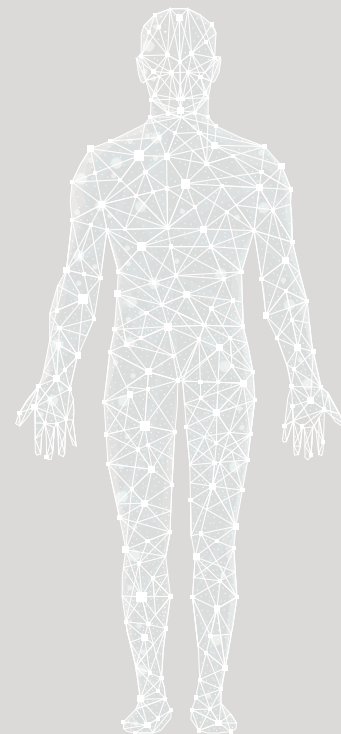


MSProDiscuss™

BUILD GUIDE



MS is a chronic disease with unique patterns of disability progression, one where subtle changes may take time to recognize. To help provide objective assessment and structure in monitoring MS symptoms, MSProDiscuss was developed and validated through qualitative and quantitative research with experienced HCPs (neurologists and nurses), patient advisory groups, and patients.

MSProDiscuss is a physician-completed digital tool to educate and sensitize about the risk of progressing from relapsing-remitting multiple sclerosis (RRMS) to active secondary progressive multiple sclerosis (active SPMS) and help facilitate physician-patient interaction.

HCPs answer a series of clinically relevant, weighted questions about patient relapses and symptoms in the past 6 months, and the impact this had on their lives. This input is assessed by a scoring algorithm against some of the most important factors associated with MS progression.

Output is linked to a traffic-light system that may relate to the likelihood of MS progression based on studies used to develop the tool. After using the tool, HCPs may use their clinical judgement to adjust the current level of care. Leveraging MSProDiscuss helps to have structured conversations with patients about their MS and any changes over time, and may help identify subtle signs of worsening MS.

There can be several benefits of using MSProDiscuss:



Helps enable long-term tracking of changes in symptoms and progression



Designed to be easy and quick to use and can be completed in as little as 1 minute in consultations



May help patients feel reassured that their condition is being monitored closely



Helps provide confidence in having conversations about early signs of progression



Facilitates structured communication about MS symptoms and any changes with patients

Early signs of progression can be hard to detect. MSProDiscuss can help identify subtle worsening signs and allow for a timely intervention.

For more information on how the **Novartis Health Information Technology (HIT) Team** can collaborate with your organization to identify shared priorities, please email: hit.novartis@novartis.com.

MS= multiple sclerosis; HIT=Health Information Technology.



Electronic Health Record (EHR) instructions to create the MProDiscuss questionnaire as a SmartForm in the Epic® EHR system	3
BACKGROUND, INSTRUCTIONS, AND LIMITATIONS	3
EPIC	4
NOTES	18
MProDiscuss™ Score Calculation	19



BACKGROUND, INSTRUCTIONS, AND LIMITATIONS



These instructions are designed specifically to **create the MSProDiscuss™ questionnaire as a SmartForm in the Epic EHR system by Novartis** and will not work for other conditions, treatments, therapeutic areas, or in other EHR systems.

The process outlined in this piece is variable, and not all steps will apply to every health system. Any steps or settings that are not part of a health system's standard process should be excluded or modified accordingly. Any questions should be directed to the appropriate service provider. The practice is solely responsible for implementing, testing, monitoring, and ongoing operation of any EHR tools.

The MSProDiscuss asks you (the clinician) about the symptoms experienced by the patient in the past 6 months, and the impact this has had on their lives, to support your discussion regarding patient progression to SPMS.

A digital version of the Your MS Questionnaire is available at

<https://msprodiscuss.com>

The look-and-feel can be adjusted based on health system preferences and naming conventions.



The MSProDiscuss questionnaire can be created using a custom **SmartForm**.

- The SmartForm build tool can be accessed by navigating [Epic Icon > Tools > SmartForms > SmartForm Designer](#)
- In the SmartForm Designer screen, select Create New and select the Advanced Mode.

Administrative rights are required to create the SmartForm.

The Patient Data Section

Patient Data > Symptoms > Impacts > Results

MSProDiscuss™: MS Progression Discussion Tool

This questionnaire asks you (the patient's clinician) about the symptoms experienced by the patient in the past 6 months, and the impact this has had on their lives, to support your discussion regarding patient progression to SPMS.

Please select the options to indicate your response.

i What is the patient's age? 40

i What is the patient's Expanded Disability Status Scale (EDSS) score? NA

i Has the patient experienced any relapses in the past six months?

i Has an MRI been performed in the past six months?

Website view if answer to Relapse question in the Patient Data section is No.

MSProDiscuss™: MS Progression Discussion Tool

This questionnaire asks you (the patient's clinician) about the symptoms experienced by the patient in the past 6 months, and the impact this has had on their lives, to support your discussion regarding patient progression to SPMS.

