

RETHINKING

MIGRAINE IN TIMES OF COVID-19

June 2022

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For more information about “RETHINKING Migraine in times of COVID-19”,
please visit: www.braincouncil.eu/projects/rethinking-migraine/

FOREWORD

As a complex neurological condition, migraine is largely under-diagnosed, under-treated and not fully understood. Too often dismissed and disregarded as ‘just a bad headache’, migraine is the second leading cause of disability worldwide and represents a significant cost to society. It is estimated that 41 million adult Europeans live with migraines of varying severity. The condition most commonly strikes between the ages of 30 and 50, when most people are at their peak of economic productivity.

If left unchecked, migraine presents a devastating public health challenge. Policy has the power to change this. The key is education – education of healthcare professionals during their medical training, education of society from a young age on migraine management and improvement of public awareness to help not only people with migraine but employers and society as a whole.

With increased political support, people living with migraine could begin to feel empowered to speak out about their needs – whether that be at work, socially or when seeking treatment. These insights can also help inform and shape policies to improve the state of migraine care, emotionally and financially.

In 2018, the RETHINKING project series of the European Brain Council was launched with the aim to provide insight on unmet needs and challenges. We wanted to emphasise the need to develop policy priorities around challenges in brain disorders and present a consensus on what needs to be achieved to resolve the most pressing challenges in brain conditions, today and in the future. There is a clear need to rethink the management of brain disorders and redesign the care pathways to ensure optimal treatment and care for all people living with a brain disorder in Europe, neurological and mental alike.

“RETHINKING Migraine in times of COVID-19”, the second project in the series, sheds light on how people living with migraine have been impacted by the pandemic, which good practices have been put in place and what lessons can be learnt from this experience. It provides insight into why we need to rethink migraine to provide and ensure access to optimal care for all.

With this project, we are calling on all policymakers, decision-makers, members of interdisciplinary migraine teams and patient advocates to come together and reassess how care can be better organised – to benefit people living with migraine, health and social care systems and society as a whole.

Prof. Wolfgang H. Oertel
President, European Brain Council

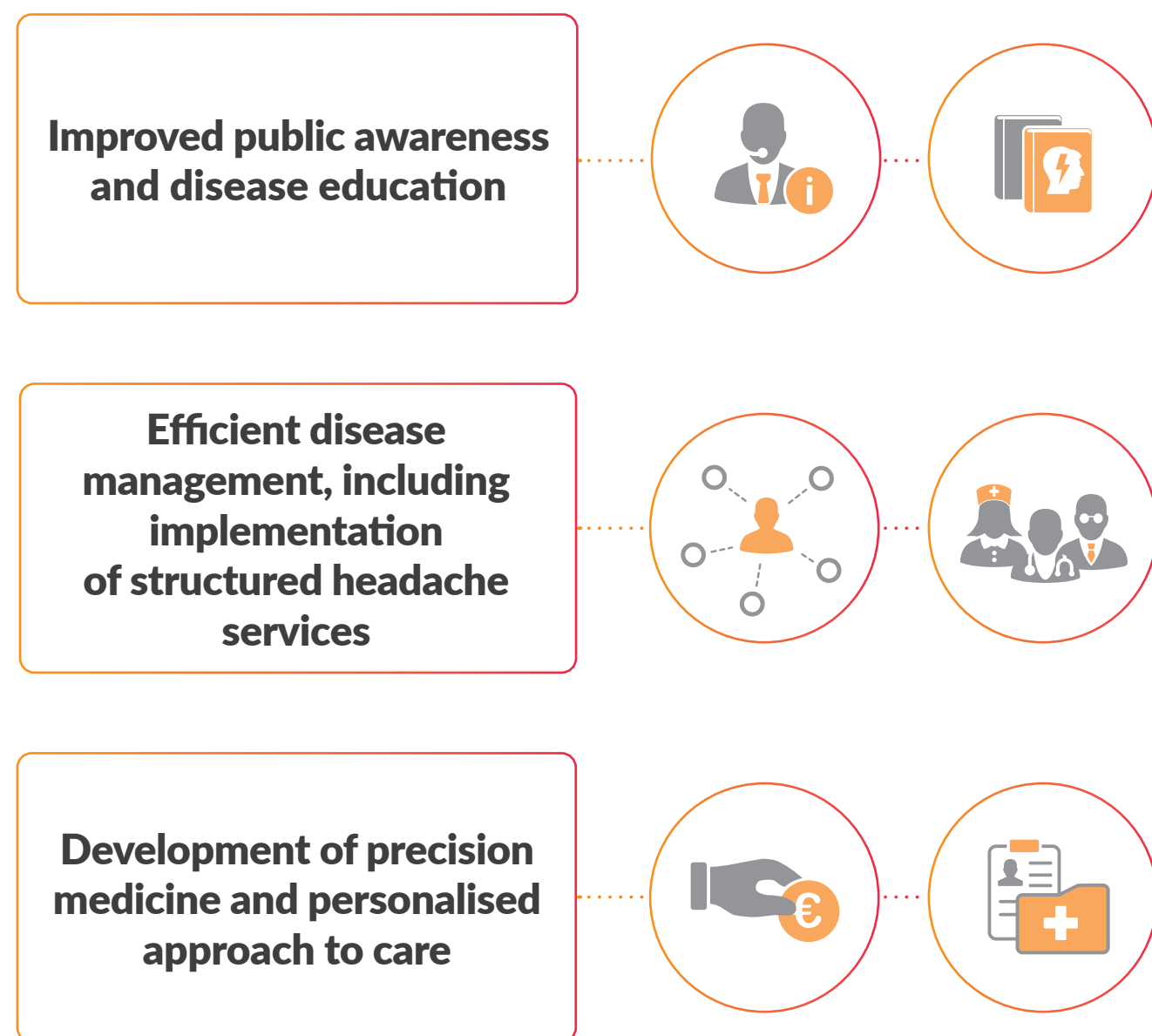


Prof. Jes Olesen
Founding President, European Brain Council



CALL TO ACTION

We call on policymakers and decision-makers across Europe to improve migraine care pathway, develop and implement national strategies for migraine that enable:



