



# **American Academy of Neurology**

## **Multiple Sclerosis Quality Measurement Set**

Approved by the Multiple Sclerosis Quality Measurement Development Work Group on February 12, 2015, by the AAN Quality and Safety Subcommittee on February 20, 2015; by the AAN Practice Committee on March 10, 2015; and by the AANI Board of Directors on March 24, 2015.

This measurement set was endorsed by the American Association of Neuroscience Nurses on March 13, 2015.

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<b>Table of Contents</b>	<b>Page</b>
Work Group Members	4
Improving Outcomes for Patients with Multiple Sclerosis (MS)	5
Clinical Evidence Base	6
Definitions and Abbreviations	6
Desired Outcomes	7
Work Group Recommendations	7
Other Potential Measures	8
Intended Care Audience, Settings, and Patient Population	9
Measure Harmonization	9
Technical Specifications Overview	9
Measure Exceptions	10
Testing and Implementation of the Measurement Set	10
<b>Multiple Sclerosis Measurement Set</b>	
1. Multiple Sclerosis (MS) Diagnosis	11
2. Comparison MRI Within 24 Months of MS Diagnosis	14
3. Current MS Disability Scale Score	17
4. Fall Risk Screening for Patients with MS	21
5. Bladder Infections for Patients with MS	25
6. Exercise and Appropriate Physical Activity Counseling for Patients with MS	28
7. Fatigue Outcome for Patients with MS	31
8. Cognitive Impairment Testing for Patients with MS	34
9. Clinical Depression Screening for Patients with MS	38
10. Depression Outcome for Patients with MS	41
11. Maintained or Improved Baseline Quality of Life for Patients with MS	44
Contact Information	45
References	45

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## **Improving Outcomes for Patients with Multiple Sclerosis (MS)**

### Purpose of Measurement Set

In 2014, the American Academy of Neurology (AAN) formed a multi-disciplinary Multiple Sclerosis Work Group (Work Group) to review existing guidelines and evidence, gaps in care and to develop a measurement set for multiple sclerosis (MS) to promote quality improvement and drive improved outcomes for patients with MS.

The AAN develops quality measures based on the belief that neurologists should play a major role in selecting and creating performance measures that will drive performance improvement and possibly be used in accountability programs. The AAN formed the Work Group with representatives from professional associations, patient advocacy organizations, and payers to ensure measures developed include input from all members of the healthcare team. All members of the Work Group were required to disclose relationships with industry and other entities to avoid actual, potential, or perceived conflicts of interest.

### Topic Importance

It is estimated that MS affects about 400,000 Americans and is the leading cause of disability among young adults.<sup>1,2</sup> The disorder generally worsens over time, leading to irreversible functional disability with symptoms including visual or sensory disturbances, loss of strength, tremor, ambulatory problems, loss of bladder/bowel control, fatigue, spasticity, cognitive impairment and sexual dysfunction. Further, the number of people with MS worldwide is approximately 2.3 to 2.5 million.<sup>3,4</sup> MS is not a “reportable” disease in the United States, which makes it difficult to determine an accurate number of individuals who have MS.<sup>5</sup> There are twice as many women with MS as men with MS overall.<sup>3</sup> Geographic differences in the prevalence of MS in the United States have been noted.<sup>6</sup>

80% of patients present with an initial episode of neurological symptoms, which can either represent a clinically isolated syndrome or multiple sclerosis depending on clinical and magnetic resonance imaging (MRI) factors. Of these those who have white-matter abnormalities on MRI, the chance of a second attack subsequently occurring increases from 50% at 2 years to 82% at 20 years.<sup>7</sup> Progression to the secondary progressive phase starts at varying age but averages about 40 years of age.<sup>7</sup>

Compston notes that death is attributable to MS in two-thirds of cases and to increased infection risks and complications in others.<sup>7</sup> The median time to death is around 30 years from disease onset, which represents a reduction in life expectancy of 5-10 years.<sup>7</sup>

The cost of MS is rapidly rising given the advances of in therapies. A review of the cost burden of MS indicated the mean cost for patients with MS ranged from \$8,528-\$54,244 per year and direct costs, including hospitalization, outpatient care and pharmaceuticals, ranged from \$6,144-\$34,511 in 2011 dollars.<sup>8</sup> Prescription drugs and indirect costs, such as disease-related absences from work, were the biggest single cost drivers of MS representing an average of 50% and 23% of total costs.<sup>8</sup> This high cost burden review did not include newer, more costly therapies.<sup>8</sup>

### Opportunities for Improvement

Additional data on opportunities for improvement and gaps in care specific to the MS measures can be located in the quality measurement set that follows. Treatment use remains uneven, and treatment of MS is much debated due to the fact available treatments are expensive and do not always meet routine standards for cost-effectiveness.<sup>8</sup>

## Clinical Evidence Base

The MS Work Group reviewed existing literature and consulted MS clinical practice guidelines including:

1. Assessment and Management of Psychiatric Disorders in Individuals with MS: Report of the Guideline Development Subcommittee of the American Academy of Neurology.<sup>9</sup>
2. Evidence report: the efficacy and safety of mitoxantrone (Novantrone) in the treatment of multiple sclerosis.<sup>10</sup>
3. Neutralizing antibodies to interferon beta: Assessment of their clinical and radiographic impact: An evidence report.<sup>11</sup>
4. Evidence-based guideline update: plasmapheresis in neurologic disorders.<sup>12</sup>
5. Evidence-based guideline: clinical evaluation and treatment of transverse myelitis.<sup>13</sup>
6. Practice parameter: The usefulness of evoked potentials in identifying clinically silent lesions in patients with suspected multiple sclerosis (an evidence-based review): Report of the Quality Standards Subcommittee of the American Academy of Neurology.<sup>14</sup>
7. Evidence-based guideline: Complementary and alternative medicine in multiple sclerosis.<sup>15</sup>
8. Multiple sclerosis: management of multiple sclerosis in primary and secondary care.<sup>16</sup>
9. Nursing management of the patient with multiple sclerosis.<sup>17</sup>
10. EFNS guidelines on the use of anti-interferon beta antibody measurements in multiple sclerosis.<sup>18</sup>
11. EFNS guidelines on acute relapses of multiple sclerosis.<sup>19</sup>
12. Fingolimod for the treatment of highly active relapsing-remitting multiple sclerosis.<sup>20</sup>
13. Consortium of MS Centers MRI Protocol for the Diagnosis and Follow-up of MS 2009 Revised Guidelines.<sup>21</sup>
14. The importance of quality-of-life assessment in the management of patients with multiple sclerosis Recommendations from the Middle East MS Advisory Group.<sup>22</sup>

## Definitions and Abbreviations in the Measurement Set

The Work Group utilized the following definitions and abbreviations in the measurement set:

- Consult: to ask the advice or opinion of (Merriam-Webster<sup>23</sup>)
- Counsel: to advise seriously and formally after consultation (Merriam-Webster<sup>24</sup>)
- Educate: to give someone information or training about something (Merriam-Webster<sup>25</sup>)
- Refer: to send or direct for diagnosis or treatment (Merriam-Webster<sup>26</sup>)
- Screen: to test or examine for the presence of something (Merriam-Webster<sup>27</sup>)

Below is a list of acronyms utilized in this document. The AAN has a Quality Improvement Glossary, which provides more in depth explanations and is available at [aan.com/practice/quality-measures/quality-resources](http://aan.com/practice/quality-measures/quality-resources).

- ACO: Accountable Care Organization
- ADL: Activities of Daily Living
- CMS: Centers for Medicare & Medicaid Services
- DMT: Disease Modifying Therapy
- MS: Multiple Sclerosis
- NQF: National Quality Forum
- PQRS: Physician Quality Reporting System
- QOL: Quality of Life

## Desired Outcomes

The Work Group reviewed desired outcomes for patients with MS and identified the following:

- Confirmation of MS diagnosis as soon as possible
- Reduce mortality directly related to MS

- Reduce MS progression
- Reduce MS exacerbation frequency
- Maintain or increase existing cognitive and physical functioning levels
- Reduce affective symptoms in patient population, which include, but are not limited to emotional lability, depression, and anxiety
- Reduce falls
- Improve adherence to Disease Modifying Therapy (DMT)
- Increase patients engagement in treatment decision process
- Increase patients acting on received MS education and incorporating information into treatment
- Improve quality of care from a coordinated treatment team
- Address all patient needs and engage all patients on a personal level
- Increase patient satisfaction with care provided
- Reduce caregiver burden
- Decrease rates of comorbidities (i.e., HTN, Diabetes, Smoking Obesity)
- Increase Quality of Life ratings
- Reduce hospitalizations
- Decrease complications of MS:
  - Pressure Ulcers
  - Fatigue
  - Spasticity
  - Pain and Headache
  - Sexual Dysfunction
  - Bowel and Urinary Dysfunction

### **Work Group Recommendations**

The Work Group recommended the following measures be developed.

<b>Multiple Sclerosis Measurement Set</b>
1. Multiple Sclerosis (MS) Diagnosis
2. Comparison MRI Within 24 Months of MS Diagnosis
3. Current MS Disability Scale Score
4. Fall Risk Screening for Patients with MS
5. Bladder Infections for Patients with MS
6. Exercise and Appropriate Physical Activity Counseling for Patients with MS
7. Fatigue Outcome for Patients with MS
8. Cognitive Impairment Testing for Patients with MS
9. Clinical Depression Screening for Patients with MS
10. Depression Outcome for Patients with MS
11. Maintained or Improved Baseline Quality of Life for Patients with MS

### **Other Potential Measures**

It is impossible for one quality measurement set to address all MS quality of care issues. At the beginning of this project, it was determined the scope would be limited. Neuromyelitis Optica (NMO) and Clinically Isolated Syndrome (CIS) measures were excluded from project scope.

The Work Group evaluated possible MS relapse measures. Development of a relapse measure was deemed to be of high importance given the fact that reduction of the number of relapses is considered to be one of the most important desired outcomes for a patient with MS. However, potential measure drafts were noted to be potentially cost inefficient, difficult or impossible to measure, difficult or impossible for a practitioner to act upon. Possible relapse measures discussed included:

- The percentage of patients with multiple sclerosis who demonstrate a response to treatment at twelve months defined by a reduction of new lesion formation and active lesions on MRI from prior MRI in measurement period.
- Percentage of patients with multiple sclerosis who did not require steroids or inpatient treatment during a 12-month period.
- Percentage of patients with multiple sclerosis who demonstrate a response to treatment at twelve months defined by maintenance or improvement of Expanded Disability Scale Score (EDSS).
- Percentage of patients with relapsing or secondary progressive MS with relapses in a given population during a 12-month period. (Such a measure would be useful for comparisons of different MS centers.)
- Percentage of patients with MS with defined relapses affecting function offered treatment for their relapses/number of patients with defined relapses.
- Percentage of patients with multiple sclerosis who reported relapses.

The Work Group also considered a treatment complication – spasticity measure. A lack of adequate outcome scale prevented further development of such a measure. Lack of uniformity in documenting spasticity evaluation and an electronic health record (EHR) variability exacerbated spasticity measure development (i.e., most spasticity evaluations are recorded in an EHR as free form text, which would result in a manual chart review.)

The Work Group discussed development of a measure related to DMT, but was unable to locate published data supporting a treatment gap in care. There were also concerns that a denominator cannot be readily identified using administrative data with limitations in ICD coding. The Work Group developed measure concepts to address mobility and visual deficits, but did not approve these concepts for further development following the in person meeting.

