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The Effectiveness of Nursing History Taking via Teleconsultation in the Early Identification of Acute Neurological Events in Patients with Chronic Diseases: A Case Study

The Efficacy of Telehealth Nursing Anamnesis in the Early Identification of Acute Neurological Events in Chronically Ill Patients: A Case Study

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Summary

Objective: To evaluate the effectiveness and feasibility of nursing history taking, conducted via teleconsultation, as a screening tool for the early identification of acute neurological events (ANEs) in patients with chronic diseases. **Methodology:** This is a qualitative and retrospective case study, focused on a sentinel event that occurred during a telehealth consultation at a renal treatment provider. The study analyzes the remote care process, from the initial history taking to the identification of an ongoing stroke and the subsequent activation of the emergency service. Document analysis was based on electronic health records and care coordination protocols. **Results:** The structured history taking, even when conducted remotely, allowed the identification of subtle signs and symptoms of an acute stroke that could be overlooked by the patient. The nurse's clinical judgment, based on prior expertise in intensive care, demonstrated this effectiveness.

, This was crucial for the rapid interpretation of the signs, the interruption of the standard protocol, and the immediate activation of the emergency services, resulting in a positive outcome. **Conclusion:** Teleconsultation, when conducted by nurses with specialized training in critically ill patients, transcends the administrative function and establishes itself as a robust triage and diagnostic tool. This case demonstrates that remote anamnesis is effective in detecting acute events, preventing serious outcomes, and optimizing care coordination in high-risk populations.

Keywords: Tele-nursing; Telehealth; Nursing history taking; Stroke; Chronic patients; Case study.

Abstract

Objective: To evaluate the efficacy and feasibility of nursing anamnesis, conducted via teleconsultation, as a screening tool for the early identification of acute neurological events (ANEs) in patients with chronic diseases. **Methodology:** This is a qualitative, retrospective case study focused on a sentinel event that occurred during a telehealth service at a kidney care provider. The study analyzes the remote care process, from the initial anamnesis to the identification of an ongoing Stroke (Cerebrovascular Accident) and the subsequent activation of emergency services. Documentary analysis was based on electronic health records and care coordination protocols. **Results:** The structured anamnesis, even when performed remotely, allowed for the identification of subtle signs and symptoms of an acute stroke, which might have been overlooked by the patient. The nurse's clinical judgment, grounded in prior intensive care expertise, was decisive for the rapid interpretation of signs, the interruption of standard protocol, and the immediate activation of emergency services, resulting in a positive outcome. **Conclusion:** Teleconsultation, when conducted by nurses with specialized training in critical care, transcends administrative functions and solidifies itself as a robust screening and diagnostic tool. The case demonstrates that remote anamnesis is effective in detecting acute events, preventing severe outcomes, and optimizing care coordination in high-risk populations.

Keywords: Telehealth; Telene-nursing; Nursing Anamnesis; stroke; Chronic Illness; Case Study.

1. Introduction

The rapid and massive digitalization of healthcare services, exponentially catalyzed by the COVID-19 pandemic, has permanently reconfigured the paradigms of care delivery (Caetano et al., 2020). Telehealth, and within it telenursing, has ceased to be a niche modality and has become a central pillar in the strategy for continuity of care, demonstrating unprecedented agility and resilience. This technological advancement has forced healthcare systems, regulatory bodies, and professionals to adapt to new forms of interaction, diagnosis, and monitoring, breaking down geographical barriers and expanding access, but also introducing a new set of clinical and operational challenges. The need for social isolation has imposed the search for viable alternatives to in-person care, and teleconsultation has emerged as the most pragmatic and scalable solution for millions of patients.

In this context of rapid adoption, healthcare systems in both Brazil and the United States have implemented remote care platforms on a large scale. In Brazil, the Federal Nursing Council (COFEN), through Resolution No. 634/2020, regulated nursing teleconsultation, recognizing its strategic importance. In the United States, the relaxation of HIPAA rules and the expansion of Medicare reimbursement for telehealth services created a fertile environment for its adoption. This digital transformation was particularly vital.

for providers of care to chronically ill patients, whose treatments could not be interrupted and who represented the population at highest risk for complications from COVID-19.

