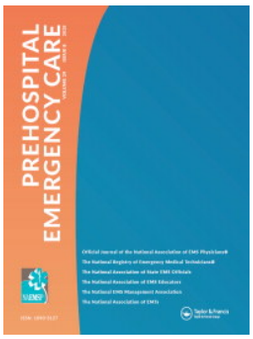

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Reframing Prehospital Termination of Resuscitation as Withdrawal of Life Support: Applying Lessons from the ICU in the Prehospital Setting

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ABSTRACT

Cardiac arrest response and management is a critical piece of prehospital clinical practice yet the majority of these patients do not survive to be transported. Termination of resuscitation and resulting death notification is stressful and emotional for both loved ones and EMS clinicians. We describe a fundamental shift from traditional termination of resuscitation to a patient and family-centered model. This new approach focuses on identifying appropriate situations to have family present at the time resuscitative efforts cease, and possibly throughout the entire resuscitation, thereby reframing termination of resuscitation as withdrawal of life support. This approach draws on best practices from hospital-based end-of-life care and holds the potential to reduce psychological trauma for both families and EMS clinicians.

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Introduction

More than 350,000 out-of-hospital cardiac arrests (OHCA) occur in the United States each year, the majority of which are responded to by emergency medical services (EMS) (1). Out-of-hospital cardiac arrest presents a significant challenge in prehospital care, requiring complex decisions about when to initiate, continue, or terminate resuscitative efforts. While there are likely substantial practice variations, data suggests that EMS withholds resuscitation in 58% of OHCA cases and terminates efforts on scene in nearly half of the remaining cases where resuscitation is attempted (2,3). As a result, on-scene death occurs in approximately 10 per 1,000 EMS responses overall, with higher rates—over 12 per 1,000—reported in frontier and remote areas (4). These events can have a profound emotional impact on both families and friends as well as EMS clinicians. For loved ones, the suddenness and unexpected nature of death can be deeply traumatic (5), while EMS clinicians face high rates of psychological distress and post-traumatic stress disorder (PTSD) related to resuscitation and death notification responsibilities (6). These findings are consistent with international data showing that EMS clinicians who perceive resuscitations as inappropriate or misaligned with patient goals are significantly more likely to report moral distress and intention to leave the profession (7).

Offering family presence during resuscitation is a well-established intervention in emergency department (EDs) and intensive care units (ICUs). Family presence is linked with reduced post-event anxiety, depression, and PTSD-related symptoms and supported by international resuscitation guidelines (8,9). Family presence is less well-studied in prehospital care; however, a single randomized trial demonstrated a significant reduction in the frequency of PTSD-related symptoms among relatives (10). Despite its many potential benefits, family presence during prehospital resuscitation remains uncommon - in part - because of perceived legal, safety and logistical challenges, and best practices have yet to be established. There is also a common conception that family presence will create more emotional challenges for EMS clinicians.

The well-established hospital practice of family presence offers a useful comparison. Family presence during resuscitation in hospital settings provides significant benefits, including reducing family members' anxiety, complicated grief and PTSD while promoting transparency and closure. In hospital-based resuscitation efforts, family members are increasingly invited to witness the resuscitation of their loved ones, a practice supported by evidence demonstrating that it does not negatively impact medical personnel performance and can even improve family satisfaction with care outcomes (11). Families who are offered and accept the opportunity to be present during resuscitation are better able to comprehend the seriousness of the situation and are more likely to feel that everything possible was done to save their loved ones. Anecdotally, family presence actually helps the caregivers minimize PTSD in the long run.

This article explores key practice-based, legal, emotional and ethical considerations for family presence during prehospital resuscitation with a unique distinction drawn with

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on-going resuscitation and its endpoint. Drawing from ICU literature, we propose reframing prehospital discontinuation of resuscitation from the prevailing "termination of resuscitation" (TOR) paradigm to a more person- and family-centered approach: "withdrawal of life support" (WOLS). Unlike traditional care, WOLS emphasizes family presence at the point when care is discontinued, clear communication with family, considering family presence during the entirety of resuscitation when it can be done safely, and respect for the dignity of the deceased - practices long established in intensive care medicine (12). Incorporating these principles and practices into prehospital care enables EMS to attend to the emotional needs of families, prioritizing closure and emotional support, and potentially mitigating their own risk of PTSD, while maintaining professional, legal and ethical standards. A fundamental concept in this reframing of cardiac arrest care as WOLS rather than TOR is that any artificial continuation of "life" with chest compressions and mechanical ventilation **is** life support from the perspective of the family. It is not necessary to have achieved ROSC to consider withdrawal of life support.