The Work Group approved pain assessment and fall follow-up plan documented measures for public comment. These measures were withdrawn following public comment. The pain assessment measure was withdrawn due to concern that it unnecessarily duplicates existing measures. The Work Group encourages individuals to consider National Quality Forum (NQF) endorsed measure #0420 and adopted into Physician Quality Reporting System (PQRS) measure #131. The fall follow-up measure was withdrawn due to potential difficulty locating follow-up plan documentation. Locating follow-up plan documentation would potentially require burdensome chart review, as the information would not be easily accessed in an EHR.

### **Intended Care Audience, Settings, and Patient Population**

The AAN encourages use of these measures by physicians, other health care professionals, and the health care systems, where appropriate, to achieve improved performance and as steps towards optimized clinical outcomes for patients with MS. The Work Group included adolescent populations for select measures where appropriate and supported by the evidence.

Not all AAN measures are appropriate for accountability programs, and the MS Work Group has designated appropriate measures use in the measure descriptions that follow. The following is a summary of measures recommended for use in accountability programs.

<b>Multiple Sclerosis Measurement Set</b>	<b>Recommended for Accountability Programs</b>
1. Multiple Sclerosis (MS) Diagnosis	No
2. Comparison MRI Within 24 Months of MS Diagnosis	No
3. Current MS Disability Scale Score	Yes
4. Fall Risk Screening for Patients with MS	Yes
5. Bladder Infections for Patients with MS	Yes For System or Health Plans Only
6. Exercise and Appropriate Physical Activity Counseling for Patients with MS	Yes
7. Fatigue Outcome for Patients with MS	Yes For System or Health Plans Only
8. Cognitive Impairment Testing for Patients with MS	Yes For System or Health Plans Only
9. Clinical Depression Screening for Patients with MS	Yes
10. Depression Outcome for Patients with MS	Yes For System or Health Plans Only
11. Maintained or Improved Baseline Quality of Life for Patients with MS	Yes For System or Health Plans Only

### **Measure Harmonization**

The MS Work Group searched for existing performance measures operating with a denominator of patients with MS, and did not locate any. Cheng et al. created a list of quality indicators specific to MS that was reviewed by the Work Group.<sup>28</sup> Efforts were made to unify denominator statements when possible to ease data collection. Multiple measure sets exist that have potential implications for patients with MS such as depression, urinary function, etc. Details on how these existing measures were harmonized are included in the specific measure specifications that follow below.

### **Technical Specifications Overview**

The AAN develops technical specifications for measures that may include:

- Electronic Health Record (EHR) Data
- Electronic Administrative Data (Claims)
- Chart Review (for select measures where EHR data cannot be gathered)
- Registry

Administrative claims specifications are provided for MS measures when applicable. The AAN is in the process of creating code value sets and the logic required for electronic capture of the quality measures with EHRs, when possible. A listing of the quality data model elements, code value sets, and measure logic (through the CMS Measure Authoring Tool) for each of the MS measures will be made available at a later date. These technical specifications will be updated as warranted.

The measurement set includes measures that require the use of validated screening tools. The Work Group discussed and determined that multiple tools should be offered to allow providers to determine which tool best meets their individual practice needs. Tools may be subject to copyright and require licensing fees.

### **Measure Exceptions**

A denominator exclusion is a factor supported by the clinical evidence that removes a patient from inclusion in the measure population. For example, if the denominator indicates the measure is for all patients aged 0 to 18 years of age, a patient who is 19 years of age is excluded.

A denominator exception is a condition that should remove the patient, procedure or unit of measurement from the denominator only if the numerator criteria are not met. The AAN includes three possible types of exceptions for reasons why a patient should not be included in a measure denominator: medical (e.g., contraindication), patient (e.g., declination or religious belief), or system (e.g., resource limitation) reasons. For each measure, there must be a clear rationale to permit an exception for a medical, patient, or system reason. The Work Group provided explicit exceptions when applicable for ease of use in eMeasure development.

### **Testing and Implementation of the Measurement Set**

The MS measures in this set are being made available without any prior testing. The AAN encourages testing of this measurement set for feasibility and reliability by organizations or individuals positioned to do so. Any testing data gathered will be considered during future measurement set updates. Select measures will be beta tested once the set has been released, prior to submission to the National Quality Forum for possible endorsement. All readers are encouraged to read the AAN Statement on Comparing Outcomes of Patients available in the AAN measurement manual. (<https://www.aan.com/practice/quality-measures/about-quality-measures/>)

This measure set includes outcome measures which are intended to be applied at the system or accountable care organization level. Use of these measures to compare providers or practices would require the application of a valid risk adjustment methodology which does not exist for MS populations. These measures may be used for accountability at the system or accountable care organization level if the MS populations being compared are similar in demographics, socioeconomic status and the prevalence of comorbid conditions. These measures may also be used for internal, non-publicly reported quality improvement for a patient population that is not subject to significant change, as risk adjustment or stratification would not be required.

The AAN encourages a minimum sample size of 20 for use in public reporting programs to reduce likelihood of error. The number 20 reflects current CMS sample requirements for Physician Compare.

## Multiple Sclerosis (MS) Diagnosis

<b>Measure Description</b>	
Percentage of patients who received a new diagnosis of multiple sclerosis in the past 12 months who fulfilled international criteria.*	
<b>Measure Components</b>	
<b>Numerator Statement</b>	<p>Patients who received a new diagnosis of multiple sclerosis in the past 12 months who fulfilled international criteria.*</p> <p>Definitions: *International criteria is use of the either the 2005 or 2010 revised McDonald criteria.<sup>1,2</sup> These criteria facilitate the diagnosis of MS, but do not protect against misdiagnosis. Additional diagnostic evaluation may be needed, and this must be tailored to each patient’s clinical situation.</p>
<b>Denominator Statement</b>	All patients with a new diagnosis of MS in the past 12 months.
<b>Denominator Exclusions</b>	<ul style="list-style-type: none"> <li>• Excluding other neuroimmunological syndromes including</li> <li>• Neuromyelitis Optica,</li> <li>• Clinically Isolated Syndrome,</li> <li>• Radiologically Isolated Syndrome, and</li> <li>• Acute Disseminated Encephalomyelitis.</li> </ul>
<b>Denominator Exceptions</b>	None
<b>Supporting Guideline &amp; Other References</b>	“A proportion of patients with nonspecific symptoms and nonspecific MRI findings are referred to secondary and tertiary MS centers in the developed world for a second opinion and do not in fact have MS.” <sup>1</sup> Use of international diagnostic criteria allows for a more rapid diagnosis of MS in some instances and clarify and simplify the diagnostic process in many instances with fewer MRI examinations. <sup>1,2</sup>
<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	Desired outcome is to confirm diagnosis of MS in line with the most recent internationally recognized criteria for the diagnosis. Desired outcome is to confirm diagnosis of MS in line with the most recent internationally recognized criteria for the diagnosis. It is recognized that excluding MS mimics is a key aspect of diagnosis which is not addressed by this measure. <sup>3</sup> Intention is to increase early diagnosis and treatment for patients with MS and reduce costs of harms from delayed diagnosis of MS. Patients meeting international diagnostic criteria for relapsing MS and secondary progressive MS with relapses are potential candidate for disease modifying therapy (DMT). It is anticipated that if measured, there is a likelihood to reduce prescriptions and costs for patients not meeting DMT use criteria who otherwise might be offered these treatments.
<b>Opportunity for Improvement</b>	Diagnostic errors are common in MS. <sup>4,5</sup> Misdiagnosis is a significant contributor to patient harm. <sup>6</sup> Increasing awareness and adherence to international diagnostic criteria for MS is desired. A need to reduce the population of patients using DMT who do not have MS by international criteria exists. The measure does not require confirmation of diagnosis through a second opinion or physician referral, but is intended to confirm

	diagnosis only within the first twelve months of diagnosis or a referral to a specialist.
<b>National Quality Strategy Domains</b>	<input type="checkbox"/> Patient and Family Engagement <input checked="" type="checkbox"/> Patient Safety <input checked="" type="checkbox"/> Care Coordination <input type="checkbox"/> Population/Public Health <input checked="" type="checkbox"/> Efficient Use of Healthcare Resources <input type="checkbox"/> Clinical Process/Effectiveness
<b>Exception Justification</b>	Not Applicable
<b>Harmonization with Existing Measures</b>	There are currently no other comparable measures in national measurement programs or endorsed by the National Quality Forum.
<b>Measure Designation</b>	
<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input type="checkbox"/> Accountability
<b>Type of Measure</b> (Check all that apply)	<input type="checkbox"/> Process <input checked="" type="checkbox"/> Outcome <input type="checkbox"/> Structure
<b>Level of Measurement</b> (Check all that apply)	<input checked="" type="checkbox"/> Individual Provider <input checked="" type="checkbox"/> Practice
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care
<b>Data Source</b> (Check all that apply)	<input type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input checked="" type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry
<b>References</b>	
<sup>1</sup> Polman CH, Reingold SC, Banwell B, et al. Diagnostic Criteria for Multiple Sclerosis: 2010 Revisions to the McDonald Criteria. <i>Ann Neurol</i> 2011; 69:292-302. <sup>2</sup> Polman CH, Reingold SC, Edan, G, et al. Diagnostic criteria for multiple sclerosis: 2005 revisions to the “McDonald Criteria”. <i>Annals of Neurology</i> 2005; 58(6):840-846. <sup>3</sup> Miller DH, Weinshenker BG, Filippi M, et al. Differential diagnosis of suspected multiple sclerosis: a consensus approach. <i>Mult Scler</i> 2008; 14:1157-1174. <sup>4</sup> Solomon AJ and Weinshenker BG. Misdiagnosis of Multiple Sclerosis: Frequency, Causes, Effects, and Prevention. <i>Curr Neurol Neurosci Rep</i> 2013; 13:403. <sup>5</sup> Carmosino MJ, Brousseau KM, Arciniegas DB, et al. Initial Evaluations for Multiple Sclerosis in a University Multiple Sclerosis Center. <i>Arch Neurol</i> 2005; 62:585-590. <sup>6</sup> El-Kareh R. Making Clinical Diagnoses: How Measureable Is the Process? National Quality Measures Clearinghouse. May 5, 2014. Available at: <a href="http://www.qualitymeasures.ahrq.gov/expert/expert-commentary.aspx?f=rss&amp;id=47927">http://www.qualitymeasures.ahrq.gov/expert/expert-commentary.aspx?f=rss&amp;id=47927</a>	
<b>Technical Specifications: Administrative Data (Claims)</b>	
Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a	

rate based on all patients in a given practice for whom data are available and who meet the eligible population/ denominator criteria.

