

Activity report 2022

Drafted by Stefaan De Corte (general manager) and Sotiria Tsalamani (learning coordinator), December 2022.

For 2022, the main activities of ParadigMS have been the organisation of two e-expert meetings, the production of six slide decks and the publication of three articles, a national hybrid symposium in Belgium, a ParadigMS Egypt Symposium in Cairo, a hybrid MasterClass in Belgium, a pre-MENACTRIMS symposium in Cairo, the publishing of two EACCME accredited on-demand webinars, the launch of an asynchronous elearning and the distribution of educational materials via ParadigMS' digital platform, via a LinkedIn presence and the distribution of three eNewsletters.

As the ParadigMS Board insists to be independent in the peer reviewed slide decks it produces, in the scientific programmes it elaborates and the opinion that it expresses, all Board members highly value the multi-sponsorship of the Foundation. ParadigMS received funding from Sanofi and Merck in 2022 for different activities at EU level and from country affiliates in Belgium and Egypt from Sanofi, Merck, Roche, Biogen and Novartis for specific educational experiences.

The appointed secretariat (since August 2019) for all operational and administrative matters (including financial management) of the ParadigMS Private Foundation is LAUREA Group BV, VAT: BE0682 428 751, legal and office address: Square Meeûs 35, B-1000 Brussels.

The contact details of ParadigMS' General Manager, appointed by the ParadigMS Board and mandated to act on its behalf, are: Stefaan De Corte, secretariat@paradigms.foundation, +32 478 802 167.

Yours sincerely,

Prof Celia Oreja-Guevara, MD PhD

President of the Board of Directors of the ParadigMS Foundation

On behalf of the Board of Directors of the ParadigMS Private Foundation

Laura Airas (Finland)	Ralf Linker (Germany)
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1. Introduction to ParadigMS Foundation

1.1. Mission of ParadigMS

ParadigMS is an independent and non-profit international group of Multiple Sclerosis experts dedicated to improving care of the Multiple Sclerosis patient by translating science into clinically relevant continued medical education at local level.

1.2. ParadigMS' mission in practice

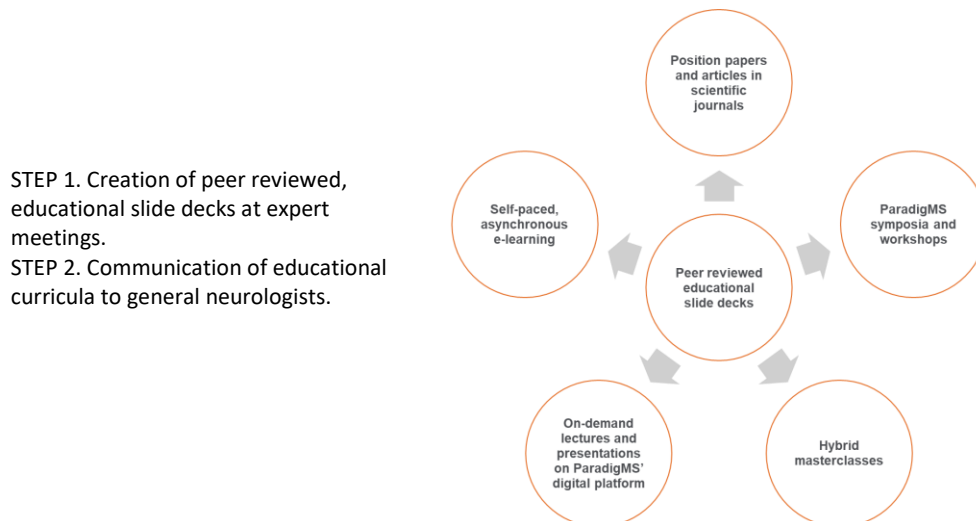


Figure 1: Presented at the MS Initiatives Meeting, November 2022

1.3. Key data on ParadigMS

- ❖ Established on 21st June 2015, Berlin, Germany
- ❖ Board Members should be active MS researchers or practitioners
- ❖ 23 neurologists active in the field of MS
- ❖ 16 different countries (EU, Switzerland, Russia, Middle East, North Africa)
- ❖ Multi-sponsored
- ❖ Current president: Celia Oreja-Guevara (immediate past president: Bart Van Wijmeersch)
- ❖ More info: www.paradigms.foundation
- ❖ Day-to-day operational, administrative and financial management has been assigned to LAUREA Group BV (BE0682 428 751) based in Brussels, Belgium. Stefaan De Corte has been appointed as Managing Director (as from August 2019).