The following organisations endorse the RETHINKING Migraine, including the call to action and policy recommendations, to help improve the quality of life and care for people living with migraine in Europe.



..... **European Academy of Neurology (EAN)**



..... **European Federation of Neurological Associations (EFNA)**



..... **European Headache Federation (EHF)**



..... **European Migraine and Headache Alliance (EMHA)**



..... **European Paediatric Neurology Society (EPNS)**



..... **International Headache Society (IHS)**



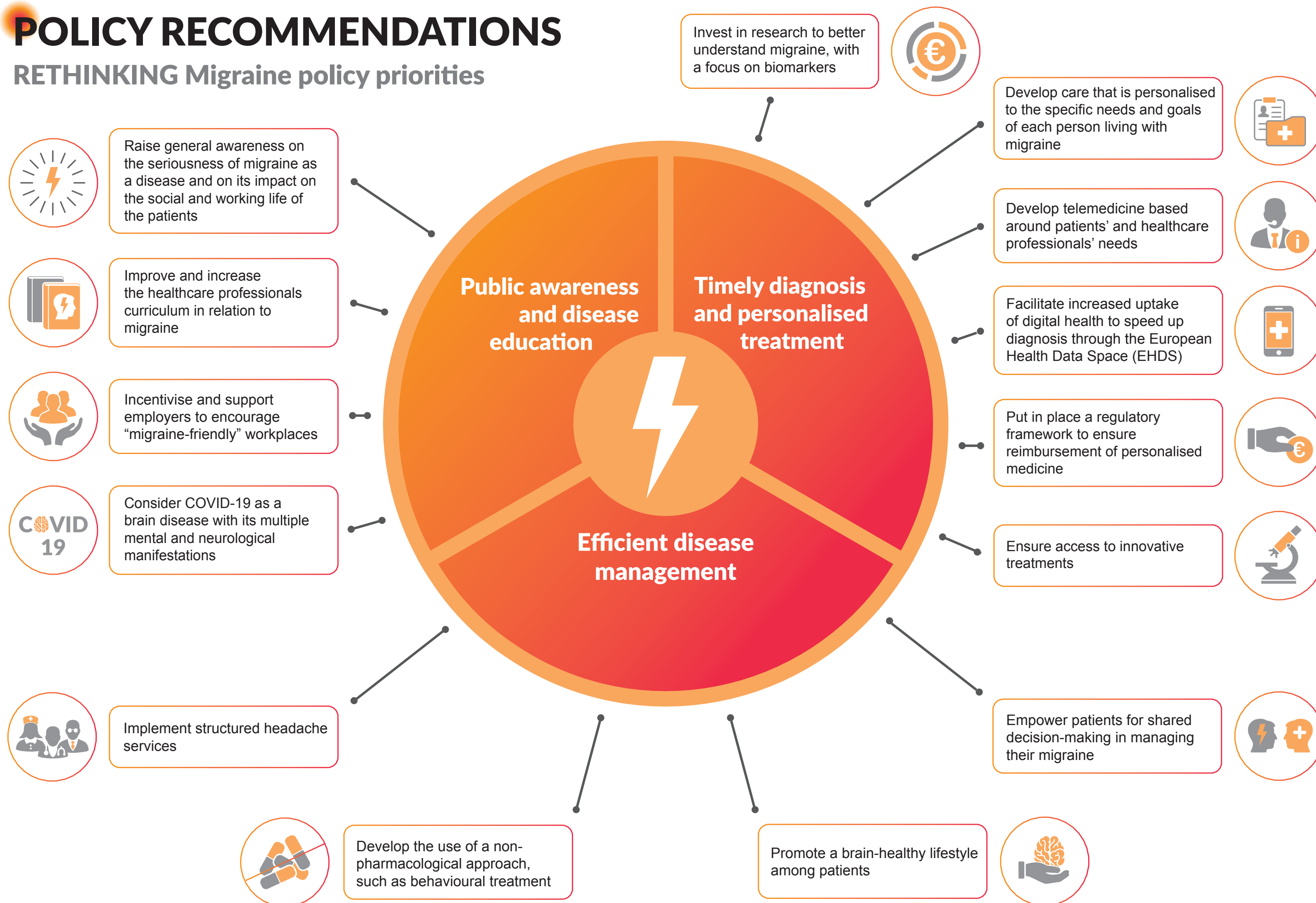
..... **Migraine Association of Ireland (MAI)**



