

THE COMMUNITY HAS SPOKEN
CANADA'S TOP 10
PRIORITIES FOR
EPILEPSY RESEARCH



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DU CERVEAU



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Tom Mikkelsen, MD, FRCPC
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A black ink handwritten signature of Tom Mikkelsen, featuring a stylized 'T' and 'M' followed by a series of loops.

An important part of doing research that matters is by starting with the right questions. This is why engaging the community is so important to OBI. We want to ensure the research we support is done in partnership with the community it is meant to help. As a provincially funded organization that makes science matter, we work with researchers, clinicians, industry, and patients to ensure that Ontario's neuroscience excellence is translated into real world impact.

With our epilepsy research program, EpLink, we chose to run this priority setting partnership because epilepsy and seizures are key areas of focus for us. This has been a major piece of work designed to produce a list of research questions that really matter to people living with epilepsy and seizures, and the people who care for them. But this is just the beginning. Now we have the opportunity to take these questions to the research community and work on addressing them. Now we also have the opportunity to address questions that already have answers but are generally unknown outside of academic circles. Together with EpLink, it is our commitment to continue to make research findings more accessible and useful for Canadians. I want to thank all who were involved in this tremendous piece of work, especially the patients who have contributed greatly and the James Lind Alliance team who have been so helpful and easy to work with.

Dr. Ana Suller-Marti



**Ana Suller-Marti, MD, MSc,
PhD Candidate**

Chair of the Steering Group
Neurologist, Epileptologist, and
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It has been a privilege to be part of the first Priority Setting Partnership undertaken for epilepsy and seizures in North America. Each year, 200,000 Canadians are diagnosed with epilepsy. Living with epilepsy is not simply about managing seizures, but about learning to live with the physical, mental, social and behavioural aspects of this brain disease.

Through surveys, we reached out to people with epilepsy, caregivers and health care providers across the country to ask what matters most to them. This two-year process has culminated in a Top 10 list that reflects the unanswered questions that are most pressing to the people who live and work with epilepsy and seizures. As a neurologist/epileptologist, I see the impact of epilepsy every day. This list helps me to understand the needs of my patients and what is most important to them. These Top 10 unanswered questions, if addressed, will help people with epilepsy to live their lives to the fullest while researchers continue to search for more effective treatments and strategies.

On behalf of the project team, we would like to thank all the people who gave their time to answer the survey questions; the committed, hard-working volunteers on the Steering Group; our workshop participants and our JLA adviser Katherine Cowan. We urge researchers and funders to think about how you can contribute to addressing these knowledge gaps. By focusing on the questions that are most important to Canadians, we can help create a new landscape for epilepsy research – one that puts patients at the centre of our work and better meets the needs of the epilepsy community.

Background

We asked Canadians to have their say, and now the community has spoken. Approximately 300,000 Canadians are living with epilepsy. Current research is focused on treating both seizures and the accompanying cognitive, behavioural and physical comorbidities. However, health research agendas are often set by the research community or by industry and may not reflect the needs of people who live with epilepsy and those who care for them.

Research priority setting is intended to increase the impact and clinical relevance of research. The JLA provides a process for increasing public engagement in research by consulting patients, caregivers and health care providers regarding their most pressing unanswered questions or evidence uncertainties. The Epilepsy Priority Setting Partnership was undertaken by EpLink, OBI, and our national partners to identify and prioritize unanswered questions relating to the cause, diagnosis, treatment and management of epilepsy and its comorbidities. This is the first such initiative for epilepsy in Canada.

Despite its prevalence, epilepsy is an under-researched disease, with many questions still unanswered about its cause, diagnosis and treatment (Meador et al., 2011). The Top 10 will be shared with research organizations and funding agencies across Canada to encourage a shift in focus towards these priority areas, bringing the needs of patients and caregivers to the forefront and giving them the power to shape the national epilepsy research agenda.

“Understanding the role of genetics in the development of epilepsy is critical to finding the right treatment for the right person. Moreover, more research about genetic markers will improve knowledge and help guide decisions with regard to the prevention, prediction, diagnosis and treatment of epilepsy and seizures.”