Case Vignette

Fire and EMS personnel were dispatched to a private residence for a 35-year-old male in cardiac arrest. Upon arrival, crews confirmed cardiac arrest and noted signs of a drug overdose. There were no signs of obvious death, and the patient was warm so the team initiated resuscitation.

Shortly thereafter, an EMS physician arrived on scene and was informed that the arrest was unwitnessed, bystander cardio-pulmonary resuscitation (CPR) had not been performed, and the patient's initial and persistent rhythm was asystole, with an end-tidal CO_2 value below 20 mmHg. The patient's father, who was on scene, confirmed that his son had struggled with drug addiction for many years and believed he was beyond saving. The father's primary concern, however, was for his wife, who was on her way home.

It quickly became evident that the parents were now also patients. The EMS physician, EMS Captain, and the patient's father agreed that the patient's mother would experience tremendous distress when she arrived on scene, and it would be beneficial to continue resuscitation in order to offer her the choice of witnessing their efforts. After a quick briefing, Fire and EMS crews continued basic resuscitation measures for several more minutes. Law enforcement was dispatched to the scene, per local protocol for unattended deaths. When the patient's mother arrived, she was met at the door by the EMS physician and Captain and briefed on the tragic situation. The parents were offered family presence during CPR. They were permitted to touch and speak to their son while CPR continued, before CPR was stopped.

After a few minutes, the team reiterated to the patient's parents that there was nothing more they could do to revive the patient and that it was time to withdraw life support. At that point, EMS ceased chest compressions and ventilations. The entire crew joined in a moment of silent respect as the family grieved. Crews then discreetly removed their equipment, and the scene was turned over to law enforcement officers. Because this was not considered a suspicious death, and the family had already been in contact with the patient, law enforcement allowed the parents a brief period to mourn before respectfully covering the body.

The family expressed immense gratitude for being able to be with their son when care was withdrawn. During debrief, Fire and EMS personnel agreed that this approach felt more meaningful and humane than most code terminations.

Traditional EMS Termination of Resuscitation Practices

The preceding vignette exemplifies a reimagined, family-centered approach to OHCA – contrasting sharply with the more common model described below.

The patient's family would have been kept out of sight of the resuscitation, perhaps forcefully by law enforcement officers. After 20 to 30 min, EMS would have determined that further resuscitation efforts were futile. At that time an EMS clinician – who had little prior interaction or with the family - would abruptly notify them of the death. The family would then be informed that, because this was an unattended death, they were not permitted to see or touch their loved one. Law enforcement would likely instruct the family not to enter the room until the body was removed by the medical examiner. The next time the family would see their son would be three days later at a funeral home. The patient's parents might struggle to understand what happened that day. In addition to grief, they would likely be burdened by feelings of anger and not knowing if more could have been done? The patient's mother might experience anxiety and intrusive thoughts. Weeks later, a complaint may be filed by a family member alleging that EMS had not made enough effort to save their loved one because he was "a druggie."

Despite many advances in care, most OHCA cases are fatal (13). In the absence of obvious signs of death, such as rigor mortis or lividity, resuscitation is typically initiated and continued until either return of spontaneous circulation (ROSC) is achieved or futility is determined using evidence-based rules and guidelines (14). The moment we acknowledge futility and stop compressions and ventilation is generally referred to as TOR, in distinction from the formal legal pronouncement of death, which is often delegated to a physician, medical examiner or coroner depending on the jurisdiction. Due to the epidemiology of OHCA, TOR commonly occurs in the patient's residence, though it can take place in other locations as well. Depending on local protocols, the specific clinician, and the circumstances of the case, TOR may or may not require direct physician consultation.

Termination of resuscitation presents an abrupt and sometimes overwhelming emotional challenge for families. Out-of-hospital cardiac arrest is often unexpected, with families experiencing their loved one abruptly transition from seemingly healthy to dead in a matter of minutes. What follows is often a death notification by a member of the EMS team. While protocols vary, the suddenness of this experience can contribute to acute distress. Offering family presence during resuscitation may help ease this emotional

burden, though the literature is somewhat mixed. Some studies suggest benefits like improved processing of grief and reduced PTSD symptoms (15), while others raise concerns about potential disruptions or increased stress for EMS clinicians (16). These findings highlight the need for clear protocols that balance family support with clinical demands in the prehospital environment.