Please select the options to indicate your response.

i What is the patient's age?

40

i What is the patient's Expanded Disability Status Scale (EDSS) score?

EDSS not available

NA

0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 5.5 6 6.5 7 7.5 8 8.5 9 9.5 10

i Has the patient experienced any relapses in the past six months?

Yes

No

How many relapses?

1

2

3+

Recovery from most recent relapse

Full recovery 100%

Nearly full recovery 75%

Partial recovery 50%

A little recovery 25%

No recovery 0%

i Signs of new activity

Has an MRI been performed in the past six months?

Yes

No

No signs of new activity

Signs of new activity

Website view if answer to Relapse question in the Patient Data section is Yes.

1. Set the Type to General and enter MSProDiscuss in the Name field.
2. Click Create a Blank Form (in the Designer tab, the structure for the SmartForm can be set based on the health system's preferences).
3. Add the first component on the form by right-clicking the location on the form and selecting [Add > Label](#).
4. Select the new label component properties as desired, enter MSProDiscuss for the Caption and set the Label Type as a Subsection header. Create 4 additional Label components (use the properties for each label to customize the fonts, colors, and sizes as desired. To put a space between the label and the form's fields, use a blank label):
 - Patient Data
 - MSProDiscuss™: MS Progression Discussion Tool
 - This questionnaire asks you (the patient's clinician) about the symptoms experienced by the patient in the past 6 months, and the impact this has had on their lives, to support your discussion regarding patient progression to SPMS
 - Please select the options to indicate your response

5. Below the introduction, right click the last label component and click [Add > Table > Below](#).

6. In the Table Entry field, select 4 columns and 1 row and click Insert Table.

7. Set the 1st component by clicking the green (+) (Field type). Then use the properties tab to customize. In the prompt field, enter "What is the patient's age?"

8. Set the 2nd column as a Field type component (Number Entry) in the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:

- Select the desired branch and create a new data field with a desired name (eg, "MS Age Score")
- Data type: Number
- Click Save and Accept
- Determine visibility based on system preferences

9. Set the 3rd component by clicking the green (+) (Field type). Then, use the properties tab to customize. In the prompt field, enter "What is the patient's Expanded Disability Status Scale (EDSS) score?"

10. Set the 4th column as a Field type component (Number Entry) in the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:

- Select the desired branch and create a new data field with a desired name (eg, "MS EDSS Score")
- Data type: Number
- Click Save and Accept
- Determine visibility based on system preferences

11. Right click the newly-created component (for age and EDSS score) and click [Add > Table > Below](#).

12. In the Table Entry field, select 6 columns and 1 row and click Insert Table.

13. Set the 1st component by clicking the green (+) (List type). Then use the properties tab to customize.

- Prompt field: "Has the patient experienced any relapses in the past six months?"
- Multiple select: No
- Style: Button
- Data provider: Element
- Click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS relapse past 6 months")
 - Data type: Category
- Complete the pick list:
 - Yes - No
- Context: Encounter
- Click Accept and confirm setup by reviewing the Preview tab

14. Set the 2nd column as a Field type component to display the allocated point for answers selected in the first component (Number Entry).

- In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS relapse past 6 months Score")
 - Data type: Number
 - Click Save and Accept
 - Determine visibility based on system preferences

15. Set the 3rd component by clicking the green (+) (List type). Then use the properties tab to customize.

- Prompt field: "MS How many relapses?"
- Multiple select: No
- Style: Button
- Data provider: Element
- Click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS how many relapses")
 - Data type: Category
 - Click Save and Accept
- Complete the pick list:
 - 1 • 2 • 3+
- Context: Encounter
- Click Accept and confirm setup by reviewing the Preview tab

16. Set the 4th column as a Field type component to display the allocated point for answers selected in the first component (Number Entry).

- In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS how many relapses Score").
 - Data type: Number
 - Click Save and Accept
 - Determine visibility based on system preferences

17. Set the 5th component by clicking the green (+) (List type). Then use the properties tab to customize.

- Prompt field: "Recovery from most recent relapse"
- Multiple select: No
- Style: Button
- Data provider: Element
- Click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS recovery recent relapse")
 - Data type: Category
 - Click Save and Accept
- Complete the pick list:
 - Full recovery 100%
 - Nearly full recovery 75%
 - Partial recovery 50%
 - A little recovery 25%
 - No recovery 0%
- Context: Encounter
- Click Accept and confirm setup by reviewing the Preview tab

18. Set the 6th column as a Field type component to display the allocated point for answers selected in the first component (Number Entry).