Dr. Elisabeth Simard-Tremblay, Montreal Children’s Hospital

Reference:

Meador, K. J., French, J., Loring, D. W., & Pennell, P. B. (2011).

Disparities in NIH funding for epilepsy research. *Neurology*, 77(13), 1305–1307.

<https://doi.org/10.1212/WNL.0b013e318230a18f>

About EpLink

EpLink is dedicated to reducing seizures and improving quality of life for people with epilepsy through research. We have over 25 researchers and dozens of collaborators from eight universities and hospitals across Ontario working to improve drug, diet and genetic therapies, surgical outcomes, brain monitoring and modulation, and quality of life for people with epilepsy. We work with industry partners, patients, caregivers, and community epilepsy agency representatives to bring our research to the community. We also host research talks and public education events to raise epilepsy awareness. For more information about our program, please visit www.eplink.ca.



About the Ontario Brain Institute

The Ontario Brain Institute is a provincially funded, not-for-profit organization that accelerates discovery and innovation, benefiting both patients and the economy. Our collaborative 'team science' approach promotes brain research, commercialization and care by connecting researchers, clinicians, industry, patients, and their advocates to improve the lives of those living with brain disorders. Welcome to Brain Central. Visit www.braininstitute.ca for more information. *Funding provided, in part by, the Government of Ontario.*



About the James Lind Alliance

The James Lind Alliance infrastructure is hosted by the National Institute for Health Research to provide the support and processes for Priority Setting Partnerships (PSPs). PSPs aim to help patients, caregivers and clinicians work together to agree which are the most important treatment uncertainties affecting their particular interest, in order to influence the prioritisation of future research in that area. For further information visit www.jla.nihr.ac.uk



How We Got To The **Top 10**



We formed a Steering Group

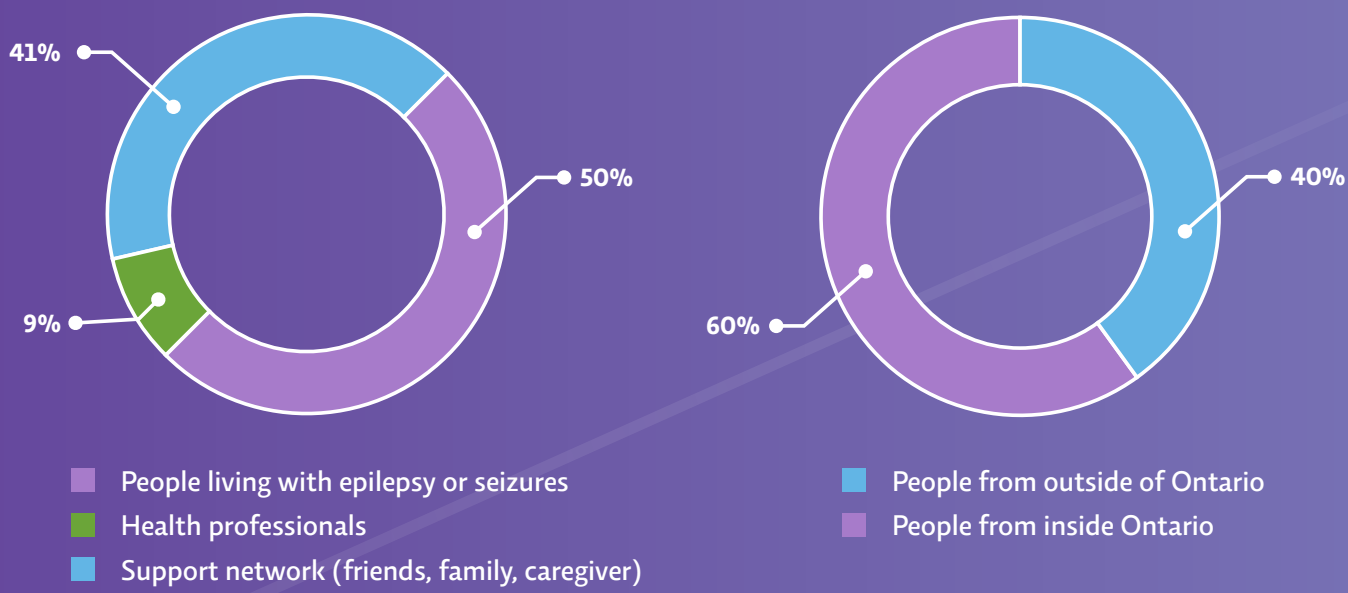
Composed of people with epilepsy, family members, epilepsy agency representatives, and clinicians.