<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u> 340 Multiple Sclerosis	<u>ICD-10 Code</u> G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem Multiple sclerosis of cord
	<p>AND            CPT E/M Service Code:            99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient);            99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient);            99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient)</p>	

### Comparison MRI Within 24 Months of MS Diagnosis

<b>Measure Description</b>	
Percentage of patients with MS who had an MRI with and without gadolinium within 24 months of diagnosis compared with a baseline MRI.	
<b>Measure Components</b>	
<b>Numerator Statement</b>	Patients with MS who had an MRI with and without gadolinium within 24 months of diagnosis compared with a baseline MRI.
<b>Denominator Statement</b>	All patients with a diagnosis of MS within the past 24 months.
<b>Denominator Exceptions</b>	<ul style="list-style-type: none"> <li>• Patient has clinically evident disease activity.</li> <li>• Patient declines referral to MRI of brain and/or spinal cord for personal, medical, or system reasons (i.e., claustrophobia).</li> <li>• Patient meets MRI exclusions (i.e., any trauma or surgery which may have left ferromagnetic material in the body, ferromagnetic implants or pacemakers; and inability to lie still for 1 hour or more).</li> </ul>
<b>Supporting Guideline &amp; Other References</b>	<p>The following evidence statements are quoted verbatim from the referenced clinical guidelines:</p> <ul style="list-style-type: none"> <li>• “A brain MRI with gadolinium ...for the following of MS patients to assess subclinical disease activity should be CONSIDERED every 1 to 2 years.”<sup>1,2</sup></li> </ul>
<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	The desired outcomes in MS patients are to prevent clinical relapses and to prevent long term impairment and disability. Clinically apparent relapses are not fully predictive of long term disability and prevention of relapses does not fully prevent long term disability so more sensitive predictors of long term disability have been sought. Disease activity that is seen on MRI, but not clinically evident, is predictive of disability progression early in the disease course. Therefore, MRI is being used as a sensitive biomarker of disease activity to judge long term prognosis and to help guide the use of disease modifying therapies.
<b>Opportunity for Improvement</b>	Prior to the recognition that MRI is more sensitive to MS disease activity than monitoring of clinical symptoms, monitoring response to therapy was based primarily on clinical symptoms. Because of this, many MS providers continue to rely primarily on clinical evaluation to drive decision making in MS patients and do not monitor MRI activity on a regular basis. Increasing the use of MRI monitoring could lead to patients being moved to more effective therapies which would reduce long term impairment and disability.
<b>National Quality Strategy Domains</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Patient and Family Engagement</li> <li><input type="checkbox"/> Patient Safety</li> <li><input type="checkbox"/> Care Coordination</li> <li><input checked="" type="checkbox"/> Population/Public Health</li> <li><input type="checkbox"/> Efficient Use of Healthcare Resources</li> <li><input checked="" type="checkbox"/> Clinical Process/Effectiveness</li> </ul>
<b>Exception Justification</b>	<ul style="list-style-type: none"> <li>• Exception provided for patients who have clinically evident disease activity to reduce unnecessary MRI testing.</li> <li>• Exception for patient declinations need as patients need to be willing to undergo a MRI.</li> <li>• Exception for MRI exclusions necessary to avoid harm to patients.</li> </ul>

<b>Harmonization with Existing Measures</b>	There are currently no other comparable measures in national measurement programs or endorsed by the National Quality Forum.	
<b>Measure Designation</b>		
<b>Measure Purpose</b> (check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input type="checkbox"/> Accountability	
<b>Type of Measure</b> (check all that apply)	<input checked="" type="checkbox"/> Process <input type="checkbox"/> Outcome <input type="checkbox"/> Structure	
<b>Level of Measurement</b> (check all that apply)	<input checked="" type="checkbox"/> Individual Provider <input checked="" type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan	
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care	
<b>Data Source</b> (Check all that apply)	<input type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input checked="" type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry	
<b>References</b>		
<sup>1</sup> Consortium of Multiple Sclerosis Centers. Consortium of MS Centers MRI Protocol for the Diagnosis and Follow-up of MS 2009 Revised Guidelines. <sup>2</sup> Simon JH, Li D, Traboulsee A, et al. Standardized MR imaging protocol for multiple sclerosis. Consortium of MS Centers consensus guidelines. AJNR Am J Neuroradiol. 2006;27:455-461.		
Additional Supporting References (Literature): <ul style="list-style-type: none"> <li>• Bagnato F, Tancredi A, Richert N, et al. Contrast-enhanced magnetic resonance activity in relapsing-remitting multiple sclerosis. Mult Scler 2000; 6: 43-49.</li> <li>• Rio J, Rovira A, Tintore M, et al. Evaluating the response to glatiramer acetate in relapsing-remitting multiple sclerosis patients. Mult Scl 2014; Epub ahead of print, pubmed no 34622350.</li> <li>• Bermel RA, You X, Foulds P, et al. Predictors of long-term outcome in patients treated with interferon-beta. Ann Neurol 2013; 73: 95-103.</li> <li>• Durelli L, Barbero P, Bergui M et al. MRI activity and neutralizing antibodies as predictors of response to interferon-beta treatment in multiple sclerosis. J Neurol Neurosurg Psych 2008; 79: 646-651.</li> <li>• Grimaldi LM, Prosperini L, Vittello G, et al. MRI-based analysis of the natalizumab therapeutic window. Mult Scler 2012; 18: 1337-1339.</li> </ul>		
<b>Technical Specifications: Administrative Data (Claims)</b>		
Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/ denominator criteria.		
<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u> 340 Multiple Sclerosis	<u>ICD-10 Code</u> G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis

	<p>Multiple sclerosis NOS  Multiple sclerosis of brain stem  Multiple sclerosis of cord</p> <p>AND</p> <p>CPT E/M Service Code:  99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient);  99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient);  99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient)</p>
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### Current MS Disability Scale Score

<b>Measure Description</b>	
Percentage of patients with MS who have a MS disability scale score* documented in the medical record in the past 12 months.	
<b>Measure Components</b>	
<b>Numerator Statement</b>	<p>Patients with MS who have a MS disability scale score* documented in the medical record in the past 12 months.</p> <p>*MS disability scale score is defined as the score obtained from administering one of the following:</p> <ul style="list-style-type: none"> <li>• Patient Determined Disease Steps (PDDS)<sup>1</sup>,</li> <li>• At least 2 measures of MS Functional Composite (MSFC)<sup>2</sup>,</li> <li>• Kurtzke Expanded Disability Status Scale (EDSS)<sup>3,4</sup>,</li> <li>• European Database on MS Grading System (EDMUS-GS)<sup>5,6</sup>,</li> <li>• Functional Independence Measure (FIM)<sup>7</sup>,</li> <li>• Guy’s Neurological Disability Scale (GNDS)<sup>8</sup>,</li> <li>• Neurological Rating Scale from the Scripps Clinic,<sup>9</sup></li> <li>• MS Rating Scale, Revised (MSRS-R).<sup>10</sup></li> <li>• Appropriate instruments from the NIH Toolbox (i.e. if the patient’s primary impairment is motor, motor function would be assessed).<sup>11</sup></li> <li>• Appropriate instruments from the PROMIS<sup>12</sup> or NeuroQOL.<sup>13</sup></li> </ul>
<b>Denominator Statement</b>	All patients with a diagnosis of MS.
<b>Denominator Exceptions</b>	<ul style="list-style-type: none"> <li>• Patient declines to self-report and declines neurological examination.</li> <li>• Patient is unable to participate in neurological examination (i.e., advanced stage dementia, profound psychosis, neurodevelopmental disorder, brain injury encephalopathy, or hydrocephalus.)</li> </ul>
<b>Supporting Guideline &amp; Other References</b>	<p>Following evidence statements are quoted verbatim from the referenced clinical guidelines:</p> <ul style="list-style-type: none"> <li>• “Ensure all people with MS have a comprehensive review of all aspects of their care at least once a year.”<sup>14</sup></li> <li>• “Tailor the comprehensive review to the needs of the person with MS assessing: MS symptoms... MS disease course...”<sup>14</sup></li> </ul>
<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	<p>It is anticipated that by monitoring disease progression, clinicians will be able to offer timely interventions, thereby reducing MS progression.</p> <p>The annual relapse rate and Expanded Disability Status Scale (EDSS) progression are the most commonly used clinical endpoints in disease modifying therapy trials.<sup>3,4</sup> A disability measure should be part of any annual assessment. The relapse rate and disability progression are also important objective determinants for changing MS therapy.<sup>1</sup> Additionally, these morbidity endpoints are used in the EDMUS database, Canadian MS Databases (BC and Ontario), NY State MS Consortium, and NARCOMS.<sup>5,6,15</sup></p>
<b>Opportunity for Improvement</b>	Not all patients in clinical practice have an annual validated MS scale measurement. Clinicians cannot detect disability progression unless there is regular assessment and comparison of assessment scores.

<b>National Quality Strategy Domains</b>	<input type="checkbox"/> Patient and Family Engagement <input type="checkbox"/> Patient Safety <input type="checkbox"/> Care Coordination <input type="checkbox"/> Population/Public Health <input type="checkbox"/> Efficient Use of Healthcare Resources <input checked="" type="checkbox"/> Clinical Process/Effectiveness
<b>Exception Justification</b>	Patients need to be willing to undergo a standardized neurological examination for most of the MS performance scales scores to be valid.
<b>Harmonization with Existing Measures</b>	There are currently no other comparable measures in national measurement programs or endorsed by the National Quality Forum.
<b>Measure Designation</b>	
<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input checked="" type="checkbox"/> Accountability
<b>Type of Measure</b> (Check all that apply)	<input checked="" type="checkbox"/> Process <input type="checkbox"/> Outcome <input type="checkbox"/> Structure
<b>Level of Measurement</b> (Check all that apply)	<input checked="" type="checkbox"/> Individual Provider <input checked="" type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care
<b>Data Source</b> (Check all that apply)	<input checked="" type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry
<b>References</b>	
<sup>1</sup> Learmonth YC, Motl RW, Sandroff BM, et al. Validation of patient determined disease steps (PDDS) scale scores in persons with multiple sclerosis. <i>BMC Neurology</i> 2013;13:37. <sup>2</sup> Cutter GR, Baier ML, Rudick RA, et al. Development of a multiple sclerosis functional composite as a clinical trial outcome measure. <i>Brain</i> 1999; 122: 871–882 <sup>3</sup> Kurtzke JF. Origin of DSS: to present the plan. <i>Mult Scler</i> 2007; 13:120-123. <sup>4</sup> Kurtzke JF. Rating neurologic impairment in multiple sclerosis: an expanded disability status scale (EDSS). <i>Neurology</i> . 1983 Nov;33(11):1444-52. <sup>5</sup> Grimaud J, Amato MP, and Confavreux C. Design of a European multicenter study dedicated to the evaluation of the EDMUS System: EVALUED. <i>Mult Scler</i> 1999; 5: 234-238. <sup>6</sup> Amato MP, Grimaud J, Achiti I, et. Al. European validation of a standardized clinical description of multiple sclerosis. <i>J Neurol</i> 2004; 251: 1472-1480. <sup>7</sup> Ottenbacher KJ, Hsu Y, Granger CV, et al. The reliability of the Functional Independence Measure: a quantitative review. <i>Arch Phys Med Rehabil</i> 1996;77:1226-32. <sup>8</sup> Sharrack B, Hughes RA. The Guy’s Neurological Disability Scale (GNDS): a new disability measure for multiple sclerosis. <i>Mult Scler</i> . 199;5(4)223-233. <sup>9</sup> Sipe JC, Knobler RL, Braheny SL, et al. A neurologic rating scale (NRS) for use in multiple sclerosis. <i>Neurology</i> 1984;34:1368-1372.	

<sup>10</sup> Wicks P, Vaughan TE, and Massagli MP. The multiple sclerosis rating scale, revised (MSRS-R): Development, refinement, and psychometric validation using an online community, Health and Quality of Life Outcomes. 2010;10:70.

<sup>11</sup> Hodes RJ, Insel TR, Landis SC. On behalf of the NIH Blueprint for Neuroscience Research. The NIH Toolbox: Setting a standard for biomedical research. Neurology 2013;80(S3):S1-S92. All NIH Toolbox-related materials are ©2012 Northwestern University and the National Institutes of Health.

<sup>12</sup> Cella D, Riley W, Stone A, et al. Initial Adult Health Item Banks and First Wave Testing of the Patient-Reported Outcomes Measurement Information System (PROMIS) Network: 2005-2008. J Clin Epidemiol. 2010; 63(11):1179-1194.

<sup>13</sup> Gershon RC, Lai JS, Bode R, et al. Neuro-QOL: quality of life item banks for adults with neurological disorders: item development and calibrations based upon clinical and general population testing. Qual Life Res. 2012; 21(3):475-486.

<sup>14</sup> National Institute for Health and Care Excellence. Multiple sclerosis: management of multiple sclerosis in primary and secondary care. NICE Clinical Guideline 186. October 2014.