This starkly contrasts with patients admitted to an ICU, where decisions about life support withdrawal are made using a shared decision-making model and supported by family presence throughout the process (12). For many of these patients, death results from a deliberate decision made by the patient through advanced directives, healthcare providers through brain death determination, or family members after extensive discussion on prognosis. Once such a decision is made, the next step is WOLS. Death may follow within seconds, minutes, or sometimes even days. Fortunately, this usually occurs with dedicated support resources and advanced notice for loved ones to gather at the bedside. For many families, the moment life support is discontinued is both meaningful and emotional – it may be an important step in the grieving process and an opportunity for those involved to honor the deceased, the efforts of the team, and love and dedication of the family.

Surveys of EMS clinicians suggest that experienced personnel are generally more comfortable involving families during resuscitation (16). This comfort often stems from a deeper understanding of the therapeutic benefits of family inclusion, both for grieving families and for clinician-family communication. Ensuring that all EMS teams are trained to manage family dynamics effectively could enhance these interactions and improve outcomes for all involved. Recent qualitative research involving paramedics and bereaved family members reinforces the importance of early, transparent communication and emotional presence during resuscitation, even when the outcome is clearly non-survivable (17). To better equip EMS professionals for these emotionally charged moments—particularly when family presence is limited or absent—several communication frameworks have been proposed.

Communication Frameworks and Personnel Support

Evidence-based tools such as "GRIEV_ing" and "SPIKES" exist to assist EMS professionals in navigating the emotionally charged process of death notification in the prehospital setting (18,19). The GRIEV_ing framework, specifically designed for emergency and prehospital care, offers a structured approach to delivering bad news, focusing on steps such as gathering, relating, and encouraging hope where appropriate (18). The SPIKES protocol, originally created to break difficult clinical news to patients in oncology settings, provides a complementary six-step method emphasizing empathy, clear communication, and shared decision-making (20). Together, these tools provide a foundation for enhancing the communication skills of EMS clinicians during these critical moments when there has not been sufficient opportunity to develop a relationship.

Despite the availability of these frameworks, it is unclear how often EMS personnel receive training or utilize these tools during TOR and subsequent death notification, and these experiences remain unsatisfactory for many EMS professionals, as well as for the families involved (18). Repeated exposure to these scenarios is correlated with increased rates of PTSD among EMS professionals and, when resuscitative efforts are perceived as inappropriate or misaligned with patient goals, has also been associated with increased moral distress and intention to leave the profession (6,7). These findings underscore the need for comprehensive support systems and regular training in communication frameworks like "GRIEV_ing" or "SPIKES" to mitigate the emotional toll on EMS professionals. By integrating these frameworks into routine EMS training, personnel may be better equipped to navigate the complexities of TOR and reduce the psychological toll on both themselves and the families they serve.

While these SPIKES and GRIEV_ing offer a helpful framework for communication, it remains unclear how well they translate to the prehospital environment. The SPIKES program was developed for longitudinal clinical settings and may require adaptation for EMS. The GRIEV_ing program, by contrast, was designed specifically for emergency care and may be more readily applicable. Critical questions remain around how best to train EMS clinicians in these frameworks, maintain competency, and ensure EMS clinicians feel confident using them in the field. It is noteworthy that the GRIEV_ing approach to death notification becomes much less relevant when the family member has had the opportunity to witness the resuscitation and participate in WOLS. Further study is needed to evaluate the effectiveness of these tools in improving EMS communication and mitigating emotional burden in real-world prehospital contexts.

Further studies have shown that lack of training in death notification correlates with higher rates of burnout among EMS clinicians. A cross-sectional study found that personnel who received training in death notification reported lower emotional exhaustion compared to their untrained counterparts (21). These findings highlight the importance of equipping EMS professionals with all the tools necessary to navigate these complex situations. We incorporate death notification training to include family presence and the WOLS concept into initial paramedic education and on-going continuing education activities but have found that having senior clinicians, supervisors and physicians model behavior on scene is critical to introduce and reinforce these approaches.

Reframing Termination of Resuscitation as Withdrawal of Life Support

Building on this evidence, we propose a reframing of the OHCA treatment paradigm, from a TOR approach to one more consistent with WOLS. This shift will better align prehospital care with compassionate and patient-centered practices seen in hospital settings.

In our region, resuscitative efforts for non-traumatic cardiac arrest in both adults and children are initiated on scene,

with transport occurring only if ROSC is obtained or if the patient is deemed eligible for extracorporeal cardiopulmonary resuscitation (eCPR). Company officers, paramedic supervisors, senior clinicians or occasionally EMS physicians work to keep the family informed early and regularly, providing realistic expectations in as compassionate a manner as possible. We strongly believe in an early "warning shot across the bow" to prepare the family for what may be coming. While some structured tools like GRIEV_ing or SPIKES exist, these conversations in our system are typically guided by personnel experience and intuition, rather than a formalized framework. While this model improves the experience for families and EMS clinicians, implementing WOLS in the field also introduces practical challenges—particularly around legal jurisdiction and scene control.

