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Volume 1

The Airway Competency Crisis in EMS

Why Traditional Training Models Are Failing and What EMS Leaders Can Do About It

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White Paper No. 1

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Executive Summary

Airway management remains one of the defining responsibilities of advanced prehospital care. Among these interventions, endotracheal intubation (ETI) continues to represent one of the most technically demanding and clinically significant procedures performed by paramedics. Yet despite decades of educational advances, improved equipment, and expanding clinical knowledge, EMS systems throughout the United States continue to experience substantial variability in airway performance. Evidence increasingly suggests that this inconsistency is not simply the result of individual provider performance but reflects a broader organizational challenge involving training, clinical exposure, leadership, quality improvement, and competency maintenance (see Figure 1).

Traditional approaches to competency maintenance have largely relied on initial certification, periodic continuing education, annual skills verification, and occasional simulation exercises. While these activities remain valuable, they were not designed to sustain proficiency in high-risk, low-frequency procedures that may be performed only a handful of times during an entire year. As opportunities for live endotracheal intubation continue to decline, many paramedics experience predictable procedural skill decay, reduced confidence, and fewer opportunities to maintain clinical judgment under real-world conditions. At the same time, increasing reliance on

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supraglottic airway devices, workforce shortages, burnout, and inconsistent quality assurance practices have further widened the gap between certification and true clinical readiness.

This white paper examines the growing airway competency crisis from an organizational perspective. Drawing upon current scientific literature, qualitative research involving EMS leaders, paramedic educators, and emergency physicians, and emerging best practices in competency management, it argues that airway proficiency should be viewed as a continuous organizational responsibility rather than an individual achievement. Sustained competency requires an integrated system that combines deliberate practice, ongoing clinical exposure, structured feedback, objective performance measurement, and active leadership support.

The purpose of this paper is not to promote a specific product or training program. Rather, it seeks to provide EMS executives, medical directors, educators, and policymakers with an evidence-informed framework for understanding why traditional competency models are no longer sufficient and what organizational principles should guide future airway management programs. Agencies that successfully transition from episodic training toward continuous competency systems will be better positioned to improve provider readiness, strengthen quality assurance, reduce organizational risk, and ultimately improve patient outcomes.

This publication is the first in the **Sentinel White Paper Series on EMS Clinical Competency**, a six-part collection exploring the future of procedural readiness, organizational leadership, competency measurement, sustainable funding, and high reliability within Emergency Medical Services. Each paper builds upon the previous one, moving from identifying the problem to

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presenting practical, scalable solutions that support continuous clinical excellence across modern EMS systems.

Figure 1. The Airway Competency Cycle

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Introduction

A Critical Challenge for Modern EMS

Emergency Medical Services (EMS) has undergone remarkable transformation over the past several decades. Advances in education, medical technology, clinical protocols, and evidence-based practice have expanded the capabilities of paramedics and improved outcomes for countless patients. Yet despite these advances, one of the profession's most critical lifesaving procedures, endotracheal intubation (ETI), continues to present a significant and growing challenge for EMS agencies throughout the United States and many other countries.

Endotracheal intubation is a high-acuity, low-frequency procedure requiring exceptional technical skill, sound clinical judgment, and the ability to perform under extreme pressure. Unlike many clinical interventions that are practiced routinely, ETI may be performed only a handful of times each year by many paramedics. The combination of limited procedural opportunities, increasing reliance on alternative airway devices, workforce shortages, and inconsistent competency maintenance has created an environment in which maintaining proficiency has become increasingly difficult.

Historically, EMS education has emphasized initial certification followed by periodic continuing education and annual competency verification. While these approaches remain important, they were developed during a time when paramedics generally encountered greater numbers of critically ill patients requiring advanced airway management. Today's clinical environment is markedly different. Advances in supraglottic airway devices, evolving treatment protocols, changing patient populations, and declining opportunities for live endotracheal intubation have

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substantially reduced procedural exposure for many providers. Consequently, many EMS systems now expect clinicians to perform one of medicine's most technically demanding procedures despite limited opportunities to develop and sustain mastery.

The challenge facing EMS today is therefore not simply one of education. It is one of organizational readiness. Competency cannot be viewed as an event achieved through certification alone. Rather, it must be understood as a dynamic process requiring continuous reinforcement through deliberate practice, meaningful clinical exposure, structured performance feedback, leadership engagement, and ongoing quality improvement. Organizations that fail to recognize this shift risk allowing procedural competency to deteriorate over time despite the dedication and professionalism of their workforce.

This white paper examines what has become an emerging airway competency crisis within modern EMS. Drawing upon current scientific literature, qualitative research involving EMS leaders, paramedic educators, and emergency physicians, and contemporary principles of organizational leadership and high reliability, it explores the factors contributing to declining airway competency and identifies practical strategies that can help EMS organizations strengthen procedural readiness. While the discussion focuses primarily on endotracheal intubation, the issues described throughout this paper are equally applicable to many other high-risk, low-frequency procedures that challenge today's EMS workforce.

Why Airway Competency Matters

Few procedures performed in prehospital medicine have a greater potential to influence patient outcomes than effective airway management. During cardiac arrest, severe respiratory failure,

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traumatic injury, airway obstruction, or critical medical emergencies, the ability to establish and maintain a definitive airway may determine whether a patient survives or suffers permanent neurological injury. For this reason, endotracheal intubation has long been regarded as one of the defining competencies of advanced paramedic practice.

However, airway competency extends far beyond the technical placement of an endotracheal tube. Successful airway management requires rapid patient assessment, sound clinical decision-making, effective communication among team members, familiarity with evolving airway technologies, and the ability to adapt when conditions change unexpectedly. Providers must integrate psychomotor skills with critical thinking while simultaneously managing the dynamic and often chaotic environments characteristic of prehospital emergency care.

Competency also requires consistency. A provider who performs an excellent intubation once every several years cannot reasonably be considered fully prepared for the next critically ill patient. Like many complex psychomotor skills, airway management deteriorates when it is not practiced regularly. Numerous studies have demonstrated that procedural repetition, deliberate practice, timely feedback, and clinical exposure are essential components of long-term skill retention. Without these elements, even highly trained clinicians may experience declining confidence, slower decision-making, and reduced procedural success over time.