..... **Women's Brain Project (WBP)**

POLICY RECOMMENDATIONS

RETHINKING Migraine policy priorities



INTRODUCTION

Migraine is a complex neurological disease identified as the leading cause of years lived with disability in people under the age of 50 years, the leading cause of disability in young women and the second leading cause of disability in the world.¹ An estimated 41 million adult Europeans live with migraine of varying severity.² Migraine often starts at puberty and mostly affects adults in their productive years but can also be present in children and the elderly. It is found to be the second most frequently identified cause of short-term absence for employees and among the five leading causes of emergency department visits. Patients with migraine also have an increased incidence of co-morbid psychiatric and medical conditions³, resulting in complex cases of chronic multidimensional migraine. Despite the considerable individual and societal consequences, migraine remains undiagnosed and undertreated in at least 50% of patients and less than 50% of migraine patients consult a physician.⁴ Worldwide, physicians receive only minimum education on headache disorders during their medical training.^{5,6}

There is no cure for migraine but the severity of an attack can be reduced and steps can be taken to prevent the headaches from occurring. The mechanisms underlying the progression of episodic migraine to chronic migraine are complex and not fully understood; however, modifiable risk factors for progression include the frequency of headache attacks, overuse of acute migraine medication, ineffective acute treatment, stressful life events, obesity and epilepsy.⁷ In addition to risk factor modification, and the appropriate and effective acute treatment of migraine, all patients with chronic migraine need prophylactic treatment to reduce the headache frequency, severity and associated disability.⁸

The management of chronic neurological disorders such as migraine can be challenging under “normal circumstances”, not to mention the global pandemic that the world has been facing since 2020. It is undeniable that COVID-19 has disrupted every sphere of society, but the repercussions for people living with migraine, overshadowed by the COVID-19 outbreak, should not be overlooked. What were the challenges faced by people with migraine before and during the coronavirus pandemic and what lessons can be learnt from this unprecedented experience? What strategies can be put in place to make them sustainable in the long term?

The objective of the policy report “RETHINKING Migraine in times of COVID-19” is to respond to these questions by a comprehensive literature review of the recent publications and by providing concrete and tangible testimonies of all relevant stakeholders. Clinicians, migraine patients, patient and family advocates, health insurance providers and pharma representatives have been impacted by the disruption in care, which proved both an obstacle and an accelerator for the implementation of good practices. Qualitative research was undertaken through semi-structured interviews, which elicited empirical knowledge from the different interviewees. This method allowed us to gather valuable insight into the stakeholders’ personal experiences during the COVID-19 pandemic: the challenges they faced and the strategies they used to handle them.

QUOTES



“Migraine is not just a headache; it is a complex, neurological, clinical condition which is impossible to address with a one-size-fits-all approach.”

Pascal Derrien, CEO, Migraine Association of Ireland



“Migraine is a brain neurosensorial disorder, which allows us to understand how the brain communicates with its environment. This gives clues on how the brain functions and adapts. Understanding the migraine brain helps us all, as well as patients who suffer from this disease.”

Patricia Pozo-Rosich, MD PhD, Neurologist, Honorary Secretary of the International Headache Society



“Patients with migraine are invisible to most policy makers.” Pablo Irimia, Co-chair, EAN Scientific Panel on Headache



“Secondary prevention of migraine starts with a compassionate attitude towards yourself.”

Matilde Leonardi, Director Neurology, Public health, Disability Unit & Coma Research Centre, Fondazione IRCC S Istituto Neurologico Carlo Besta



“The biggest challenge for people living with migraine is not being understood by society, the scientific and medical community.” Elena Ruiz de la Torre, Patient Advocate and Executive Director, European Migraine & Headache Alliance



“From the perspective of a paediatric neurologist, one of the lessons we should learn from the COVID-19 pandemic is to protect children.” Florian Heinen, Chair of Finance Committee, European Paediatric Neurology Society

MIGRAINE:

DEFINING THE CHALLENGE



***“The invisible nature of migraine makes it very difficult to understand that the disease is a primary pain.”** Simona Sacco, Professor of Neurology, University of L'Aquila, Italy / European Headache Federation (EHF)*

Migraine is a primary headache disorder, probably with a genetic basis, that manifests itself with recurrent episodes of headache. Activation of a mechanism deep in the brain causes release of pain-producing inflammatory substances around the nerves and blood vessels of the head, affecting several regions of the brain. Why this happens periodically and what brings the process to an end in spontaneous resolution of attacks is uncertain.⁹ As opposed to other disorders, there is no way to quantify the disease due to missing biomarkers and the diagnosis is based on the presence of symptoms reported by the migraineurs.^{10,11}

Known causes of migraine

The cause of migraine attacks is not yet known. It is suspected that they result from abnormal activity in the brain that affects the way nerves and brain cells communicate, as well as the chemicals and blood vessels in the brain. Migraine triggers are as personal as the fingerprint and each person can be sensitive to different ones. Additionally, it is also believed that genetics can make someone more sensitive to migraine triggers. It is not possible to completely avoid migraine attacks but their avoidance is helpful in some individuals. The following triggers have been identified to set off migraine attacks:

- **Hormonal changes:** Women may experience migraine symptoms during menstruation or throughout the month due to changing hormone levels.
- **Emotional triggers:** Stress, anxiety, excitement and shock can trigger a migraine.
- **Physical causes:** Tiredness and insufficient sleep, shoulder or neck tension, poor posture and physical overexertion have all been linked to migraine attacks. Low blood sugar, trips in airplanes and jet lag can also act as triggers.
- **Diet:** Alcohol, as well as some common foods, can contribute to triggering migraine attacks for so many affected people. Additives such as tyramine or histamine can worsen the situation. Irregular mealtimes and dehydration have also been named as potential triggers.
- **Medications:** Some sleeping pills, hormone replacement therapy (HRT) medications, antibiotics, the combined contraceptive pill and some others have all been named as possible triggers.
- **Environment:** Flickering screens, strong smells, second-hand smoke and loud noises can set off a migraine. Stuffy rooms, temperature changes, and bright lights are also possible triggers.¹²