<sup>15</sup> Vollmer TL, Ni W, Stanton S, Hadjimichael O. The NARCOMS patient registry: A resource for investigators. Int J MS Care 1999; 1:12-15.

**Technical Specifications: Electronic Health Record (EHR) Data**

The AAN is in the process of creating code value sets and the logic required for electronic capture of the quality measures with EHRs. A listing of the quality data model elements, code value sets, and measure logic (through the CMS Measure Authoring Tool) for each of the MS measures will be made available at a later date.

**Technical Specifications: Administrative Data (Claims)**

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/ denominator criteria.

<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u>	<u>ICD-10 Code</u>
	340 Multiple Sclerosis	G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem Multiple sclerosis of cord
	AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient); 99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient); 99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient); 97001 (Physical therapy evaluation); 97002 (Physical therapy re-evaluation); 97003 (Occupational therapy evaluation); 97004 (Occupational therapy re-evaluation)	

### Fall Risk Screening for Patients with MS

<b>Measure Description</b>	
Percentage of patients with MS who were screened for fall risk in past 12 months.	
<b>Measure Components</b>	
<b>Numerator Statement</b>	<p>Patients with MS who were screened for fall risk in past 12 months.</p> <p><b>Definitions:</b> *Fall Risk Screen is not further defined, and is at provider’s discretion to allow for flexibility to meet practice needs. The screen may include use of a validated instrument or patient interview.</p>
<b>Denominator Statement</b>	All patients with a diagnosis of MS.
<b>Denominator Exceptions</b>	None
<b>Supporting Guideline &amp; Other References</b>	<p>CMS has approved the following fall risk screening measures (See Measures Harmonization below.):</p> <ul style="list-style-type: none"> <li>• Patients aged 65 years and older who were screened for future fall risk at least once within 12 months. (ACO#13/NQF#0101)</li> <li>• Patients aged 65 years and older with a history of falls who had a risk assessment for falls completed within 12 months. (PQRS #154)</li> </ul> <p>Following evidence statements are quoted verbatim from the referenced clinical guidelines:</p> <ul style="list-style-type: none"> <li>• “Ensure all people with MS have a comprehensive review of all aspects of their care at least once a year.”<sup>1</sup></li> <li>• “Ensure the comprehensive review is carried out by healthcare professionals with expertise in MS and its complications. Involve different healthcare professionals with expertise in specific areas of the review if needed.”<sup>1</sup></li> <li>• “Tailor the comprehensive review to the needs of the person with MS assessing: MS symptoms: mobility and balance including falls.”<sup>1</sup></li> </ul>
<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	Falls screening and subsequent management are essential to reduce the number of future falls.
<b>Opportunity for Improvement</b>	<p>Patients with MS are at risk for falls. A recent systematic review found 30 to 63% of patients with MS had fallen within the past year.<sup>2</sup> Risk factors for falling include worse disability course, progressive course, use of ambulation aids, and poorer performance in balance tests. A recent study found 56% of patients with MS recorded a fall in the past 3 months in their patient diary.<sup>3</sup></p> <p>Falls screening is underutilized. Matsuda 2011 reported that 58% of persons with MS experienced a fall in the past 6 months.<sup>4</sup> Among that group, only 51% reported speaking to a healthcare provider about it.<sup>4</sup> Determining whether patients have fallen in the past year has been found to be a strong predictor of who would fall again.<sup>5</sup> In a comparison of fall history, questioning on fear of fall, EDSS, Timed 25 foot walk, and computerized balance assessment, it was found that fall history was the best predictor of future falls, and that this is the quickest and easiest method for assessing fall risk.<sup>6</sup></p>

	<p>Gillespie performed a systematic review of randomized trials to reduce falls in the general population.<sup>7</sup> They identified 159 RCTs comprising 79,193 patients, and determined that exercise programs and home safety interventions were effective in reducing fall risk.<sup>7</sup> Multifactorial interventions that assess an individual's risk of falling then recommends specific treatment based on individualized risk also reduces falling.<sup>7</sup></p> <p>The United States Preventive Services Task Force recommends exercise or physical therapy to prevent falls in community-dwelling adults aged 65 years or older who are at increased risk for falls. Michael, 2010.<sup>8</sup> In its Physician Quality Reporting System (PQRS) Measure # 155, CMS defines a fall plan of care to include balance, strength, and gait training.<sup>9</sup></p>
<b>National Quality Strategy Domains</b>	<input type="checkbox"/> Patient and Family Engagement <input checked="" type="checkbox"/> Patient Safety <input type="checkbox"/> Care Coordination <input type="checkbox"/> Population/Public Health <input type="checkbox"/> Efficient Use of Healthcare Resources <input type="checkbox"/> Clinical Process/Effectiveness
<b>Exception Justification</b>	Not Applicable
<b>Harmonization with Existing Measures</b>	Existing measures (e.g., ACO Measure #13/NQF #0101, PQRS Measure #154) focus on individuals aged 65 and older. All patients with MS should be screened for fall risk, not just those aged 65 years and older, and as a result this measure was developed to capture screening for this population.
<b>Measure Designation</b>	
<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input checked="" type="checkbox"/> Accountability
<b>Type of Measure</b> (Check all that apply)	<input checked="" type="checkbox"/> Process <input type="checkbox"/> Outcome <input type="checkbox"/> Structure
<b>Level of Measurement</b> (Check all that apply)	<input checked="" type="checkbox"/> Individual Provider <input checked="" type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care
<b>Data Source</b> (Check all that apply)	<input checked="" type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry
<b>References</b>	

<sup>1</sup> National Institute for Health and Care Excellence. Multiple sclerosis: management of multiple sclerosis in primary and secondary care. NICE Clinical Guideline 186. October 2014

<sup>2</sup> Gianni C, Prosperini L, Jonsdottir J, Cattaneo D. A systematic review of factors associated with accidental falls in people with multiple sclerosis: a meta-analytic approach. Clin Rehabil. 2014 Feb 25;28(7):704-716.

<sup>3</sup> Nilsagård Y, Gunn H, Freeman J, et al. Falls in people with MS-an individual data meta-analysis from studies from Australia, Sweden, United Kingdom and the United States. Mult Scler. 2014 Jun 16.;1-9.

<sup>4</sup> Matusda, PN, Shumway-Cook A, Bamer AM, et al. Falls in multiple sclerosis. PM R 2011(7):624-632.

<sup>5</sup> Ganz DA, Bao Y, Shekelle PG, et al. Will my patient fall? JAMA. 2007 Jan 3;297(1):77-86.

<sup>6</sup> Cameron MH, Thielman E, Mazumder R, et al. Predicting falls in people with multiple sclerosis: fall history is as accurate as more complex measures Mult Scler Int. 2013; 2013: Article ID 496325. 7p.

<sup>7</sup> Gillespie LD, Robertson MC, Gillespie WJ, Sherrington C, Gates S, Clemson LM, Lamb SE. Interventions for preventing falls in older people living in the community. Cochrane Database Syst Rev. 2012 Sep 12;9:CD007146.

<sup>8</sup> Michael YL, Whitlock EP, Lin JS, Fu R, O'Connor EA, Gold R; US Preventive Services Task Force. Primary care-relevant interventions to prevent falling in older adults: a systematic evidence review for the U.S. Preventive Services Task Force. Ann Intern Med. 2010 Dec 21;153(12):815-25.

<sup>9</sup> Centers for Medicare & Medicaid Services. Physician Quality Reporting System Measure Codes found at: <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/PQRS/MeasuresCodes.html> Accessed on July 28, 2014.

**Technical Specifications: Electronic Health Record (EHR) Data**

The AAN is in the process of creating code value sets and the logic required for electronic capture of the quality measures with EHRs. A listing of the quality data model elements, code value sets, and measure logic (through the CMS Measure Authoring Tool) for each of the MS measures will be made available at a later date.

**Technical Specifications: Administrative Data (Claims)**

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/ denominator criteria.

<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u>	<u>ICD-10 Code</u>
	340 Multiple Sclerosis	G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem Multiple sclerosis of cord
	AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient); 99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient); 99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient); 97001 (Physical therapy evaluation); 97002 (Physical therapy re-evaluation); 97003 (Occupational therapy evaluation); 97004 (Occupational therapy re-evaluation)	

### Bladder Infections for Patients with MS

<b>Measure Description</b>	
<p>Percentage of patients with MS who have had a bladder infection in past 12 months.</p> <p>Note: Please see page 10 for further discussion of risk adjustment and stratification. Measure may be used for accountability at the system or accountable care organization level if the MS populations being compared are similar in demographics, socioeconomic status and the prevalence of comorbid conditions.</p>	
<b>Measure Components</b>	
<b>Numerator Statement</b>	Patients with MS who have had a documented bladder infection in the past 12 months.
<b>Denominator Statement</b>	All patients with a diagnosis of MS.
<b>Denominator Exceptions</b>	<ul style="list-style-type: none"> <li>• Documentation of an indwelling catheter.</li> <li>• Documentation of diverting urostomy.</li> </ul>
<b>Supporting Guideline &amp; Other References</b>	<p>Following evidence statements are quoted verbatim from the referenced clinical guidelines:</p> <ul style="list-style-type: none"> <li>• “Assess for infection and assist in management strategies to reduce risk of infection, stone formation, or worsening of neurologic condition (Level 3).”<sup>1</sup></li> <li>• “Ensure all people with MS have a comprehensive review of all aspects of their care at least once a year.”<sup>1</sup></li> <li>• “Tailor the comprehensive review to the needs of the person with MS assessing: MS symptoms: ... bladder, bowel and sexual function...”<sup>2</sup></li> </ul>
<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	The desired outcome is to reduce the number of bladder infections. The measure focuses attention on bladder infections and creates an incentive to take measures needed to prevent them. This measure requires internal benchmarking for quality improvement efforts, and it is anticipated in future measurement updates if the measure is retained due to a continued gap in care that benchmarking data for providers will be included. (e.g., bladder infection rates will be reduced by a certain percentage rate over time.)
<b>Opportunity for Improvement</b>	Bladder infections occur in up 20% of patients with MS <sup>3</sup> and are commonly present in patients with relapses. <sup>4</sup> Recognition of neurogenic bladder and proper management of bladder dysfunction can reduce the incidence of infection.
<b>National Quality Strategy Domains</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Patient and Family Engagement</li> <li><input checked="" type="checkbox"/> Patient Safety</li> <li><input type="checkbox"/> Care Coordination</li> <li><input type="checkbox"/> Population/Public Health</li> <li><input type="checkbox"/> Efficient Use of Healthcare Resources</li> <li><input type="checkbox"/> Clinical Process/Effectiveness</li> </ul>
<b>Exception Justification</b>	<ul style="list-style-type: none"> <li>• Patients with indwelling catheters are likely to have chronic bacteriuria due to bacterial colonization making implementation of the measure difficult.</li> <li>• Most patients with urostomies do not have functioning bladders</li> </ul>