Gathered questions

National online survey asked Canadians to submit their unanswered questions about epilepsy and seizures. 516 total respondents; 2126 questions submitted.

Who responded?



Summarized responses and checked them against evidence

Responses were organized into summary questions and checked against existing evidence to determine if they are true uncertainties.

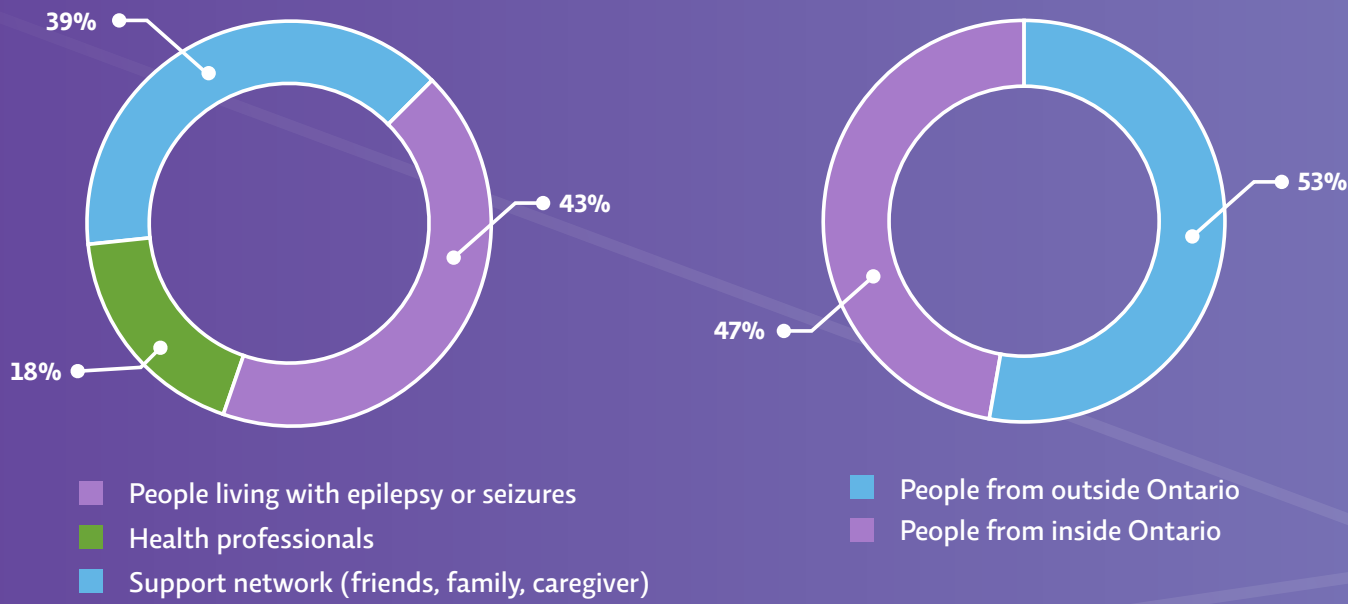
- 161 summary questions generated
- 95 verified uncertainties



Ranked questions

A second national survey was disseminated to rank the shortlist of questions. 43 questions included in survey; 590 total respondents; top 16 questions taken to final workshop.

Who responded?



Agreed on Top 10

People with epilepsy or seizures, caregivers, and health professionals participated in a virtual workshop to come to consensus on a Top 10 list of priorities. 22 participants (11 patients/caregivers, 11 health care professionals); Top 10 priorities established.



THE TOP 10 PRIORITIES FOR

EPILEPSY RESEARCH



1

Can genetic markers be used to diagnose and treat epilepsy and seizure disorders?

2

What are the impacts of long-term use of anti-seizure drugs, the causes of side effects of these treatments and how can we prevent the side effects?

