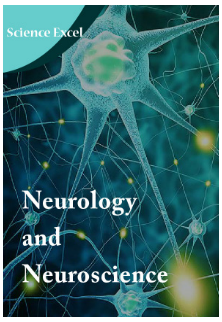

Scalable EEG Solutions for Timely Status Epilepticus Management: From Guideline Targets to Real-World Implementation

Krista Casazza[1], Slav Danev[2], Jonathan RT Lakey[1*]

[1]Department of Surgery and Biomedical Engineering, University of California Irvine, California, USA
[2]Medeia Inc, Santa Barbara, CA, USA

*Correspondence
Jonathan RT Lakey, PhD, MSM.
Professor Emeritus, Department of Surgery and Biomedical Engineering, 333 City Blvd West, Suite 1600, Orange, CA 92868, USA
Phone: 1-949-824-8022
Fax: 1-714-456-6188

- Received Date: XXXX
- Accepted Date: XXXXX
- Publication Date: XXXX

Keywords
Neurology, EEG, Epilepticus management, guidelines

Abstract

Current society guidance (NCS, ACNS, AHA and allied consensus statements) converges on the following evidence-based principles: (a) electroencephalography (EEG) is essential for suspected ongoing SE and for many critically ill patients with depressed or fluctuating consciousness; (b) time to EEG matters, earlier monitoring increases the probability of detecting electrographic seizures that would otherwise be missed and guides safer, more precise treatment; (c) monitoring duration should be individualized but typically extends ≥24 hours after electrographic seizure control; and (d) addressing implementation barriers (technologist availability, device footprint, remote interpretation, and staff training) is necessary to translate guideline recommendations into routine clinical practice. BrainView NeuroTrace's innovative technology platform uniquely combines high-fidelity EEG acquisition, AI-assisted detection, rapid deployment, and cloud-enabled remote monitoring to fill current gaps in access, scalability, and workflow efficiency. This comprehensive approach empowers clinicians to deliver timely, guideline-concordant care across a spectrum of settings, from rural and community hospitals to ambulatory and post–cardiac arrest care. As such, there is an opportunity to profoundly improve patient outcomes, and concomitantly contain costs. Urgent adoption of advanced EEG systems like BrainView NeuroTrace represents a critical step toward transforming SE management and expanding the reach of neurodiagnostic services beyond single-point competitors.

Introduction

Status epilepticus (SE) is a time sensitive neurologic emergency in which ongoing seizure activity, either convulsive or nonconvulsive, can rapidly produce neuronal injury, secondary brain dysfunction, and substantial short and long term morbidity and mortality [1,2]. In a recent nationwide cohort study of new onset SE, 30 day mortality was 8.5% overall and 1 year mortality exceeded 25%, with older age, acute symptomatic etiology, and refractory seizures predicting worse outcomes [3].

Seizure activity can continue despite an apparent clinical response to therapy [4]. Clinical cessation does not always equal electrographic cessation. Thus, electroencephalographic confirmation is essential to safely guide escalation, de escalation, and prognostication. Consensus and guideline documents from neurocritical care and clinical neurophysiology societies therefore prioritize early electroencephalographic monitoring for patients with suspected or treated SE to detect ongoing electrographic seizures, rhythmic/periodic patterns on the ictal–interictal continuum, and to quantify seizure burden [5–7].

Nonconvulsive seizures and nonconvulsive SE are common in critically ill and post ictal patients and are often clinically occult [1,8]. Continuous electroencephalography (cEEG) studies in heterogeneous hospitalized cohorts have detected electrographic seizures in a substantial minority (commonly 10–30% in modern series), the majority of which have no overt clinical correlate and therefore are missed by bedside observation or routine short EEG recordings [9,10]. Investigations have also demonstrated that the probability of detecting seizures is heavily time dependent: a large proportion of first electrographic events occur early, yet a nontrivial fraction require many hours of monitoring to appear, hence recommendations for prolonged monitoring in appropriate patients [11,12].