- In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS recovery recent relapse Score")
 - Data type: Number
 - Click Save and Accept
 - Determine visibility based on system preferences

19. Right click the newly-created component (for the relapse information) and click [Add > Table > Below](#).

20. In the Table Entry field, select 4 columns and 1 row and click Insert Table.

21. Set the 1st component by clicking the green (+) (List type). Then use the properties tab to customize.

- Prompt field: "Has an MRI been performed in the past six months?"
- Multiple select: No
- Style: Button
- Data provider: Element
- Click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS MRI last 6 months")
 - Data type: Category
- Click Save and Accept
- Complete the pick list:
 - Yes - No
- Context: Encounter
- Click Accept and confirm setup by reviewing the Preview tab

22. Set the 2nd column as a Field type component to display the allocated point for answers selected in the first component (Number Entry).

- In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS MRI last 6 months Score")
 - Data type: Number
- Click Save and Accept
- Determine visibility based on system preferences

23. Set the 3rd component by clicking the green (+) (List type). Then use the properties tab to customize.

- Prompt field: "Signs of new activity"
- Multiple select: No
- Style: Button
- Data provider: Element
- Click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS MRI signs activity")
 - Data type: Category
 - Click Save and Accept
- Complete the pick list:
 - No signs of new activity
 - Signs of new activity
- Context: Encounter
- Click Accept and confirm setup by reviewing the Preview tab

24. Set the 4th column as a Field type component to display the allocated point for answers selected in the first component (Number Entry).

- In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS MRI signs activity Score").
 - Data type: Number
- Click Save and Accept
- Determine visibility based on system preferences

The Symptoms Section

Patient Data > Symptoms > Impacts > Results

25%

50%

75%

Has the patient experienced any of the signs or symptoms below in the past 6 months?

For each of the symptoms that the patient has experienced, click on the relevant boxes to indicate 1) whether the symptoms were experienced during relapse and 2) whether the symptoms were intermittent or persistent.

Please select the options to indicate your response.

Select all symptoms experienced by your patient	Were the symptoms...			
	Intermittent	Persistent (Improving)	Persistent (Stable)	Persistent (Worsening)
<input type="checkbox"/> Visual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Motor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Ambulatory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Coordination & balance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sensory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Bladder & bowel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Speech	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Cognitive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Fatigue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Website view if answer to Relapse question in the Patient Data section is No.

25%

50%

75%

Has the patient experienced any of the signs or symptoms below in the past 6 months?

For each of the symptoms that the patient has experienced, click on the relevant boxes to indicate 1) whether the symptoms were experienced during relapse and 2) whether the symptoms were intermittent or persistent.

Select all symptoms experienced by your patient	Were the symptoms experienced during relapse?		Were the symptoms...			
			Intermittent	Persistent (Improving)	Persistent (Stable)	Persistent (Worsening)
<input type="checkbox"/> Visual	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Motor	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Ambulatory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Coordination & balance	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Pain	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Sensory	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Bladder & bowel	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Speech	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Cognitive	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Fatigue	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Website view if answer to Relapse question in the Patient Data section is Yes.

1. Create 3 additional Label components (use the properties for each label to customize the fonts, colors, and sizes as desired):

- Symptoms
- Has the patient experienced any of the signs or symptoms below in the past 6 months?
- For each of the symptoms that the patient has experienced, click on the relevant boxes to indicate 1) whether the symptoms were experienced during relapse and 2) whether the symptoms were intermittent or persistent

2. Below the text, right click the last label component and click [Add > Table > Below](#).

3. In the Table Entry field, select 8 columns and 11 rows and click Insert Table (use the properties to configure each of the fields as desired. An example can be found at <https://msprodiscuss.com>).

- In row 1, column 1, add as a component label prompt, enter "Select all symptoms experienced by your patient."
- The rows in column 1, starting at row 2 are component type List. In rows 2 to 11 enter:

- Visual	- Pain
- Motor	- Sensory
- Ambulatory	- Bladder & bowel
- Coordination and balance	- Speech
- Fatigue	- Cognitive

› Set up all components. The example is provided for the Visual symptom. Repeat for all other symptoms. Set all components by clicking the green (+) (List type). Then use the properties tab to customize.

- Prompt field: "Visual"
- Multiple select: No
- Style: Button
- Data provider: Element
- Click the Element field to set up the SmartData Manager fields:
 - △ Select the desired branch and create a new data field with a desired name (eg, "MS Visual Symptoms")
 - △ Data type: Category
 - △ Click Save and Accept
- Complete the pick list:
 - △ Yes
 - △ No
 - △ Context: Encounter
- Click Accept and confirm setup by reviewing the Preview tab

- In row 1, column 3, add as a component label prompt, enter "Were the symptoms experienced during relapse?"
- The rows in column 3, starting at row 2 are component type List. In rows 2 to 11 enter:
- › Set up all components. The example is provided for the Visual symptom. Repeat for all other symptoms. Set all components by clicking the green (+) (List type). Then use the properties tab to customize.