3

What are the long-term impacts of seizures on a person's brain, and overall health and development?

4

How can the risk of SUDEP (Sudden Unexpected Death in Epilepsy) be reduced in people with epilepsy?

5

What is the most effective testing protocol for determining causes of seizures and/or a diagnosis of epilepsy or other seizure disorders and to reduce time to diagnosis?

6

What are the brain changes, on a cellular level, that lead to seizure development?

7

How effective is surgical treatment for adults and children who experience seizures/epilepsy?

8

What causes memory problems associated with seizures? Can these memory problems improve over time and what are the best treatment options for memory loss in people who experience seizures?

9

Aside from anti-seizure drugs and some brain lesions, what causes behavioural changes in people who experience seizures? What is the best way to treat behavioural issues?

10

What is the efficacy (i.e. the effectiveness of reducing seizures) of adding a second anti-seizure medication compared to changing to a different anti-seizure medication? How can we determine which combinations of anti-seizure drugs are effective?

1

Can genetic markers be used to diagnose and treat epilepsy and seizure disorders?

Previous research has uncovered a strong link between certain genes and the development of epilepsy. Currently, there are hundreds of genes that are related to epilepsy. Some of these genes run in families, and some occur spontaneously in an individual. Understanding the role of these genes in the development of epilepsy can help to answer key questions, such as a person's risk of developing epilepsy, the chances that a child will inherit epilepsy from a parent, and how genes interact with the environment to affect disease onset.

Many epilepsy syndromes, such as Dravet syndrome and juvenile myoclonic epilepsy, have been linked to changes in particular genes, and genetic testing may be able to provide a clear diagnosis in some cases. In addition, genetic markers may help researchers to predict how an individual may respond to a specific anti-seizure drug. There is no single treatment that works for all people, and a "trial and error" approach is often used. With more information about how genes can affect treatment responsiveness, an individualized approach to epilepsy treatment may be possible. Researchers can also use this information to develop new treatments that specifically target these genetic changes.



"After watching my father suffer with epilepsy, I was diagnosed at the age of 42. I am unable to work, and my friends have distanced themselves, but I keep pushing because there has to be a better way. There has to be answers: why some suffer more than others, what are the causes and what treatments help. We deserve answers. We deserve more."

Billie-Jean Colbourne, Gander, Newfoundland

What are the impacts of long-term use of anti-seizure drugs, the causes of the side effects of these treatments and how can we prevent the side effects?

All anti-seizure drugs (ASDs) have possible side effects, most of which are well-known. However, the impact of taking these drugs for long periods of time, or a lifetime, is unclear. Researchers are still trying to understand the cumulative effect of ASDs on physical and mental health, and how these effects change over time. Examples include effects on bone health, hormonal systems, reproductive systems, cognition and behaviour, and the digestive system (including the liver, which metabolizes many ASDs).

Side effects can have a significant impact on quality of life, and can also affect drug adherence. Clear strategies to minimize and manage side effects by modifying medications or dosing still need to be developed.



"Understanding the impacts of long-term ASD use will better inform how clinicians dose and treat with ASDs and how patients plan their lives, alternative therapies, and treatments. Understanding the full range of side effects and long-term outcomes of ASD use, feels more like a patient right than a patient privilege; an opportunity at greater autonomy when seizures can take away so much."

Kristi Nysten-Burns, Wynyard, Saskatchewan

3

What are the long-term impacts of seizures on a person's brain, and overall health and development?