Reflecting these data, professional guidance now specifies rapid initiation and adequate duration of EEG monitoring for patients at risk of ongoing seizures [1,7]. The Neurocritical Care Society (NCS) and allied bodies recommend early use of cEEG when ongoing SE or nonconvulsive seizures are suspected and advocate for initiation as early as possible [7]. In the ideal situation, cEEG would occur within the first hour when clinical circumstances permit, as to inform immediate management decisions. The capacity to make real-time management decision would

Citation: Casazza K, Danev S, Lakey JRT. Scalable EEG Solutions for Timely Status Epilepticus Management:From Guideline Targets to Real-World Implementation. Neurol Neurosci. 2025;6(7):034.

facilitate guidance of escalation to anesthetic agents, second line antiseizure medications, or avoidance of unnecessary escalation when electrographic activity has ceased [13]. Contemporary reviews emphasize initiating cEEG promptly and continuing monitoring for at least 24 hours (and longer when clinical or EEG features indicate elevated risk), because recording for ~24–48 hours captures the majority of nonconvulsive seizure activity in referred populations [7,14].

Despite the guideline imperative, real world implementation has not been consistent. Large trials and pragmatic registries show frequent delays from presentation to EEG initiation (median times often measured in hours, not minutes) and limited early EEG utilization even within trial cohorts [15]. In a secondary analysis of the Established Status Epilepticus Treatment Trial (ESETT) trial, only 58% of subjects had an EEG within 24 hours and the median time to EEG was ~5 hours; electrographic seizures were present in ~14% of those who received EEG and 38% of detected seizures lacked a clinical correlate [16]. Contemporary real world data underscore a critical diagnostic gap indicating that many patients who appear clinically improved after treatment may nevertheless harbor electrographic seizures that remain untreated unless timely EEG detection occurs.

The clinical, safety, and resource implications are clear. Early, accessible, and sustained EEG monitoring can (1) identify ongoing electrographic SE requiring immediate therapy, (2) prevent unnecessary exposure to high risk anesthetic therapy when electrographic evidence of seizure cessation is present, (3) quantify seizure burden that correlates with outcome and may guide prognosis, and (4) enable serial assessment during weaning of sedation or antiseizure regimens [7,9,17,18]. To realize these benefits broadly requires operational changes—faster time to EEG (technologist and device availability), point of care solutions that enable immediate screening, and scalable interpretation pipelines (remote reading, automated detection algorithms, or triage workflows) [2,3,6] This manuscript integrates evidence and guideline consensus as a call to actions for routine prioritization of prompt EEG enabled care for patients at risk of SE. We synthesize guideline recommendations and contemporary outcome data, describe the diagnostic window and yield of EEG strategies, and outline practical approaches (clinical pathways, point of care technologies, and workflow models) to reduce time to EEG and improve detection of electrographic seizures ultimately aiming to improve treatment precision and patient outcomes.

An Overview of the Guidelines

As per the practice guidelines, SE is defined in current clinical practice statements as a seizure state that requires urgent treatment because of the high risk of neuronal injury and poor outcome [19]. Operationally, generalized convulsive SE is commonly considered present after ≈5 minutes of continuous clinical seizure activity (and other context-specific timepoints are used for nonconvulsive presentations) [20]. Early recognition and confirmation of ongoing electrographic seizure activity are critical because clinical cessation of motor phenomena does not reliably indicate electrographic seizure cessation. Therefore, EEG confirmation is fundamental to safe escalation, de-escalation, and prognostication in SE [21].

The NCS SE guideline explicitly frames cEEG as a core diagnostic and monitoring modality in SE management [1,19,20]. The NCS guideline issues a strong recommendation (albeit acknowledging limited direct trial evidence) that cEEG should be initiated when ongoing seizures or electrographic SE are suspected, and that monitoring should continue long enough to capture and confirm seizure control (commonly ≥24 hours after electrographic cessation in many scenarios) [7,22]. This recommendation arises from consistent observational data showing that a substantial portion of clinically occult seizures are electrographic only and that the likelihood of first detection falls over time but is still nontrivial beyond the first day [23].

Complementary specialty guidance (notably AHA guidance for post-cardiac arrest care and associated resuscitation consensus documents) emphasizes early EEG monitoring in comatose post-ROSC patients because EEG both detects nonconvulsive seizures and contributes essential data for neuroprognostication and therapeutic decision-making after cardiac arrest [24]. Post-cardiac-arrest guidance therefore supports prompt EEG (or at least early serial EEG and prolonged monitoring when consciousness remains impaired), integrated into the standardized post-ROSC care pathway and neuroprognostication timelines [25].