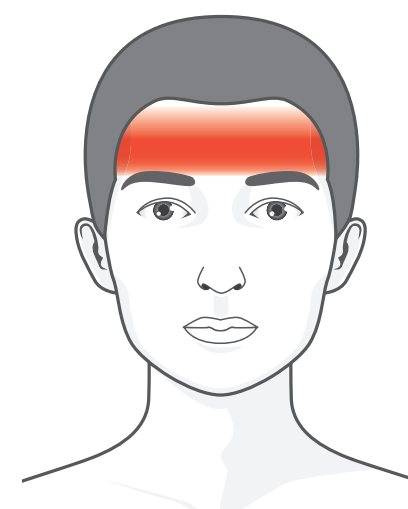
Associated symptoms

- Nausea
- Vomiting
- Photophobia (sensitivity to light)
- Phonophobia (sensitivity to sound)

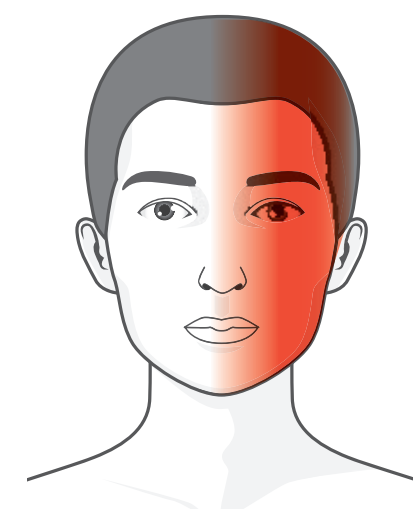
Difference between migraine and tension headache

Tension headaches are the most common type of headache. Stress and muscle tension are often factors in these headaches. Tension headaches typically do not cause nausea, vomiting or sensitivity to light. They do cause a steady ache and tend to affect both sides of the head.¹³ On the other hand, migraine is a severe, throbbing headache, affecting one side of the head.¹⁴ Both migraine and tension headache affect several regions of the brain.

HEADACHE TYPE



Tension



Migraine

Facts and figures



1 in 7 people around the world live with migraine.¹⁵



Migraine is estimated to affect **144 million people** worldwide,¹⁶ and 41 million in Europe.¹⁷



Migraine is one of the **leading causes of disability** worldwide.¹⁸



Migraine is **three times more common in women** than men. Migraine affects over **30% of women** over their lifetime.¹⁹



Migraine is only studied for **4 hours** at university medical education worldwide.²⁰



In Europe, lost working hours and productivity due to migraine result in economic losses of around **€27 billion per year**.²¹



About **50% of people** with headache need **professional care** and cannot rely on self-medication: headache services should be based in primary care to provide sufficient reach and have to be supported by specialist care.²²



Although more than **200 distinct headache disorders** exist²³, migraine, tension-type headache (TTH) and medication-overuse headache (MOH) are the most common, burdensome and relevant from a public health perspective.

MIGRAINE IN TIMES OF COVID-19

Since the outbreak of the COVID-19 pandemic, the scientific and medical worlds have been grappling to understand the pathological mechanisms underlying this disease. This shift has unfortunately left many other existing diseases on the side of the road. As stressed in many scientific articles and in most of the health authority reports, the impact of COVID-19 on brain health during the last two years has been a major and dramatic one with severe mental and neurological consequences, including headache.

More specifically, the COVID-related headache has been identified as the fifth most frequent symptom and one of the most common neurological manifestations of the coronavirus disease. Headache is also an important symptom in patients with a condition known as “long-haul COVID”, which has a serious negative impact on the individuals’ quality of life in the long term.²⁴ According to the estimates, 10% of COVID-19 patients develop a COVID-19 long syndrome.²⁵ The condition has a wide range of other neurological symptoms, including pain, brain fog and memory issues, and has also been associated with increased levels of depression and anxiety symptoms.²⁶

The COVID-19 pandemic has seen the migraine community changed in several ways: there are people with pre-existing primary headache who contracted COVID-19. On the other hand, people infected by COVID-19 began experiencing headaches even without previous history of the condition.²⁷ What is clear is that COVID-19-related headache requires further research in order to understand its multiple manifestations; as it also still needs to be explored whether patients with pre-existing headaches are more susceptible to COVID-19-related headache.²⁸

There is growing scientific evidence proving the impact of COVID-19 on brain health, with its multiple neurological and mental manifestations. For all these reasons, COVID-19 has to be considered as a brain disease, with increased mental and neurological disorders, and this perspective has to be taken into consideration when choosing the most appropriate and effective way to support people living with brain conditions, including the migraine community.

Public awareness and disease education

What do we need?

- Raise general awareness on the seriousness of migraine as a disease and on its impact on the social and working life of the patients
- Improve and increase the healthcare professionals curriculum in relation to migraine
- Incentivise and support employers to encourage “migraine-positive” workplaces
- Consider COVID-19 as a brain disease with its multiple mental and neurological manifestations



“Other than infectious disease pandemics, such as COVID-19, we have brain health pandemics, such as migraine. A very prevalent and disabling disease, that needs research and funding, and provide access to treatments to those who need it.”