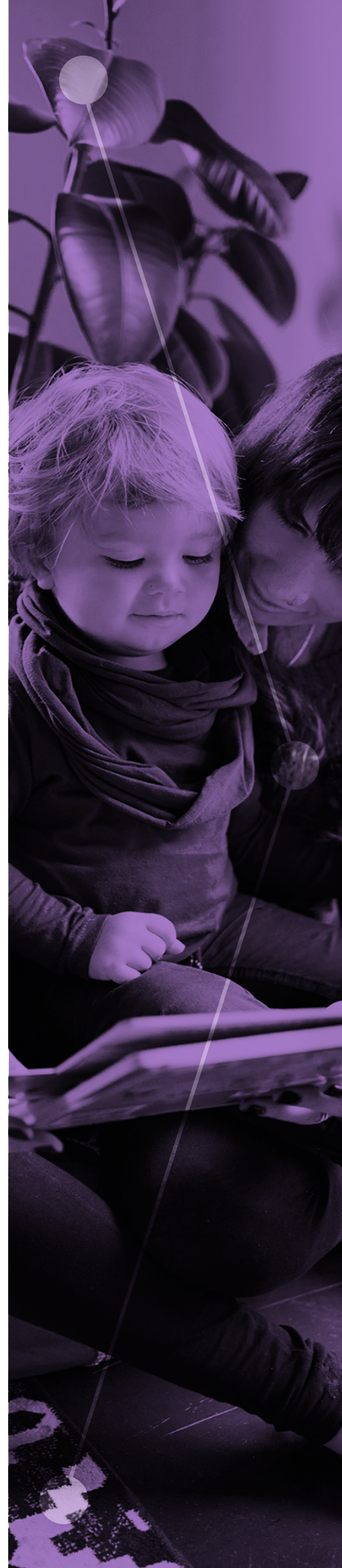
The direct effect of seizures on brain cells is an ongoing area of research. It is unclear if and how repeated seizures change the structure and function of the brain over time, and if such changes can be reversed if seizure control is achieved. An important question is how recurrent seizures affect cognition and mental health, and if seizure activity increases the risk of developing other conditions, such as depression or attention deficit disorders. This is also critical for understanding how seizures affect learning, memory and development, particularly when epilepsy is diagnosed in infancy or childhood.

The long-term effects of seizures can be difficult to study since both seizures and cognitive changes may be due to an underlying condition. In addition, epilepsy treatments such as anti-seizure drugs can also have long-term health effects, making it difficult to study these factors independently.



"Our daughter's first seizure occurred at eight months of age. As parents, our minds often wandered into the future and what effects these seizures and subsequent medications could have on her brain and body as she continued to grow. Today, our daughter is eight years old and has been seizure-free for over three years. She has recently been diagnosed with ADHD and learning disorders. We are left wondering if these new diagnoses are related to her seizures, or possibly side effects of medications? These are the reasons that this research question stood out as a top priority for my family."

Jenn Eamon, Morrisburg, Ontario



How can the risk of SUDEP (Sudden Unexpected Death in Epilepsy) be reduced in people with epilepsy?

SUDEP stands for Sudden Unexpected Death in Epilepsy. It occurs when an otherwise healthy person with epilepsy dies suddenly and unexpectedly, and no clear cause of death can be found. Since most deaths occur after a generalized tonic-clonic seizure, it is likely that the seizure itself is a contributing factor; however, SUDEP has also been identified with other types of seizures.

Possible theories being investigated include changes in breathing patterns, heart rate, or brain impact after seizures. Interest in a genetic link to SUDEP is growing due to the known association of genetic mutations and abnormal heart function, which suggest that people with epilepsy may be more prone to irregular heart rhythms. However, it is unlikely that all SUDEP-related deaths occur in the same way, and more research is needed to better understand the causes of SUDEP and how the risk can be reduced.



"As a pediatric neurologist and epileptologist, I have seen the impact of seizures and epilepsy on children and their families, and I work with them to improve seizure control and their quality of life. Advancing knowledge of SUDEP and understanding the risks of premature death is needed to address the most devastating outcome of epilepsy."

Elisabeth Simard-Tremblay, Montreal, Quebec

5

What is the most effective testing protocol for determining causes of seizures and/or a diagnosis of epilepsy or other seizure disorders and to reduce time to diagnosis?

The diagnosis of epilepsy can be challenging. Seizures can have many different causes, and even after testing, the cause can be unclear. The diagnosis of epilepsy can be made by different health care providers, such as family physicians, pediatricians, neurologists or epileptologists. Tests that can be used to assist with diagnosis include electroencephalography (EEG), brain imaging, or genetic testing; however, there is no standard procedure, and access to testing can vary widely across the country.