The challenge for EMS leaders is therefore not whether paramedics should be trained to perform advanced airway procedures. Rather, it is how organizations can ensure that competency is maintained throughout an entire career despite declining opportunities for real-world experience.

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Answering that question requires moving beyond traditional models of continuing education and toward systems specifically designed to sustain clinical readiness.

The Stakes for Patients, Providers, and EMS Systems

The consequences of declining airway competency extend well beyond individual providers. At its core, this issue represents a systems challenge with implications for patient safety, organizational performance, workforce development, and public trust.

For patients, inconsistent airway management may contribute to delays in oxygenation and ventilation, multiple intubation attempts, unrecognized complications, avoidable adverse events, and poorer clinical outcomes. Although many patients can be effectively managed using alternative airway devices, there remain situations in which successful endotracheal intubation provides the most appropriate or definitive method of airway control. When those situations arise, providers must possess both the technical proficiency and clinical judgment necessary to perform confidently and safely.

For paramedics, declining procedural exposure often creates increasing anxiety surrounding one of the profession's highest-risk interventions. Many clinicians recognize that confidence cannot be maintained through certification alone. They understand the difference between having learned a procedure and remaining prepared to perform it under the unpredictable conditions encountered in the field. Without meaningful opportunities for practice, reinforcement, and constructive feedback, confidence naturally erodes alongside technical proficiency.

For EMS agencies, the implications are equally significant. Variability in airway performance affects quality assurance initiatives, medical director oversight, continuing education programs,

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risk management, workforce readiness, accreditation efforts, and organizational reputation. Agencies that rely solely on periodic skills verification may unintentionally create a false sense of preparedness while failing to identify gradual competency decline. Conversely, organizations that adopt continuous competency models are better positioned to monitor performance, support provider development, strengthen clinical governance, and improve patient care.

Ultimately, the airway competency crisis confronting modern EMS is not simply about endotracheal intubation. It reflects a broader challenge confronting healthcare organizations responsible for maintaining proficiency in high-risk, low-frequency clinical procedures. Addressing this challenge will require leadership, innovation, and a fundamental shift from episodic training toward continuous clinical readiness (see Figure 2). The sections that follow examine the evidence underlying this crisis and explore the organizational principles that can help EMS agencies build a more reliable and sustainable model of procedural competency for the future.

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Traditional Model (Risk Zone)	VS	Continuous Readiness Model (Growth Zone)
• Certification		• Daily Practice
• Occasional CE		• Clinical Exposure
• Annual Skills Check	VERSUS	• Performance Feedback
• Skill Decay		• QA Measurement
• Performance Variability		• Leadership Support
		• Continuous Competency

Figure 2. Traditional Competency Model vs Continuous Readiness

The Airway Competency Crisis

For decades, endotracheal intubation (ETI) has represented one of the defining capabilities of advanced life support. It is a procedure that requires technical precision, clinical judgment, and the ability to perform under some of the most stressful conditions encountered in healthcare. Although modern EMS systems have made tremendous advances in education, equipment, and evidence-based practice, many agencies now face an unexpected challenge: maintaining competency in a procedure that is performed less frequently than ever before.

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The airway competency crisis did not emerge because paramedics became less capable or less committed to patient care. Rather, it developed gradually as changes in clinical practice, workforce dynamics, educational models, and operational demands reduced opportunities for providers to develop and sustain proficiency. Individually, these changes may appear manageable. Collectively, however, they have created conditions in which procedural skill decay has become increasingly common across EMS systems.

> "Certification demonstrates that competency once existed. Continuous practice demonstrates that competency still exists."

This crisis extends beyond individual provider performance. It affects organizational readiness, quality assurance, workforce confidence, patient safety, and the long-term reliability of advanced airway management programs. Understanding the factors contributing to this challenge is essential for developing more effective competency systems.

Declining Opportunities for Endotracheal Intubation

Perhaps the most significant contributor to the airway competency crisis is the steady decline in opportunities to perform live endotracheal intubation. Advances in airway management have unquestionably improved patient care, but they have also reduced the frequency with which paramedics perform definitive airway procedures.

Several factors have contributed to this decline. Improvements in supraglottic airway devices have provided effective alternatives for many emergency situations. Earlier patient stabilization,

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evolving treatment protocols, shorter transport times in many metropolitan areas, and changing clinical practices have further reduced the need for field intubation. At the same time, many hospitals have limited operating room access for paramedic clinical rotations, reducing opportunities for providers to gain experience with controlled airway procedures during both initial education and continuing competency programs.

The result is a widening gap between certification and clinical experience. Many paramedics complete advanced airway education with relatively few live intubations and then encounter only occasional opportunities to perform the procedure throughout their careers. While certification confirms that a provider has demonstrated competency at a specific point in time, it cannot guarantee continued proficiency years later without ongoing clinical practice.

This trend is not unique to a particular region or EMS model. It has become a national and, increasingly, an international concern as EMS systems seek to balance evolving airway management strategies with the need to preserve advanced procedural competency.

Procedural Skill Decay

Unlike knowledge-based competencies that can often be maintained through reading or classroom instruction, complex psychomotor skills require regular practice. Endotracheal intubation is a prime example. Successful performance depends not only on remembering the steps of the procedure but also on maintaining muscle memory, visual recognition, clinical judgment, and decision-making under pressure.

Research across healthcare disciplines consistently demonstrates that procedural skills deteriorate when they are not used regularly. Airway management is particularly vulnerable

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because successful intubation requires the seamless integration of cognitive and psychomotor abilities during rapidly evolving clinical situations. As procedural opportunities decline, even experienced clinicians may experience reduced confidence, slower decision-making, diminished technical precision, and increased anxiety when confronted with a difficult airway.

Skill decay rarely occurs suddenly. Instead, it develops gradually over months or years of limited practice. Because many providers continue to perform successfully on routine calls, organizations may not recognize competency erosion until a complex airway emergency exposes previously unseen gaps in performance. Annual skills verification or infrequent simulation exercises often fail to identify these subtle declines because they provide only snapshots of competency rather than continuous assessment.