The American Clinical Neurophysiology Society (ACNS) consensus and standardized critical-care EEG statements provide operational detail that complements NCS and AHA positions: ACNS specifies patient groups for whom cEEG is indicated (e.g., unexplained altered mental status, suspected nonconvulsive seizures, subarachnoid hemorrhage, therapeutic coma) and provides technical/operational recommendations on timing, duration (often ≥24 hours when seizures are suspected or while intravenous anesthetic agents are in use), frequency of review, and the role of video and quantitative EEG trends [22]. ACNS also codified standardized critical-care EEG terminology and definitions that underpin consistent interpretation and facilitate both clinical decision-making and multicenter research [26]. These guideline positions are grounded in multiple consistent empirical findings: (a) cEEG detects electrographic seizures in a meaningful minority of critically ill patients (classic large series reported seizure detection in ≈15–20% of monitored patients, with most events electrographic/nonconvulsive), (b) many electrographic events have no clinical correlate and therefore are missed without EEG, and (c) the probability of first detection is time-dependent (many first events occur early, but a nontrivial fraction occurs after 24 h in certain populations) [4,5,7,27]. Thus, the consensus across societies is to prioritize very early EEG access for patients at risk and to sustain monitoring long enough to capture delayed events when clinically indicated [7,21,28]. The collective interdisciplinary practical monitoring targets that emerge from the guidance and supporting literature are: (1) initiate EEG as soon as possible when ongoing seizure is suspected (NCS: within 1 hour when feasible); (2) use continuous recording with video/QEEG capability for ICU and high-risk settings; (3) interpret and review cEEG frequently (ideally multiple times per day and by qualified neurophysiology personnel or through validated tele-interpretation workflows); and (4) continue monitoring at least 24 hours after electrographic seizure cessation or after cessation of continuous anesthetic antiseizure therapy, with extension to 48+ hours in higher-risk contexts (e.g., comatose patients, severe brain injury).

Beyond ACNS, the Neurocritical Care Society's SE guideline operationalizes "urgent EEG" for any patient with suspected NCSE or persistent impaired consciousness after convulsions, listing continuous EEG as part of the immediate diagnostic work-up "as soon as possible," in parallel with treatment.

AHA resuscitation guidance (ECC 2020) aligns on early neuro-diagnostics, recommending EEG monitoring to detect and treat post–cardiac arrest seizures in comatose patients and supporting continuous EEG when available to guide therapy and prognostication within comprehensive postarrest care pathways [29]. The Joint Commission's R3 Report [30] on hospital resuscitation standards likewise requires hospitals to maintain end-to-end resuscitation systems of care, including coordinated post-arrest care bundles with structured neurologic assessment/prognostication protocols, creating an implementation scaffold in which EEG monitoring fits as a standard element.

AHA/ASA stroke statements extend EEG use beyond SE [31]: in the post-hyperacute and ICU phases of ischemic stroke care, nursing and ICU management updates emphasize systematic detection and management of neurological complications, including seizures, within standardized order sets and monitoring protocols; and in aneurysmal subarachnoid hemorrhage (aSAH), guidelines explicitly endorse cEEG (with video/QEEG where available) to detect nonconvulsive seizures and to support early recognition of delayed cerebral ischemia in high-risk or poor-exam patients. These AHA/ASA statements also note that seizure risk and first-detection timing vary by pathology, justifying prolonged monitoring in higher-risk cohorts.

Finally, ACNS's standardized critical-care EEG terminology (2021) [22] remains the field's reference lexicon for ICU EEG reporting (background organization, rhythmic/periodic patterns, seizure/SE definitions, and pattern modifiers), enabling consistent interpretation, multi-reader reliability, and multicenter research harmonization—practical prerequisites for scalable quality programs and tele-EEG.