- Multiple select: No
- Style: Button
- Click the Element field to set up the SmartData Manager fields:
 - △ Select the desired branch and create a new data field with a desired name (eg, "MS Visual Symptoms relapse")
 - △ Data type: Category
 - △ Click Save and Accept
- Complete the pick list:
 - △ Yes
 - △ No
 - △ Context: Encounter
- Click Accept and confirm setup by reviewing the Preview tab

- In row 1, column 5, add as a component label prompt, enter "Where the symptoms ..."
- The rows in column 5, starting at row 2 are component type List. In rows 2 to 11 enter:

› Set up all components. The example is provided for the Visual symptom. Repeat for all other symptoms. Set all components by clicking the green (+) (List type). Then use the properties tab to customize.

- Multiple select: No
- Style: Button
- Click the Element field to set up the SmartData Manager fields:
- Data provider: Element

△ Select the desired branch and create a new data field with a desired name (eg, "MS Visual Symptoms were")

- △ Data type: Category
- △ Click Save and Accept

- Complete the pick list:
 - △ Intermittent
 - △ Persistent (Improving)
 - △ Persistent (Stable)
 - △ Persistent (Worsening)

- Context: Encounter
- Click Accept and confirm setup by reviewing the Preview tab

- The rows in column 2 (score for presence of symptom), 4 (score for symptoms experienced during relapse) and 6 (score for symptom being intermittent, persistent (improving), persistent (stable) or persistent (worsening)) starting at row 2 are component type Field

› Set up all components. The example is provided for the Visual symptom score. Repeat for all other symptoms. Set the column as a Field type component to display the allocated point for answers selected in the first component (Number Entry).

- In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:
 - △ Select the desired branch and create a new data field with a desired name
 - △ Data type: Number
 - △ Click Save and Accept

○ Determine visibility based on system preferences

- The rows in column 7 (the weight of the symptom) and 8 (the total score for the symptom) starting at row 2 are component type Field

› Set up all components. The example is provided for the Visual symptom score. Repeat for all other symptoms. Set the column as a Field type component to display the allocated point for answers selected in the first component (Number Entry).

- In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:
 - △ Select the desired branch and create a new data field with a desired name
 - △ Data type: Number
 - △ Click Save and Accept

○ Determine visibility based on system preferences

The Impacts Section

Patient Data > Symptoms > Impacts > Results

25%

50%

75%

Please indicate the impact of the patient's overall symptoms in the last 6 months on:

Click on the relevant boxes to indicate how severe the impact of the patient's symptoms has been on their mobility, self-care, other daily activities, hobbies and leisure time, and work. Please complete all five impacts.

	None	Little	Moderate	Severe	Unable to do this activity
Mobility	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Self-Care	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>i</i> Other daily activities	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hobbies and leisure time	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>i</i> Paid and unpaid work	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Check this box if the patient is not working for reasons unrelated to MS.

Website view.

1. Create 3 additional Label components (use the properties for each label to customize the fonts, colors, and sizes as desired):

- Symptoms
- Please indicate the impact of the patient's overall symptoms in the last 6 months on:
- Click on the relevant boxes to indicate how severe the impact of the patient's symptoms has been on their mobility, self-care, other daily activities, hobbies and leisure time, and work. Please complete all five impacts

2. Below the text, right click the last label component and click [Add > Table > Below](#).

3. In the Table Entry field, select 2 columns and 5 rows and click Insert Table (Use the properties to configure each of the fields as desired. An example can be found at <https://msprodiscuss.com>).

4. Set the 1st component by clicking the green (+) (List type). Then use the properties tab to customize.

- Prompt field: "Mobility"
- Multiple select: No
- Style: Button
- Data provider: Element
- Click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS Impacts Mobility")
 - Data type: Category
 - Click Save and Accept
- Complete the pick list:
 - None
 - Little
 - Moderate
 - Severe
 - Unable to do this activity
- Context: Encounter
- Click Accept and confirm setup by reviewing the Preview tab

5. Repeat step 4 for rows 2-5. For the Prompts, enter:

- Self-Care
- Other daily activities
- Hobbies and leisure time
- Paid and unpaid work

6. Set the 2nd column as a Field type component to display the allocated point for answers selected in the first component (Number Entry).

- In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:
 - Select the desired branch and create a new data field with a desired name (eg, "MS Impacts Mobility Score")
 - Data type: Number
 - Click Save and Accept
 - Determine visibility based on system preferences

7. Repeat step 6 for rows 2-5. For the SmartData names, enter:

- MS Impacts Self-Care Score
- MS Impacts Other daily activities Score
- MS Impacts Hobbies and leisure time Score
- MS Impacts Paid and unpaid work Score

8. Create one more button with a checkbox for "Check this box if the patient is not working for reasons unrelated to MS. There is no impact on the score for this information."

The Total Score Section

1. Create 3 additional Label components (use the properties for each label to customize the fonts, colors, and sizes as desired):

- Disclaimer
- This tool does not provide medical advice, diagnosis, prediction, prognosis, or treatment. The tool and its content are being provided for general information purposes only. Any medical advice, diagnosis or treatment should be made by the appropriate health care professional
- Thank you for completing MSProDiscuss
- The outcome of those patients studied may not be reflective of your case

2. Add 4 Field type objects to calculate the score for each section and the clinical score. These objects help with calculating the score and are invisible to end users.