1.4. The values of ParadigMS

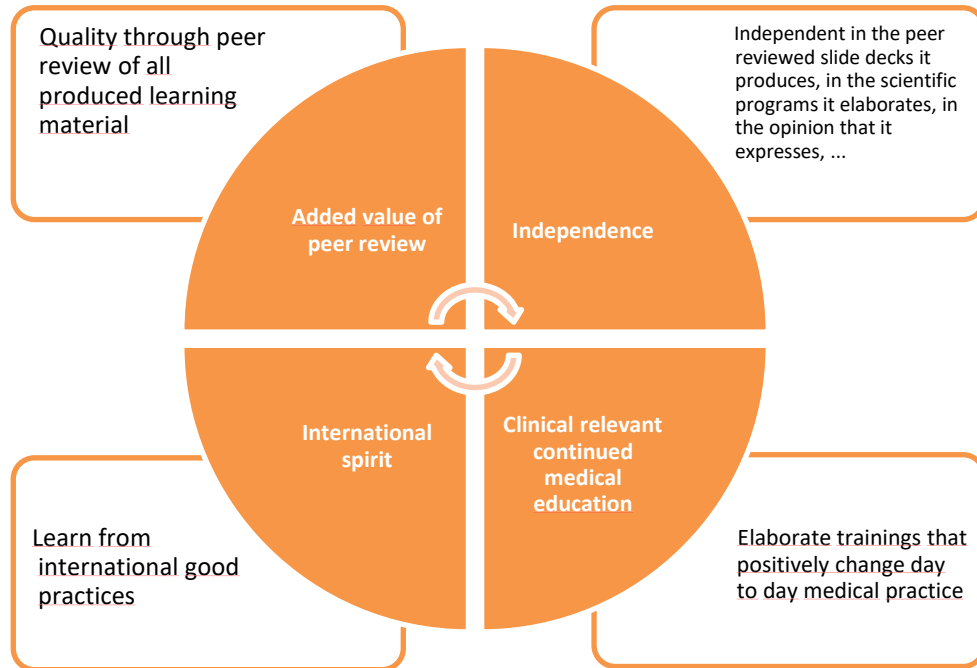


Figure 2: ParadigMS values

1.5. Educational target groups of ParadigMS

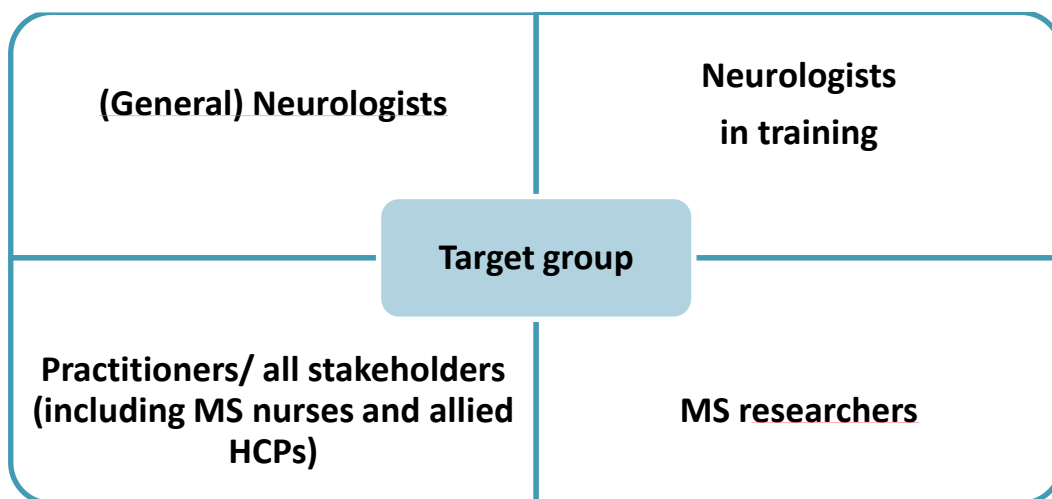
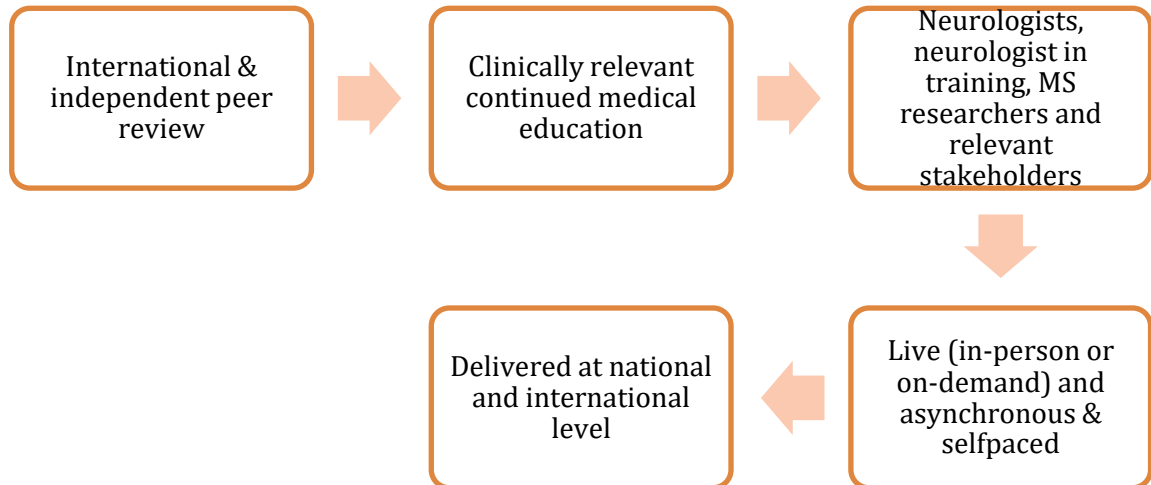


Figure 3: Educational target groups ParadigMS

1.6. The unique positioning of ParadigMS



2. Overview of the sponsors/funders of ParadigMS

Since its establishment ParadigMS Foundation has been funded with grants and sponsorships from the pharmaceutical industry and registration fees from its educational activities.

In 2022, ParadigMS received funding from the following sponsors:

- Sanofi Global: Organisation expert meetings and creation and communication on educational materials, creation of an e-learning on Microglia in MS
- Merck Global Medical Education: Organisation of a hybrid pre-MENACTRIMS Symposium and creation of educational materials
- National affiliate (Belgium): Sanofi, Biogen, Novartis, Merck, Roche
- National affiliate (Egypt) : Novartis

In 2021, ParadigMS received funding from the following sponsors:

- Sanofi Genzyme EU and Roche EU: Organisation expert meetings and creation and communication on educational materials
- Merck Global Education: Organisation of a hybrid pre-MENACTRIMS Symposium and creation educational materials
- National affiliates (Belgium): Sanofi Genzyme, Biogen, Novartis, Merck, Roche, BMS

In 2020, ParadigMS received funding from the following sponsors:

- Sanofi Genzyme EU and Roche EU: Organisation expert meetings and creation and communication on educational materials
- Merck Global Education: Organisation of an e-workshop in collaboration with MENACTRIMS and creation educational materials
- National (Belgium): Sanofi Genzyme, Biogen, Novartis, Merck, Roche, BMS (Celgene)

In 2019, ParadigMS received funding from the following sponsors:

- Sanofi Genzyme: Organisation expert meetings and creation and communication on educational materials
- Merck: Organisation of pre-MENACTRIMS program and creation educational materials
- Actelion: Presentation of slide decks in the margin of EAN.
- National (Belgium): Sanofi Genzyme, Biogen, Novartis, Merck, Roche, TEVA

In 2015 and 2016, ParadigMS received funding from Sanofi Genzyme.