Patricia Pozo-Rosich, MD PhD, Neurologist, Honorary Secretary of the International Headache Society

Although migraine is the second most disabling condition worldwide, poor awareness among physicians and patients is a long-standing issue in Europe and beyond. In some countries, fewer than 10% of primary care doctors who are consulted for migraine formulate the correct diagnosis.²⁹ With only 4 hours of medical training dedicated to the study of migraine in medical schools on average worldwide³⁰, there is an immediate need for the provision of up-to-date training as a core part of education programmes for medical students, junior doctors and primary care doctors.³¹

Poor awareness of headache disorders exists similarly among the general public: headache disorders are not perceived by the public as serious as they do not cause death and are not contagious. Consequently, headaches are often trivialised as “normal” and seen in those who complain of them as merely an excuse to avoid responsibility.³² The gender stigma of migraine being a female disease³³ (migraine being three times more common in women than in men) is a misconception to eradicate through sustained and target awareness-raising campaigns.³⁴ Migraine being a self-limiting condition characterised by recurrent, time-delimited episodes takes the focus away from the number of life-time years lost due to the condition.³⁵ Migraine is misunderstood and dismissed a ‘just a bad headache’. This has a detrimental effect: nearly 70% of the people affected never seek medical advice for their symptoms.^{36, 37}

Furthermore, migraine has a considerable impact on workplace productivity, leading to substantial financial loss attributed to both absenteeism and presenteeism. With around 190 million work days lost every year in EU due to migraine³⁸ and an estimated cost of €50 billion a year for the European economies, greater investment in health care that treat headache disorders effectively may well be cost-saving overall.³⁹ Migraine should be included in relevant public health resources for employers to encourage more “migraine-friendly workplaces”, which would significantly improve productivity and allow people to stay and thrive at work, reducing one of the leading causes of workplace absences.⁴⁰

It is evident that headache disorders are under-recognised in society, under-prioritised in health policy, under-diagnosed in the population and undertreated in health-care systems.⁴¹ The consequences of the frequent misdiagnosis/underdiagnosis and the lack of knowledge make clear that considerable efforts on raising awareness will need to be exerted in order to reduce the significant burden of migraine; change public, medical and employer perceptions of the condition and improve diagnosis and care. Several strategies can be adopted from empowering people through knowledge by integrating education on the brain from the very beginning of preschool education to incentivising brain health from the government’s public health care authorities.⁴²

Efficient disease management



What do we need?

- Implement structured headache services
- Develop the use of a non-pharmacological approach, such as behavioural treatment
- Empower patients for shared decision-making in managing their migraine
- Promote a brain-healthy lifestyle among patients



“Patients living with migraine should play an active role in the management of their disease.”

Cristina Tassorelli, President, International Headache Society (IHS)

The long journey from symptom onset to accurate diagnosis and developing an appropriate treatment plan can be a very painful path for people living with migraine. General lack of awareness among healthcare professionals resulting in the frequent underdiagnosis/misdiagnosis of migraine, low patient education and empowerment, lack of specialist clinics and limited policy maker interest in migraine are recurrent obstacles in a patient’s journey. What can be done to optimise care pathways to improve migraine patient outcomes on a long-term basis?

Despite the existence of a range of effective therapies⁴³, these do not reach large numbers of people who might benefit, or do so inefficiently, they are delivered by health care providers without the requisite understanding of these disorders.⁴⁴ The solution – structured headache services based in primary care and supported by training and education – would provide a framework general enough to be easily adapted and implemented across Europe.^{45, 46} From the societal perspective, structured headache services would be economically successful, not only delivering increased effectiveness but also cost saving across headache types and over time.⁴⁷

What do we mean by structured headache services?

In countries where headache services exist, their focus is usually on specialist (tertiary) care. This is clinically and economically inappropriate: most headache disorders can effectively and more efficiently (and at lower cost) be treated in educationally supported primary care. The structured headache services model calls for vertical integration between care levels (primary, secondary and tertiary) and protection of the more advanced levels for the minority of patients who need them. At the same time, it is amenable to horizontal integration with other care services. It is adaptable according to the broader national or regional health services in which headache services should be embedded.⁴⁸

Migraine being a complex condition with interconnected biological, social and emotional aspects, the management of this condition requires a multidisciplinary approach. There is a strong need to further develop a non-pharmacological approach, in particular, behavioural treatment, used in combination with traditional medication.⁴⁹ The research studies have found that self-management interventions (good sleep hygiene, sufficient hydration, healthy diet, regular physical activity, etc.) for migraine and tension-type headache are more effective than usual care in reducing pain intensity, mood and headache-related disability, but have no effect on headache frequency.^{50, 51}

Timely diagnosis and personalised treatment

What do we need?

- Invest in research to better understand migraine, with a focus on biomarkers
- Ensure access to innovative treatments
- Put in place a regulatory framework to ensure reimbursement of personalised medicine
- Develop telemedicine based around patients' and healthcare professionals' needs
- Develop care that is personalised to the specific needs and goals of each person living with migraine
- Facilitate increased uptake of digital health to speed up diagnosis through the European Health Data Space (EHDS)



“Precision medicine, including gender medicine, unlocks a lot of potential for improvement of migraine care, tailoring medical treatment to the individual characteristics of each patient.”

