Advancing Value-Based Healthcare Through Insight on HCN Channelopathy in Epilepsy; Olumuyiwa Bamgbade, Salem Pain Clinic

How molecular or basic science research promotes value-based healthcare management of complex epileptic syndromes; Olumuyiwa Bamgbade, Salem Pain Clinic Canada

SURREY, BC, CANADA, July 10, 2025 /EINPresswire.com/ -- A growing body of neuroscience research indicates how precision medicine can drive more efficient, targeted, and equitable healthcare delivery. A recent medical publication on HCN channelopathies in epilepsy is a prime example of how molecular research can align with value-based healthcare (VBHC) principles to transform the management of complex neurological syndromes like epilepsy. An international team, including Dr. Olumuyiwa Bamgbade of the research-focused Salem Anaesthesia Pain Clinic, published the peer-reviewed scientific article.

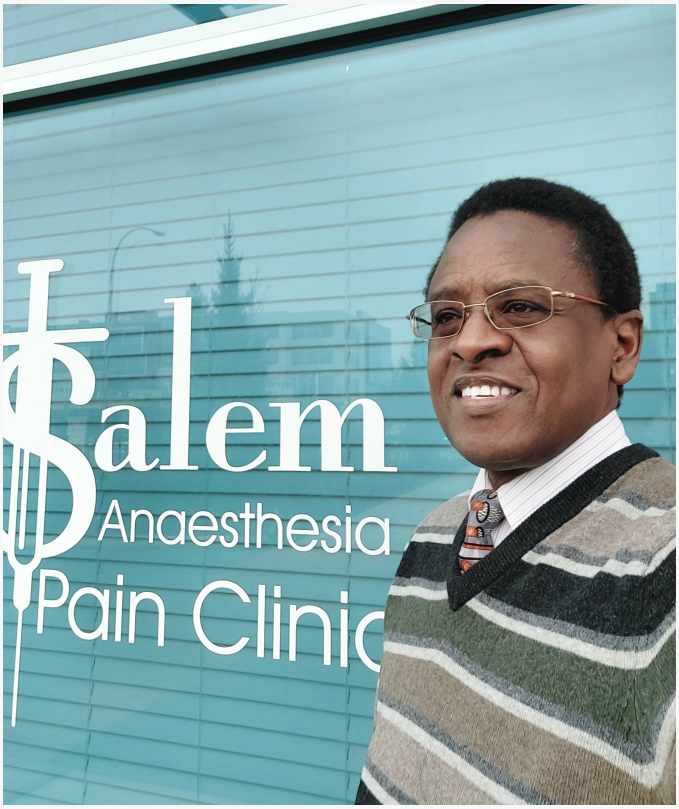
> “Uncovering the role of HCN channelopathies in epilepsy moves us closer to value-based care that is precisely personalized, delivering better outcomes by aligning science with patient-centered care”
>
> *Olumuyiwa Bamgbade*

The article underscores that hyperpolarization-activated cyclic nucleotide-gated (HCN) channel dysfunctions are not only mechanistically central to several forms of epilepsy, including genetic, acquired, and age-specific subtypes, but also represent distinct, actionable treatment targets. HCN channels regulate neuronal activity in the brain. Their dysregulation may trigger generalized and focal seizures. By delineating how these channelopathies influence disease expression and therapeutic response, the study opens the door to more stratified and effective therapies.

These insights are critical in the context of VBHC. Traditional epilepsy treatment involves a trial-and-error approach, with a long latency before optimal treatment is achieved. This delays clinical improvement, burdens families financially, and results in avoidable emergency care and hospitalizations, driving up costs without proportional health gains. A value-based model prioritizes early diagnosis, personalization of therapy, and outcome measurement.

By integrating genetic screening for HCN mutations and tailoring anti-epileptic therapy accordingly, healthcare systems can reduce time to seizure control, avoid ineffective treatments,

and minimize adverse drug effects, thereby improving patient outcomes while controlling costs. The study highlights the therapeutic potential of modulating HCN channels directly using emerging agents. These targeted interventions may reduce reliance on broad-spectrum anticonvulsants, many of which have side effects and high economic costs. Applying these therapies in well-defined patient subgroups supports VBHC goals: delivering the right intervention to the right patient at the right time, and at the right cost.



Olumuyiwa Bamgbade.

Health systems implementing VBHC can leverage this research to enhance outcome tracking and benchmarking. Metrics such as seizure-free days, cognitive functioning, and quality of life, rather than just drug adherence or seizure frequency, can be integrated into reimbursement and care evaluation. Incorporating biomarkers and molecular profiling into routine care can help stratify patients by disease severity and their expected response to various therapies, enabling continuous learning and care pathways improvement.

Indeed, aligning discoveries in molecular neuroscience like HCN channelopathies with VBHC principles allows for a paradigm shift in epilepsy management, from reactive to proactive, from generic to personalized, and from volume-based to outcome-driven care. Hence, researchers, clinicians, and policymakers must collaborate to bridge the translational gap, ensuring these scientific advances benefit patients in real-world settings.

Dr. Bamgbade is a healthcare leader with an interest in value-based healthcare delivery. He is a specialist physician trained in Nigeria, Britain, the USA, and South Korea. He is an adjunct professor at institutions in Africa, Europe, and North America. He has collaborated with researchers in Nigeria, Iran, Armenia, Zambia, China, Rwanda, the USA, Kenya, South Africa, Britain, Tanzania, Namibia, Australia, Botswana, Mozambique, Ethiopia, Jamaica, and Canada. He has published 45 scientific papers in PubMed-indexed journals. He is the director of Salem Pain Clinic, a specialist and research clinic in Surrey, BC, Canada. Dr Bamgbade and Salem Pain Clinic focus on researching and managing pain, insomnia, value-based care, health equity, injury rehabilitation, neuropathy, societal safety, substance misuse, medical sociology, public health, medicolegal science, and perioperative care.

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