There is no established protocol to determine whether a person's seizures are the result of trauma to the brain, genetic variations, or other causes, or if seizures are non-epileptic. In addition, testing may not reveal any abnormalities, and there are no clear guidelines for how to proceed when tests are inconclusive. This can lead to long delays in diagnosis, or an incorrect diagnosis, and failed attempts at treatment. More research in this area is needed, as early diagnosis of seizure disorders is critical for effective treatment.



"I was diagnosed with epilepsy when I was 14 years old and for many years my seizures were relatively controlled. Later in life my seizures changed significantly, and I had to stop working. We need to find better ways for diagnosing and providing support for people managing seizures."

Deirdre Floyd, Halifax, Nova Scotia

What are the brain changes, on a cellular level, that lead to seizure development?

It is known that abnormal electrical activity in the brain leads to the onset of seizures. At the cellular level, it is clear that brain cells (neurons) become hyperexcitable and the normal balance of excitation and inhibition is disrupted. However, it is unclear what triggers this disruption, and why epilepsy can suddenly develop at any time in the absence of injury, trauma or family history. There are many potential mechanisms, including loss or degeneration of neurons, inflammation, structural changes, or changes in how neurons communicate with each other. It is not clear whether these reflect long-term or sudden changes. An important question is how to uncover the causes of epilepsy in individuals where diagnostic testing (brain imaging, genetic testing) does not show any abnormalities.



"My daughter's epilepsy was diagnosed at a young age, but for over 40 years my seizures were misdiagnosed as "panic attacks". Just like my daughter, it took a number of attempts to find a drug that would work. We need more research to understand how seizures develop and provide better accuracy for diagnosing and controlling each type of seizure."

Josephine Wright, Lions Bay, British Columbia

7

How effective is surgical treatment for adult and children who experience seizures/epilepsy?

Resective surgery (removing the part of the brain that causes seizures) can be an effective treatment for people whose seizures cannot be controlled by medication. However, not all people with epilepsy are candidates for surgery, and the success rates vary depending on which area of the brain is affected. Surgery is not 100% effective, and some people will continue to have seizures afterwards. More research is needed into what determines a person's chances of being seizure-free after surgery, which individuals are most likely to benefit from surgery, and how to optimize seizure outcomes and reduce the risk of complications following surgery, such as language or memory deficits.



"I started my surgery journey at the age of 24, after 20 years of trying multiple medications that just didn't work. We need to understand more about how effective surgeries are and what surgeries work best. The quality of my life has improved drastically since my surgeries, and I would recommend everyone who has epilepsy/seizures do the proper research to educate themselves on what treatments are available to them."

Daniel Boudreau, Cornwall, Prince Edward Island



What causes memory problems associated with seizures? Can these memory problems improve over time and what are the best treatment options for memory loss in people who experience seizures?

Memory problems remain one of the most significant challenges facing people with epilepsy. Memory difficulties may be due to structural changes in the brain, side effects of anti-seizure medication, or seizures themselves. However, in most people, the source of memory problems cannot be clearly identified. Without understanding the cause, it is difficult to predict how memory problems will change over time.

For people who experience memory loss, treatment options are currently limited. Research in this area can help to shed light on the most effective approaches to manage memory problems, such as medication changes or cognitive strategies to help people with epilepsy improve memory function in their daily lives.



"The question on memory was at the top of my list because of patients' stories and my experience working in an epilepsy monitoring unit. Impaired memory affects an individual's ability to function at home, at work, and out in the community. I believe it's really important to find ways to help people improve and manage their everyday memory functioning."

Carmela Redhead, London, Ontario

Aside from anti-seizure drugs and some brain lesions, what causes behavioural changes in people who experience seizures? What is the best way to treat behavioural issues?

Behavioural changes, such as depression, anxiety, impulsiveness, aggression, and attentional difficulties are often seen in people with epilepsy. Some of these changes may be due to side effects of ASDs, some may be caused by structural abnormalities in the brain, and some may be caused by seizures themselves. In addition, there may be other contributing factors, such as stress, environment, sleep quality or social settings. More research is needed to determine how each of these factors might affect behaviour.