Maria Teresa Ferretti, Co-founder & Chief Scientific Officer, Women's Brain Project

Biomarkers — a naturally occurring molecule, gene, or characteristic by which a particular pathological or physiological process or disease can be identified — hold considerable promise for understanding and intervening in the disease process of migraine. They may permit recognition of individuals at risk of developing migraine, improve the timing, accuracy and precision of migraine diagnosis, and serve as indicators of treatment response and disease progression. At the same time, there are important limitations to the use of biomarkers in migraine, including problems with validity, reliability, accuracy, and precision.⁵² Due to these constraints, timely diagnosis, which is currently based on the reported symptoms of migraineurs, remains one of the biggest challenges on the patient pathway.⁵³

A crisis such as the COVID-19 pandemic has posed serious challenges on access to health-care institutions. Due to the imposed mobility restrictions and suspension of some headache clinics and medical appointments, migraine patients have faced difficulties in consulting their doctors, collecting their medication and even in accessing emergency care.⁵⁴ However, reduced access to healthcare facilities during COVID-19 triggered solutions towards a more accessible health system beyond hospital walls. The global health emergency accelerated the use of telemedicine as an innovative way to support patients, reduce pressure on inpatient care and maintain access to routine services. The deployment of telemedicine needs to be strengthened, formalised and legally protected⁵⁵ to make it a sustainable, alternative solution for patient-centred care and to create a more resilient health system capable of coping with sudden change.⁵⁶

At the same time, the rapid and massive adoption of telemedicine questions the traditional doctor-patient relationship, the importance of personal contact in healthcare delivery and the benefits of direct human interaction. Digital technology as part of integrated care undoubtedly facilitated contact between patients and doctors, the latter having become much more easily reachable, putting at stake their work-life balance.⁵⁷ While in-person visits will always play an important role in the care pathway, the use of telemedicine should not come at the cost of the safety of patients or the quality of care delivered and should be based around patients' and healthcare professionals' needs.

This is all the more important for migraine care since everyone experiences symptoms differently; decisions on care must therefore be made on an individual basis.⁵⁸ Emerging science of migraine shows that migraine treatment, currently based often on a trial-and-error approach, requires a personalised approach.⁵⁹ It is known that migraine pathways in men and women are different: migraine attacks tend to be longer in women than men, the number of comorbidities is higher in women (on average, 11 in women and 5 in men) as well as more psychiatric comorbidities (e.g., anxiety or depression). In general, the characteristic symptoms accompanying migraine are more frequent among women than men.⁶⁰ The reasons behind these differences is not fully understood but can be linked to biological factors (hormonal fluctuations may impact part of the brain involved in migraine development) and sex-related differences in brain structure and function (with women having a greater number of irregular brain connections and a lower resilience to the loss of function of certain brain networks).⁶¹ The science behind sex and gender determinants in migraine is not fully revealed, opening the gateway to precision medicine. Precision medicine unlocks a lot of potential for improvement of migraine care, tailoring medical treatment to the individual characteristics of each patient.⁶²

LESSONS LEARNT FROM THE COVID-19 PANDEMIC: TRANSFORMING CHALLENGES INTO OPPORTUNITIES



“The COVID-19 pandemic was a great opportunity to look for alternative solutions to take care of patients using different approaches and different technological methods.” Licia Grazzi, Director of the Neuroalgology Department, Neurological Institute C Besta

The COVID-19 pandemic is a pivotal moment for the future of healthcare and health research. It has reinforced, more than ever, the importance of research, development and innovation to enhance care delivery and efficiency of health systems.⁶³ The numerous challenges it has posed on healthcare services can be transformed into opportunities to rethink integrated care models across Europe in order to lead to optimal and continuous care for all people, especially those living with all too often neglected chronic neurological conditions like migraine. It is crucial to turn learnings from this unprecedented experience into long-lasting positive changes for tomorrow's migraine care.

In the daily turbulence of living in a pandemic, it can be easy to forget all the people living with chronic conditions who rely on regular doctor's check-ups for their health and whose lives have been turned upside down by the intense disruption in national European health systems. Those living with pre-existing conditions are also more at risk and we have seen a much higher vulnerability to COVID-19 for people with non-communicable diseases (NCDs),⁶⁴ who have been living in the shadow of a viral pandemic since its beginning. The deprioritisation of chronic conditions over the last years is likely to result in heavy, long-term consequences that the healthcare system will need to cope with.

The global public health crisis has managed to overcome the hurdles to adoption of crucial changes that healthcare systems had been slow to incorporate. Accelerated digitalisation and innovation, increased use of telemedicine and self-monitoring applications have changed the way healthcare is delivered. It is crucial that healthcare providers and policymakers focus their efforts on maintaining and upscaling the sustainable solutions implemented during the global pandemic ensure they become part of routine clinical practice. Policy makers must set up infrastructures and policies that will foster the use of tele-health in healthcare systems tailored to respond to patients' and doctors needs. The workplace must also be adapted to fully integrate people with migraine in the workplace.⁶⁵

We have witnessed a global health emergency that has highlighted, more than ever, the importance of prevention. Despite strong political and societal will to return to normal, current “curative” health care systems should not go back to normal once redeployed in the post-COVID-19 era. The curative approach to health care — focusing on disease in the individual rather than a holistic perspective — cannot lead to a healthier population and more equitable access to care. Instead, we should establish health care systems that value prevention, with balance between curative and preventive measures and acknowledge health policy that emphasises the social determinants of health.⁶⁶ Secondary prevention plays a particularly important role in migraine as lifestyle modifications can greatly reduce frequency of attacks.⁶⁷ Regular sleep patterns, a healthy diet, consistent physical activity or stress management strategies are some of the lifestyle factors for migraine outcomes. Supporting people living with migraine to adopt a healthy lifestyle on a long-term basis can lead to positive results while ensuring unobstructed patients' access to preventive medication.