As from 2017, ParadigMS received funding from multiple sponsors:

- International: Sanofi, Novartis, Actelion and Merck
- National: Sanofi Genzyme, Biogen, Novartis, Merck, Roche, TEVA

3. An overview of the 2022 achievements of ParadigMS

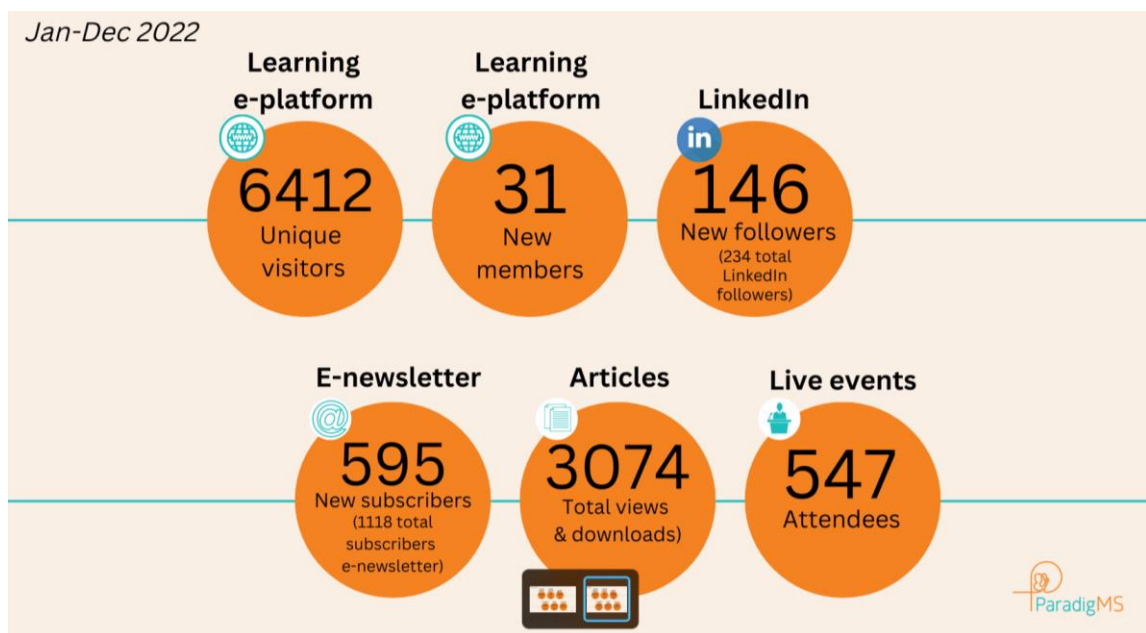
A key activity of ParadigMS is the creation of **peer reviewed slide decks**. In 2022, **two expert meetings** were organised where slide decks were discussed in the presence of a medical writer, who supports the authors in finalising the slide deck.

In 2022, ParadigMS also produced its **first asynchronous and self-paced e-learning**.

Besides the production of these peer reviewed slide decks and e-learning, ParadigMS and its Board Members organised **four educational activities** and **published two articles** to disseminate the produced educational materials.

In addition, ParadigMS issued **two e-newsletter** and is active on **LinkedIn**. In conjunction with its **e-platform** and **Google analytics**, it allows for better dissemination and data monitoring of its educational materials.

3.1. Key metrics on the impact of ParadigMS



3.2. Expert meetings and peer reviewed slide decks

On average 2 expert meetings are organised per year since 2015. In 2022, two expert meetings were organised in March and September 2022.