Whenever possible and appropriate, in non-suspicious situations, family members are offered the opportunity to observe resuscitation efforts from a comfortable distance but are never pressured to do so. This approach provides emotional reassurance that everything possible is being done, especially when guided by a provider offering support and explanations in real time. As resuscitative efforts approach the point of futility, cooperative family members may be invited to touch and speak to their loved ones before WOLS—just as they might during the withdrawal of life support in a hospital setting. Families are gently informed that once efforts cease, they may no longer be allowed to touch the patient.

After WOLS, we typically incorporate a moment of silent respect (22). In many cases, the rapport built during these moments is profound—family members may request a hug, and EMS clinicians may find themselves crying together with those they have just supported through a devastating loss.

However, not all circumstances are appropriate for family presence, and each situation must be assessed individually. Factors such as the emotional and mental state of family members must be carefully considered. When family members are intoxicated, aggressive, or otherwise disruptive, their presence may jeopardize scene safety or the dignity of the process. In such cases, EMS clinicians must make the difficult decision to limit family involvement. Clinicians must also remain vigilant for signs of foul play and coordinate closely with law enforcement to avoid interfering with a potential crime scene.

It is also common for additional family members to arrive later or for some to decline being present altogether. In these cases, their wishes should be respected, and a more traditional death notification process may still be necessary (18).

To support EMS clinicians in operationalizing this approach, we propose the WITNESS mnemonic, designed specifically for prehospital application (Figure 1). This tool offers a structured yet flexible guide to offering family presence during WOLS, including key communication and scene management strategies.

Letter	Action	Description
W	*Warn early*	Gently prepare the family that the outcome may not be survivable
I	*Invite gently*	Offer family presence as an option without pressure
T	*Talk clearly*	Use empathetic, honest language with brief, understandable updates
N	*Normalize emotions*	Acknowledge and validate any emotional response
E	*Explain transitions*	Clarify when and why resuscitation events are stopping
S	*Support presence*	Allow brief touch/contact if appropriate and safe
S	*Scene coordination*	Collaborate with law enforcement to support family access post-WOLS

Figure 1. WITNESS: a mnemonic to guide offering family presence during prehospital WOLS.

Navigating Law Enforcement Roles and Legal Constraints

According to the American Medical Association, even when life-sustaining treatment is no longer appropriate, the duty of care continues in the form of comfort and support for the patient and their loved ones (23). This can be at odds with law enforcement practices which are in turn predicated on local rules and regulations around preservation of crime scenes. At the moment the medical team decides to stop further care, control over the scene often shifts from EMS to law enforcement and the medical examiner or coroner. This abrupt transfer of authority can be confusing or distressing for families, especially when they are suddenly told they cannot approach, touch, or remain with their loved one. Even in cases with no suspicion of foul play, law enforcement may restrict contact out of concern for preserving the scene or due to rigid protocols.

Our teams have developed informal strategies to work around these constraints to protect the families right to be present without breaking laws or hopefully disturbing critical evidence. Up until we as the care team make the medical determination of futility (we do not pronounce death in our jurisdiction) the patient remains a patient so we have control over who is present and how much access to the patient they may have. This allows for family presence during resuscitation and/or withdrawal of care when determined to be safe and appropriate.

In our region we are fortunate to have good communication with the medical examiner's office and law enforcement and a pragmatic system that allows as much focus on the living as the dead. It is not uncommon for law enforcement to allow continued family grieving at the bedside and/or gently covering the body when there is agreement that there is low suspicion of foul play and especially when the scene is not private. But this is not yet the norm in all jurisdictions.

For EMS directors or medical leadership operating in regions where policies remain restrictive, early and proactive relationship-building with the medical examiner's office is essential. Framing the conversation around shared goals—such as minimizing psychological trauma for families and personnel—can help establish common ground. Leaders may consider presenting emerging evidence on the psychological