Current treatments include counselling or psychotherapy, psychiatric assessment and management, modifying or changing ASDs, or adding medication to treat behavioural issues. Researchers are still trying to determine the most effective treatments or therapies to manage behavioural changes in people with epilepsy and how to effectively treat seizures while minimizing or managing behavioural changes.



"Seizures, medication, and social issues (i.e. unemployment, isolation) can all influence behaviour changes. As a social worker, I offer mental health support to individuals with epilepsy and seizures. More research is needed to understand the changes that occur in the brain and how they influence behaviour in order to improve treatments offered and quality of life."

Carol La Fleur, Toronto, Ontario



What is the efficacy (i.e. the effectiveness of reducing seizures) of adding a second anti-seizure medication compared to changing to a different anti-seizure medication? How can we determine which combinations of anti-seizure drugs are effective?

When a person's seizures are not well-controlled by a single medication (monotherapy), physicians may decide to add a second medication (combination therapy or polytherapy) or switch to a different medication. In some cases, polytherapy may be more effective, depending on how each drug works in the brain and how they interact with each other. In other cases, a single, but different medication may be most effective. However, there are no clear guidelines for which approach to take, and studies directly comparing monotherapy with polytherapy are lacking. In addition, there is no single approach to treatment that works for all individuals, and a person's response to a given anti-seizure drug is generally unpredictable. Research in this area can help to uncover the most effective drug regimens for different types of epilepsy, and how a person's unique biology can affect their response to treatment.



"I am a pediatric epilepsy specialist. For an individual patient with epilepsy, predicting seizure response and side effects to a given antiseizure medication regimen remains challenging but essential to optimizing that patient's quality of life."

Eric Payne, Calgary, Alberta



Other Priorities

11. How do seizures impact the mood of people who experience them and what are the best methods to manage mood swings?

Mood disorders often co-occur with epilepsy and can have a negative impact on quality of life. Symptoms of mood disorders include feelings of depression, anger, suicidal ideations, anxiety, and irritability. More research is needed to determine how mood is impacted by changes in brain structure and function, seizure activity and anti-seizure medications, and how treatments such as anti-depressant medication, psychotherapy, and cognitive behavioural therapy can be used to manage mood changes in people with seizures.

12. Are cannabis products (e.g. marijuana, CBD oil) a safe and effective treatment for seizures alone or in combination with standard treatments (e.g. anti-seizure drugs)?

Since its legalization in Canada in 2018, medical cannabis has been of great interest in the treatment of epilepsy. The two major cannabinoids present in the cannabis plant are cannabidiol (CBD) and tetrahydrocannabinol (THC). Reports from patients and families suggest that both have anticonvulsant properties, and scientific reports support this claim. In particular, CBD oil can reduce seizure frequency in people with Dravet syndrome or Lennox-Gastaut syndrome. However, the effectiveness for other types of epilepsy and epilepsy syndromes is not clear. In addition, there is a lack of evidence on safety and side effects, recommended dosages and formulations, and interactions with anti-seizure drugs. More research is needed to determine if and how cannabis products can be safely used to treat epilepsy.


13. Is there a relationship between hormonal changes (e.g. puberty, menopause, pregnancy) and seizure onset and/or frequency, and what are the effects of seizures during pregnancy?

While it is known that the menstrual cycle can affect the severity and frequency of seizures (catamenial seizures), it is generally unclear how hormonal changes impact seizure activity. Seizures may be affected by phases of marked hormonal changes such as puberty, menopause and pregnancy, but a precise causal link has not been established.

Seizures can also occur in areas of the brain that are closely linked to structures that regulate hormones, which may affect hormone levels. While it is clear that certain hormones can act on brain cells and influence seizure activity, these relationships are complex and can be affected by different factors.

It is unclear if and how seizures during pregnancy can affect the development of the fetus, and how epilepsy may be linked to reproductive disorders in women and men.



A blue-tinted photograph of a person's face and hand. The person is looking down at their hand, which is holding several small, round pills. A thin white line with circular endpoints at the top and bottom of the page runs diagonally across the image. The background is a solid light blue.

14. Is it safe to wean a person who has experienced seizures off anti-seizure drugs and if so, when is the right time to wean off anti-seizure drugs?