3.2.1. Expert Meeting 23th April 2022 (online)

Experts attending

1. Celia Oreja-Guevara, ES
2. Melinda Magyari, DEN
3. Magd Zakaria, EGY
4. Mona Alkhawajah, SA
5. Patrick Vermersch, FRA
6. Carlo Pozzilli, IT
7. Hans-Peter Hartung, GER
8. Laura Airas, FIN
9. Bart Van Wijmeersch, BEL
10. Veronica Popescu, BEL
11. Nikolaos Grigoriadis, GR

Educational materials peer reviewed:

- OCT and MRI
- Paediatric MS
- MS and COVID
- MS and vaccines
- Immunosenescence in MS

3.2.2. Expert Meeting 20th November 2022 (in person, Madrid)

Experts attending

1. Celia Oreja-Guevara, ES
2. Melinda Magyari, DEN
3. Patrick Vermersch, FRA
4. Carlo Pozzilli, IT
5. Laura Airas, FIN
6. Veronica Popescu, BEL
7. Nikolaos Grigoriadis, GR

Educational materials peer reviewed:

- Immunology of microglia
- Neuroprotection/Remyelination
- Detecting microglia
- Treatments targeting microglia

3.3. Asynchronous and self-paced e-learning on Microglia in MS

In 2022, ParadigMS Board Members collaborated to produce an asynchronous and self-paced e-learning. It was pre-launched at MENACTRIMS2022 and will be further promoted in 2023. The e-learning was created using Articulate 360°.

The e-learning provides learners with a comprehensive overview of the innate immune cell pathobiology in MS and shares the latest research findings in this evolving field. The e-learning also help learners understanding the basis of the use of PET, MRI and OCT imaging in detecting activated microglia in the CNS in MS in vivo.

Different modules guide the learner through the topic, all under the broader umbrella of the role of microglia in MS:

- 1) Innate immune system in the central nervous system
- 2) Clinical progression and the relation with innate immune cells
- 3) Detecting microglia-related pathology in MS brain (MRI, PET, OCT and neurofilaments)
- 4) Impact of treatments on microglia
- 5) Role of microglia in neuroprotection and remyelination

3.4. Live educational experiences in 2022

3.4.1. ParadigMS Belgium Symposium

Symposia were organised in 2016-2022. The 2022 symposium was organised as a hybrid event.

On average, the symposium welcomes between 60 and 80 active neurologists (on an average 600 active neurologists in Belgium).

ParadigMS Symposium 2022, 30th June

Topics:

- Workshop, MRI & OCT, Prof Celia Oreja-Guevara and Prof Veronica Popescu
- Workshop, MS & Cognition, Prof Hanneke Hulst and Prof Bart Van Wijmeersch
- Keynote: Precision Medicine in MS, Tjalf Ziemssen (DE)
- Sponsored-breakout: Brain Health – What can we do today? A hands-on approach to discuss it with your patients (Sanofi, hybrid)
- Sponsored-breakout: Ofatumumab: new hands-on insights (Novartis, hybrid)



Figure 4: ParadigMS hybrid-Symposium Belgium, June 2021

- Keynote: MS Care Unit, Giancarlo Comi (IT)
- Talk: MS highlights from EAN Veronica Popescu (BE)

We welcomed 90+ participants from different countries (48 onsite).

ParadigMS Symposium 2021, 24th June

Topics :

- Individualized Prognosis in MS, workshop (Celia Oreja-Guevara (Madrid) and Bart Van Wijmeersch (UHasselt))
- Workshop: Risk Management in the Treatment of MS. (Maura Pugliatti (Italy) and Carlo Pozzilli (Italy))
- Keynote: Innate Immunity and the Role of Microglia in MS (Laura Airas, Finland)
- Keypoints European Academy of Neurology (Veronica Popescu, Belgium)
- Keynote: COVID19 experiences and Virtual MS-care. (Hans-Peter Hartung)

ParadigMS Symposium 2020, June 16

Topics

- Progressive forms of Multiple Sclerosis: pathogenesis and treatment options - Carlo Pozzilli (Italy) & Bart Van Wijmeersch (UHasselt)
- NMO spectrum disorders: clinics, diagnosis and treatment options Nikolaos Grigoriadis (Greece) & Vincent van Pesch
- Biomarkers in MS - Nikolaos Grigoriadis (Greece)
- Epidemiology of MS - Carlo Pozzilli (Italy)