Patients with chronic diseases, such as those with chronic kidney disease (CKD) undergoing hemodialysis, constitute the epicenter of the demand for telehealth. This group, characterized by multiple comorbidities, polypharmacy, and a state of constant clinical vulnerability, requires continuous surveillance and monitoring. In this scenario, telehealth offers the promise of increasing points of contact between the patient and the healthcare team, allowing for closer monitoring of vital parameters, therapeutic adherence, and education for self-care, such as the management of arteriovenous fistulas, all while mitigating the risk of infectious exposure associated with hospital visits.

However, a critical knowledge gap and a source of skepticism in the literature lie in the effectiveness of telehealth beyond routine monitoring. The central question is: can teleconsultation, devoid of tactile physical examination and in-person instrumentation, be an effective tool for screening and early detection of acute and high-severity events, such as a stroke? The literature, although growing, still debates the limits of remote assessment, especially in emergency scenarios where every minute is crucial for the patient's prognosis (Schwamm et al., 2017).

The inherent risk of telehealth is the potential for "false security." The apparent stability of the patient in a video call can mask subtle neurological or cardiological dysfunctions that would be immediately noticeable in an in-person physical examination. The specialized literature in neurological nursing (Kliem & Kelly, 2020) points to the difficulty in remotely validating signs of "red flags," such as mild motor deficits, subtle dysarthria, or visual field changes.
This skepticism is justified, as a missed or delayed diagnosis in an acute event can have catastrophic consequences, exposing both the patient to irreversible harm and the institution to legal and ethical risks.

At this point, the Nursing History transcends its classic definition of data collection.
It becomes the primary diagnostic tool for the telehealth nurse. Remote anamnesis requires a high level of clinical judgment, active listening, and a capacity for semiotic investigation adapted to the digital environment. The professional must be able to interpret not only what is said, but how it is said, analyzing pauses, tone of voice, and microexpressions. It is treated as a formal diagnostic process, using taxonomies such as NANDA to structure clinical reasoning and identify patterns that may indicate an exacerbation, even when the patient's main complaint is apparently benign.

This case study is motivated by a sentinel event that directly challenges the aforementioned skepticism: the successful identification of an acute stroke, in real time, during a routine nursing teleconsultation with a chronic patient.

This unique event raises fundamental questions about the true potential of telenursing.
The positive outcome, where the patient was saved thanks to immediate intervention, was not by chance, but rather the result of a structured process and the application of specialized clinical expertise in a remote environment.

The formal objective of this article is, therefore, to demonstrate, through an in-depth analysis of this case study, that nursing history taking conducted via teleconsultation, when performed by nurses with specialized training in critical care, is a robust and effective diagnostic tool. We seek to prove that it is possible, through a structured remote history taking methodology, to identify acute neurological events early, optimize care coordination, and ensure patient safety, redefining the limits of what is considered possible in telenursing practice.

2. Development

2.1 The Methodology of Nursing History Taking via Telehealth

The nursing history taking process via telehealth, in the analyzed context of a large group, is not an improvised
As a renal care provider like DaVita, this structured , interaction, but rather a...
clinical procedure is embedded within a Primary Health Care ecosystem. This remote care model is designed to be a virtual extension of the clinic, ensuring continuity of care, monitoring of high-risk patients, and care coordination. The medical history, therefore, is the cornerstone of this model, serving not only to collect data but also to triage, diagnose, and direct the patient within the healthcare system. The methodology employed uses specific technological tools, such as electronic health records, and follows a rigorous workflow to maximize the safety and effectiveness of non-face-to-face care.

The technological foundation of this process is the electronic patient record (EPR). Remote anamnesis begins even before the call, with a detailed review of the patient's history. The nurse analyzes previous diagnoses, recent laboratory test results, medications in use, and previous consultations. The EPR acts as a dynamic roadmap, where the professional records anamnesis information in real time. Integrated tools, such as the Health Declaration, are verified and corrected during the consultation. This system allows the nurse to have a holistic view of the patient, , contrasting the current complaint with their baseline health status and identifying deviations that may indicate an exacerbation.

The patient care flow is methodically divided, often beginning with a "pre-consultation." This initial, often asynchronous, step involves contacting the patient via message to confirm registration details, verify their connectivity, and ascertain the main reason for the consultation.
This preparation is vital to optimize the synchronous timing of the teleconsultation, ensuring the connection.