This distinction is critical. Certification demonstrates that competency once existed. Continuous practice demonstrates that competency still exists (see Figure 3).

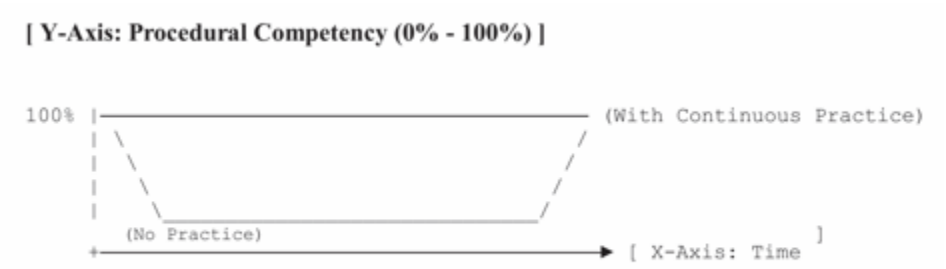

Figure 3. Why Skills Decay

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The Rise of Supraglottic Airways

Few innovations have influenced prehospital airway management more than the widespread adoption of supraglottic airway devices. These devices have simplified airway management in many clinical situations, improved success rates for less experienced providers, and provided valuable alternatives when endotracheal intubation is unsuccessful or contraindicated. Their value in modern EMS practice is well established.

At the same time, however, their increasing use has produced an unintended consequence. Every successful supraglottic airway placement may represent one fewer opportunity for a paramedic to perform endotracheal intubation. While this shift often reflects sound clinical decision-making, it also contributes to declining procedural exposure across the workforce.

This reality should not be interpreted as an argument against supraglottic airways. Rather, it highlights the need for EMS leaders to recognize the downstream effects of evolving clinical practice. As one procedure becomes less common, organizations must intentionally develop new methods of maintaining competency if they expect providers to remain proficient when definitive airway management is required.

The question is therefore no longer whether supraglottic airways should be used. The question is how EMS systems will preserve endotracheal intubation competency in an era when opportunities to perform the procedure continue to diminish.

Workforce Challenges and Clinical Exposure

The airway competency crisis has been further intensified by significant workforce challenges affecting EMS organizations nationwide. Recruitment difficulties, provider shortages, burnout,

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high turnover, and increasing operational demands have placed extraordinary pressure on agencies responsible for maintaining clinical excellence while continuing to meet growing service demands.

These workforce pressures directly affect competency development. Experienced paramedics who historically served as mentors are leaving the profession at a time when many newly certified providers enter the workforce with fewer opportunities for live airway experience than previous generations. Simultaneously, staffing shortages often limit agencies' ability to release personnel for continuing education, operating room rotations, cadaver laboratories, or advanced simulation training.

Clinical exposure has become increasingly difficult to obtain. Even agencies committed to maintaining airway competency frequently encounter barriers beyond their control, including limited hospital partnerships, scheduling constraints, liability concerns, and competition for clinical training opportunities. As a result, many organizations rely heavily on simulation to fill the gap. While simulation remains an essential component of competency development, it cannot completely replicate the complexity, unpredictability, and emotional demands of managing critically ill patients in the field.

These realities illustrate an important point: competency is shaped not only by individual motivation but also by organizational capacity. Even highly committed providers cannot maintain procedural excellence if systems fail to provide adequate opportunities for practice, reinforcement, and feedback.

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Rural and Urban Differences

Although the airway competency crisis affects nearly every EMS system, its causes and consequences are not identical across all communities.

Urban EMS agencies often benefit from larger training budgets, academic medical center partnerships, simulation resources, and higher overall call volumes. Yet even within these systems, opportunities to perform endotracheal intubation have declined as airway management practices evolve. High call volume does not necessarily translate into high airway volume, particularly when supraglottic airways and shorter transport intervals reduce the need for field intubation.

Rural agencies face many of the same challenges while also confronting additional obstacles. Lower population density, fewer critically ill patients, greater distances between training centers, limited hospital partnerships, staffing shortages, and restricted financial resources may further reduce opportunities for maintaining procedural competency. Providers serving rural communities may go extended periods without performing an endotracheal intubation while simultaneously facing prolonged transport times during which advanced airway management becomes even more critical.

Despite these differences, both rural and urban agencies confront the same underlying problem: maintaining proficiency in a procedure that occurs too infrequently to sustain competency through clinical experience alone.

The airway competency crisis is therefore not defined by geography. It is defined by the growing disconnect between the level of performance expected of paramedics and the opportunities

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available to maintain that performance over time (see Figure 4). Addressing this disconnect requires a fundamental shift in how EMS organizations think about competency. Rather than viewing proficiency as a credential achieved during initial education, agencies must begin viewing competency as a continuous organizational responsibility requiring deliberate practice, ongoing measurement, clinical reinforcement, and sustained leadership commitment.

Figure 4. Factors Driving the Airway Competency Crisis

What the Research Shows

Over the past two decades, a growing body of research has examined why paramedic endotracheal intubation (ETI) performance varies across Emergency Medical Services (EMS) systems. While individual studies have explored topics such as simulation, airway devices,

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continuing education, workforce development, and quality assurance, a consistent message has emerged: airway competency is not determined by technical training alone. Rather, it is shaped by the interaction of clinical experience, organizational leadership, educational design, and continuous performance support.

“Key Takeaways for EMS Leaders

• Competency declines without deliberate practice.

• Certification is the beginning, not the endpoint.

• Leadership influences competency as much as education.

• Continuous readiness requires integrated organizational systems.”

This conclusion is reinforced by the findings of the qualitative research conducted for this paper. Although the studies reviewed represent different healthcare systems, educational models, and operational environments, they consistently point toward the same organizational challenges. The evidence suggests that agencies achieving the highest levels of procedural readiness do not simply train providers more often. They develop systems that continuously support competency throughout a provider's career.

Key Findings from Current Literature

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The current scientific literature demonstrates broad agreement regarding the factors influencing airway competency. Although researchers may differ in their recommendations for specific airway devices or procedural techniques, there is remarkable consistency regarding the organizational conditions that support sustained performance.