ParadigMS Symposium 2019, March 14

Topics

- MRI in MS – Nicola De Stefano
- The Neuroimmunology of MS – Bart Van Wijmeersch & Tjalf Ziemssen
- Pregnancy in MS – Celia Oreja Guevara
- How Real World Evidence complements Clinical Trial Data – Tjalf Ziemssen

ParadigMS Symposium 2018, March 22

Topics

- Lifestyle in MS – Mona Alkhwajah
- Cognition in MS – Raed Alroughani
- Rehabilitation in MS – Peter Feys

ParadigMS Symposium 2017, March 9

Topics

- Suboptimal Response on Treatment – Celia Oreja-Guevara
- Role of T&B
- Monitoring of MS – Sven Schippling

ParadigMS Symposium 2016, March 17

Topics

- An update in MS pathology and immunology - Nikolaos Grigoriadis

- Quality of life: the ideal outcome - Andreas Lysandropoulos
- Disease modifying treatment and management - Bart Van Wijmeersch

3.4.2. ParadigMS Egypt Symposium



Figure 5: ParadigMS Egypt Symposium

ParadigMS organised, in collaboration with the Egyptian MS Society, a **two-day symposium in Cairo**, Egypt, from 8 to 9 September 2022. Prof Celia Oreja-Guevara, Prof Magd Zakaria, Prof Veronica Popescu and Prof Nikolaos Grigoriadis facilitated inspiring workshops and gave presentations and insights about different areas of MS. We welcomed +150 onsite participants from Egypt.

3.4.3. ParadigMS Masterclass

The **ParadigMS Master Class**, 'MS prognostication in practice: today and future perspectives', took place both onsite and online on the 20th of October 2022 and consisted of three keynotes



on *Prognosis factors in MS* by Prof Bart Van Wijmeersch, *High efficacy treatments in MS* by Prof Patrick Vermersch, and *Telemedicine and the use of digital tools in MS* by Prof Mona Alkhwajah. We welcomed +60 participants from 9 different countries (8 onsite).

Figure 6: ParadigMS MasterClass

3.4.4. ParadigMS Pre-MENACTRIMS Symposium

As a warm-up for the Seventh MENACTRIMS Congress, ParadigMS Foundation organised an enriching **Pre-MENACTRIMS Symposium**, 'The role of Microglia in MS', on Thursday November 10, 2022. The Symposium consisted of interactive sessions on *Microglia: The basics* by Prof Laura Airas, *Microglia: How to target* by Prof Celia Oreja-Guevara and on *Cognition: A marker of silent progression* by Prof Carlo Pozzilli. We welcomed +200 participants from the MENA region.



Figure 7: ParadigMS Pre-MENACTRIMS Symposium

3.5. Publications

ParadigMS has the aim to publish articles and position papers “on behalf of ParadigMS”, based on the slide decks which have been peer reviewed during the expert meetings. These publications are published as consensus publications.

Three articles have been published in 2022.

3.5.1. Using Personalized Prognosis in the Treatment of Relapsing Multiple Sclerosis: A Practical Guide

The article '**Using Personalized Prognosis in the Treatment of Relapsing Multiple Sclerosis: A Practical Guide**' is published in the scientific journal *Frontiers in Immunology*. In the section 'Multiple Sclerosis and Neuroimmunology' the Prognosis Tool is highlighted.

With this tool we provide neurologists with a practical 'checklist' guide to establishing the likely prognosis of patients based primarily on baseline clinical parameters that can also be reassessed at periodic follow-up visits. The guide allows neurologists to identify 'red flag' parameters in the MS patient profile that are related to poorer long-term prognosis.

Key take-aways

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- It facilitates the development of personalized treatment approaches based on individualized prognostic evidence, enabling outcomes for MS patients to be optimized.
- The tool brings together a considerable amount of data specific to each MS patient, thereby providing the MS neurologist with a comprehensive overview of each patient's current and potential disease status in the future.

