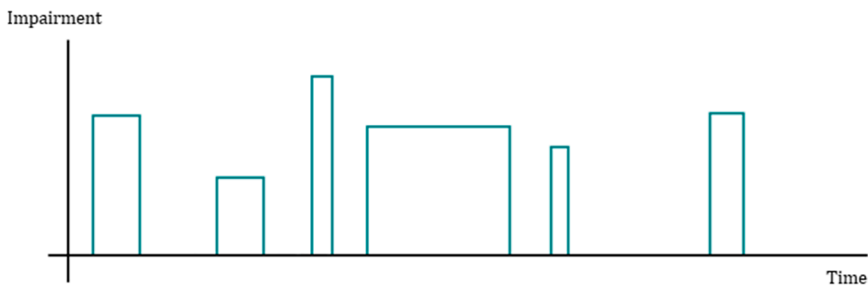
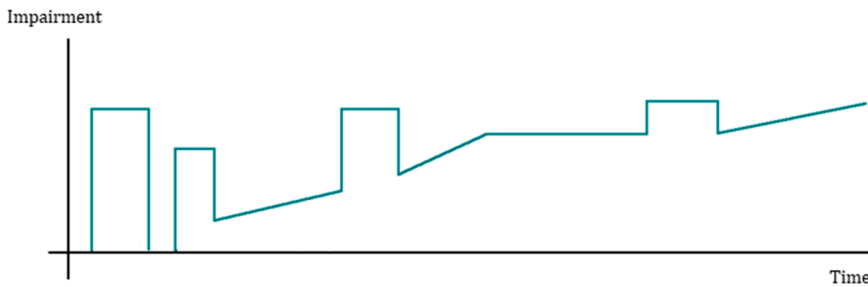
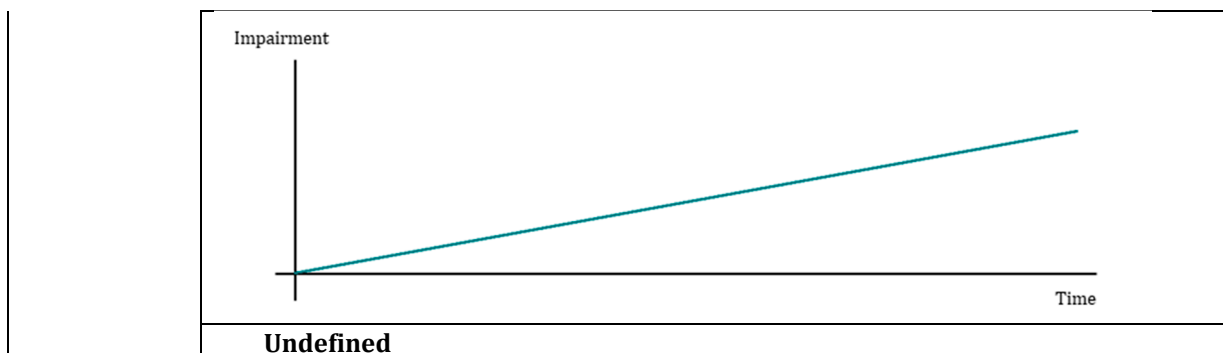


Supplementary Document S1. Baseline questionnaire

Gender:	Male	Female	Divers
Birth date:	__-__ (MM.JJJJ)		
Please indicate the federal state in which you currently live:	Baden-Wuerttemberg Berlin Bremen Hesse Lower Saxony Rhineland-Palatinate Saxony Schleswig-Holstein Bavaria	Brandenburg Hamburg Mecklenburg-Western Pomerania North Rhine-Westphalia Saarland Saxony-Anhalt Thuringia	

MS diagnosis

Date of first symptoms:	__-__ (MM.JJJJ)
Date of diagnosis	__-__ (MM.JJJJ)
Please indicate your MS disease course:	<p>Relapsing-remitting In the relapsing-remitting course, sudden impairments occur that can last for a few days or weeks (so-called relapses). There can be weeks or months between the individual relapses. Relapsing-remitting means that the impairments become weaker or can disappear completely.</p>  <p>Secondary progressive The secondary progressive course usually follows relapsing-remitting MS and is characterised by a decrease in the frequency of relapses (which may not occur at all), as well as a gradual worsening of disability.</p>  <p>Primary progressive In the primary chronic-progressive course, the impairment constantly increases.</p>



Patient-determined disease steps (PDDS)

Please read the choices below and choose the one that describes your own situation most appropriately.