Collectively, practical, cross-guideline monitoring targets [4,19,22,24,30] include:

- **Trigger fast:** start EEG urgently when ongoing seizure is suspected or mental status is unexplained—initiate in parallel with stabilization and imaging/labs; do not wait for recurrent clinical events.
- Use cEEG with video/QEEG for ICU and other high-risk settings (post-convulsive SE, aSAH, large ICH/AIS with depressed exam, post-arrest coma, therapeutic coma).
- Review often by qualified readers (multiple times per day or via validated tele-interpretation) and act on standardized ACNS terminology to drive protocolized responses.
- **Monitor long enough:** continue ≥24 h after last electrographic seizure or after weaning continuous anesthetic therapy; extend to 48 h+ in higher-risk contexts (e.g., comatose/post-arrest, severe brain injury, poor-exam aSAH) given time-dependent first-detection curves.

Clinical Rationale & Evidence Base

Prevalence of Nonconvulsive Seizures in ICU Patients

Nonconvulsive seizures (NCS) are significantly under-recognized in critically ill patients and are almost impossible to detect without EEG [32]. Meta-analyses and cohort studies estimate that 8–48% of comatose or obtunded ICU patients experience NCS, depending on the population studied and monitoring modality. Routine short EEG (<30 minutes) often fails to capture these events: detection rates are 2.5 to 3 times lower with brief EEG compared to cEEG [22,33]. In a large case series of 570 ICU patients, cEEG revealed electrographic seizures in 19%, with 92% of these being purely nonconvulsive. In this cohort, 88% of seizures were detected within the first 24 hours, but a noteworthy 7% occurred after 48 hours, underscoring the critical need for early and sustained monitoring [9].

Mechanistic and Clinical Benefits of Early EEG Detection

Early identification of NCS or nonconvulsive status epilepticus (NCSE) via cEEG equips clinicians to tailor antiseizure therapy precisely, potentially mitigating secondary neuronal injury and improving outcomes [34,35]. In post–cardiac arrest populations, continuous EEG monitoring has robust prognostic value and can inform timely therapeutic decisions by detecting ictal–interictal continuum patterns that correlate with outcomes [27].

Real-World Barriers to Timely EEG Implementation

Despite clear diagnostic benefits, real-world implementation of cEEG encounters major obstacles. Conventional EEG systems demand trained technologists for setup, often face delays due to lack of onsite staffing, and rely on extensive infrastructure [36]. Delays extending to hours or even days are common, especially during off-hours or in resource-limited centers. Cap-based systems and rapid-deployment technologies show promise for mitigating setup delays, but adoption remains limited and often accompanied by concerns about data quality and interpretation fidelity [36].

Advanced EEG Technology and Clinical Workflow Enablement for SE Management

BrainView NeuroTrace offers a sophisticated EEG platform featuring high-channel, high-rate acquisition with optional synchronized high-definition video, available in 10-, 21- and 64-channel configurations and sampling rates up to 4,000 Hz, supporting detailed seizure detection and event adjudication in both critical care and ambulatory settings [37]. Real-time cloud telemetry enables live EEG streaming, multi-patient dashboard review, and clinician annotation from standard web browsers, facilitating continuous patient oversight without reliance on local workstations or proximity to neurodiagnostic labs [37]. The platform integrates FDA-cleared, deep-learning AI algorithms for seizure detection and artifact reduction, validated across multiple clinical studies, thereby enhancing detection sensitivity and timely clinical response [37]. Additionally, front-panel impedance indicators provide immediate feedback on electrode contact quality, streamlining setup and reducing time-to-monitoring crucial in emergent care scenarios [37].

Designed for deployment across diverse care environments, NeuroTrace supports epilepsy monitoring units, adult and pediatric intensive care units, hospital wards, and in-home ambulatory video EEG (VEEG), effectively expanding access beyond specialized tertiary centers [37]. The system's remote neuro-telemetry capabilities permit continuous EEG data routing to off-site technologists and clinicians, enabling 24/7 surveillance and real-time alerts, thereby addressing workforce limitations and ensuring uninterrupted monitoring during critical periods [37]. This flexibility is complemented by a robust security posture, incorporating AES encryption, access control mechanisms, audit logs, and compliance with HIPAA and HITRUST standards, safeguarding protected health information across distributed sites [37].