Authors

Bart Van Wijmeersch, Hans-Peter Prof. Hartung, Patrick Vermersch, Maura Pugliatti, Carlo Pozzilli, Nikolaos Grigoriadis, Mona Alkhawajah, Laura Airas, Ralf Linker, Celia Oreja-Guevara

3.5.2. Diagnosis and treatment of progressive multiple sclerosis: A position paper

Published in the scientific journal European Journal of Neurology

Multiple sclerosis (MS) is an unpredictable disease characterised by a highly variable disease onset and clinical course. Three main clinical phenotypes have been described. However, distinguishing between the two progressive forms of MS can be challenging for clinicians.

This article examines how the diagnostic definitions of progressive MS impact clinical research, the design of clinical trials and, ultimately, treatment decisions.

The authors conducted a thorough review of the literature, highlighting differences in how progressive forms of MS are defined as well as the significance of assessing the extent of the ongoing inflammatory component in MS when making treatment decisions.

Authors

Carlo Pozzilli, Maura Pugliatti, Patrick Vermersch, Nikolaos Grigoriadis, Mona Alkhawajah, Laura Airas, Celia Oreja-Guevara

3.5.3. Anti-SARS-CoV-2 vaccination in people with multiple sclerosis: Lessons learnt a year in

It has been over a year since people with multiple sclerosis (pwMS) have been receiving vaccines against severe acute respiratory syndrome coronavirus 2 (SARSCoV-2). With a negligible number of cases in which vaccination led to a relapse or new onset MS, experts around the world agree that the potential consequences of COVID-19 in pwMS by far outweigh the risks of vaccination. This article reviews the currently available types of anti-SARS-CoV-2 vaccines and the immune responses they elicit in pwMS treated with different DMTs. Findings to date highlight the importance of vaccine timing in relation to DMT dosing to maximize protection, and of encouraging pwMS to get booster doses when offered.

Authors: Maura Pugliatti¹, Hans-Peter Hartung, Celia Oreja-Guevara, Carlo Pozzilli, Laura Airas, Mona Alkhawajah, Nikolaos Grigoriadis, Melinda Magyari, Bart Van Wijmeersch, Magd Zakaria, Ralf Linker, Andrew Chan, Patrick Vermersch and Thomas Berger

3.6. ParadigMS learning e-platform

+20 learning materials were added to the platform. ParadigMS' learning platform offers:

- Recordings of lectures
- Short expert interviews
- Links to published articles
- Peer-reviewed slide decks
- e-learning (asynchronous and self-paced)

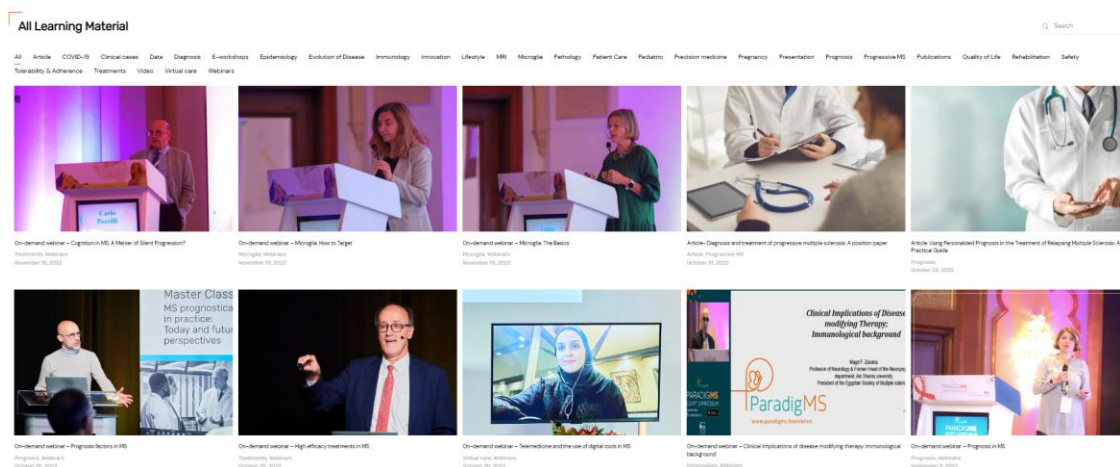


Figure 8: ParadigMS learning platform

3.7. EACCME Accredited learning materials

In 2022, two on-demand webinars received EACCME accreditation.

