

Capturing Epileptiform Activity in a Behaviorally Complex Child with Autism

A case report from hōm neuro accepted for poster presentation at the American Epilepsy Society (AES) 2026 Annual Meeting illustrates how REMI by Epitel reduced-montage wireless ambulatory EEG can succeed where conventional testing repeatedly fails.

City of Dallas, Texas Aug 20, 2026 ([IssueWire.com](https://www.IssueWire.com)) - When traditional EEG fails, wireless ambulatory EEG can still deliver answers

A case report from hōm neuro accepted for poster presentation at the American Epilepsy Society (AES) 2026 Annual Meeting (Denver, December 4–8; Poster Session 2) illustrates how reduced-montage wireless ambulatory EEG can succeed where conventional testing repeatedly fails. The abstract, "Characterization of epilepsy-like episodes using novel wireless ambulatory EEG in a behaviorally complex child with autism," describes a non-verbal, autistic 10-year-old boy with staring spells, full-body shaking, and prolonged post-spell fatigue. An in-office routine EEG was normal, and both epilepsy monitoring unit (EMU) video-EEG and home wired ambulatory EEG failed because of behavioral intolerance and combativeness.

Using the REMI (Remote EEG Monitoring) system from Epitel, a hōm neuro EEG technologist applied the wireless sensors in the child's home and completed a full 120 hours of recording. A pediatric epileptologist's review revealed frequent bi-frontal 2–3 Hz spike-and-slow-wave discharges, frontal sharp waves, and generalized spiking — findings suggestive of generalized epileptiform activity. Although no definitive electrographic seizures were captured, the objective evidence guided the neurologist's decision to begin empiric levetiracetam (Keppra), a treatment path that had not previously been possible for this patient.

Why this case matters

Children with autism spectrum disorder (ASD) carry a substantially elevated seizure risk. The average prevalence of epilepsy in children with ASD is roughly 12%, rising to about 26% by adolescence, with older age and lower cognitive ability as the strongest independent predictors.[1] EEG abnormalities are common in this population — reported in 23–80% of ASD patients across studies — and are the single strongest independent predictor of epilepsy.[2][3] The American Academy of Pediatrics notes community seizure rates of 7–23% in ASD, reaching as high as 46% in clinically ascertained samples.[4] When the clinical history suggests seizures, obtaining an EEG is exactly what guidelines recommend.[4]

The problem is getting the recording. Children with ASD frequently cannot tolerate lead placement or sustained wired monitoring because of sensory aversions, communication barriers, and challenging behavior, and this can lead to delayed or incomplete diagnostic information.[5] Even at centers with dedicated multidisciplinary support programs, a meaningful subset still require general anesthesia for lead placement — one 182-child series reported 19.2% needing anesthesia despite a coordinated team approach.[6] This case shows a genuinely different path: a comfortable, sticker-adhered, four-sensor wireless system applied at home, with no anesthesia and no EMU admission.

The value of going longer

The diagnostic limits of routine EEG are well established. Only 29–55% of epilepsy patients show

epileptiform abnormalities on a single routine outpatient study, and extending recording duration meaningfully raises yield.[7] Ambulatory EEG improves detection of both epileptic and non-epileptic events over routine EEG, and much of the additional yield is subclinical activity that patients and families never report.[8][9] In this case, a normal 20–30 minute office EEG was converted into five days of interpretable data — precisely the scenario in which prolonged monitoring changes management.

Built on a growing evidence base

hōm neuro has nearly two years of experience deploying REMI in pediatric and adult patients is anchored by a maturing body of peer-reviewed validation for the platform. Epitel's foundational work showed that epileptologists reviewing the 10-channel REMI montage identified patients experiencing electrographic seizures with 90% sensitivity and 90% specificity.[10] A subsequent clinical validation of the automated reduced-channel seizure-detection algorithm across 50 participants demonstrated 86.2% event-level sensitivity — comparable to clinical software built for full-montage EEG — with robust performance in pediatric participants aged 6–21 years.[11] Most recently, an inter-rater analysis found the four-channel detection algorithm achieved sensitivity comparable to epileptologists and to a state-of-the-art full-channel software on multiday recordings.[12] REMI is FDA cleared for wear up to 30 days in children as young as 1 year of age.

The takeaway

This is one breakthrough case, not a controlled trial, and reduced-montage wireless EEG lacks the spatial resolution of a full 10-20 array — a limitation the authors acknowledge. But for a child who could not complete any conventional study, REMI delivered five days of clinically actionable data at home and gave the treating neurologist objective grounds to act. For behaviorally complex pediatric patients who are effectively locked out of standard EEG, wireless ambulatory monitoring is emerging as a practical way to close the diagnostic gap.

About hōm neuro

hōm neuro is an innovative healthcare service provider focused on delivering advanced, in-home EEG monitoring solutions. By leveraging cutting-edge technology, the company provides patients with access to long-term brainwave monitoring in the comfort of their homes. Our mission is to improve the accessibility, accuracy, and convenience in neurodiagnostic services — empowering physicians with the data they need to diagnose and manage neurological conditions.

About Epitel

Epitel™ is a digital health company modernizing brain health solutions to improve patient care. By leveraging a proprietary cloud-based wearable sensor system and innovative AI technologies, Epitel empowers better treatment decisions by making EEG readily deployable and accessible. Headquartered in Salt Lake City, Epitel is dedicated to advancing neurological care across diverse healthcare settings. Visit **www.epitel.com** to learn more.

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