Neurological disorders are the most frequent disabling and costly non-communicable disorders globally⁶⁸. As such, there is a crucial need to fill the gaps in physical and mental health promotion and prevention, early detection, care, treatment and rehabilitation. The social, economic and educational inclusion of persons and families of people living with a neurological disorder needs to be promoted. Research to improve prevention, early detection, treatment, care and rehabilitation, including treatments needs to be increased to address to fill the gaps and lead to treatment options that will have the potential to cure neurological disorders.⁶⁹

EXPERTS' BIOGRAPHIES

We would like to express our great appreciation to the experts for their valuable and constructive input during the development of this project.



Pascal Derrien

CEO, Migraine Association of Ireland

As CEO of Migraine Ireland, Pascal oversees the strategy development and works with the board in enhancing the organisation. Guarant of the ethic, Pascal has enhanced Service Development with a specific focus on developing innovative new services and programmes e.g., through education, information, and outreach programs.

Migraine Ireland have recently been awarded US funding for a global Workplace pilot program and Ireland is leading the effort including scoping programmatic deliverables for other organizations worldwide. Pascal is originally from France and landed on Irish shores in 1998. While he has worked in France for a few years, he has spent most of his professional life in Ireland working for large corporations, SMES, Start Ups, Not for Profit, Charities or Social Enterprises.

The last 5 years he has solely focused on Social Enterprise & Charity projects. A large part of his current role is to maintain and increase stakeholder relationship at national, European, and international level and work closely with statutory bodies, pharmaceutical companies, key opinion leaders and media.



Maria Teresa Ferretti

Co-founder & Chief Scientific Officer, Women's Brain Project

Maria Teresa is a neuroscientist with over 15-year international research experience and a unique expertise in gender medicine.

After a master in Pharmacy (University of Cagliari, Italy) and a stage at the Center of Excellence for Drug Discovery of GlaxoSmith&Kline (Harlow, England), she obtained a PhD in Pharmacology at McGill University (Montreal, Canada) with a thesis on the role of inflammation in early stages of Alzheimer's Disease.

In 2011 she joined the Nitsch's lab (University of Zurich, Switzerland) as postdoc and group leader, to further study the role of the immune system in Alzheimer's using deep-immunophenotyping techniques such as multicolour FACS and CyTOF.

In 2016 Maria Teresa co-founded the non-profit organization 'Women's Brain Project', which studies sex and gender determinants to brain and mental health as gateway to precision medicine (www.womens-brainproject.com).



Licia Grazzi

Director of the Neuroalgology Department,
Neurological Institute C Besta

Licia Grazzi is the Director of the Neuroalgology Department, Neurological Institute C Besta, Milan, Italy and the Director of the Headache Center, Neuroalgology Unit, Neurological Institute C Besta, Milan Italy.

Her scientific research activity focuses on clinical and therapeutic aspects on the principal research topics of the Headache Center, with clinical trials in headache field, therapeutic innovations in the treatment of headache in young and paediatric age, developing of therapeutic programs with behavioral therapies and consequently publication of several scientific papers (more than 100) and participation to several international scientific meetings.

She has been involved in scientific activity of BFE (Biofeedback Federation of Europe) as well as in the educational staff of ASC (Association for a School of Headache). She is also a Member of Italian Neurological Association for the Study of Headache (ANIRCEF) and of the International Headache Society (HIS).



Florian Heinen

Chair Finance Committee, European Paediatric Neurology Society

Prof. Dr. med. Prof. h.c. Florian Heinen, MD is a Professor of Paediatrics and a Honorary and Visiting Professor of Paediatrics Beira Mozambique (Africa). He works as the Head of the Department for Paediatric Neurology and Developmental Neuroscience LMU Hospital, Dr. von Hauner Children's Hospital at the University of Munich (Germany). He is also a Board Member of the European Paediatric Neurology Society (EPNS) as a Chair of Finance Committee.



Pablo Irimia

Co-chair, EAN Scientific Panel on Headache

Pablo Irimia obtained his medical degree and neurology training at the University of Navarra in Pamplona, Spain. He completed his training in headache during a Clinical Research Fellow in the Headache Group of The National Hospital of Neurology and Neurosurgery (London) and more recently, he did a short stay in the Headache Unit of the Beaumont Hospital in Dublin and the Headache Unit of the King's College Hospital (London). He is currently Professor of Clinical Neurology and Consultant Neurologist at the Clínica Universitaria of the University of Navarra, in Pamplona, Spain and Chairman of the Headache panel of the European Academy of Neurology. His major research areas of interest are primary headache disorders.



Matilde Leonardi

Director of Neurology, Public Health, Disability Unit and Coma Research Centre and Director Italian WHO Collaborating Centre-Research Branch at Fondazione IRCCS Istituto Neurologico Carlo Besta, Milan, Italy

Member of WHO Functioning and Disability Reference Group, WFNR presidium member, FEAN-Fellow of the European Academy of Neurology, EAN Coma and disorders of consciousness member, EAN International Liaison Group. Co-Chair of the neurological services group of WHO NeuroCOVID Forum. Member of several national and international organizations, in Editorial Board of Journal of Headache and Pain, author of more than 280 publications.

Consultant on neurology policy development, public health, UNCRPD monitoring and disability policy development for several European and extra European Governments.