Learners receive a certificate for 1 European CME credit upon watching the webinar in full and successfully completing an exam.

EACCME accredited the following on-demand webinars:

3.7.1. On-demand webinar: Risks, pregnancy and vaccination in MS

Topics covered:

- Pregnancy and Lactation in Patients with MS by Prof Bassem Yamout
- How to Mitigate Risks in MS by Prof Maura Pugliatti
- Human response to COVID-vaccination in MS by Prof Celia Oreja-Guevara

3.7.2. On-demand webinar: MRI in MS

An interactive e-workshop on MRI in MS presented by the eminent neuroradiologists Dr. Roula Hourani (American University of Beirut Medical Center, Lebanon) and Dr. Jens Würfel (University of Basel, Switzerland).

3.8. Pro-active communication activities

ParadigMS uses two e-channels to pro-actively promote its educational materials and activities to HCP's:

- Newsletter
- LinkedIn

3.8.1. Newsletter

ParadigMS e-newsletter has 1066 subscribers.

The e-newsletter is an informative newsletter for clinical neurologists.

- Newsletter July 2022: 28,7% (233) open rate and 4.1% clicks (33)
- Newsletter February 2022: 29,9% (200) open rate and 5.4% clicks (36)

A third newsletter is planned in December 2022.

THE EXPERT EXPLAINS



Prognosis factors in MS by Prof Bart Van Wijmeersch

Figure 9: Extract from ParadigMS e-newsletter, February 2022

3.8.2. LinkedIn

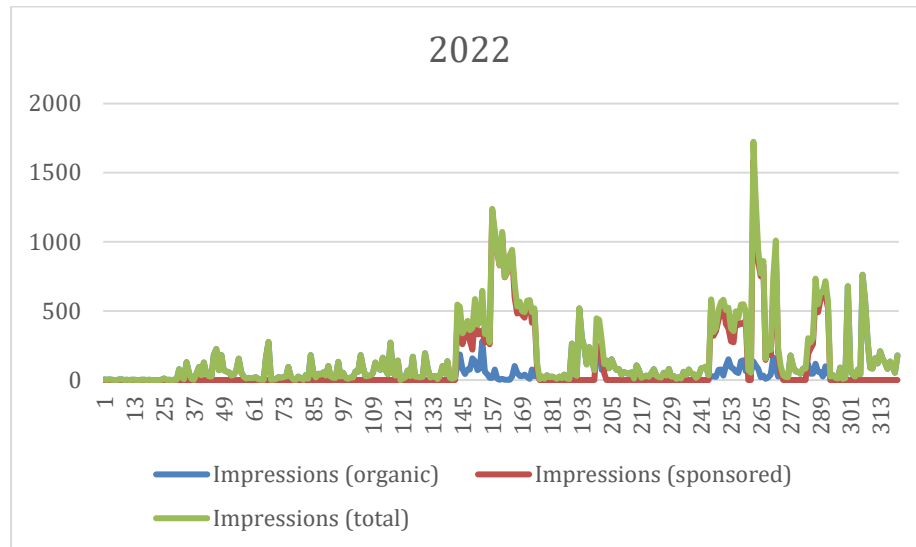
Reach LinkedIn 2022

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- Impressions (organic) 20897
- Impressions (sponsored) 36128
- Impressions (total) 57025



LinkedIn Followers:

- Total: 212
- New followers 2022: 118

Shares:

- Total shares: 98
- Engagement rate: 10,90%

Followers Geo location TOP 5

- Belgium 69
- Spain 17
- Germany 15
- Netherlands 13
- United Arab Emirates 10

Top 3 follower Industry TOP 3

- Pharmaceuticals (61)
- Biotechnology (37)
- Hospital & Health Care (24)
- Medical practice (11)
- Higher education (8)

3.8.3. In-person promotion at live educational events

Besides these e-channels, ParadigMS was present with a small booth at MENACTRIMS. This was the first time ParadigMS invested to promote its educational materials in-person, to neurologist, beyond during its live educational sessions.



Figure 10: ParadigMS' presence at MENACTRIMS