First, the literature confirms that procedural frequency remains one of the strongest predictors of long-term competency. Providers who perform endotracheal intubation more frequently generally demonstrate higher success rates, greater confidence, and stronger decision-making under pressure. Conversely, limited procedural exposure contributes to predictable skill decay, regardless of a provider's original level of training.

Second, simulation-based education has become an essential component of modern EMS training, but the evidence also demonstrates its limitations. High-fidelity simulation improves technical proficiency, reinforces psychomotor skills, and builds confidence. However, simulation alone cannot fully reproduce the complexity, uncertainty, and cognitive demands of managing critically ill patients in uncontrolled field environments. The greatest educational benefit occurs when simulation is combined with repeated practice, structured debriefing, meaningful clinical experience, and ongoing performance evaluation.

Third, organizational leadership consistently emerges as a major determinant of clinical performance. Agencies that emphasize continuous learning, structured quality improvement, non-punitive feedback, and active medical director involvement generally demonstrate stronger competency maintenance than organizations relying primarily on periodic recertification. These

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findings reflect an important shift in thinking: procedural competency is increasingly viewed as an organizational responsibility rather than solely an individual responsibility.

Finally, the literature increasingly supports continuous competency models that integrate education, clinical practice, performance measurement, and leadership oversight into a unified system. Rather than treating competency as an event achieved through certification, these models recognize competency as an ongoing process requiring continuous reinforcement throughout a clinician's career.

Collectively, the current evidence suggests that improving airway performance requires more than increasing training hours. It requires redesigning the organizational systems that support clinical readiness.

Findings from a National Qualitative Study

To better understand the organizational factors influencing airway competency, a qualitative explanatory case study was conducted involving sixteen experienced professionals representing three key stakeholder groups: EMS supervisors and managers, paramedic educators, and emergency physicians. Collectively, these participants brought decades of experience in clinical practice, education, quality improvement, and operational leadership.

Rather than measuring technical performance directly, the study explored the experiences and perspectives of those responsible for developing, supervising, evaluating, and supporting paramedic airway management. This approach provided a systems-level understanding of why competency varies across organizations and what factors contribute most to long-term procedural readiness.

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Although participants represented diverse professional backgrounds and organizational settings, remarkable consistency emerged across interviews. Regardless of role, participants described many of the same organizational barriers affecting airway competency. They repeatedly emphasized declining clinical exposure, limited opportunities for deliberate practice, inconsistent leadership engagement, fragmented quality assurance processes, and the absence of integrated systems for maintaining procedural readiness.

Perhaps most importantly, participants consistently viewed airway competency as an organizational issue rather than simply an educational issue. They recognized that initial certification establishes a foundation for practice, but maintaining competency depends upon the systems that support providers after formal education has ended.

These findings closely align with the broader scientific literature, strengthening confidence that the challenges identified in this study reflect national trends rather than isolated organizational experiences.

Three Organizational Drivers of Airway Competency

Although numerous factors influence airway management performance, both the published literature and the qualitative findings consistently point toward three organizational drivers that have the greatest long-term impact on competency (see Figure 5).

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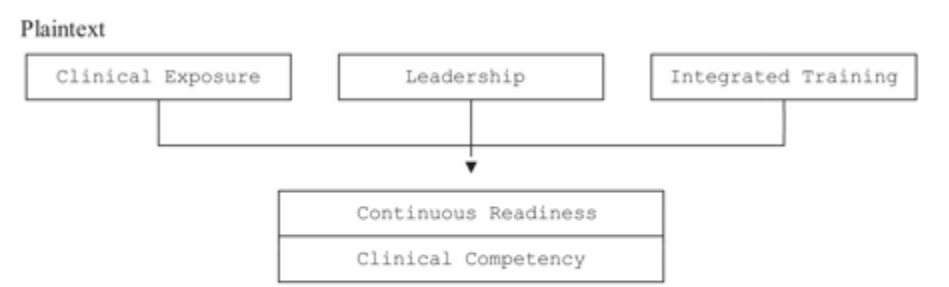

Figure 5. Organizational Drivers of Competency

Clinical Exposure and Skill Retention

The first and perhaps most fundamental driver is clinical exposure. Participants consistently described limited opportunities to perform endotracheal intubation as one of the greatest challenges facing modern EMS systems. While simulation remains an important educational tool, respondents emphasized that repeated clinical experience, deliberate practice, and ongoing procedural reinforcement are essential for maintaining proficiency.

This finding reflects a well-established principle of adult learning. Complex psychomotor skills improve through repeated application in realistic settings. Without sufficient opportunities to practice, providers naturally experience declining confidence, slower decision-making, and gradual erosion of technical performance.

The implication for EMS leaders is straightforward. Competency cannot be maintained through certification alone. Organizations must intentionally create systems that provide regular opportunities for providers to practice, reinforce, evaluate, and refine high-risk clinical procedures throughout their careers.

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Leadership and Organizational Culture

The second major driver is leadership.

Participants repeatedly emphasized that organizational culture directly influences clinical performance. Agencies that actively prioritize airway competency through leadership involvement, medical director engagement, structured quality improvement, and timely feedback create environments in which providers continue learning long after initial certification.

Conversely, organizations relying primarily on annual skills verification or infrequent continuing education often struggle to identify declining competency before performance problems emerge during actual patient care.

Leadership influences competency in numerous ways. It determines resource allocation, establishes performance expectations, supports continuous learning, encourages psychological safety during case reviews, and creates accountability for clinical excellence. Participants consistently described effective leaders as individuals who view airway competency not as an isolated educational function but as an essential component of organizational readiness.

The research therefore suggests that competency is sustained not only by individual commitment but also by leadership systems that promote continuous improvement.

Integrated Training Systems

The third organizational driver is the integration of education, clinical practice, quality improvement, and performance measurement into a single competency system.

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One of the clearest findings emerging from both the literature and participant interviews is that fragmented training programs rarely produce sustained procedural excellence. Initial education, simulation, continuing education, quality assurance, clinical rotations, and performance feedback often operate independently of one another, limiting their collective effectiveness.