The patient should be stable and in an environment conducive to discussing their health. The pre-consultation also serves as an initial screening; if the patient reports severe symptoms at this stage, the emergency protocol can be activated immediately, even before the formal consultation with the nurse.

The core of the process is the synchronous anamnesis, as detailed in the responsibility records. This process follows the classic structure of semiology, adapted for the digital environment. It begins with patient identification and the establishment of the chief complaint. Next, the nurse explores the history of the present illness (HPI), investigating onset, duration, factors that improve or worsen it, and associated symptoms. The personal history, focusing on lifestyle habits and occupation, complements the picture. The most challenging and crucial step is the "Review of Systems," where the nurse actively inquires about all body systems, looking for signs that the patient may not have noticed or valued.

Adapting the medical history to a digital environment requires nurses to possess skills that go beyond technique. The absence of physical touch must be compensated for by heightened sensory acuity. Visual observation is intensified: the nurse assesses skin color, respiratory pattern, facial symmetry, speech, and level of consciousness. Active listening is fundamental. Furthermore, the nurse assumes an educational role, instructing the patient to perform self-examination maneuvers, such as checking for edema or, in the case of renal patients, palpating and auscultating the arteriovenous fistula. This collaboration transforms the patient into an active agent in their own physical examination.

The anamnesis does not end with data collection; it culminates in the formulation of a Nursing Diagnosis (based on taxonomies such as NANDA) and the implementation of a Care Plan. If the teleconsultation identifies a routine condition or a question, the plan may involve health education, scheduling adjustments, or referral to a specialist.

However, if the medical history identifies warning signs, the care plan becomes an emergency protocol. The nurse's ability to "identify changes in laboratory tests" or interpret reported vital signs is crucial for this risk stratification.

Humanizing care is a methodological pillar that ensures the effectiveness of remote anamnesis.
Technology can be impersonal, and chronically ill patients are often anxious or depressed. Nurses must create an environment of trust and empathy, offering "emotional support" and ensuring the patient feels heard. The experience of learning sign language to better serve deaf-mute patients is an extreme example of this dedication to effective communication.
Without this human connection, the patient may withhold crucial information out of fear or embarrassment, resulting in an incomplete medical history and a flawed diagnosis.

Finally, the telehealth anamnesis methodology is intrinsically linked to "care coordination." The telehealth nurse acts as the patient's central navigator in the process.

The healthcare system. The medical history serves to decide the next step: does the patient need an ambulance now? Do they need to see a specialist next week? Or do they need dietary advice? Each teleconsultation, therefore, is a decision point that directly impacts the patient's journey. The success of this model, as demonstrated by more than 10,000 consultations, proves that remote medical history taking, when methodologically structured, is a powerful and safe tool.

2.2 The Chronic Patient and Vulnerability to Neurological Events

Chronic Kidney Disease (CKD) is an archetype of the modern chronic condition, not an isolated pathology, but a systemic syndrome that imposes a profound and continuous physiological burden on the body. Patients in advanced stages, especially those dependent on renal replacement therapy such as hemodialysis, exist in a state of precarious homeostasis. This balance is constantly challenged by a storm of inflammatory factors, oxidative stress, and hydroelectrolytic disturbances. The very nature of CKD accelerates atherosclerotic processes and vascular calcification, making these patients a population at exponentially high risk for cardiovascular and neurological events. The complexity of its management, often involving multiple comorbidities such as diabetes and hypertension, requires clinical surveillance that transcends episodic monitoring, justifying the implementation of continuous care models, such as telehealth.

Systemic arterial hypertension (SAH), a nearly universal comorbidity in patients with chronic kidney disease (CKD), acts as the primary driver of neurological vulnerability. The bidirectional relationship between the kidney and blood pressure is well established; renal failure exacerbates hypertension, and uncontrolled hypertension accelerates renal failure. In hemodialysis patients, blood pressure management is notoriously complex, with significant pre- and post-dialysis variations. This chronic hemodynamic instability imposes constant shear stress on cerebral arteries, weakening vascular integrity and dramatically increasing the risk of stroke, both ischemic and hemorrhagic. Remote blood pressure monitoring, while challenging, becomes an essential nursing tool to try to mitigate this risk.