<b>Harmonization with Existing Measures</b>	There are currently not comparable measures in national measurement programs or endorsed by the National Quality Forum.	
<b>Measure Designation</b>		
<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input checked="" type="checkbox"/> Accountability	
<b>Type of Measure</b> (Check all that apply)	<input type="checkbox"/> Process <input checked="" type="checkbox"/> Outcome <input type="checkbox"/> Structure	
<b>Level of Measurement</b> (Check all that apply)	<input checked="" type="checkbox"/> Individual Provider <input checked="" type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan	
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care	
<b>Data Source</b> (Check all that apply)	<input checked="" type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry	
<b>References</b>		
<sup>1</sup> American Association of Neuroscience Nurses (AANN), Association of Rehabilitation Nurses (ARN), International Organization of Multiple Sclerosis Nurses (IOMSN). Nursing management of the patient with multiple sclerosis. Glenview (IL): American Association of Neuroscience Nurses (AANN); 2011. 49 p. <sup>2</sup> National Institute for Health and Care Excellence. Multiple sclerosis: management of multiple sclerosis in primary and secondary care. NICE Clinical Guideline 186. October 2014. <sup>3</sup> Manach A, Motsko SP, Haag-Molkenteller C, et al. Epidemiology and healthcare utilization of neurogenic bladder patients in US claims database. Neurourol Urodyn 2011; 30: 395-401. <sup>4</sup> Mahadeva A, Tarosescu R, Gran B. Urinary tract infections in multiple sclerosis: underdiagnosed and undertreated? Am J Clin Exp Immunol 2014; 3: 57-67.		
<b>Technical Specifications: Electronic Health Record (EHR) Data</b>		
The AAN is in the process of creating code value sets and the logic required for electronic capture of the quality measures with EHRs. A listing of the quality data model elements, code value sets, and measure logic (through the CMS Measure Authoring Tool) for each of the MS measures will be made available at a later date.		
<b>Technical Specifications: Administrative Data (Claims)</b>		
Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/ denominator criteria.		
<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u> 340 Multiple Sclerosis	<u>ICD-10 Code</u> G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem

	<p style="text-align: right;">Multiple sclerosis of cord</p> <p>AND</p> <p>CPT E/M Service Code:</p> <p>99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient);</p> <p>99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient);</p> <p>99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient);</p> <p>97001 (Physical therapy evaluation);</p> <p>97002 ( Physical therapy re-evaluation);</p> <p>97003 (Occupational therapy evaluation);</p> <p>97004 (Occupational therapy re-evaluation)</p>
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### Exercise and Appropriate Physical Activity Counseling for Patients with MS

Measure Description	
Percentage of patients with MS who are counseled* on the benefits of exercise and appropriate physical activity for patients with MS in the past 12 months.	
Measure Components	
<b>Numerator Statement</b>	Patients with MS counseled* on the benefits of exercise and appropriate physical activity for patients with MS in past 12 months.  *Counseled: to advise seriously and formally after consultation <sup>1</sup>
<b>Denominator Statement</b>	All patients with a diagnosis of MS.
<b>Denominator Exceptions</b>	None** **All patients including those unable to exercise should be provided information on appropriate range of motion and activity.
<b>Supporting Guideline &amp; Other References</b>	The following evidence statements are quoted verbatim from the referenced clinical guidelines: <ul style="list-style-type: none"> <li>• “Evidence-based treatment interventions for mobility optimization include exercise promotion (Level 1).”<sup>2</sup></li> <li>• “Encourage participation in a regular pattern of exercise to improve mood (Level 1).”<sup>2</sup></li> <li>• “Encourage people with MS to exercise. Advise them that regular exercise may have beneficial effects on their MS and does not have any harmful effects on their MS.”<sup>3</sup></li> <li>• “Ensure all people with MS have a comprehensive review of all aspects of their care at least once a year.”<sup>3</sup></li> <li>• “Tailor the comprehensive review to the needs of the person with MS assessing: General health: ...exercise...”<sup>3</sup></li> </ul>
Measure Importance	
<b>Relationship to Desired Outcome</b>	Increased rates of physical activity and exercise improve the physical functioning levels and quality of life for patients with MS. <sup>4</sup>
<b>Opportunity for Improvement</b>	Despite known benefits of exercise and physical activity, persons with MS remain inactive. <sup>5,6</sup> The Work Group encourages referral to rehabilitation services, including physical therapy, when clinically appropriate given the evidence supporting improved outcomes for patients. <sup>7-9</sup>
<b>National Quality Strategy Domains</b>	<input type="checkbox"/> Patient and Family Engagement <input type="checkbox"/> Patient Safety <input type="checkbox"/> Care Coordination <input type="checkbox"/> Population/Public Health <input type="checkbox"/> Efficient Use of Healthcare Resources <input checked="" type="checkbox"/> Clinical Process/Effectiveness
<b>Exception Justification</b>	Not Applicable
<b>Harmonization with Existing Measures</b>	There are currently not comparable measures in national measurement programs or endorsed by the National Quality Forum.
Measure Designation	

<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input checked="" type="checkbox"/> Accountability
<b>Type of Measure</b> (Check all that apply)	<input checked="" type="checkbox"/> Process <input type="checkbox"/> Outcome <input type="checkbox"/> Structure
<b>Level of Measurement</b> (Check all that apply)	<input checked="" type="checkbox"/> Individual Provider <input checked="" type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care
<b>Data Source</b> (Check all that apply)	<input checked="" type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry

#### References

- <sup>1</sup> Merriam Webster. Available at: <http://www.merriam-webster.com/medical/counsel>
- <sup>2</sup> American Association of Neuroscience Nurses (AANN), Association of Rehabilitation Nurses (ARN), International Organization of Multiple Sclerosis Nurses (IOMSN). Nursing management of the patient with multiple sclerosis. Glenview (IL): American Association of Neuroscience Nurses (AANN); 2011. 49 p.
- <sup>3</sup> National Institute for Health and Care Excellence. Multiple sclerosis: management of multiple sclerosis in primary and secondary care. NICE Clinical Guideline 186. October 2014.
- <sup>4</sup> American College of Sports Medicine: ACSM's Resource Manual for Guidelines for Exercise Testing and Prescription, 6th edition edn. Baltimore, MD: Lippincott Williams & Wilkins; 2010.
- <sup>5</sup> Mayo NE, Bayley M, Duquette P, et. Al. The role of exercise in modifying outcomes for people with multiple sclerosis: a randomized trial. BMC Neurology 2013;13:69.
- <sup>6</sup> Motl RW, McAuley E, Snook EM. Physical activity and multiple sclerosis: a meta-analysis. Mult Scler 2005; 11(4):459-463.
- <sup>7</sup> Khan F, Turner-Stokes L, Ng L, et al. Multidisciplinary rehabilitation for adults with multiple sclerosis. Cochrane Database of Systematic Reviews 2007, Issue 2. Art. No.: CD006036.
- <sup>8</sup> Rietberg MB, Brooks D, Uitdehaag BMJ, Kwakkel G. Exercise therapy for multiple sclerosis. Cochrane Database of Systematic Reviews 2004, Issue 3. Art. No.: CD003980.
- <sup>9</sup> Döring A, Caspar FP, Friedemann P, et al. Exercise in multiple sclerosis – an integral component of disease management. The EPMA Journal 2012;3:2-13.

#### Technical Specifications: Electronic Health Record (EHR) Data

The AAN is in the process of creating code value sets and the logic required for electronic capture of the quality measures with EHRs. A listing of the quality data model elements, code value sets, and measure logic (through the CMS Measure Authoring Tool) for each of the MS measures will be made available at a later date.

#### Technical Specifications: Administrative Data (Claims)

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/ denominator criteria.

<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u> 340 Multiple Sclerosis  AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient); 99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient); 99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient); 97001 (Physical therapy evaluation); 97002 ( Physical therapy re-evaluation); 97003 (Occupational therapy evaluation); 97004 (Occupational therapy re-evaluation)	<u>ICD-10 Code</u> G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem Multiple sclerosis of cord
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## Fatigue Outcome for Patients with MS

<b>Measure Description</b>	
<p>Percentage of patients with MS whose most recent score indicates results are maintained or improved on a validated fatigue rating instrument* for patients with MS in past 12 months.</p> <p>Note: Please see page 10 for further discussion of risk adjustment and stratification. Measure may be used for accountability at the system or accountable care organization level if the MS populations being compared are similar in demographics, socioeconomic status and the prevalence of comorbid conditions.</p>	
<b>Measure Components</b>	
<b>Numerator Statement</b>	<p>Patients with MS whose most recent score indicates results are maintained or improved on a validated fatigue rating instrument* for patients with MS in past 12 months.</p> <p>*Validated fatigue rating instruments include the Fatigue Severity Scale (FSS),<sup>1-3</sup> Fatigue Impact Scale,<sup>4</sup> MS Specific Fatigue Severity Scale,<sup>5,6</sup> Modified Fatigue Impact Scale,<sup>7</sup> or Unidimensional Fatigue Impact Scale<sup>8</sup></p>
<b>Denominator Statement</b>	All patients with a diagnosis of MS.
<b>Denominator Exceptions</b>	<ul style="list-style-type: none"> <li>• Patients unable or declines to complete a fatigue questionnaire (i.e., advanced stage dementia, profound psychosis, neurodevelopmental disorder, brain injury encephalopathy, or hydrocephalus.)</li> <li>• Comorbid medical condition causing fatigue (i.e., Systemic inflammatory condition, cardiac condition, renal failure, pulmonary condition, or sleep apnea.)</li> </ul>
<b>Supporting Guideline &amp; Other References</b>	<p>The following evidence statements are quoted verbatim from the referenced clinical guidelines:</p> <ul style="list-style-type: none"> <li>• “Assess and offer treatment to people with MS who have fatigue for anxiety, depression, difficulty in sleeping, and any potential medical problems such as anaemia or thyroid disease.”<sup>9</sup></li> <li>• “Explain that MS-related fatigue may be precipitated by heat, overexertion and stress or may be related to the time of day.”<sup>9</sup></li> <li>• “Nurses should be aware of and assess for secondary causes of fatigue to include depression, medication side effects, pain, and sleep disorders (Level 2). Nurses should educate and counsel patients regarding energy conservation strategies, including the role of body temperature control (Level 2). The nurse should be aware of the optimal timing of medication administration to enhance energy level and to avoid interrupting sleep (Level 3).”<sup>10</sup></li> </ul>
<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	The desired outcome is to reduce or eliminate fatigue in MS patients. The measure will provide an incentive for providers to identify and manage fatigue in MS patients.
<b>Opportunity for Improvement</b>	Fatigue occurs in about 80% of patients with MS reducing physical activity and level of daily functioning. <sup>8</sup> It is anticipated that by addressing fatigue, quality of life will improve as individuals have decreased fatigue and increased ability to function at work and home.

<b>National Quality Strategy Domains</b>	<input type="checkbox"/> Patient and Family Engagement <input type="checkbox"/> Patient Safety <input type="checkbox"/> Care Coordination <input type="checkbox"/> Population/Public Health <input type="checkbox"/> Efficient Use of Healthcare Resources <input checked="" type="checkbox"/> Clinical Process/Effectiveness
<b>Exception Justification</b>	<ul style="list-style-type: none"> <li>• Fatigue is a subjective symptom that requires patient cooperation to assess.</li> <li>• Diseases other than MS can cause fatigue so patients with other fatigue causing diseases are excluded from the MS measure</li> </ul>
<b>Harmonization with Existing Measures</b>	There are currently no other comparable fatigue measures in national measurement programs or endorsed by the National Quality Forum.
<b>Measure Designation</b>	
<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input checked="" type="checkbox"/> Accountability
<b>Type of Measure</b> (Check all that apply)	<input type="checkbox"/> Process <input checked="" type="checkbox"/> Outcome <input type="checkbox"/> Structure
<b>Level of Measurement</b> (Check all that apply)	<input type="checkbox"/> Individual Provider <input type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care
<b>Data Source</b> (Check all that apply)	<input checked="" type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry
<b>References</b>	
<sup>1</sup> Krupp LB, LaRocca NG, Nuir-Nash J, et al. The Fatigue Severity Scale: Application to Patients with Multiple Sclerosis and Systemic Lupus Erythematosus. <i>Arch Neurol.</i> 1989;46(10):1121-1123. <sup>2</sup> Christodoulou C, MacAllister WS, Krupp LB: <i>Psychiatry for Neurologists: Fatigue 295-306</i> Philadelphia: Elsevier Science; 2003. <sup>3</sup> Schwartz JE, Jandorf L, Krupp LB. The measurement of fatigue: A new instrument. <i>Journal of Psychosomatic Research</i> 1993; 37(7):753-762. <sup>4</sup> Fisk JD, Ritvo PG, Ross L, et al. Measuring the functional impact of fatigue: initial validation of the Fatigue Impact Scale. <i>Clin Infect Dis</i> 1994;18(1):S79-S83. <sup>5</sup> Kos D., Kerckhofs E., Nagels G, et al. Assessing fatigue in multiple sclerosis: Dutch modified fatigue impact scale. <i>Acta Neurologica Belgica</i> 2003;103(4):185–191. <sup>6</sup> Kos D, Nagels G, D’Hooghe MB, et al. A rapid screening tool for fatigue impact in multiple sclerosis. <i>BMC Neurology</i> 2006, 6:27 <sup>7</sup> Fisk JD, Pontefract A, Ritvo PG, Archibald CJ, Murray TJ. The impact of fatigue on patients with multiple sclerosis. <i>Can J Neurol Sci</i> 1994; 21: 9-14. <sup>8</sup> Meads DM, Doward LC, McKenna SP, et al. The development and validation of the Unidimensional Fatigue Impact Scale (U-FIS). <i>Multiple Sclerosis</i> 2009; 15(10):1228-1238.	