- [Patient Data Section Score](#)
- [Symptoms Section Score](#)
- [Impacts Section Score](#)
- [Clinical Score](#)

- Field Type: Number entry

• In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields:

- Select the desired branch and create a new data field with a desired name (eg, "Patient Data Section Score", etc)
- Data type: Number
- Click Save and Accept
- Set the context to Encounter
- Hide the objects by setting the visible property to No

3. Add 3 Field type objects to display the Total Score and Standardized Total Score.

MSProDiscuss Total Score:

- | | | | |
|---|--|--|--|
| • Prompt: MSProDiscuss Total Score | - Select the desired branch and create a new data field with a desired name (eg, "MSProDiscuss Total Score") | - Data type: Number
- Click Save and Accept
- Set the context to Encounter | - Hide the objects by setting the visible property to No |
| • Field Type: Number entry | | | |
| • In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields: | | | |

MSProDiscuss Total Standardized Score:

- | | | | |
|---|---|--|--|
| • Prompt: MSProDiscuss Total Standardized Score | - Select the desired branch and create a new data field with a desired name (eg, "MSProDiscuss Total Standardized Score") | - Data type: Number
- Click Save and Accept
- Set the context to Encounter | - Hide the objects by setting the visible property to No |
| • Field Type: Number entry | | | |
| • In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields: | | | |

MSProDiscuss Interpretation:

- | | | | |
|---|---|--|--|
| • Prompt: MSProDiscuss Interpretation | - Select the desired branch and create a new data field with a desired name (eg, "MSProDiscuss Total Score Interpretation") | - Data type: Number
- Click Save and Accept
- Set the context to Encounter | - Determine visibility based on system preferences |
| • Field Type: Number entry | | | |
| • In the Data tab, set the Context to Encounter and click the Element field to set up the SmartData Manager fields: | | | |
-
- A "Green" score is: "In the studies used to develop the tool, patients with similar characteristics were considered unlikely to be showing signs of progression."
 - An "Amber" score is: "In the studies used to develop the tool, patients with similar characteristics were considered possibly showing signs of progression."
 - A "Red" score is: "In the studies used to develop the tool, patients with similar characteristics were considered likely to be showing signs of progression."

4. Create 4 additional Label components (use the properties for each label to customize the fonts, colors, and sizes as desired):

- In the studies used to develop the tool, patients with similar characteristics were considered likely to be showing signs of progression
- The outcome of those patients studied may not be reflective of your case
- INFO: The MS Progression Discussion Tool is a clinician-completed tool for use by health care professionals in clinical practice to educate and sensitize about the **risk of progressing from RRMS to active SPMS** and facilitate physician-patient interaction. This tool is for educational and discussion purposes only. The tool uses information from patient symptoms and the impact they have had on their lives in the past 6 months, and the impact these have had on their lives, to generate a traffic light system that complements physician discussion regarding patient progression to active SPMS. It was developed based on qualitative research with clinicians and patients and empirical assessments of real-world evidence. It has been pilot-tested and validated with clinicians in the real world
- This tool does not provide medical advice, diagnosis, prediction, prognosis, or treatment. The tool and its content are being provided for general information purposes only. Any medical advice, diagnosis, or treatment should be made by the appropriate health care professional

References: Ziemssen T, et al. *Mult Scler Relat Disord* 2020;38:101861; Tolley C, et al. *JMIR Med Inform* 2020;8(4):e17592; Ziemssen T, et al. *J Med Internet Res* 2020;22(2):e16932.

Scripting

Scripting allows for programming of the fields for automation such as automatically allocating points and computing totals. In this form, scripting will be used to allocate points to selected answers and compute the totals with the provided formulas. To add scripting to a component, select the component under the Design tab, then select the Scripting tab.

[Set scripting to calculate the value of each question/element of the MSProDiscuss using the parameters in Exhibit 1:](#)

Example: MS relapse past 6 months:

1. Select the MS relapse past 6 months Component and in scripting, select the "ValueLoadedOrChanged" option. Click "Add Condition."
2. Select the condition, then "Add Check" to display the condition setup option.
3. Set the options:
 - MS relapse past 6 months component
 - Operator: Equals
 - Value: Yes
 - Which: Value
4. In the condition's true branch, select "Add Action" and complete setup:
 - Type: Calculate Value
 - Set component
 - Expression: 0
 - Click Check Scripts to check for errors
 - In the Preview tab, confirm setup
5. Repeat the steps for the No value by setting a value of 2.
6. Repeat setting the scripting for all other elements using Exhibit 1.