Hemodialysis treatment itself, while essential for survival, is an acute and paradoxical hemodynamic stress factor. The dialysis session induces rapid fluctuations in fluid volume and electrolytes, which can cause episodes of intradialytic hypotension, leading to cerebral hypoperfusion and increasing the risk of silent strokes. On the other hand, the anticoagulation required during the procedure increases the risk of hemorrhagic events. The nurse monitoring this patient, even remotely, must be aware that the individual constantly navigates between these two extremes of risk, requiring a very high level of clinical suspicion to interpret symptoms that, in other patients, might be benign.

Scientific literature unequivocally confirms this vulnerability. Studies such as that of Massy & Stenvinkel (2018) detail the bidirectional and complex link between CKD and stroke, identifying uremia, chronic inflammation, and mineral and bone metabolism disorders as non-traditional risk factors that add to the traditional ones. The incidence of stroke in dialysis patients is estimated to be five to ten times higher than in the general population, even after adjusting for age and comorbidities such as hypertension and diabetes. This alarming statistic transforms the monitoring of CKD patients from a routine practice into high-intensity surveillance for the early detection of acute neurological events.

Complicating the challenge, the clinical presentation of a stroke in patients with CKD can be atypical.
Uremic neuropathy, electrolyte disturbances, and episodes of metabolic encephalopathy can mimic or mask the classic signs of an acute neurological event. Symptoms such as mental confusion, mild dysarthria, or dizziness may be mistakenly attributed to a recent dialysis session, hypoglycemia, or medication side effects. This overlap of symptoms requires that the telehealth nurse, especially the one conducting the history taking, be trained to go beyond the obvious, using a rigorous differential diagnosis process before ruling out an acute neurological event as the root cause.

It is at this point that "Mapping pre-existing diseases," a nursing responsibility mentioned in the author's curriculum, becomes a critical safety tool.
A thorough understanding of the patient's history, their specific risk factors (e.g., Type 1 and 2 Diabetes), and their baseline functional status is what allows the nurse to identify a subtle deviation.
A patient reporting "feeling strange" may have a vague complaint, but for the nurse who has identified that patient as being at very high neurological risk, that same vague complaint triggers a focused and immediate investigation protocol, raising the level of suspicion.

In this context, telehealth redefines its role. It is not merely a tool of convenience, but an advanced surveillance platform for this high-risk population. By increasing points of contact, telenursing allows nurses to perform more frequent check-ins than would be feasible in person. This frequency allows for the detection of trends and minor deteriorations in health status before they escalate into catastrophic emergencies. For the chronically ill patient, teleconsultation becomes a lifeline, direct access to a professional who knows their history and is actively looking for signs of instability.

It can be concluded, therefore, that a patient with a chronic disease, such as kidney disease, is not a "stable" patient awaiting a routine appointment; they are an individual at dynamic and constant risk.
Their vulnerability to acute neurological events is a direct consequence of their underlying pathology and its treatment.
Understanding this vulnerability is the fundamental premise for the practice of safe telenursing. The nurse is not just monitoring a disease; they are...

actively monitoring a precarious balance, ready to intervene at the first subtle sign that this balance has been broken.

2.3 The Case Study: Presentation of the Sentinel Event

The factual basis for this study is a sentinel event, defined as an unanticipated incident that resulted in a serious outcome (in this case, avoided) and that signals the need for immediate investigation and response (Joint Commission, 2021). The event occurred during a routine teleconsultation, scheduled as part of a renal treatment provider's chronic patient monitoring program. The patient, whose identity is protected, had a complex history of end-stage renal disease (ESRD), diabetes mellitus, and hypertension, fitting the exact vulnerability profile discussed in the previous section. The consultation was initiated via a secure telehealth platform, with the primary objective of reviewing medication adherence, arteriovenous fistula care, and assessing overall well-being.

The initial interaction proceeded as expected for a routine consultation. The patient answered initial questions about his general condition, reporting minor complaints expected for his condition, such as fatigue and intermittent discomfort at the fistula site. The patient did not have a major acute complaint or a request for emergency help; he had not perceived the seriousness of his situation. This lack of self-awareness of the deficit is a common neurological symptom (anosognosia) in some types of stroke, which makes external identification by the healthcare professional even more critical. Without the nurse's active vigilance, the consultation would have continued and ended, with the acute event going unnoticed.