<sup>9</sup> National Institute for Health and Care Excellence. Multiple sclerosis: management of multiple sclerosis in primary and secondary care. NICE Clinical Guideline 186. October 2014.

<sup>10</sup> American Association of Neuroscience Nurses (AANN), Association of Rehabilitation Nurses (ARN), International Organization of Multiple Sclerosis Nurses (IOMSN). Nursing management of the patient with multiple sclerosis. Glenview (IL): American Association of Neuroscience Nurses (AANN); 2011. 49 p.

**Technical Specifications: Electronic Health Record (EHR) Data**

The AAN is in the process of creating code value sets and the logic required for electronic capture of the quality measures with EHRs. A listing of the quality data model elements, code value sets, and measure logic (through the CMS Measure Authoring Tool) for each of the MS measures will be made available at a later date.

**Technical Specifications: Administrative Data (Claims)**

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/ denominator criteria.

<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u> 340 Multiple Sclerosis	<u>ICD-10 Code</u> G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem Multiple sclerosis of cord
	AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient); 99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient); 99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient); 97001 (Physical therapy evaluation); 97002 ( Physical therapy re-evaluation); 97003 (Occupational therapy evaluation); 97004 (Occupational therapy re-evaluation)	

### Cognitive Impairment Testing for Patients with MS

<b>Measure Description</b>	
Percentage of patients 18 years and older with MS who were tested* for cognitive impairment in the past 12 months.	
<b>Measure Components</b>	
<b>Numerator Statement</b>	<p>Patients with MS aged 18 years and older were tested* for cognitive impairment at least once in past 12 months.</p> <p><b>Definitions:</b></p> <p>* Tested is defined as administering either:</p> <ul style="list-style-type: none"> <li>• Brief International Assessment of Cognition for MS (BICAMS),<sup>1</sup></li> <li>• Symbol Digit Modalities Test (SDMT),<sup>2</sup></li> <li>• MS Neuropsychological Screening Questionnaire (MSNQ) Informant,<sup>3</sup></li> <li>• Verbal fluency (phonemic and semantic),<sup>4</sup></li> <li>• Paced Auditory Serial Addition Test (PASAT),<sup>3</sup></li> <li>• Rao Brief Repeatable Neuropsychological Battery (BRNB),<sup>3</sup></li> <li>• Minimal Assessment of Cognitive Function in MS (MACFIMS),<sup>3</sup> or</li> <li>• PROMIS.<sup>5</sup></li> <li>• Referral for formal neuropsychological testing where clinically appropriate would also satisfy measure.</li> </ul>
<b>Denominator Statement</b>	All patients aged 18 years or older with a diagnosis of MS.
<b>Denominator Exceptions</b>	<ul style="list-style-type: none"> <li>• Patient declines or is not able to participate in a cognitive assessment, including those at end of life, comatose, or delirious.</li> <li>• Patient currently receiving treatment to address cognitive impairment.</li> </ul>
<b>Supporting Guideline &amp; Other References</b>	<p>Following evidence statements are quoted verbatim from the referenced clinical guidelines:</p> <ul style="list-style-type: none"> <li>• “Assess and offer treatment to people with MS and evidence of memory and cognitive problems for anxiety, depression, difficulty in sleeping and fatigue.”<sup>8</sup></li> <li>• “Nurses should work with the patient, care partner, and other members of the interdisciplinary team to develop an appropriate cognitive management program and reevaluate on an ongoing basis (Level 3). The nurse should screen for factors that could increase cognitive problems such as medications, sleep disturbance, inadequately treated pain, and other untreated symptoms (Level 2). Nurses need to recognize and acknowledge the distressing nature of cognitive deficits (Level 3). Patients should be provided with verbal and written instructions regarding the need to reduce distractions and implement safety measures (Level 3).”<sup>9</sup></li> <li>• “Ensure all people with MS have a comprehensive review of all aspects of their care at least once a year.”<sup>8</sup></li> <li>• “Tailor the comprehensive review to the needs of the person with MS assessing: MS symptoms: ...cognitive symptoms...”<sup>8</sup></li> <li>• “Be aware that the symptoms of MS can include cognitive problems, including memory problems that the person may not immediately recognise or associate with their MS.”<sup>8</sup></li> <li>• “Talk to people with MS and their family members or carers about the possibility that the condition might lead to cognitive problems.”<sup>8</sup></li> </ul>

	<ul style="list-style-type: none"> <li>• “Consider referring people with MS and persisting memory or cognitive problems to both an occupational therapist and a neuropsychologist to assess and manage these symptoms.”<sup>8</sup></li> </ul>
<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	Cognitive functioning impacts life satisfaction and health-related quality of life. It is anticipated that if assessed on an ongoing basis, cognitive deficits may be identified and addressed in a timely manner. Once identified, such deficits could be treated (or patients referred to appropriate resources) and thereby improve individuals quality of life.
<b>Opportunity for Improvement</b>	43-70% of people with MS have reported cognitive impairments. <sup>7</sup> Clinicians cannot detect cognitive impairment unless there is regular assessment.
<b>National Quality Strategy Domains</b>	<input type="checkbox"/> Patient and Family Engagement <input type="checkbox"/> Patient Safety <input type="checkbox"/> Care Coordination <input type="checkbox"/> Population/Public Health <input type="checkbox"/> Efficient Use of Healthcare Resources <input checked="" type="checkbox"/> Clinical Process/Effectiveness
<b>Exception Justification</b>	Patients need to be willing to complete the screening tool for the screening scores to be valid.
<b>Harmonization with Existing Measures</b>	There are no currently endorsed cognitive impairment quality measures; current endorsed quality measures focus on dementia assessment. A measure is needed to address the opportunity for improvement specific to the cognitive impairments faced by the MS population.
<b>Measure Designation</b>	
<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input checked="" type="checkbox"/> Accountability <i>for Health System or Plans only</i>
<b>Type of Measure</b> (Check all that apply)	<input checked="" type="checkbox"/> Process <input type="checkbox"/> Outcome <input type="checkbox"/> Structure
<b>Level of Measurement</b> (Check all that apply)	<input checked="" type="checkbox"/> Individual Provider <input checked="" type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care
<b>Data Source</b> (Check all that apply)	<input checked="" type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry
<b>References</b>	
<sup>1</sup> Benedict RHB, Amato MP, Boringa J, et al. Brief International Cognitive Assessment for MS (BICAMS): international standards for validation. BMC Neurology 2012;12:55.	

<sup>2</sup> Smith A. The symbol-digit modalities test: a neuropsychologic test of learning and other cerebral disorders. J. Helmuth (Ed.) Learning disorders, Special Child Publications, Seattle (1968), pp. 83-91.

<sup>3</sup> Foley FW, Benedict RHB, Gromisch ES, et al. The Need for Screening, Assessment, and Treatment for Cognitive Dysfunction in Multiple Sclerosis. Results of a Multidisciplinary CMSC Consensus Conference, September 24, 2010. Int J MS Care 2012;14:58–64.

<sup>4</sup> Connick P, Kolappan M, Bak TH, et al. Verbal fluency as a rapid screening test for cognitive impairment in progressive multiple sclerosis. J Neurol Neurosurg Psychiatry 2012;83(3):346-347.

<sup>5</sup> Becker H, Stuijbergen A, Lee H, et al. Reliability and Validity of PROMIS Cognitive Abilities and Cognitive Concerns Scales Among People with Multiple Sclerosis. Int J MS Care. 2014;16(1):1-8.

<sup>6</sup> Beatty WW and Goodkin DE. Screening for Cognitive Impairment in Multiple Sclerosis: An Evaluation of the Mini-Mental State Examination. Arch Neurol. 1990;47(3):297-301.

<sup>7</sup> Langdon DW, Amato MP, Boringa J, et al. Recommendations for a Brief International Cognitive Assessment for Multiple Sclerosis (BICAMS). Multiple Sclerosis Journal 2012;0(0):1-8.

<sup>8</sup> National Institute for Health and Care Excellence. Multiple sclerosis: management of multiple sclerosis in primary and secondary care. NICE Clinical Guideline 186. October 2014.

<sup>9</sup> American Association of Neuroscience Nurses (AANN), Association of Rehabilitation Nurses (ARN), International Organization of Multiple Sclerosis Nurses (IOMSN). Nursing management of the patient with multiple sclerosis. Glenview (IL): American Association of Neuroscience Nurses (AANN); 2011. 49 p.

**Technical Specifications: Electronic Health Record (EHR) Data**

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**Technical Specifications: Administrative Data (Claims)**

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<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u>	<u>ICD-10 Code</u>
	340 Multiple Sclerosis	G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem Multiple sclerosis of cord
	AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient); 99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient); 99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient); 97001 (Physical therapy evaluation); 97002 (Physical therapy re-evaluation); 97003 (Occupational therapy evaluation); 97004 (Occupational therapy re-evaluation)	