Organizations demonstrating stronger airway performance tend to connect these activities into continuous learning systems. Training is reinforced through regular practice. Clinical performance is evaluated through objective measurement. Quality assurance findings inform future education. Leadership monitors organizational trends and adjusts training priorities accordingly. Competency becomes a continuous cycle rather than a series of isolated educational events.

This systems-based approach reflects principles commonly found within high-reliability organizations, where learning is continuous, performance is measured objectively, and improvement is embedded within everyday operations rather than reserved for periodic training sessions.

Taken together, these three organizational drivers, clinical exposure, leadership, and integrated competency systems, provide a practical framework for understanding why some EMS organizations consistently maintain higher levels of airway readiness than others. More importantly, they demonstrate that improving airway competency requires organizational commitment as much as educational innovation.

The remaining sections of this white paper build upon these findings by examining why traditional competency models are increasingly insufficient and how EMS leaders can begin

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developing systems capable of sustaining procedural excellence in an evolving healthcare environment.

Why Traditional Training Models Fall Short

Emergency Medical Services has invested significant resources in improving paramedic education over the past several decades. Entry-level education has become more comprehensive, simulation technology has advanced dramatically, and continuing education requirements have expanded across most jurisdictions. These improvements have strengthened the profession and undoubtedly contributed to better patient care.

Yet despite these advancements, substantial variability in endotracheal intubation (ETI) performance continues to exist. This inconsistency is not the result of inadequate effort by educators, training officers, or medical directors. Rather, it reflects a fundamental mismatch between how competency has traditionally been maintained and the realities of modern EMS practice.

Traditional competency models were developed during an era when paramedics generally performed advanced airway procedures more frequently than they do today. Those models assumed that providers would reinforce their training through routine clinical experience. As procedural opportunities have declined, however, the assumptions underlying traditional competency systems have become increasingly difficult to sustain.

The challenge facing modern EMS is therefore not whether current training methods are valuable. It is whether they are sufficient to maintain mastery of complex procedures that may be performed only occasionally throughout an entire year.

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Initial Certification Is Not Long-Term Competency

Initial paramedic education establishes the foundation for safe clinical practice. Through classroom instruction, laboratory exercises, simulation, and supervised clinical experiences, students develop the knowledge, technical skills, and clinical judgment necessary to enter the profession.

Certification represents an important milestone. It demonstrates that an individual has successfully met established educational and competency standards at a specific point in time. However, certification was never intended to guarantee lifelong procedural proficiency.

Complex psychomotor skills require ongoing reinforcement. Like musicians, pilots, surgeons, or elite athletes, paramedics maintain expertise through repeated practice rather than through initial qualification alone. Skills that are not regularly exercised gradually decline, regardless of how well they were originally learned.

This distinction is particularly important for high-risk, low-frequency procedures such as endotracheal intubation. A provider who successfully completed airway training several years earlier may have encountered only a limited number of live intubation opportunities since certification. Without consistent practice and performance feedback, technical precision, clinical confidence, and decision-making naturally diminish over time.

Competency should therefore be viewed as a continuum rather than a destination. Initial certification begins the journey, but organizational systems must sustain competency throughout the remainder of a provider's career.

The Limits of Annual Skills Verification

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Most EMS agencies require annual competency assessments or skills verification as part of their quality assurance and credentialing processes. These evaluations serve an important purpose by confirming that providers remain familiar with critical procedures and organizational expectations.

However, annual verification represents only a brief snapshot of performance.

Providers often prepare specifically for scheduled evaluations, successfully demonstrate procedural competence, and then return to environments where opportunities for continued practice remain limited. As a result, annual assessments may confirm that providers can perform a procedure under controlled testing conditions without revealing how well they are prepared to execute the same procedure months later during a stressful emergency.

Moreover, annual evaluations typically focus on procedural completion rather than sustained readiness. They rarely measure how frequently providers have practiced, how consistently skills have been reinforced, how effectively feedback has been incorporated, or how competency has changed over time.

This distinction is increasingly important as EMS agencies place greater emphasis on quality improvement and patient safety. True competency is not demonstrated by passing a single annual evaluation. It is demonstrated through consistent performance supported by continuous learning and regular reinforcement.

Annual verification remains an important component of competency management, but it should be viewed as one element within a much broader system rather than the primary mechanism for maintaining procedural readiness.

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Simulation Without Reinforcement

Simulation has transformed healthcare education and remains one of the most valuable tools available for developing procedural skills. High-fidelity manikins, realistic airway trainers, virtual technologies, and scenario-based exercises allow providers to practice difficult procedures in safe learning environments while improving technical proficiency and clinical confidence.

Simulation also offers important advantages that cannot always be achieved through clinical practice alone. Rare complications can be reproduced, difficult airway scenarios can be repeated, and standardized educational experiences can be delivered consistently across large organizations.

However, simulation alone cannot fully replicate clinical reality.

Real patients present unique anatomical variations, unpredictable physiology, emotional stress, environmental distractions, time pressure, and rapidly changing conditions that are difficult to reproduce in even the most sophisticated simulation laboratories. The cognitive demands associated with managing a critically ill patient while coordinating team communication, making treatment decisions, and adapting to unexpected complications remain fundamentally different from simulated practice.

Equally important, simulation loses much of its long-term effectiveness when performed infrequently. Skills practiced once or twice each year inevitably fade without continued reinforcement. The educational value of simulation increases dramatically when it becomes part of an ongoing competency process that includes deliberate practice, clinical application, structured feedback, and objective performance measurement.

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Simulation remains an essential component of airway education. The challenge is not improving simulation itself but integrating simulation into a larger system designed to sustain competency over time.

Continuing Education Alone Cannot Prevent Skill Decay

Continuing education plays a vital role in professional development. It introduces new research, reinforces clinical knowledge, updates providers on evolving standards of care, and encourages lifelong learning throughout the profession.

Nevertheless, continuing education primarily strengthens cognitive knowledge rather than procedural mastery.

Attending a lecture on airway management, reviewing current literature, or completing online education can improve understanding of clinical concepts, but these activities do not replace the repetitive psychomotor practice necessary to maintain complex procedural skills. Knowing how a procedure should be performed is fundamentally different from consistently performing it successfully during a high-pressure emergency.