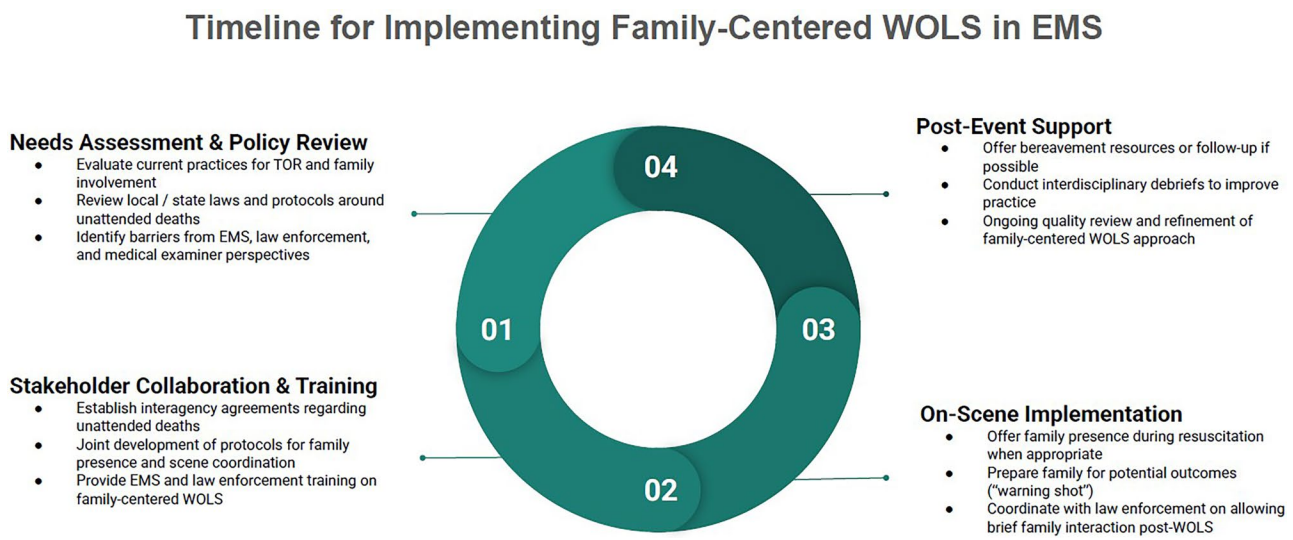

Figure 2. Timeline for implementing family-centered WOLS in EMS.

benefits of family presence, as well as referencing guidance from critical care societies or resuscitation councils that endorse family-centered care. Creating space for cross-agency dialogue (e.g., ride-alongs, case reviews, or tabletop exercises) can help law enforcement and forensic personnel understand EMS priorities during end-of-life events. In the absence of formal protocols, even informal understandings can lay the groundwork for more humane, coordinated scene management that respects both investigative integrity and the family's emotional needs. A proposed implementation timeline for family-centered WOLS practices in EMS is shown in Figure 2, outlining key phases of system assessment, interagency collaboration, on-scene execution, and post-event support. Implementation may also be very amenable to a Plan-Do-Study-Act (PDSA) cycle.

Conclusions

We describe a fundamental shift from the traditional approach to managing families during prehospital cardiac arrest resuscitation toward a more patient- and family-centered model. This model focuses on identifying appropriate situations to have family present at the time resuscitative efforts cease, and possibly throughout the entire resuscitation, thereby reframing termination of resuscitation as withdrawal of life support. This approach draws on best practices from hospital-based end-of-life care and holds potential to reduce psychological trauma for both families and EMS clinicians.

Anecdotally, our experience in New Mexico suggests that families not only express gratitude for this approach, but at times actively request that resuscitation be stopped—reflecting a sense of understanding, trust, and closure. Scaling this model more broadly will require focused collaboration: EMS agencies, professional societies, medical examiners, and law enforcement organizations should engage in joint guideline development, training initiatives, and interdisciplinary dialogue to support implementation. National organizations could play a key role in convening stakeholders and promoting evidence-informed standards.

At the same time, important questions remain. Future research is needed to better understand how family presence during prehospital resuscitation impacts grief, closure, and long-term mental health. Similarly, more work is needed to explore law enforcement perspectives and identify effective strategies for interdisciplinary cooperation at the scene. While advancing this model will require both operational innovation and scientific inquiry, the opportunity to humanize death in the field makes it a profoundly worthwhile pursuit.

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Author Contribution Statement

Darren Braude conceptualized the project, wrote the first draft, led the design and framing of the manuscript, and contributed to literature review and critical revisions. Michael DeFilippo assisted in manuscript writing, literature review, figure creation, and editing. Naomi George provided content expertise in critical care, contributed to background research, literature interpretation, and manuscript revision. Robert LaPrise and Kimberly Pruett provided content expertise, reviewed the manuscript for clinical accuracy and relevance, and contributed to revisions. All authors reviewed and approved the final manuscript and agree to be accountable for the content.

Disclosure Statement

The authors report there are no competing interests to declare.

Declaration of Generative AI in Scientific Writing

During the preparation of this work, the authors used ChatGPT to assist with preparation and editing of this work. After using this service, the authors reviewed and edited the content as needed. The authors take full responsibility for the content of this publication.

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