The turning point, and the core of this study, occurred when the nurse, applying the diagnostic acuity derived from her specialization in intensive care, noticed subtle discrepancies between the patient's verbal responses and his nonverbal manifestations. This perception is the cornerstone of advanced semiology. While the patient stated he was "fine," the nurse identified a slight, but new, facial asymmetry, an almost imperceptible dysarthria, and a slight delay in cognitive response (bradypsychism) that did not correspond to the patient's baseline profile known from previous consultations. These signs, although minimal, are classic neurological "red flags," indicative of a possible acute event in the central nervous system.

Detailing the observed signs, the nurse noted that, when speaking, the patient presented a slight drooping of the right corner of his mouth, which became more evident during the articulation of complex phonemes. His speech, although comprehensible, was "slurred" (dysarthria), a classic sign of motor neuron dysfunction. Furthermore, when asked to describe his medications, the patient demonstrated hesitation and confusion that were not characteristic of his history, suggesting an acute cognitive deficit. It was the combination of these three signs (facial asymmetry, dysarthria, and acute mental confusion) that raised the nurse's suspicion level from "possible side effect" to "probable ongoing acute neurological event."

At this moment, the nurse executed a critical transition in the anamnesis, immediately pivoting from the routine chronic care script to an emergency neurological assessment protocol adapted for telehealth. This decision, made in seconds,
This demonstrates elite clinical judgment. She interrupted the questions about the fistula and initiated a focused assessment based on simple, yet diagnostic, commands. This ability to abandon the "script" in favor of the patient's immediate clinical need is what differentiates algorithmic care from specialized professional care, and it was the action that initiated the chain of survival for this patient.

The remote neurological examination was conducted in a directive and calm manner, so as not to alarm the patient, but to obtain clear diagnostic data. The nurse asked the patient to perform three fundamental actions, based on the Cincinnati pre-hospital stroke scale: 1) "Please smile for me," to confirm and assess the extent of facial asymmetry; 2) "Please raise both arms and hold them for ten seconds," to check for motor drift or weakness in one of the limbs; 3) "Please repeat this sentence for me: 'the sky is blue in São Paulo'," to assess articulation ability and the presence of aphasia. The patient's failure to perfectly execute these tasks confirmed the suspicion.

With the high probability of an acute stroke confirmed, the nurse shifted her role from evaluator to directive intervener. The absolute priority became time. In an ischemic stroke, "time is brain," and the window for thrombolytic therapy is extremely short. The nurse informed the patient, clearly and authoritatively, that he was exhibiting signs of a medical emergency and needed immediate hospital care. She asked if anyone was with him at home and, simultaneously, used a second device to activate the emergency service (in this case, the ambulance), as recorded in his medical history.

The final action of "immediately calling an ambulance" was the closing of this high-performance care cycle. The nurse did not delegate the responsibility of calling emergency services to the confused patient. She assumed coordination of care, passing vital information to the emergency service, including the patient's name, address, and, most importantly, her suspected diagnosis of "ongoing stroke," ensuring that the rescue team arrived with the correct priority. This direct action, resulting from remote identification, allowed the patient to be saved and is conclusive proof of the effectiveness of telehealth history taking when conducted by a professional with the appropriate expertise.

2.4 Real-Time Clinical Decision Making

Clinical judgment, in the context of telehealth, is a complex cognitive process that occurs under pressure and with limited data. In the case analyzed, the nurse's decision-making...

This represents an example of "fast thinking," where prior experience allows for almost instantaneous pattern recognition. The transition from routine anamnesis to an emergency protocol was not a linear decision, but a diagnostic "leap." This agility was based on the ability to perform a rapid differential diagnosis, ruling out less serious hypotheses (such as hypoglycemia or fatigue) and immediately focusing on the most dangerous one (stroke), given the patient's risk profile.

Applying expertise in "First Aid and CPR" in a virtual environment is a remarkable adaptation. Unable to intervene physically, the nurse transposed the protocol into a verbal and directive intervention. The action of "immediately calling an ambulance" was not merely an administrative act; it was the execution of the primary life-support intervention for a stroke patient, which is to ensure rapid access to reperfusion therapy. This decision to take control of the emergency coordination, instead of delegating it to the confused patient, was the pivot that ensured the positive outcome.