Patients who have been seizure-free for a prolonged period may wish to discontinue ASD treatment. Additionally, some people may wish to discontinue treatment because of side effects or concerns about long-term changes. In Canada, there are no specific guidelines for when or how to wean ASDs, and the risk of seizure recurrence after weaning can be high.

The decision to discontinue treatment is shared between the person with epilepsy and their health care providers after carefully considering the risks and benefits. The risk of seizure recurrence, and how much risk is considered acceptable, can be different for each person depending on their type of epilepsy, their prognosis and their lifestyle.

Due to a lack of data, weaning can become a "trial and error" process. Further research is needed to determine the optimal duration of ASD treatment and the best time to wean medications after seizure freedom has been achieved in order to minimize the chances of seizure recurrence.

15. What are the best ways to support people who experience seizures secure and perform in employment (e.g. through accommodations) and what interventions can reduce workplace discrimination?

People with epilepsy face many employment barriers. They are more likely to be unemployed or underemployed, and also face stigma when trying to enter the workforce. People with epilepsy often fear discrimination if they choose to disclose their condition to employers or potential employers. More research is needed into how workplaces can better accommodate people with epilepsy, and what strategies can be used to help people with epilepsy obtain employment. Researchers have not yet uncovered the most effective ways to support people with seizures in the workplace, and how can society ensure that these are implemented. Research and awareness among employers can also help to destigmatize epilepsy so that it does not pose a barrier to career advancement.

16. What non-drug lifestyle treatments (e.g. cardiovascular exercise, yoga) are effective for controlling seizure frequency with or without standard treatments (e.g. anti-seizure drugs)?

Seizures may be triggered by environmental factors such as stress, lack of sleep, or poor overall health. Non-drug interventions such as aerobic exercise, yoga and mindfulness training that promote physical and mental health may reduce stress and change the level of seizure activity in the brain. However, more research is needed into the optimal type, amount, frequency and duration of lifestyle treatments and how these activities interact with standard epilepsy treatments such as anti-seizure drugs.





Next Steps

By identifying these priority questions for research, the Epilepsy PSP seeks to ensure that future research is focused on the issues that matter most to people with epilepsy and seizures, their families and the health care professionals who support them.

Members of the Steering Group will disseminate the questions through their patient and professional networks, by presentation at academic conferences, webinars, publication in a peer-reviewed journal, and by liaising directly with research funders, policy makers, and patient advocates. By including the voice of the community in setting priorities for research, we gain a better understanding of the needs of the epilepsy community and where research can create the most impact.

"Even though the final prioritization workshop was virtual, there was a palpable energy that highlights just how real and important these questions are to people."

– Workshop Participant

There were many questions submitted about epilepsy and seizures that do have enough evidence to be considered "answered". Beyond dissemination, it is our commitment to work with our partners to raise awareness and connect people to resources that can provide the information they need.

Call to Action

Many people gave their time and effort to submit their questions and to work through the JLA process to identify the final Top 10 questions for future research. We want to ensure that these efforts are respected and recognised and therefore we request the following:

Research Funders: Include these priorities in future research strategies and target these topics for research funding.

Researchers: Focus in on answering the highest priority questions and reference the Epilepsy PSP in applications for funding. If a researcher receives funding to address any of the listed priorities, we ask that they please inform the JLA (jla@southampton.ac.uk).

Everyone: Please share this report with others and raise awareness of the need for more research into epilepsy and seizures in Canada. If you know someone who could support any of these priorities and would like us to connect with them, please reach out to us. We welcome the opportunity to speak with any researchers, funders, organizations, or other stakeholders who can help address these priorities (prioritysetting@braininstitute.ca). To learn more about this initiative and its progress, sign up for our updates.





Interested in the data?

The data from this initiative will be made publicly available on OBI's neuroinformatics platform Brain-CODE.

The open-access data will include the original questions submitted, with associated summary questions and some de-identified demographics data.

We hope to encourage interest in these priorities and stem further patient-oriented research on these topics.

Please visit www.braincode.ca for more details.

How to reference this report

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<https://braininstitute.ca/img/JLA-Epilepsy-Final-Report.pdf>

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Priority Setting Partnerships