### Clinical Depression Screening for Patients with MS

<b>Measure Description</b>	
Percentage of patients aged 12 years and older with MS who were screened for clinical depression using an age appropriate standardized depression screening tool* at least once in past 12 months.	
<b>Measure Components</b>	
<b>Numerator Statement</b>	<p>Patients aged 12 years and older with MS who were screened for clinical depression using an age appropriate standardized depression screening tool* at least once in past 12 months.</p> <p>*Depression screening tool: Clinicians should consider use of validated instruments such as the:</p> <ul style="list-style-type: none"> <li>• Beck Depression Inventory (BDI) or BDI II,</li> <li>• Patient Health Questionnaire (PHQ-9), (PHQ-A), or (PHQ-2),</li> <li>• MS Depression Rating Scale,</li> <li>• Center for Epidemiological Studies-Depression Revised (CESD-R),</li> <li>• Hospital Anxiety and Depression Scale (HADS),</li> <li>• General Health Questionnaire (GHQ),</li> <li>• 2 Question Screen,</li> <li>• Neuro QOL Depression Bank. <sup>1-6</sup></li> </ul> <p>Note: Currently no validated depression screening tools based on caregiver report are known.</p>
<b>Denominator Statement</b>	All patients aged 12 years or older with a diagnosis of MS.
<b>Denominator Exceptions</b>	Patients who are unable or decline to complete screening instrument.
<b>Supporting Guideline &amp; Other References</b>	<p>Following evidence statements are quoted verbatim from the referenced clinical guidelines:</p> <ul style="list-style-type: none"> <li>• “Clinicians may consider the Beck Depression Inventory and a 2-question tool to screen for depressive disorders and the General Health Questionnaire to screen for broadly defined emotional disturbances (Level C).”<sup>1</sup></li> <li>• “Evidence is insufficient to support/refute the use of other screening tools, the possibility that somatic/neurovegetative symptoms affect these tools’ accuracy, or the use of diagnostic instruments or clinical evaluation procedures for identifying psychiatric disorders in MS (Level U).”<sup>1</sup></li> <li>• “Ensure all people with MS have a comprehensive review of all aspects of their care at least once a year.”<sup>2</sup></li> <li>• “Tailor the comprehensive review to the needs of the person with MS assessing: MS symptoms: ...depression and anxiety...”<sup>2</sup></li> <li>• “Mood Dysregulation: Nurses should work with the patient, care partner, and other members of the interdisciplinary team to manage depression appropriately (Level 2). Other roles are to assist patients and care partners to adjust to changes involved in living with MS (Level 2); identify the physical, emotional, spiritual, and educational needs of the patient and family (Level 2); reinforce the importance of medication regimen and be aware of medication side effects (Level 2); be alert to cues related to mood changes and treatment outcomes (Level 2); and encourage participation in a regular pattern of exercise to improve mood (Level 1).”<sup>3</sup></li> </ul>

<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	Screening is the first step to improved recognition and treatment of depression in MS patients, and to decrease rates of affective symptoms in the MS patient population.
<b>Opportunity for Improvement</b>	MS is frequently associated with depression, and is currently under diagnosed and treated. <sup>4,7</sup> Evidence of under diagnosis of depression in MS patients makes screening vital to identifying those in need of treatment.
<b>National Quality Strategy Domains</b>	<input type="checkbox"/> Patient and Family Engagement <input type="checkbox"/> Patient Safety <input checked="" type="checkbox"/> Care Coordination <input type="checkbox"/> Population/Public Health <input type="checkbox"/> Efficient Use of Healthcare Resources <input type="checkbox"/> Clinical Process/Effectiveness
<b>Exception Justification</b>	Patients need to be willing to complete the screening tool for the screening scores to be valid.
<b>Harmonization with Existing Measures</b>	Several NQF endorsed measures exist that address depression and treatment adherence. These measures include Antidepressant Medication Management, Child and Adolescent Major Depressive Disorders: Diagnostic Evaluation, Adult Major Depressive Disorder: Suicide Risk Assessment, and Depression Response at Twelve Months – Progress Towards Remission. It was determined a separate measure assessing screening rates was required specific to the MS population given the existing gap in care, as well as the need to use validated screening tools specific to the MS population.
<b>Measure Designation</b>	
<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input checked="" type="checkbox"/> Accountability
<b>Type of Measure</b> (Check all that apply)	<input checked="" type="checkbox"/> Process <input type="checkbox"/> Outcome <input type="checkbox"/> Structure
<b>Level of Measurement</b> (Check all that apply)	<input checked="" type="checkbox"/> Individual Provider <input checked="" type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care
<b>Data Source</b> (Check all that apply)	<input checked="" type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry
<b>References</b>	
1. Minden SL, Feinstein A, Kalb RC, et al. Evidence-based Guideline: Assessment and Management of Psychiatric Disorders in Individuals with MS: Report of the Guideline Development Subcommittee of the American Academy of Neurology. <i>Neurology</i> 2014; 82:1-8.	

2. National Institute for Health and Care Excellence. Multiple sclerosis: management of multiple sclerosis in primary and secondary care. NICE Clinical Guideline 186. October 2014.
3. American Association of Neuroscience Nurses (AANN), Association of Rehabilitation Nurses (ARN), International Organization of Multiple Sclerosis Nurses (IOMSN). Nursing management of the patient with multiple sclerosis. Glenview (IL): American Association of Neuroscience Nurses (AANN); 2011. 49 p.
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6. Gershon RC, Lai JS, Bode R, et al. Neuro-QOL: quality of life item banks for adults with neurological disorders: item development and calibrations based upon clinical and general population testing. *Qual Life Res.* 2012; 21(3):475-486.
7. Till C, Udler E, Ghassemi R, et al. Factors associated with emotional and behavioral outcomes in adolescents with multiple sclerosis. *Mult Scler* 2012;18(8):1170-80.

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<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u>	<u>ICD-10 Code</u>
	340 Multiple Sclerosis	G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem Multiple sclerosis of cord
	AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient); 99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient); 99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient); 97001 (Physical therapy evaluation); 97002 (Physical therapy re-evaluation); 97003 (Occupational therapy evaluation); 97004 (Occupational therapy re-evaluation)	

### Depression Outcome for Patients with MS

<b>Measure Description</b>	
<p>Percentage of patients aged 12 years and older with MS whose most recent score indicates results are maintained or improved on a validated depression screening instrument* for patients with MS in past 12 months.</p> <p>Note: Please see page 10 for further discussion of risk adjustment and stratification. Measure may be used for accountability at the system or accountable care organization level if the MS populations being compared are similar in demographics, socioeconomic status and the prevalence of comorbid conditions.</p>	
<b>Measure Components</b>	
<b>Numerator Statement</b>	<p>Patients aged 12 years and older with MS whose most recent score indicates results are maintained or improved on a validated depression screening instrument* for patients with MS in past 12 months.</p> <p>*Depression screening tool: Clinicians should consider use of validated instruments such as the:</p> <ul style="list-style-type: none"> <li>• Beck Depression Inventory (BDI) or BDI II,</li> <li>• Patient Health Questionnaire (PHQ-9), (PHQ-A), or (PHQ-2),</li> <li>• MS Depression Rating Scale,</li> <li>• Center for Epidemiological Studies-Depression Revised (CESD-R),</li> <li>• Hospital Anxiety and Depression Scale (HADS),</li> <li>• General Health Questionnaire (GHQ),</li> <li>• 2 Question Screen,</li> <li>• Neuro QOL Depression Bank.<sup>1-6</sup></li> </ul>
<b>Denominator Statement</b>	All patients aged 12 years or older with a diagnosis of MS.
<b>Denominator Exceptions</b>	Patients who are unable or decline to complete screening instrument.
<b>Supporting Guideline &amp; Other References</b>	<p>Following evidence statements are quoted verbatim from the referenced clinical guidelines:</p> <ul style="list-style-type: none"> <li>• “Clinicians may consider the Beck Depression Inventory and a 2-question tool to screen for depressive disorders and the General Health Questionnaire to screen for broadly defined emotional disturbances (Level C).”<sup>1</sup></li> <li>• “Evidence is insufficient to support/refute the use of other screening tools, the possibility that somatic/neurovegetative symptoms affect these tools’ accuracy, or the use of diagnostic instruments or clinical evaluation procedures for identifying psychiatric disorders in MS (Level U).”<sup>1</sup></li> <li>• “For individuals with MS, a 16-week program of individual T-CBT is possibly effective and may be considered in treating depressive symptoms (Level C).”<sup>1</sup></li> <li>• “Mood Dysregulation: Nurses should work with the patient, care partner, and other members of the interdisciplinary team to manage depression appropriately (Level 2). Other roles are to assist patients and care partners to adjust to changes involved in living with MS (Level 2); identify the physical, emotional, spiritual, and educational needs of the patient and family (Level 2); reinforce the importance of medication regimen and be aware of medication side effects (Level 2); be alert to cues related to mood</li> </ul>

	changes and treatment outcomes (Level 2); and encourage participation in a regular pattern of exercise to improve mood (Level 1).” <sup>2</sup>
<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	Reduction of depressive symptoms is the desired outcome for MS patients.
<b>Opportunity for Improvement</b>	There is evidence of inadequate recognition and treatment of depression in MS patients. <sup>3,4</sup>
<b>National Quality Strategy Domains</b>	<input type="checkbox"/> Patient and Family Engagement <input type="checkbox"/> Patient Safety <input type="checkbox"/> Care Coordination <input type="checkbox"/> Population/Public Health <input type="checkbox"/> Efficient Use of Healthcare Resources <input checked="" type="checkbox"/> Clinical Process/Effectiveness
<b>Exception Justification</b>	Patients need to be willing to complete the screening tool for the screening scores to be valid.
<b>Harmonization with Existing Measures</b>	Several NQF endorsed measures exist that address depression and treatment adherence. These measures include Antidepressant Medication Management, Child and Adolescent Major Depressive Disorders: Diagnostic Evaluation, Adult Major Depressive Disorder: Suicide Risk Assessment, and Depression Response at Twelve Months – Progress Towards Remission. It was determined a separate measure assessing screening rates was required specific to the MS population given the existing gap in care. Efforts were made to harmonize this measure with Depression Response at Twelve Months (MN Community Measurement); this measure allows for clinicians to use multiple screening tools beyond the PHQ-9.
<b>Measure Designation</b>	
<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input checked="" type="checkbox"/> Accountability
<b>Type of Measure</b> (Check all that apply)	<input type="checkbox"/> Process <input checked="" type="checkbox"/> Outcome <input type="checkbox"/> Structure
<b>Level of Measurement</b> (Check all that apply)	<input type="checkbox"/> Individual Provider <input type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care
<b>Data Source</b> (Check all that apply)	<input checked="" type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry
<b>References</b>	

1. Minden SL, Feinstein A, Kalb RC, et al. Evidence-based Guideline: Assessment and Management of Psychiatric Disorders in Individuals with MS: Report of the Guideline Development Subcommittee of the American Academy of Neurology. *Neurology* 2014; 82:1-8.
2. American Association of Neuroscience Nurses (AANN), Association of Rehabilitation Nurses (ARN), International Organization of Multiple Sclerosis Nurses (IOMSN). Nursing management of the patient with multiple sclerosis. Glenview (IL): American Association of Neuroscience Nurses (AANN); 2011. 49 p.
3. Fargoso YD, Adoni T, Anacleto, et al. Recommendations on diagnosis and treatment of depression in patients with multiple sclerosis. *Pract Neurol* 2014; 0:1-6.
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**Technical Specifications: Electronic Health Record (EHR) Data**

The AAN is in the process of creating code value sets and the logic required for electronic capture of the quality measures with EHRs. A listing of the quality data model elements, code value sets, and measure logic (through the CMS Measure Authoring Tool) for each of the MS measures will be made available at a later date.

**Technical Specifications: Administrative Data (Claims)**

Administrative claims data collection requires users to identify the eligible population (denominator) and numerator using codes recorded on claims or billing forms (electronic or paper). Users report a rate based on all patients in a given practice for whom data are available and who meet the eligible population/ denominator criteria.