The decision-making process was validated using the "Classify outcomes based on evidence" methodology. The nurse did not act solely on intuition but used a validated triage tool (adapted from the Cincinnati scale) to confirm her suspicion. By documenting the "condition, progress, or problems to report to the case manager" in real time, she created a record that validated the intervention. This process demonstrates how telehealth, when well executed, can be a highly effective emergency response system, transforming the patient's home into an advanced triage point.

2.5 The Differentiating Factor of Specialization: The Role of Intensive Care in Telehealth

The effectiveness of the described intervention cannot be separated from the specialized training of the professional. The Postgraduate Program in Intensive Care Nursing provides nurses with a set of competencies that are directly transferable and essential for high-risk telehealth. The ICU professional is trained in "critical thinking" and constant vigilance of "critically ill patients." This "problem-seeking" mentality is fundamental, as the ICU nurse is trained to "quickly identify any hemodynamic or neurological changes," often before equipment alarms sound.

This "ICU acuity" allowed the nurse to identify micro-signs (subtle dysarthria, slight asymmetry) that a professional focused solely on routine primary care might overlook. Experience in "monitoring patients in the intensive care unit" and "verifying the proper functioning of devices," such as ventilators and cardiac monitors, creates a zero tolerance for deviations from normality. The central argument is...

Tele-nursing for complex chronic patients is not a low-complexity practice; it is a virtual extension of high-complexity surveillance.

Furthermore, familiarity with invasive and high-risk procedures, such as jugular vein puncture, umbilical catheterization, chemotherapy, and parenteral nutrition, gives the specialist nurse a deep understanding of the pathophysiology and risks of exacerbation. They are not just following a script; they are visualizing the pathophysiological cascade that subtle symptoms represent. Therefore, ICU specialization is not just a bonus, but a fundamental requirement for the safety and effectiveness of telenursing in high-risk populations.

2.6 Implications, Limitations, and the Humanization of Digital Care

The main implication of this case study is the need to reclassify telenursing for chronic conditions as a highly complex specialty, requiring professionals with training in critical care. However, the limitations of the model must be acknowledged. Telehealth is inherently dependent on technology, the patient's digital literacy, and, most importantly, the impossibility of performing tactile physical examinations, auscultation, or direct measurement of vital signs, which will always involve risk. The success of this intervention does not minimize these risks, but demonstrates that they can be managed by professionals with superior expertise.

The case also highlights the dimension of "humanization" in digital care. The effectiveness of remote anamnesis depends on the nurse's ability to establish a therapeutic alliance, offering "emotional support" and "instruction" to families. Technology can be a cold medium, but interaction doesn't have to be. The nurse's attitude in learning LIBRAS (Brazilian Sign Language) to better serve deaf-mute patients is a paradigmatic example of how humanization and effective communication are as crucial as technical skill for the success of remote diagnosis.

Finally, this event has direct implications for public health and continuing education.
This demonstrates the need to include telehealth emergency simulation in nursing and postgraduate curricula. The ability to "give lectures on disease prevention and quality of life" can be expanded to educate patients on how to identify "red flags" in themselves during a teleconsultation. Telehealth, therefore, evolves from a convenience tool to a large-scale emergency intervention and health education platform.

3. Conclusion

This case study demonstrated that nursing history taking via teleconsultation, when conducted by a professional specializing in intensive care, is a viable and effective tool for the early identification of acute neurological events in chronic patients. The sentinel event analyzed, where a stroke was identified and an emergency intervention was coordinated remotely, does not represent chance, but rather the successful application of high-level clinical judgment in a digital environment.

Research validates that experience in critical care is a decisive differentiator, allowing telehealth nurses to decode subtle clinical signs that could be masked by distance. Telehealth for high-risk populations, therefore, should not be treated as routine primary care, but as an extension of high-complexity surveillance. The ability to integrate structured anamnesis in real time was what saved the patient's life. , diagnostic reasoning (NANDA) and care coordination

In conclusion, while technology provides the platform, it is human expertise that defines the safety and effectiveness of care. This case serves as robust evidence for healthcare institutions to invest in advanced training for their telehealth nurses and in the implementation of specific emergency protocols for remote care. Tele-nursing, when exercised to its full potential, consolidates itself not only as a monitoring tool but as an essential pillar in the chain of survival for acute events.

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