[Set scripting to calculate the Patient Data Section Score, Symptoms Section Score, Impacts Section Score, Clinical Score, Total Score and Standardized Total Score:](#)

1. Select the appropriate Score Component and in scripting, select the "Calculate" option. Click "Add Action."
2. In the Action setup screen, set the Type to Calculate Value.
3. Click "Add Component" on the keypad.
4. Double click the "MS how many relapses Score" score field (it will now display in the Expression field).
5. Repeat for all other Components, using Exhibit 1 to calculate each of the Scores:
 - **Patient Data Section Score:** ("MS relapse past 6 months Score" + "MS how many relapses Score" + "MS recovery recent relapse Score")/8
 - **Symptoms Section Score:** ("MS Symptoms Visual Score" + "MS Symptoms Motor Score" + "MS Symptoms Ambulatory Score" + "MS Symptoms Coordination and balance Score" + "MS Symptoms Pain Score" + "MS Symptoms Sensory Score" + "MS Symptoms Bladder & bowel Score" + "MS Symptoms Speech Score" + "MS Symptoms Cognitive Score" + "MS Symptoms Fatigue Score")/7) / (weighted # where symptom is present)
 - **Impacts Section Score:** ("MS Impacts Mobility Score" + "MS Impacts Self-Care Score" + "MS Other daily activities Score" + "MS Hobbies and leisure time Score" + "MS Paid and unpaid work Score")/14
 - **Clinical Score (consider using rules to calculate this score):**

Clinical score (reweighted EDSS/T25FW and age score)	Rewighted to be out of a total of 3. RW_EDSS =	Use T25FW test if EDSS is missing. RW_T25FW =
	<ul style="list-style-type: none"> • 1 if EDSS score ≤ 3.5; ~ • 2 if EDSS score ≥ 4 and < 6; • 3 if EDSS score ≥ 6. 	<ul style="list-style-type: none"> • 1 if T25FW < 6 seconds; • 2 if T25FW ≥ 6 and < 8 seconds • 3 if T25FW ≥ 8 seconds
	Age score = $\begin{cases} \text{age} < 45, 0 \\ \text{age} \geq 45, 2 \end{cases}$	
	Clinical score = (RW_EDSS) + age score / 5	
~If EDSS is < 2 (ie, 0, 0.5, 1, or 1.5)		
Calculate the clinical score as if EDSS was not provided (ie, Age score = $\begin{cases} \text{age} < 45, 0 \\ \text{age} \geq 45, 2 \end{cases}$)		
Clinical score = [age score] / 2		

- **Total Score:** ("Patient Data Section Score" + "Symptoms Section Score" + "Impacts Section Score" + "Clinical Score").
- **Standardized Total Score:** ("Total Score" * 25).

6. Click the Check script button in the lower right corner to check the scripting for errors.
7. Go to Preview to test the build.

Setting scripting to set the interpretation of the MSProDiscuss Interpretation:

There are 3 interpretations of the score:

- **Green** (RRMS) - Total MSProDiscuss Score of less than 46.3
In the studies used to develop the tool, patients with similar characteristics were considered unlikely to be showing signs of progression. The outcome of those patients studied may not be reflective of your case
- **Amber** (Transitioning) - Total MSProDiscuss Score of between 46.3 and 57.8
In the studies used to develop the tool, patients with similar characteristics were considered possibly showing signs of progression. The outcome of those patients studied may not be reflective of your case
- **Red** (active SPMS) - Total MSProDiscuss Score of greater than 57.8
In the studies used to develop the tool, patients with similar characteristics were considered likely to be showing signs of progression. The outcome of those patients studied may not be reflective of your case

To create the interpretation, see the example below. 3 interpretations need to be created for the MSProDiscuss:

1. Select the "Standardized Total Score" Component and click the Scripting tab
2. Select "ValueLoadedOrChanged."
3. Add 3 conditions (there are 3 potential outcomes from the MSProDiscuss screener) and 1 additional condition if the score=(blank):
 - Standardized Total Score=(blank)
 - Add a check using the Add check button (type Check component data value)
 - Component: "Standardized Total Score"
 - Which: Value
 - Operator: Equals
 - Value: (blank)

- In the True branch, add the 3 actions (for green, amber, and red):

- › **First Action:**
 - Type: Set Component Property
 - Component: Green (the component with the MSProDiscuss Green (RRMS) score interpretation)
 - Property: Visible
 - Value: No
 - › **Second Action:**
 - Type: Set Component Property
 - Component: Amber (the component with the MSProDiscuss Amber (Transitioning) score interpretation)
 - Property: Visible
 - Value: No
 - › **Third Action:**
 - Type: Set Component Property
 - Component: Red (the component with the MSProDiscuss Red (active SPMS) score interpretation)
 - Property: Visible
 - Value: No
-
- Standardized Total Score=**Green** (RRMS)
 - Add a check using the Add check button (type Check component data value)
 - Component: "Standardized Total Score"
 - Which: Value
 - Operator: Less than
 - Value: 46.3

- In the True branch, add 3 actions:

- › **First Action:**
 - Type: Set Component Property
 - Component: Green (the component with the MSProDiscuss Green (RRMS) score interpretation)
 - Property: Visible
 - Value: Yes
- › **Second Action:**
 - Type: Set Component Property
 - Component: Amber (the component with the MSProDiscuss Amber (Transitioning) score interpretation)
 - Property: Visible
 - Value: No
- › **Third Action:**
 - Type: Set Component Property
 - Component: Red (the component with the MSProDiscuss Red (active SPMS) score interpretation)
 - Property: Visible
 - Value: No



• Standardized Total Score=**Amber** (Transitioning)

- Add a check using the Add check button (type Check component data value)
- Component: "Standardized Total Score"
- Which: Value
- Operator: Greater than or equal to
- Value: 46.3
- In the True branch, add 3 actions:

› **First Action:**

- Type: Set Component Property
- Component: Green (the component with the MSProDiscuss Green (RMRS) score interpretation)
- Property: Visible
- Value: No

◦ Type: Set Component Property

- Component: Amber (the component with the MSProDiscuss Amber (Transitioning) score interpretation)
- Property: Visible
- Value: Yes

◦ Type: Set Component Property

- Component: Red (the component with the MSProDiscuss Red (active SPMS) score interpretation)
- Property: Visible
- Value: No

› **Second Action:**

› **Third Action:**

• Standardized Total Score=**Red** (active SPMS)

- Add a check using the Add check button (type Check component data value)
- Component: "Standardized Total Score"
- Which: Value
- Operator: Greater than or equal to
- Value: 57.8
- In the True branch, add 3 actions:

› **First Action:**

- Type: Set Component Property
- Component: Green (the component with the MSProDiscuss Green (RMRS) score interpretation)
- Property: Visible
- Value: No

› **Second Action:**

- Type: Set Component Property
- Component: Amber (the component with the MSProDiscuss Amber (Transitioning) score interpretation)
- Property: Visible
- Value: No

› **Third Action:**

- Type: Set Component Property
- Component: Red (the component with the MSProDiscuss Red (active SPMS) score interpretation)
- Property: Visible
- Value: Yes

Synopsis: Trending the scores

1. Create a flowsheet (FSH record) type "Synopsis" (access the admin dashboard or search for and click the Edit Flowsheet link).
2. Select the Create tab and enter a unique name for the flowsheet (eg, MSProDiscuss Results) and click Accept. In the Choose Version (Contact Date) window, click Accept again.
3. In the Flowsheet Editor, enter the desired data element(s) to use in the flowsheet (use the elements for the MSProDiscuss Interpretation which can be found using the Data tab in the Element field).
4. Create a Print Group Record (LPG type "Synopsis View Section").
5. Page down to get to the configuration screen.
6. Name the section header as desired (eg, MSProDiscuss results).
7. Insert the flowsheet FSH ID for the MSProDiscuss Results and write down the print group LPG ID.
8. Create an LRP report type "MR Synopsis View [502]".
9. Set the Use Time Range to Yes.
10. In the configuration screen, set the Default time window as desired (eg, 10 years) and insert the print group LPG ID in the Synopsis View Sections and write down the LRP Report ID.
11. Identify the necessary profiles (LPR) and insert the LRP Report ID in items 35000 (ID) and 35001 (Display Name).



- The Customers (ie, physician, medical group, IDN) shall be solely responsible for implementation, testing, and monitoring of the instructions to ensure proper orientation in each Customer's EHR system.
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MSProDiscuss™ SCORE CALCULATION

SUBSCALE	SCORING	
Section A: Relapse and recovery in the past six months	Section A score = $(Q1 + Q2 + Q3) / 8$	
Section B: Symptoms in the past six months	$\text{Section B} = \left\{ \frac{Q6 + Q9 + Q10 + Q11 + Q12 + Q13 + Q15 + Q7 + Q8 + Q14}{7} \right\} / (\text{weighted \# answered yes to part a})$ <p>Where eg, $Q6 = Q6b + Q6c + Q6d$ *(# answered yes to part a) needs to be weighted, where: $Q6, Q9, Q10, Q11, Q12, Q13, Q15 = 1$ $Q7, Q8, Q14 = 2$ <i>eg, answering yes to Q6a and Q7a only would yield an overall weighted # of 3</i></p>	
Section C: Impacts in the past six months	Section C score = $(Q16 + Q17 + Q18 + Q19 + Q20) / 14$	
Clinical score (reweighted EDSS/ T25FW and age score)	Reweighted to be out of a total of 3. RW_EDSS = <ul style="list-style-type: none"> • 1 if EDSS score ≤ 3.5; ~ • 2 if EDSS score ≥ 4 and < 6; • 3 if EDSS score ≥ 6 	Use T25FW test if EDSS is missing. RW_T25FW = <ul style="list-style-type: none"> • 1 if T25FW < 6 seconds; • 2 if T25FW ≥ 6 and < 8 seconds • 3 if T25FW ≥ 8 seconds
	$\text{Age score} = \begin{cases} \text{age} < 45, 0 \\ \text{age} \geq 45, 2 \end{cases}$	
	Clinical score = $\{ \text{RW_EDSS} \} + \text{age score} / 5$	
	<p>~If EDSS is < 2 (ie, 0, 0.5, 1, or 1.5)</p> <p>Calculate the clinical score as if EDSS was not provided, ie, Age score = $\begin{cases} \text{age} < 45, 0 \\ \text{age} \geq 45, 2 \end{cases}$</p> <p>Clinical score = $[\text{age score}] / 2$</p>	
TOTAL SCORE	TOTAL = Section A + Section B + Section C + Clinical score	
STANDARDIZED TOTAL SCORE	Reweighted to be out of a total of 100: $T_TOTAL = \frac{\text{TOTAL} * 100}{4} = \text{TOTAL} * 25$	