NeuroTrace's rapid setup and cloud-based review align with guideline imperatives from the ACNS, NCS, and AHA advocating for continuous EEG initiation within one hour for suspected SE and post-cardiac arrest neurological assessment [9,22,38]. Multi-patient dashboards and remote staffing models facilitate scalable EEG coverage expansion without proportional increases in onsite infrastructure, a key consideration in modern health system management [37]. This scalability ensures timely initiation and sustained EEG monitoring, critical to detecting nonconvulsive seizures that occur in 10–60% of critically ill patients and are often missed by routine short-duration EEG recordings [4,39].

In the context of SE, the importance of rapid recognition and continuous monitoring cannot be overstated. Prolonged or recurrent seizures cause significant neuronal injury, morbidity, and mortality, making timely EEG detection imperative to guide antiseizure therapy and mitigate secondary brain damage [22,40]. NeuroTrace's integrated features, including high-density EEG acquisition with synchronized video, real-time AI-assisted event detection, and remote access, facilitate early seizure identification and therapeutic adjustment in emergency and ICU environments, even when immediate neurodiagnostic expertise is unavailable. Continuous, cloud-based monitoring with multi-user access supports detection of refractory or late-onset seizures, addressing challenges in the management of evolving SE cases [9,38]. By adhering to evidence-based guidelines for early and ongoing EEG monitoring, BrainView NeuroTrace enables health systems to meet current standards for SE care and post–cardiac arrest management while improving operational efficiency [9,22].

Discussion

Timely initiation and continuous EEG monitoring remain central to guideline-concordant SE care, with the NCS and related bodies recommending EEG within one hour of suspected onset. Meeting this target is particularly challenging in non-tertiary and resource-limited environments where neurodiagnostic expertise and infrastructure are scarce. Advanced rapid-deployment EEG platforms, featuring wireless connectivity, real-time impedance monitoring, and intuitive interfaces, allow initiation by trained nursing or ancillary staff, reducing delays in setup. Cloud-enabled remote neuro-telemetry supports continuous data transmission from rural or community hospitals to centralized neurophysiology teams, facilitating expert interpretation without requiring on-site technologists or neurologists.

The scalability of such systems enables extension into home-based monitoring for patients at ongoing risk following hospital discharge, potentially reducing readmissions and optimizing longitudinal seizure management. By accelerating detection of electrographic seizures, continuous EEG can shorten the duration of uncontrolled SE, lower intensive care length of stay, and mitigate downstream costs associated with neurological injury. Further efficiencies arise from multi-patient dashboards, AI-assisted detection, and workflow integration, which collectively reduce clinician workload, minimize alert fatigue, and lower overall operational costs. Adoption pathways may be strengthened by embedding these capabilities into institutional EEG protocols, seizure response teams, and tele-neurology services, with clear alignment to value-based care models.

Rapid-access, scalable EEG systems that combine high-fidelity acquisition, AI-assisted analysis, and cloud-based remote review directly address persistent gaps in SE management. Their deployment across diverse care environments, from high acuity neurocritical care to rural hospitals and ambulatory follow-up, offers a practical route to meeting guideline timelines, improving outcomes, and optimizing resource use. Broad integration of such platforms into clinical workflows represents a necessary step toward modernizing SE care and expanding access to neurodiagnostic services.