This scale focuses mainly on how well you can **walk**.

You may not find a description that accurately reflects your condition, but please mark the category that describes your situation most closely.

Please choose one of the following answers:	
0 Normal I may have some mild symptoms, mainly sensory due to my MS, but they do not limit my activity. When I have an episode, I return to normal as soon as the relapse is over.	
1 Mild disability I have some noticeable symptoms due to my MS, but they are minor and have a small impact on my lifestyle.	
2 Moderate disability I have no limitations in my ability to walk. However, I have significant problems due to MS that limit daily activities in other ways.	
3 Walking impairment MS affects my activities, especially walking. I can work all day but sporting or physically demanding activities are more difficult than before. Normally I do not need a walking stick or other aids to walk, but I might need some help during a relapse.	
4 Occasional use of a walking aid (walking stick use) I use a walking stick, a single crutch or some other form of support (e.g., touching a wall or leaning on someone's arm) to walk all or part of the time, especially when I walk outdoors. I think I can walk 8 metres in 20 seconds without a walking stick or crutch. I always need some help (walking stick or crutch) when I want to walk up to 300 metres.	
5 Walking aid dependency To walk 8 metres, I need a walking stick, a crutch or someone to hold on to. I can move around the house or other buildings by holding onto furniture or touching the walls to support myself. I can use a scooter or wheelchair if I want to travel longer distances.	
6 Bilateral support To walk up to 8 metres, I need two walking sticks or crutches or a rollator. For longer distances I can use a scooter or wheelchair.	
7 Wheelchair My main form of mobility is a wheelchair. I may be able to stand and/or take a step or two, but I cannot walk 8 metres, even with crutches or a rollator.	
8 Bedriddenness I cannot sit in a wheelchair for more than an hour.	

Immunomodulatory treatment

Are you being or have you been treated with immunotherapeutics?			
Yes, currently	Yes, in the past	Yes, currently and in the past	No, never
Current immunotherapy			
When did you start treatment?		_._ (MM.JJJJ)	
Active substance / preparation:			
Alemtuzumab / Lemtrada		Azathioprine / Imurek	
Cladribine / Mavenclad		Cyclophosphamide / Endoxan	
Daclizumab / Zinbryta		Dimethyl fumarate / Tecfidera	
Fingolimod / Gilenya		Glatiramer acetate / Clift	
Glatiramer acetate / Copaxone		Immunoglobulin / IVIG / Octagam	
Interferon beta-1a / Avonex		Interferon beta-1a / Rebif22	
Interferon beta-1a / Rebif44		Interferon beta-1b / Betaferon	
Interferon beta-1b / Extavia		Methotrexate	
Mitoxantrone / Novatron		Mitoxantrone / Ralenova	
Natalizumab / Tysabri		Ocrelizumab / Ocrevus	
Ofatumumab / Kesimpta		Ozanimod / Zeposia	
Peginterferon beta-1a / Plegridy		Rituximab / MabThera	
Siponimod / Mayzent		Steroids - Long-term therapy, longer than 2 months	
Steroids – Pulse therapy		Steroids intrathecal	
Teriflunomide / Aubagio		Other: _____	

Immunotherapy in the past	
Until when were you treated?	_._ (MM.JJJJ)
Active substance / preparation:	
Alemtuzumab / Lemtrada	Azathioprine / Imurek
Cladribine / Mavenclad	Cyclophosphamide / Endoxan
Daclizumab / Zinbryta	Dimethyl fumarate / Tecfidera
Fingolimod / Gilenya	Glatiramer acetate / Clift
Glatiramer acetate / Copaxone	Immunoglobulin / IVIG / Octagam
Interferon beta-1a / Avonex	Interferon beta-1a / Rebif22
Interferon beta-1a / Rebif44	Interferon beta-1b / Betaferon
Interferon beta-1b / Extavia	Methotrexate
Mitoxantrone / Novatron	Mitoxantrone / Ralenova
Natalizumab / Tysabri	Ocrelizumab / Ocrevus
Ofatumumab / Kesimpta	Ozanimod / Zeposia
Peginterferon beta-1a / Plegridy	Rituximab / MabThera
Siponimod / Mayzent	Steroids - Long-term therapy, longer than 2 months
Steroids – Pulse therapy	Steroids intrathecal
Teriflunomide / Aubagio	Other: _____

Comorbidities

Do you suffer from allergies?	Yes	No
If yes, what allergies do you suffer from?		
Drug allergy	House dust / pollen	