QUESTION	RESPONSE AND SCORE	WEIGHT	POINTS	MAX POINTS	MAX SCORE	
Section A – Disease Activity					14	
Relapse Q1		Yes	3	0	6	6
		No		2		
Number of relapses Q2	If yes (Q1), 1 = 2, 2 = 1, 3, or more = 0	1 2 3 or more	2	2 1 0	4 2 0	4
Degree of Recovery Q3	If yes (Q1), Full recovery = 0, Nearly full recover = 0, Partial recovery = 1, A little recovery = 1, No recovery = 2	0 1 2	2	0 1 2	0 2 4	4
MRI Q4	Not scored					
Signs of New Activity Q5	Not scored					
Section B – Symptoms of the past 6 months					91	
Vision Q6	Symptom experienced during any relapse in the past 6 months	Yes	1	0	1	7
		No		1		
	Symptom Intermittent or Persistent	Intermittent		0	3	
		Persistent		3		
	When symptom was persistent , it was:	Improving		0	3	
		Stable		0		
Worsening		3				
Motor Q7	Symptom experienced during any relapse in the past 6 months	Yes	2	0	2	14
		No		1		
	Symptom Intermittent or Persistent	Intermittent		0	6	
		Persistent		3		
	When symptom was persistent , it was:	Improving		0	6	
		Stable		0		
Worsening		3				

QUESTION	RESPONSE AND SCORE	WEIGHT	POINTS	POINTS	SCORE
Section B – Symptoms of the past 6 months (cont)					91
Ambulatory Q8	Symptom experienced during any relapse in the past 6 months	Yes	2	0	2
		No		1	
	Symptom Intermittent or Persistent	Intermittent		0	6
		Persistent		3	
	When symptom was persistent , it was:	Improving		0	6
		Stable		0	
		Worsening		3	
Coordination /Balance Q9	Symptom experienced during any relapse in the past 6 months	Yes	1	0	1
		No		1	
	Symptom Intermittent or Persistent	Intermittent		0	3
		Persistent		3	
	When symptom was persistent , it was:	Improving		0	3
		Stable		0	
		Worsening		3	
Pain Q10	Symptom experienced during any relapse in the past 6 months	Yes	1	0	1
		No		1	
	Symptom Intermittent or Persistent	Intermittent		0	3
		Persistent		3	
	When symptom was persistent , it was:	Improving		0	3
		Stable		0	
		Worsening		3	
Sensory Q11	Symptom experienced during any relapse in the past 6 months	Yes	1	0	1
		No		1	
	Symptom Intermittent or Persistent	Intermittent		0	3
		Persistent		3	
	When symptom was persistent , it was:	Improving		0	3
		Stable		0	
		Worsening		3	
Bladder / Bowel Q12	Symptom experienced during any relapse in the past 6 months	Yes	1	0	1
		No		1	
	Symptom Intermittent or Persistent	Intermittent		0	3
		Persistent		3	
	When symptom was persistent , it was:	Improving		0	3
		Stable		0	
		Worsening		3	



QUESTION	RESPONSE AND SCORE		WEIGHT	POINTS	MAX POINTS	MAX SCORE
Speech Q13	Symptom experienced during any relapse in the past 6 months	Yes	1	0	1	7
		No		1		
	Symptom Intermittent or Persistent	Intermittent		0	3	
		Persistent		3		
	When symptom was persistent , it was:	Improving		0	3	
		Stable		0		
		Worsening		3		
Cognitive Q14	Symptom experienced during any relapse in the past 6 months	Yes	2	0	2	14
		No		1		
	Symptom Intermittent or Persistent	Intermittent		0	6	
		Persistent		3		
	When symptom was persistent , it was:	Improving		0	6	
		Stable		0		
		Worsening		3		
Fatigue Q15	Symptom experienced during any relapse in the past 6 months	Yes	1	0	1	7
		No		1		
	Symptom Intermittent or Persistent	Intermittent		0	3	
		Persistent		3		
	When symptom was persistent , it was:	Improving		0	3	
		Stable		0		
		Worsening		3		



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