References

1. Pinto LF, Oliveira JPS de, Midon AM. Status epilepticus: review on diagnosis, monitoring and treatment. Arq Neuropsiquiatr. 2022;80(5 Suppl 1):193-203. doi:10.1590/0004-282X-ANP-2022-S113
2. Moran CS, Campbell JH, Simmons DL, Campbell GR. Human leukemia inhibitory factor inhibits development of experimental atherosclerosis. Arterioscler Thromb Vasc Biol. 1994;14(8):1356-1363. doi:10.1161/01.atv.14.8.1356
3. Choi SA, Lee H, Kim K, et al. Mortality, disability, and prognostic factors of status epilepticus: a nationwide population-based retrospective cohort study. Neurology. 2022;99(13):e1393-e1401. doi:10.1212/WNL.0000000000200912
4. Mullhi R, Hayton T, Midgley-Hunt A, et al. Guidance for the acute management of status epilepticus in adult patients. J Intensive Care Soc. 2025;26(2):249-262. doi:10.1177/17511437251321338
5. Hirsch LJ, Fong MWK, Leitinger M, et al. American Clinical Neurophysiology Society's standardized critical care EEG terminology: 2021 version. J Clin Neurophysiol. 2021;38(1):1-29. doi:10.1097/WNP.0000000000000806
6. Phamnguyen TJ, Szekely A, Swinburn S, et al. Usefulness and yield of routine electroencephalogram: a retrospective study. Intern Med J. 2023;53(2):236-241. doi:10.1111/imj.15556
7. Bitar R, Khan UM, Rosenthal ES. Utility and rationale for continuous EEG monitoring: a primer for the general intensivist. Crit Care. 2024;28(1):244. doi:10.1186/s13054-024-04986-0
8. Craig DP, Mitchell TN, Thomas RH. A tiered strategy for investigating status epilepticus. Seizure. 2020;75:165-173. doi:10.1016/j.seizure.2019.10.004
9. Claassen J, Mayer SA, Kowalski RG, Emerson RG, Hirsch LJ. Detection of electrographic seizures with continuous EEG monitoring in critically ill patients. Neurology. 2004;62(10):1743-1748. doi:10.1212/01.wnl.0000125184.88797.62
10. Westover MB, Shafi MM, Bianchi MT, et al. The probability of seizures during EEG monitoring in critically ill adults. Clin Neurophysiol. 2015;126(3):463-471. doi:10.1016/j.clinph.2014.05.037
11. Struck AF, Osman G, Rampal N, et al. Time-dependent risk of seizures in critically ill patients on continuous electroencephalogram. Ann Neurol. 2017;82(2):177-185. doi:10.1002/ana.24985
12. Vespa PM, Olson DM, John S, et al. Evaluating the clinical impact of rapid response electroencephalography: the DECIDE multicenter prospective observational clinical study. Crit Care Med. 2020;48(9):1249-1257. doi:10.1097/CCM.0000000000004428
13. Amerineni R, Sun H, Lee H, et al. Using electronic health data to explore effectiveness of ICU EEG and anti-seizure treatment. Ann Clin Transl Neurol. 2021;8(12):2270-2279. doi:10.1002/acn3.51478
14. Zawar I, Briskin I, Hantus S. Risk factors that predict delayed seizure detection on continuous electroencephalogram in a large sample size of critically ill patients. Epilepsia Open. 2022;7(1):131-143. doi:10.1002/epi4.12572
15. Klein H, Pang T, Slater J, Ramsay RE. How much time is enough? Establishing an optimal duration of recording for ambulatory video EEG. Epilepsia Open. 2021;6(3):569-578. doi:10.1002/epi4.12517
16. Zehtabchi S, Silbergleit R, Chamberlain JM, et al. Electroencephalographic seizures in emergency department patients after treatment for convulsive status epilepticus.