This distinction becomes increasingly important as airway management continues to evolve. Providers must remain knowledgeable about new devices, revised clinical guidelines, and emerging evidence while simultaneously preserving the technical proficiency required for definitive airway management. Neither objective can replace the other.

The research reviewed throughout this white paper consistently demonstrates that preventing procedural skill decay requires a comprehensive approach that combines education with repeated

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practice, clinical exposure, timely feedback, leadership engagement, and ongoing performance assessment.

In other words, continuing education remains necessary, but it is no longer sufficient.

The airway competency crisis confronting modern EMS is not the consequence of inadequate education. It is the consequence of relying upon educational strategies that were never designed to maintain complex psychomotor skills throughout an entire professional career.

As opportunities for endotracheal intubation continue to decline, EMS organizations must reconsider how competency is developed, measured, and sustained. The evidence increasingly suggests that periodic educational events must evolve into continuous organizational systems capable of supporting procedural readiness every day, not simply during annual evaluations or scheduled training sessions.

The Organizational Factors Behind Competency

Airway competency is often viewed as the responsibility of the individual paramedic. While personal commitment, professionalism, and continuous learning remain essential, the evidence increasingly demonstrates that long-term competency is fundamentally shaped by the organizations in which providers work. Clinical excellence rarely develops by chance. It is cultivated through leadership, reinforced by organizational culture, and sustained by systems that continuously support learning, measurement, and improvement.

The qualitative research presented earlier in this paper consistently identified organizational factors as among the strongest influences on procedural readiness. Participants repeatedly

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described competency as something that extends well beyond initial education. Instead, they emphasized that successful EMS systems intentionally create environments where providers have regular opportunities to practice, receive feedback, measure performance, and continuously improve throughout their careers.

Organizations that consistently produce high levels of airway competency tend to share several common characteristics. These characteristics are neither dependent upon agency size nor limited to large metropolitan systems. Rather, they reflect leadership priorities and organizational design that place clinical readiness at the center of EMS operations.

Leadership Commitment

Leadership establishes the culture that ultimately determines how competency is valued within an EMS organization. Chiefs, administrators, training officers, and executive leadership influence far more than budgets and staffing. They establish expectations for clinical excellence, determine organizational priorities, and create the environment in which learning either flourishes or stagnates.

When leadership consistently emphasizes procedural readiness, providers recognize that competency is viewed as an operational priority rather than simply a regulatory requirement. Resources are allocated for training, quality improvement becomes a routine component of operations, and ongoing professional development becomes integrated into everyday practice rather than confined to scheduled educational events.

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Conversely, organizations facing persistent operational pressures may unintentionally allow competency maintenance to become secondary to response time metrics, staffing demands, and administrative requirements. Although these operational responsibilities remain essential, they should not come at the expense of maintaining the clinical capabilities that define advanced life support.

Effective leadership recognizes that patient outcomes depend not only on responding quickly but also on ensuring that providers remain prepared to perform complex interventions whenever they are needed.

Medical Director Engagement

Medical directors occupy a uniquely important position in maintaining airway competency. Their responsibilities extend beyond protocol approval and regulatory oversight to include clinical leadership, performance evaluation, quality improvement, and professional mentorship.

Organizations with highly engaged medical directors often demonstrate stronger procedural consistency because clinical expectations remain closely aligned with education, operational practice, and quality assurance activities. Medical directors who regularly participate in airway reviews, educational initiatives, simulation exercises, and case debriefings help reinforce a culture of continuous learning while strengthening provider confidence.

Equally important, engaged medical directors help establish evidence-based standards that guide organizational decision-making. As airway management continues to evolve, providers benefit from clear clinical direction regarding procedural indications, alternative airway strategies, performance expectations, and ongoing competency requirements.

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Medical director engagement should therefore be viewed as a continuous partnership with EMS leadership rather than a periodic administrative function. Sustained clinical excellence depends upon active collaboration between operational leadership and physician oversight.

Continuous Quality Improvement

High-performing EMS organizations recognize that competency cannot improve unless performance is continuously evaluated. Continuous Quality Improvement (CQI) provides the organizational framework through which clinical performance is monitored, analyzed, and strengthened over time.

Effective CQI extends beyond identifying isolated errors. Instead, it examines trends, identifies opportunities for improvement, evaluates system performance, and informs future education. Every airway intervention becomes an opportunity to strengthen both individual competency and organizational learning.

This approach reflects the principles of high reliability organizations, where adverse events and successful outcomes alike become valuable sources of information. Rather than assigning blame, organizations focus on understanding why outcomes occurred and how systems can be improved to better support future performance.

When quality improvement becomes embedded within routine operations, competency evolves from a static requirement into a dynamic process of continuous organizational learning.

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Performance Feedback

Learning is strengthened when providers receive timely, objective, and constructive feedback regarding their clinical performance. Unfortunately, feedback remains inconsistent across many EMS organizations. In some agencies, airway cases receive comprehensive review with detailed discussion and educational follow-up. In others, providers receive little or no feedback unless a significant adverse event occurs.

This represents a missed opportunity.

Constructive feedback allows providers to reinforce effective practices, identify opportunities for improvement, and build confidence through reflection and experience. It also encourages psychological safety by creating an environment where learning from both successes and challenges becomes an accepted part of professional development.

Feedback is most effective when it is timely, objective, and focused on improvement rather than criticism. Case reviews, structured debriefings, peer discussion, simulation follow-up, and medical director consultations all contribute to an organizational culture in which competency is continuously refined.

Organizations that normalize routine feedback create clinicians who remain engaged in lifelong learning rather than simply maintaining minimum certification requirements.

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Competency Measurement

One of the greatest challenges facing EMS organizations is determining whether competency is truly being maintained. Traditional approaches often rely upon annual evaluations or procedural checklists, yet these methods provide only limited insight into long-term readiness.

Meaningful competency measurement requires organizations to evaluate performance across multiple dimensions. Technical proficiency remains important, but it should be considered alongside procedural frequency, decision-making, clinical judgment, quality assurance findings, continuing education participation, simulation performance, and ongoing skill reinforcement.

Objective measurement also allows organizations to identify emerging trends before they become significant clinical problems. Declining procedural frequency, reduced confidence, recurring quality assurance findings, or inconsistent participation in training activities may all indicate opportunities for early intervention.