<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u> 340 Multiple Sclerosis  AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient); 99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient); 99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient); 97001 (Physical therapy evaluation); 97002 (Physical therapy re-evaluation); 97003 (Occupational therapy evaluation); 97004 (Occupational therapy re-evaluation)	<u>ICD-10 Code</u> G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem Multiple sclerosis of cord
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### Maintained or Improved Baseline Quality of Life for Patients with MS

<b>Measure Description</b>	
<p>Percentage of patients with MS whose most recent score indicates results are maintained or improved on an age appropriate Quality of Life tool* in past 12 months.</p> <p>Note: Please see page 10 for further discussion of risk adjustment and stratification. Measure may be used for accountability at the system or accountable care organization level if the MS populations being compared are similar in demographics, socioeconomic status and the prevalence of comorbid conditions.</p>	
<b>Measure Components</b>	
<b>Numerator Statement</b>	<p>Patients with MS whose most recent score indicates results are maintained or improved on an age appropriate Quality of Life tool* in past 12 months.</p> <p>*Suggested MS-specific QOL tools include the Multiple Sclerosis Impact Scale (MSIS-29)<sup>1,2</sup>, Multiple Sclerosis Quality of Life (MS QOL-54)<sup>3</sup>, Patient-Reported Outcome Indices for Multiple Sclerosis (PRIMUS)<sup>4,5</sup>, Multiple Sclerosis International Quality of Life (MusiQOL)<sup>6</sup>, Functional Assessment of Multiple Sclerosis (FAMS)<sup>7</sup>, and EuroQoL (EQ-5D)<sup>8</sup>. Alternatively, NeuroQOL or the NIH Toolbox may be used.<sup>9,10</sup></p>
<b>Denominator Statement</b>	All patients with a diagnosis of MS.
<b>Denominator Exceptions</b>	Patients who are unable or decline to complete quality of life instrument.
<b>Supporting Guideline &amp; Other References</b>	<p>Following evidence statements are quoted verbatim from the referenced clinical guidelines:</p> <ul style="list-style-type: none"> <li>• “Use the local-language version of the multiple sclerosis international quality of life (MusiQoL) questionnaire to assess patient QoL every 12 months.”<sup>11</sup></li> <li>• “Nurses should facilitate treatment and symptom management, promote and enhance function, and support a quality of life (QOL) of adults with MS and their family-care partners that is wellness focused (Level 3).”<sup>12</sup></li> </ul>
<b>Measure Importance</b>	
<b>Relationship to Desired Outcome</b>	Improving QOL is a desired outcome for all patients with MS. MS can diminish QOL given MS symptoms which impair a person’s ability to work and engage in social activities.
<b>Opportunity for Improvement</b>	QOL assessment is necessary as it can significantly impact adherence to medications and affect physical rehabilitation. <sup>13</sup> Despite the relationship between QOL and treatment adherence, there remains a gap in treatment as clinicians fail to address QOL. <sup>13</sup> Measuring QOL and monitoring for maintenance or improvement is expected to result in improved QOL assessment and prompt timely interventions for patient identified concerns.
<b>National Quality Strategy Domains</b>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Patient and Family Engagement</li> <li><input type="checkbox"/> Patient Safety</li> <li><input type="checkbox"/> Care Coordination</li> <li><input type="checkbox"/> Population/Public Health</li> <li><input type="checkbox"/> Efficient Use of Healthcare Resources</li> <li><input type="checkbox"/> Clinical Process/Effectiveness</li> </ul>

<b>Exception Justification</b>	Patients need to be willing to complete the screening tool for the screening scores to be valid.
<b>Harmonization with Existing Measures</b>	Existing endorsed measures assess quality of life as a process measure for a select group of individuals and are not generalizable to the MS population. (e.g., receiving dialysis, (Assessment of Health-related Quality of Life <a href="http://www.qualityforum.org/QPS/0260">http://www.qualityforum.org/QPS/0260</a> ) family receiving hospice ( <a href="http://www.qualityforum.org/QPS/0208">http://www.qualityforum.org/QPS/0208</a> ))
<b>Measure Designation</b>	
<b>Measure Purpose</b> (Check all that apply)	<input checked="" type="checkbox"/> Quality improvement <input checked="" type="checkbox"/> Accountability
<b>Type of Measure</b> (Check all that apply)	<input type="checkbox"/> Process <input checked="" type="checkbox"/> Outcome <input type="checkbox"/> Structure
<b>Level of Measurement</b> (Check all that apply)	<input type="checkbox"/> Individual Provider <input type="checkbox"/> Practice <input checked="" type="checkbox"/> System or Health Plan
<b>Care Setting</b> (Check all that apply)	<input checked="" type="checkbox"/> Outpatient <input type="checkbox"/> Inpatient <input type="checkbox"/> Emergency Departments and Urgent Care
<b>Data Source</b> (Check all that apply)	<input checked="" type="checkbox"/> Electronic health record (EHR) data <input checked="" type="checkbox"/> Administrative Data/Claims <input type="checkbox"/> Chart Review <input checked="" type="checkbox"/> Registry
<b>References</b>	
<sup>1</sup> Hobart J, Lamping D, Fitzpatrick R, et al. The Multiple Sclerosis Impact Scale (MSIS-29) A new patient-based outcome measure. <i>Brain</i> 2001;124(5):962-973. <sup>2</sup> Multiple Sclerosis Impact Scale (MSIS-29) Available online at: <a href="http://www.biomedcentral.com/content/supplementary/1471-2377-8-2-s1.doc">http://www.biomedcentral.com/content/supplementary/1471-2377-8-2-s1.doc</a> Accessed on July 28, 2014. <sup>3</sup> Vickery BG. Multiple Sclerosis Quality of Life (MSQOL)-54 Instrument. Available online at: <a href="http://www.nationalmssociety.org/NationalMSSociety/media/MSNationalFiles/Brochures/MSQOL54_995.pdf">http://www.nationalmssociety.org/NationalMSSociety/media/MSNationalFiles/Brochures/MSQOL54_995.pdf</a> Accessed on July 28, 2014. <sup>4</sup> Doward LC, McKenna SP, Meads DM, et al. The development of Patient Reported Outcome Indices for Multiple Sclerosis (PRIMUS). <i>Mult Scler</i> 2009;15:1092–102. <sup>5</sup> McKenna SP, Doward LC, Twiss J, et al. International Development of the Patient-Reported Outcome Indices for Multiple Sclerosis (PRIMUS). <i>Value in Health</i> 2010; 13(8):946-951. <sup>6</sup> Simeoni MC, Auquier P, Fernandez O, et al. Validation of the Multiple Sclerosis International Quality of Life questionnaire. <i>Multiple Sclerosis</i> 2008;14(2):219-230. <sup>7</sup> Cella DF, Dineen K, Arnason B, et al. Validation of the functional assessment of multiple sclerosis quality of life instrument. <i>Neurology</i> 1996;47(1):129-139. <sup>8</sup> Putzki N, Fischer J, Gottwald K., et al. Quality of Life in 1000 patients with early relapsing-remitting multiple sclerosis. <i>European Journal of Neurology</i> 2009;16:713-720. <sup>9</sup> Gershon RC, Lai JS, Bode R, et al. Neuro-QOL: quality of life item banks for adults with neurological disorders: item development and calibrations based upon clinical and general population testing. <i>Qual Life Res.</i> 2012; 21(3):475-486. <sup>10</sup> Hodes RJ, Insel TR, Landis SC. On behalf of the NIH Blueprint for Neuroscience Research. The NIH Toolbox: Setting a standard for biomedical research. <i>Neurology</i> 2013;80(S3):S1-S92. All NIH Toolbox-related materials are ©2012 Northwestern University and the National Institutes of Health.	

<sup>11</sup> Al-Tahan ARM, Al-Jumah MA, Bohlega S, et al. The importance of quality-of-life assessment in the management of patients with multiple sclerosis Recommendations from the Middle East MS Advisory Group. Neurosciences 2011; 16(2):109-113.

<sup>12</sup> American Association of Neuroscience Nurses (AANN), Association of Rehabilitation Nurses (ARN), International Organization of Multiple Sclerosis Nurses (IOMSN). Nursing management of the patient with multiple sclerosis. Glenview (IL): American Association of Neuroscience Nurses (AANN); 2011. 49 p.

<sup>13</sup> Zwibel HL and Smrtka J. Improving Quality of Life in Multiple Sclerosis: An Unmet Need. Am J Manag Care. 2011;17:S139-S145.

**Technical Specifications: Electronic Health Record (EHR) Data**

The AAN is in the process of creating code value sets and the logic required for electronic capture of the quality measures with EHRs. A listing of the quality data model elements, code value sets, and measure logic (through the CMS Measure Authoring Tool) for each of the MS measures will be made available at a later date.

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<b>Denominator (Eligible Population)</b>	<u>ICD-9 Code</u> 340 Multiple Sclerosis  AND CPT E/M Service Code: 99201, 99202, 99203, 99204, 99205 (Office or other outpatient visit-New Patient); 99211, 99212, 99213, 99214, 99215 (Office or other outpatient visit-Established Patient); 99241, 99242, 99243, 99244, 99245 (Office or Other Outpatient Consultation-New or Established Patient); 97001 (Physical therapy evaluation); 97002 (Physical therapy re-evaluation); 97003 (Occupational therapy evaluation); 97004 (Occupational therapy re-evaluation)	<u>ICD-10 Code</u> G35 Multiple Sclerosis Disseminated multiple sclerosis Generalized multiple sclerosis Multiple sclerosis NOS Multiple sclerosis of brain stem Multiple sclerosis of cord
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<sup>1</sup> Kantarci O, and Wingerchuk D. Epidemiology and natural history of multiple sclerosis: new insights. *Current Opinion in Neurology* 2006;19:248-254

<sup>2</sup> Zwibel H and Smrtka J. Improving Quality of Life in MS: an Unmet Need. *American Journal of Managed Care* 2011;17:S139-145.

<sup>3</sup> Multiple Sclerosis International Federation. *Atlas of MS 2013*. 2013 28p.

<sup>4</sup> World Health Organization. *Neurological disorders: a public health approach*. 2007.

<sup>5</sup> National Multiple Sclerosis Society. *Challenges of epidemiological studies website*.

<sup>6</sup> Noonan CW, Williamson DM, Henry JP, Indian R, Lynch SG, Neuberger JS, et al. The prevalence of multiple sclerosis in 3 US communities. *Prev Chronic Dis* 2010;7(1):A12. Available at: [http://www.cdc.gov/pcd/issues/2010/jan/08\\_0241.htm](http://www.cdc.gov/pcd/issues/2010/jan/08_0241.htm). Accessed March 11, 2014.

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<sup>8</sup> Adelman G., Rane SG, Villa KF. The cost burden of multiple sclerosis in the United States: a systematic review of the literature. *Journal of Medical Economics* 2013; 16(5):639-647.

<sup>9</sup> Minden SL, Feinstein A, Kalb RC, et al. Evidence-based Guideline: Assessment and Management of Psychiatric Disorders in Individuals with MS: Report of the Guideline Development Subcommittee of the American Academy of Neurology. *Neurology* 2014; 82:1-8.

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<sup>11</sup> Neutralizing antibodies to interferon beta: Assessment of their clinical and radiographic impact: An evidence report. Report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. *Neurology*. 2007;68:977-984.

<sup>12</sup> Cortese I, Chaudhry V, So YT, Cantor F, Cornblath DR, Rae-Grant A. Evidence-based guideline update: Plasmapheresis in neurologic disorders: report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. *Neurology*. 2011;76(3):294-300.

<sup>13</sup> Scott TF, Frohman EM, De Seze J, Gronseth GS, Weinshenker BG. Evidence-based guideline: clinical evaluation and treatment of transverse myelitis: report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. *Neurology*. 2011 Dec 13;77(24):2128-34.

<sup>14</sup> Practice parameter: The usefulness of evoked potentials in identifying clinically silent lesions in patients with suspected multiple sclerosis (an evidence-based review): Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*. 2000 54;1720-1725.

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- <sup>22</sup> Al-Tahan ARM, Al-Jumah MA, Bohlega S, et al. The importance of quality-of-life assessment in the management of patients with multiple sclerosis Recommendations from the Middle East MS Advisory Group. *Neurosciences* 2011; 16(2):109-113.
- <sup>23</sup> <http://www.merriam-webster.com/medical/consult>
- <sup>24</sup> <http://www.merriam-webster.com/medical/counsel>
- <sup>25</sup> <http://www.merriam-webster.com/dictionary/educate>
- <sup>26</sup> <http://www.merriam-webster.com/medical/refer>
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