J Clin Neurophysiol. 2022;39(6):441-445. doi:10.1097/WNP.0000000000000800

17. Tran L, Welcher R, Scott R. A commentary on electrographic seizure management and clinical outcomes in critically ill children. Children. 2023;10(2):258. doi:10.3390/children10020258
18. Holla SK, Krishnamurthy PV, Subramaniam T, Dhakar MB, Struck AF. Electrographic seizures in the critically ill. Neurol Clin. 2022;40(4):907-925. doi:10.1016/j.ncl.2022.03.015
19. Brophy GM, Bell R, Claassen J, et al. Guidelines for the evaluation and management of status epilepticus. Neurocrit Care. 2012;17(1):3-23. doi:10.1007/s12028-012-9695-z
20. Wylie T, Sandhu DS, Murr NI. Status epilepticus. In: StatPearls. Treasure Island, FL: StatPearls Publishing; 2023.
21. Tsai C, Blodgett C, Seo S, et al. Utility of clinical features in identifying electrographic seizures in hospitalized patients admitted for non-neurological diagnoses. Crit Care Explor. 2024;6(10):e1168. doi:10.1097/CCE.0000000000001168
22. Herman ST, Abend NS, Bleck TP, et al. Consensus statement on continuous EEG in critically ill adults and children, part I: indications. J Clin Neurophysiol. 2015;32(2):87-95. doi:10.1097/WNP.0000000000000166
23. Nguyen T, Ivanisevic M, Giles A, Kurukumbi M. A dilemma: electrographic seizure activity in the absence of clinically perceptible seizures and the ethical challenges of medical decision-making. Cureus. 2025;17(3):e80331. doi:10.7759/cureus.80331
24. Rajajee V, Muehlschlegel S, Wartenberg KE, et al. Guidelines for neuroprognostication in comatose adult survivors of cardiac arrest. Neurocrit Care. 2023;38(3):533-563. doi:10.1007/s12028-023-01688-3
25. Callaway CW, Donnino MW, Fink EL, et al. Part 8: post-cardiac arrest care: 2015 American Heart Association guidelines update for cardiopulmonary resuscitation and emergency cardiovascular care. Circulation. 2015;132(18 Suppl 2):S465-S482. doi:10.1161/CIR.0000000000000262
26. De Stefano P, Seeck M, Rossetti AO. Critical care EEG standardized nomenclature in clinical practice: strengths, limitations, and outlook on the example of prognostication after cardiac arrest. Clin Neurophysiol Pract. 2021;6:149-154. doi:10.1016/j.cnp.2021.03.002
27. Kaleem S, Kang JH, Sahgal A, Hernandez CE, Sinha SR, Swisher CB. Electrographic seizure detection by neuroscience intensive care unit nurses via bedside real-time quantitative EEG. Neurol Clin Pract. 2021;11(5):420-428. doi:10.1212/CPJ.0000000000001107
28. Sharma S, Nunes M, Alkhachroum A. Adult critical care electroencephalography monitoring for seizures: a narrative review. Front Neurol. 2022;13:951286. doi:10.3389/fneur.2022.951286
29. Panchal AR, Bartos JA, Cabañas JG, et al. Part 3: adult basic and advanced life support: 2020 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. Circulation. 2020;142(16 Suppl 2):S366-S468. doi:10.1161/CIR.0000000000000916
30. The Joint Commission. R3 report: resuscitation standards for hospitals. Published June 18, 2021.
31. Green TL, McNair ND, Hinkle JL, et al. Care of the patient with acute ischemic stroke (posthyperacute and prehospital discharge): update to 2009 comprehensive nursing care scientific statement: a scientific statement from the American Heart Association. Stroke. 2021;52(5):e179-e197. doi:10.1161/STR.0000000000000357
32. Karki B, Shrestha PS, Shrestha N, Shilpakar O, Acharya SP, Neupane A. Prevalence of non-convulsive seizures and electroencephalographic abnormalities in critically ill patients: a retrospective observational study. Epilepsia Open. 2024;9(1):325-332. doi:10.1002/epi4.12876
33. Boggs JG. Seizure management in the intensive care unit. Curr Treat Options Neurol. 2021;23(11):36. doi:10.1007/s11940-021-00692-2
34. Sutter R, Rüegg S, Kaplan PW. Epidemiology, diagnosis, and management of nonconvulsive status epilepticus: opening Pandora's box. Neurol Clin Pract. 2012;2(4):275-286. doi:10.1212/CPJ.0b013e318278be75
35. Kaplan PW. The clinical features, diagnosis, and prognosis of nonconvulsive status epilepticus. Neurologist. 2005;11(6):348-361. doi:10.1097/01.nrl.0000162954.76053.d2
36. Davey Z, Gupta PB, Li DR, Nayak RU, Govindarajan P. Rapid response EEG: current state and future directions. Curr Neurol Neurosci Rep. 2022;22(12):839-846. doi:10.1007/s11910-022-01243-1
37. NeuroTrace. Product materials and technical documentation.
38. Geocadin RG, Callaway CW, Fink EL, et al. Standards for studies of neurological prognostication in comatose survivors of cardiac arrest: a scientific statement from the American Heart Association. Circulation. 2019;140(9):e517-e542. doi:10.1161/CIR.0000000000000702
39. Abend NS, Arndt DH, Carpenter JL, et al. Electrographic seizures in pediatric ICU patients: cohort study of risk factors and mortality. Neurology. 2013;81(4):383-391. doi:10.1212/WNL.0b013e31829c5cfe
40. Shorvon S. The treatment of status epilepticus. Curr Opin Neurol. 2011;24(2):165-170. doi:10.1097/WCO.0b013e3283446f31