Perhaps most importantly, competency measurement should support professional development rather than serve solely as a compliance exercise. When providers understand that measurement exists to strengthen performance rather than punish deficiencies, organizations foster greater engagement, transparency, and continuous improvement.

Competency should therefore be viewed as something that is monitored continuously, not simply verified periodically.

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Clinical Practice Opportunities

Ultimately, no organizational strategy can fully compensate for the absence of meaningful clinical practice. Airway competency depends upon opportunities to repeatedly apply knowledge and technical skills under conditions that resemble real patient care.

Live clinical experience remains the gold standard for maintaining procedural proficiency, but obtaining sufficient opportunities has become increasingly difficult. Consequently, EMS organizations must become more intentional in creating experiences that reinforce competency throughout a provider's career.

These opportunities may include structured simulation programs, operating room partnerships, cadaver laboratories, interdisciplinary training, case-based learning, high-frequency procedural practice, and other educational experiences that replicate clinical decision-making as realistically as possible. The specific approach may vary from one organization to another depending upon available resources, geography, and operational demands.

What remains consistent is the principle that competency requires repetition. Organizations cannot expect providers to maintain mastery of high-risk, low-frequency procedures without providing regular opportunities to practice those skills in meaningful ways.

As opportunities for live endotracheal intubation continue to decline, organizations must become increasingly innovative in preserving procedural readiness. Clinical practice should no longer be viewed as an optional enhancement to competency programs. It is a foundational requirement for sustaining the advanced clinical capabilities upon which modern EMS depends.

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Taken together, leadership commitment, engaged medical direction, continuous quality improvement, meaningful performance feedback, objective competency measurement, and ongoing clinical practice opportunities form the organizational infrastructure necessary to support long-term airway competency. These factors do not replace high-quality education or individual responsibility. Rather, they provide the environment in which education can be reinforced, skills can be sustained, and clinical excellence can become an enduring organizational characteristic.

The question facing EMS leaders is therefore no longer whether competency matters. The evidence clearly demonstrates that it does. The more important question is whether existing organizational systems are intentionally designed to sustain competency throughout an entire professional career (see Figure 6). The following section explores a practical framework for making that transition by moving from episodic education toward continuous clinical readiness.

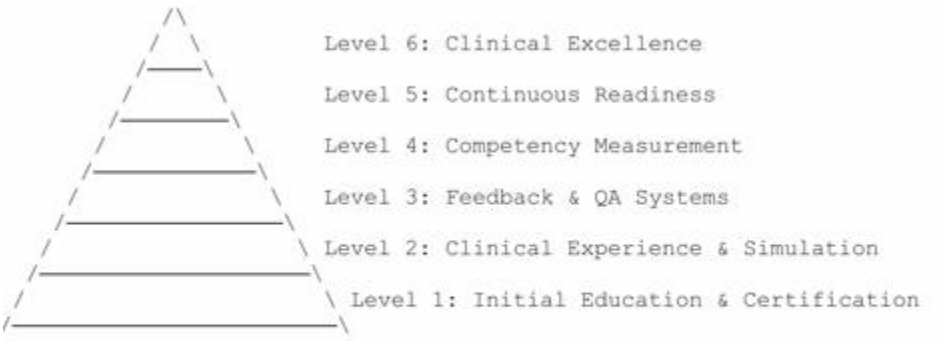

Figure 6. Airway Readiness Pyramid

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A Better Way Forward

The evidence presented throughout this white paper points toward a clear conclusion: the future of airway competency does not depend upon more training alone. It depends upon building organizational systems that continuously develop, reinforce, measure, and sustain clinical readiness throughout a provider's career.

This represents a fundamental shift in thinking.

Historically, competency has often been viewed as something achieved through education and periodically confirmed through continuing education or annual skills verification. While these activities remain important, they are no longer sufficient to support proficiency in high-risk, low-frequency procedures such as endotracheal intubation. As procedural opportunities continue to decline, competency must become an ongoing operational priority rather than an occasional educational event.

The question facing EMS leaders is therefore not whether providers should receive additional training. Rather, it is how organizations can create environments where competency is continuously maintained despite changing clinical practice, evolving technologies, workforce challenges, and fewer opportunities for live procedural experience.

The answer lies in moving from episodic education toward continuous clinical readiness.

From Episodic Training to Continuous Readiness

Traditional EMS education has largely been organized around isolated learning events. Initial certification establishes foundational knowledge and skills. Continuing education provides

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periodic updates. Annual competency assessments verify minimum standards. Simulation exercises reinforce selected procedures during scheduled training sessions.

Each of these components serves an important purpose.

The challenge is that they often function independently rather than as parts of a coordinated competency system.

A provider may complete an annual airway evaluation, attend a continuing education lecture several months later, participate in an occasional simulation exercise, and perform very few live intubations during the remainder of the year. Although each educational activity has value, the intervals between them frequently allow procedural skills to diminish before they are reinforced again.

Continuous readiness takes a different approach.

Rather than viewing competency as something revisited periodically, continuous readiness recognizes that professional performance develops through frequent reinforcement integrated into normal operations. Learning becomes part of everyday organizational culture instead of being confined to scheduled training events.

In this model, competency is continuously strengthened through repeated practice, ongoing measurement, regular feedback, leadership engagement, and meaningful opportunities to apply clinical knowledge. Readiness becomes a daily operational objective rather than an annual administrative requirement.

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This approach reflects the realities of modern EMS. High-risk procedures cannot depend upon infrequent educational events if organizations expect providers to consistently perform at the highest level when patients need them most.

Principles of Sustainable Airway Competency

Although every EMS organization differs in size, governance, funding, and operational environment, the research consistently suggests that sustainable airway competency is built upon several common principles.

Competency is continuous, not episodic. Clinical proficiency develops through ongoing reinforcement rather than isolated educational milestones. Organizations should view competency as a process requiring continuous attention throughout a provider's career.

Practice should be deliberate and frequent. Complex psychomotor skills are maintained through repetition. Short, consistent opportunities for focused procedural practice often produce greater long-term benefit than infrequent, high-intensity training events.