Developing and carrying out research projects related to burden of diseases, neurology (in particular disorder of consciousness and headaches), neurorehabilitation, disability, ageing, chronic non communicable diseases, public health, ICF (WHO's International Classification of Functioning, Disability and Health) and related instruments.

Corresponding member of the Pontificia Academia Pro Vita and in 2019 nominated Italian Excellence for Research, between the 100 national excellences.



Patricia Pozo-Rosich

MD PhD, Neurologist, Honorary Secretary of the International Headache Society

Patricia Pozo-Rosich MD PhD, is a specialist in Neurology. She is the Director of the Migraine Adaptive Brain Center, Head of Section of the Neurology Department at Vall d'Hebron University Hospital in Barcelona, and Coordinator of the eCORE "Brain, Mind & Behaviour" at Vall d'Hebron Institute of Research.

She is the Honorary Secretary of the Executive Board of the International Headache Society, and past member of the European Headache Federation Council, past Coordinator of the Spanish Headache Study Group of the Spanish Neurological Society (cefaleas.sen.es).

She is a member of the Scientific Advisory Board of the Fundación Lilly in Spain and the Migraine Research Foundation in the United States.

She is the Editor for Headache for Revista de Neurologia, and Associate Editor of Cephalalgia, Headache, Neurologia, Frontiers in Neurology (Headache Medicine) and a member of the Editorial Advisory Board of The Journal of Headache and Pain.

Dr. Pozo-Rosich's research focuses on better understanding the adaptive brain, focusing in particular in migraine as a neurocognitive and neurosensorial disorder, from a multidisciplinary approach using genetics, molecular, neuroimaging and electrophysiology. In this regard, she is a member of the International Headache Genetics Consortium. She has been awarded the "Scientific Prize for Headache Research" from the Spanish Neurological Society for the year 2019. She has been awarded research grants from the la Caixa Foundation, Fondo de Investigaciones Sanitarias (ISCIII), ERANet Neuron, PERIS grant, FEDER, la Marató TV3 Foundation, AGAUR, Mutual Medica and, the Migraine Research Foundation. She has been the principal investigator of clinical trials in phases II and III.

She educates neurologists, other physicians and patients with the goal of improving the quality of life of patients suffering from headache and helping reduce the stigma of migraine.

She is the founder and developer of the website in Spanish dedicated to headache www.midolordecabeza.org for patients and physicians which has more than 8,400 registered users and more than 25,000 Facebook followers.

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Elena Ruiz de la Torre

Patient Advocate and Executive Director,
European Migraine & Headache Alliance

Elena Ruiz de la Torre is one of the leading patient advocates and researchers in the world. She is a tireless and passionate champion for people with headache disorders in the workplace and beyond, with her advocacy career beginning in her native Spain, and then expanding to Europe, and now the world. Elena leads the European Migraine and Headache Alliance, a nonprofit patient umbrella group that represents 33 patient groups from across the continent.

She also co-led the creation of WHAM, the World Health and Migraine organization, a patient-led coalition open to patient groups around the world. She has co-authored several publications, and her list of current advocacy work is extensive, including the “Eurolight”, “My Migraine Voice Global Survey,” “Migraine at Work”, “access to care” and the “Migraine Friendly Workplace” projects.



Simona Sacco

Professor of Neurology, University of L'Aquila

Simona Sacco is professor of Neurology at the University of L'Aquila in Italy and Director of the local Clinical Neurology and Stroke Unit. Dr. Sacco is author of more than 200 publications in the field of stroke and headache. She is the co-chair of the Guideline Board of the European Stroke Organization and second vice president of the European Headache Federation.

She has extensive editorial activity and is currently the chief editor for the Headache and Neurogenic Pain section in Frontiers in Neurology, associate editor for the Journal of Headache and Pain and assistant editor for Stroke.



Cristina Tassorelli

Full Professor and Chair of Neurology, Dept of Brain and Behavioral Sciences, University of Pavia, IRCCS C. Mondino Foundation

She has served in the International Headache Society as member of the Board of Directors of as Chair of the Committee for the Guidelines of Clinical Trials where she serves as President for the biennium 2021-2023.

She was a founding member of the European Headache Alliance, where she served as vice-President for several years.

She has served as a Director in the Board of the Italian Society of Neurorehabilitation.

She has coordinated and participated in several competitive grants funded by the EU, the Migraine Research Foundation, the Italian Ministry of Health, the Italian Ministry of University and the Italian Multiple Sclerosis Foundation.

Authors of more than 350 peer-reviewed publications and of several books and book chapters.

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About **RETHINKING** MIGRAINE

“RETHINKING Migraine in times of COVID-19” is a research-driven project offering tangible policy changes to improve the lives of people living with migraine across Europe. It challenges the status quo and refreshes the European policy debate on people living with migraine, recognises the consequences of the burdens during the COVID-19 pandemic and encourages multi-stakeholder-driven policy.

Funding

This project is funded by Lilly and Pfizer. All outputs are non-promotional and not specific to any particular treatment or therapy.

About the European Brain Council

The [European Brain Council](#) (EBC) is a network of key players in the “brain space”, with a membership encompassing scientific and professional societies, patient organisations and industry partners. A non-profit organisation based in Brussels, its main mission is to promote brain research with the ultimate goal of improving the lives of those living with brain conditions, neurological and mental alike.

For more information about “RETHINKING Migraine in times of COVID-19”, please visit: www.braincouncil.eu/projects/rethinking-migraine/

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