Food	Nickel / fragrances
Insect bites	
Are there other autoimmune diseases?	
<input type="checkbox"/> Thyroid diseases (Hashimoto's thyroiditis, Graves' disease)	<input type="checkbox"/> Psoriasis
<input type="checkbox"/> Chronic polyarthritis (rheumatism)	<input type="checkbox"/> Inflammatory bowel disease (Ulcerative colitis, Crohn's disease)
<input type="checkbox"/> None	<input type="checkbox"/> Other: _____

Relapses prior to the SARS-CoV-2 vaccination

Last MS relapse prior to the vaccination: If you do not know the date, please do not provide any information here.	____ (MM.JJJJ)
A relapse is characterised by the appearance of new symptoms or the worsening of existing symptoms that last longer than 24 hours. These symptoms can vary greatly and usually develop within a few hours or days. After the relapse, the symptoms may decrease or disappear completely, depending on the course of the disease. To be able to assume that there is another relapse, there must be at least 30 consecutive days between relapses.	

SARS-CoV-2 infections prior to the vaccination

Have you been diagnosed with a SARS-CoV-2 infection before the first vaccination?	
Yes, via a PCR test (nasal/pharyngeal swab with laboratory examination)	Yes, via an antigen test (rapid test)
Yes, via an antibody test (blood sample and laboratory examination)	Yes, without a confirmed test, but symptoms
No	
Usually, patients who have already been infected with SARS-CoV-2 are vaccinated only once.	

First SARS-CoV-2 vaccine administered

Comirnaty (BioNTech/Pfizer)	Spikevax (Moderna)
Vaxzevria (AstraZeneca)	COVID-19 Vaccine Janssen (Janssen-Cilag International)
Comirnaty (BioNTech/Pfizer) and flu vaccination	Spikevax (Moderna) and flu vaccination
Vaxzevria (AstraZeneca) and flu vaccination	COVID-19 Vaccine Janssen (Janssen-Cilag International) and flu vaccination

First vaccination date

Date:	____ (TT.MM.JJJJ)
Where were you vaccinated?	
Vaccination centre	Residential/nursing home (as resident)
Medical facility (as an employee)	Medical facility (as a patient)
General practitioner or specialist	
Has it been confirmed by the vaccination centre / vaccinating institution that you have already survived a SARS-CoV-2 infection and therefore only need one dose?	
Yes	No

Vaccination reactions

Did you experience any vaccination reactions in connection with the first vaccination?	
Yes	No
Please select the information below that applies to you.	
<input type="checkbox"/> Emesis / vomitus , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Rash / exanthema , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Swollen lymph nodes / lymphadenopathy , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Palpitation / tachycardia , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Local reaction , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Malaise , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Melalgia / limb pain , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Nausea , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Asthenia , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Vertigo , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Pain at the injection area , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Muscular pain / myalgia , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Flu-like symptoms , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Fatigue , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Ague / undulant fever , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Headache , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Fever / pyrexia , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent
<input type="checkbox"/> Other , occurred after ____ days	
<input type="radio"/> Subsided after ____ days	<input type="radio"/> Still persistent

New-onset MS symptoms

Did you experience any new MS symptoms in connection with the first vaccination?	
Yes	No
Please select the information below that applies to you.	
Impaired walking impairment , occurred after ____ days	Still persistent
Subsided after ____ days	
Spasticity , occurred after ____ days	Still persistent
Subsided after ____ days	
Movement disorders / ataxia / tremor , occurred after ____ days	Still persistent
Subsided after ____ days	

Fatigue , occurred after ____ days	Still persistent
Subsided after ____ days	
Pain , occurred after ____ days	Still persistent
Subsided after ____ days	
Bladder dysfunction / impaired micturition , occurred after ____ days	Still persistent
Subsided after ____ days	
Bowel dysfunction / impaired defecation , occurred after ____ days	Still persistent
Subsided after ____ days	
Sexual disorders , occurred after ____ days	Still persistent
Subsided after ____ days	
Cognitive disorders , occurred after ____ days	Still persistent
Subsided after ____ days	
Depression , occurred after ____ days	Still persistent
Subsided after ____ days	
Eye movement disorders / oculomotor disorders , occurred after ____ days	Still persistent
Subsided after ____ days	
Speaking and voice disorders/ dysarthria / dysphonia , occurred after ____ days	Still persistent
Subsided after ____ days	
Swallowing disorders / dysphagia , occurred after ____ days	Still persistent
Subsided after ____ days	
Epileptic seizures , occurred after ____ days	Still persistent
Subsided after ____ days	
Palsy / paresis , occurred after ____ days	Still persistent
Subsided after ____ days	
Optic nerve inflammation / optic neuritis , occurred after ____ days	Still persistent
Subsided after ____ days	
Other seizure-like symptoms / paroxysms , occurred after ____ days	Still persistent
Subsided after ____ days	

