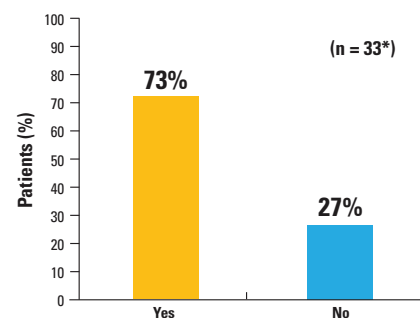
#### After Discussing the Patient App Records/Charts with Their Clinician, the Following Changes Were Made

Changes to medications	14%
Changes to other parts of treatment plan	10%
Suggestion for lifestyle changes	6%
Requested more tests	1%
No changes were made; doctor felt treatment plan was on track	69%

#### Does Regular Use of the Patient App Improve Patients' Ability to Discuss and Manage Their MS?

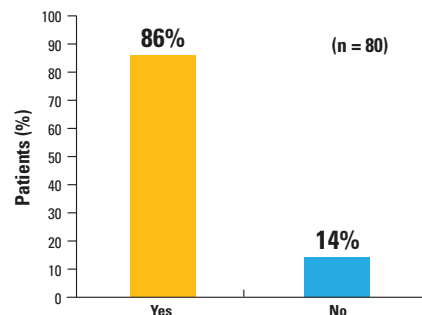


#### Have Discussions/Sharing of App Records with Their Clinician Improved Patients' MS Management?

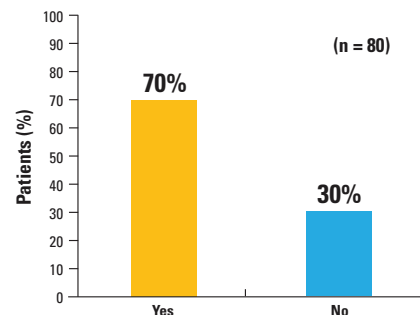


\*Number of patients low because some patients who started using the app have not yet had their clinician appointment to share their data.

#### Has Using the Patient App Motivated Patients to Talk to Their Clinician About MS Management?



#### Has Use of the Patient App Improved the Patients' Sense of Well-Being?



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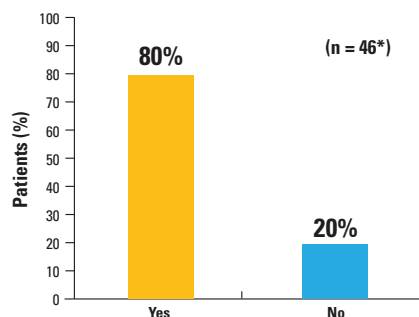


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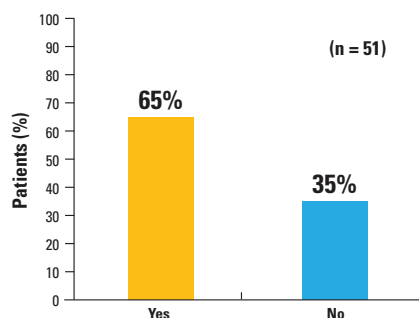
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## Are Clinicians More Aware of the Impact of Fatigue on Their Patients' Daily Lives as a Result of Discussions with Patients About the Fatigue Scale Results from the App?

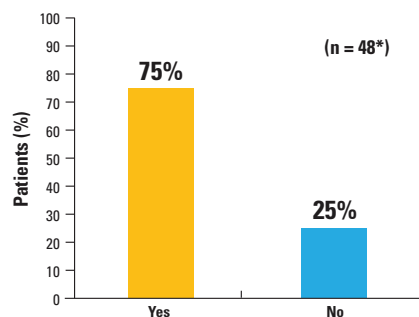


\*Number of patient responses low since some patients have not yet used app's fatigue scale.

## Has Use of the Patient App Provided Better Management of Patients' Fatigue-Related Memory, Judgement, Reasoning, and Understanding (Cognitive Function Related)?



## Has Use of the Patient App Provided Better Fatigue Management?



\*Number of patient responses low since some patients have not yet used app's fatigue scale.

## How Has the Patient App Positively Affected the Patient's Daily Life and Management of MS (Sampling of patient survey write-ins)

- Helps track how things are going, especially the fatigue
- I feel a sense of control over my MS and its symptoms
- Has been very good for tracking drugs and dosages
- It allows for me to track things that I plan to share with my doctor
- Gives me perspective of how I'm doing over specific periods of time
- Love it! I am able to chart how lack of sleep affects my fatigue level, depression, memory, moods. Thank you for developing this useful App
- It's a great tracking tool
- I feel as though the app is going to be extremely beneficial to me. I plan on using it to inform my doctors of what is happening
- I have cognition problems and the app helps me keep track of my symptoms
- It helps me keep track of certain symptoms and figure out if there is a common ground for when they act up

## Conclusions

Overall findings:

- 1) Clinicians and their patients use *Multiple Sclerosis @Point of Care* and the *MSAA My MS Manager* patient app, respectively, to provide information that results in shared decision making that improves outcomes.
- 2) A growing number of patients are using the *My MS Manager* app to enter their data, track their MS management, and share this data with their clinicians.
- 3) The fatigue scale entries continue to increase and represent valuable patient-reported information for their treating clinicians. Dr. Bowen from the Swedish Neurological Institute indicated that the patient app is improving patient-physician communication regarding MS, is facilitating discussion of fatigue, is enabling patients to track their symptoms and medications, and provides value to patients since they have a sense that their clinician is more invested in their MS management (James D. Bowen, MD, personal communication, April 2016).
- 4) Management of MS is evolving rapidly and the findings of this analysis show *Multiple Sclerosis @Point of Care* and the *My MS Manager* patient app, respectively, facilitate the interface of clinicians and MS patients for shared decision making that supports strategies for practice change and improved patient outcomes through point-of-care accessibility.

## References

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6. Projects In Knowledge proprietary survey. 2016.

(1) @Point of Care, Livingston, NJ

(2) Multiple Sclerosis Association of America, Cherry Hill, NJ

(3) Swedish Medical Center, Seattle, WA