Worsened MS symptoms

Have you experienced any worsening of MS symptoms in relation to the first vaccination?	
Yes	No
Please select the information below that applies to you.	
Impaired walking impairment , occurred after ____ days	Still persistent
Subsided after ____ days	
Spasticity , occurred after ____ days	Still persistent
Subsided after ____ days	
Movement disorders / ataxia / tremor , occurred after ____ days	Still persistent
Subsided after ____ days	
Fatigue , occurred after ____ days	Still persistent

Subsided after _____ days	
Pain , occurred after _____ days	Still persistent
Subsided after _____ days	
Bladder dysfunction / impaired micturition , occurred after _____ days	Still persistent
Subsided after _____ days	
Bowel dysfunction / impaired defecation , occurred after _____ days	Still persistent
Subsided after _____ days	
Sexual disorders , occurred after _____ days	Still persistent
Subsided after _____ days	
Cognitive disorders , occurred after _____ days	Still persistent
Subsided after _____ days	
Depression , occurred after _____ days	Still persistent
Subsided after _____ days	
Eye movement disorders / oculomotor disorders , occurred after _____ days	Still persistent
Subsided after _____ days	
Speaking and voice disorders / dysarthria / dysphonia , occurred after _____ days	Still persistent
Subsided after _____ days	
Swallowing disorders / dysphagia , occurred after _____ days	Still persistent
Subsided after _____ days	
Epileptic seizures , occurred after _____ days	Still persistent
Subsided after _____ days	
Palsy / paresis , occurred after _____ days	Still persistent
Subsided after _____ days	
Optic nerve inflammation / optic neuritis , occurred after _____ days	Still persistent
Subsided after _____ days	
Other seizure-like symptoms / paroxysms , occurred after _____ days	Still persistent
Subsided after _____ days	

Relapses following the first vaccination

Did you experience MS attacks after the first vaccination?	Yes	No
<p>A relapse is characterised by the appearance of new symptoms or the worsening of existing symptoms that last longer than 24 hours. These symptoms can vary greatly and usually develop within a few hours or days. After the relapse, the symptoms may decrease or disappear completely, depending on the course of the disease. To be able to assume that there is another relapse, there must be at least 30 consecutive days between relapses.</p>		
If yes:		
How many relapses occurred?	_____	
Have you received a steroid therapy in connection with these MS relapses?	Yes	No

SARS-CoV-2 infections following the first vaccination

Did you have a confirmed SARS-CoV-2 infection after the first vaccination?	Yes	No
If yes:		
Which test was conducted?		
PCR test	Antigen Test	
Antibody test	Unknown	
Please indicate the onset of SARS-CoV-2 infection:	__/__/__ (MM.JJJJ)	
What symptoms did you experience?		
Increased temperature	Cough	
Lassitude	Joint, bone or muscle pain	
Headache	Sore throat	
Shortness of breath	Blocked nose	
Chills	Loss of smell or taste	
Pneumonia	Other: _____	
For the treatment you were:		
Admitted as an inpatient in a hospital		
Admitted to hospital as an inpatient and treated in intensive care for at least one day.		
Treated at home.		
If they have been admitted to a hospital:		
How many days were you admitted to hospital?	_____	
Were you connected to a (ventilated) respirator or did you receive oxygen therapy during your inpatient stay?		
Non-invasive treatment	Invasive treatment	
<u>Non-invasive ventilation:</u> respiratory support or ventilation without invasive ventilation access, for example via a mask placed over the mouth and nose. <u>Invasive ventilation:</u> Placement of a breathing tube inserted through the mouth or nose to serve as an artificial airway.		
How many days were you ventilated?	_____	
Do you still suffer from concomitant symptoms after your SARS-CoV-2 infection?	Yes	No
If so, which symptoms do you still suffer from?		
Increased temperature	Cough	
Lassitude	Joint, bone or muscle pain	
Headache	Sore throat	
Shortness of breath	Blocked nose	
Chills	Loss of smell or taste	
Pneumonia	Other: _____	