Clinical exposure should be intentionally supported. Whenever possible, organizations should expand opportunities for providers to gain meaningful clinical experience through field practice, hospital partnerships, specialty rotations, or other educational experiences that strengthen procedural confidence and judgment.

Performance should be measured objectively. Competency cannot be effectively managed without reliable information. Objective performance measures allow organizations to identify strengths, recognize emerging trends, and provide timely educational support before performance declines.

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Feedback should be timely and developmental. Continuous improvement depends upon providers receiving constructive information regarding their performance. Effective feedback reinforces successful practices while creating opportunities for reflection, learning, and professional growth.

Leadership should actively support readiness. Sustainable competency requires visible commitment from organizational leadership and engaged medical directors. Leaders establish priorities, allocate resources, encourage continuous learning, and create the organizational culture that supports long-term clinical excellence.

These principles do not represent individual educational techniques. Together, they describe an organizational philosophy centered on continuous readiness rather than periodic competency verification.

Integrating Training, Clinical Experience, Feedback, and Leadership

Perhaps the most important lesson emerging from current research is that no single intervention can solve the airway competency challenge.

Additional simulation alone is not enough.

Additional continuing education alone is not enough.

Additional clinical rotations alone are not enough.

Even increased funding, while valuable, cannot by itself produce sustained competency.

Meaningful improvement occurs when these elements are integrated into a unified organizational system where each component continuously reinforces the others.

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Training introduces and refines procedural knowledge.

Clinical experience transforms knowledge into practical expertise.

Performance measurement evaluates competency objectively.

Quality improvement identifies opportunities for learning.

Constructive feedback reinforces strengths while addressing deficiencies.

Leadership ensures that these activities remain aligned with organizational goals and patient care priorities.

When these components function together, competency becomes self-reinforcing. Every educational experience informs future practice. Every clinical encounter contributes to learning. Every quality review strengthens future performance. Every leadership decision reinforces the organization's commitment to clinical excellence.

This continuous cycle creates a resilient learning system capable of adapting to evolving clinical practices while preserving procedural readiness.

Rather than asking whether providers remain competent once each year, organizations begin asking a more meaningful question:

How do we continuously strengthen competency every day?

That question represents the future of airway management.

As EMS continues to evolve, agencies that successfully transition from episodic education to continuous readiness will be better positioned to improve provider confidence, strengthen quality

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assurance, support workforce development, reduce organizational risk, and enhance patient outcomes.

The airway competency crisis cannot be solved through isolated educational initiatives. It requires a comprehensive organizational commitment to continuous clinical readiness (see Figure 7). Organizations that embrace this philosophy will not simply maintain competency. They will build resilient systems capable of sustaining excellence for the future of Emergency Medical Services.

Figure 7. Organizational Readiness Framework

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Funding Opportunities

One of the most common concerns expressed by EMS leaders is not whether continuous competency programs are beneficial, but whether they are financially achievable. Agency budgets are often constrained by competing operational priorities, workforce shortages, rising equipment costs, and increasing service demands. As a result, even organizations that recognize the need to strengthen airway competency may hesitate to pursue new initiatives because they assume the required investment is beyond their financial capacity.

Fortunately, that assumption is not always accurate.

Across the United States, federal, state, and regional funding programs continue to support initiatives that strengthen the healthcare workforce, improve emergency preparedness, enhance clinical training, and expand simulation-based education. Many of these funding opportunities are consistent with the objectives of continuous competency programs, particularly those focused on workforce development, patient safety, and organizational readiness.

The challenge is often not the absence of funding. It is understanding where appropriate funding opportunities exist and how competency initiatives can be aligned with established funding priorities.

Workforce Development Grants

Strengthening the healthcare workforce has become a national priority. Government agencies increasingly recognize that maintaining a highly trained and clinically prepared workforce is

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essential to improving patient care, enhancing emergency preparedness, and strengthening community resilience.

Many grant programs support projects involving workforce education, clinical training, professional development, recruitment, retention, and organizational capacity building. While specific eligibility requirements vary among funding sources, competency initiatives that improve provider readiness and promote measurable clinical outcomes often align well with these broader workforce objectives.

For EMS leaders, this represents an important opportunity. Rather than viewing competency maintenance solely as an operational expense, organizations can increasingly position readiness initiatives as strategic workforce investments that support long-term organizational performance.

Simulation and Equipment Funding

Simulation has become an essential component of modern healthcare education, and many funding programs recognize its value in improving clinical competency while reducing patient risk. Consequently, grant opportunities frequently support the acquisition of simulation equipment, procedural trainers, educational technologies, and other resources that strengthen clinical preparedness.

Beyond equipment purchases, many funding programs also recognize the importance of implementation activities that support effective use of these resources. Educational materials, competency assessment tools, quality improvement initiatives, and program evaluation may also qualify under appropriate funding mechanisms when they contribute to workforce development or organizational readiness.

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It is important to recognize that equipment alone does not improve competency. The greatest return on investment occurs when simulation resources are integrated into structured readiness programs that encourage frequent practice, objective measurement, and continuous performance improvement.

Organizations should therefore evaluate funding opportunities not only as a means of purchasing equipment, but also as an opportunity to strengthen the broader systems that support long-term clinical excellence.

Building Sustainable Readiness Programs

The most successful competency initiatives are those that remain effective long after their initial implementation. Sustainability should therefore be considered from the beginning of every readiness program rather than after funding has been secured.

Sustainable readiness programs share several common characteristics. They are integrated into normal operational workflows rather than functioning as separate educational projects. They emphasize continuous reinforcement rather than one-time training events. They measure performance objectively, support ongoing quality improvement, and demonstrate measurable value to organizational leadership.

Equally important, sustainable programs are designed to become part of an agency's culture. Daily practice, routine performance review, constructive feedback, leadership engagement, and continuous competency measurement gradually become normal operational expectations rather than temporary initiatives driven by external funding.

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Grant funding can accelerate implementation, but long-term success depends upon organizational commitment. Agencies that embed competency into everyday operations are far more likely to sustain improvements after initial funding has concluded.

Ultimately, the question should not be whether EMS organizations can afford to invest in procedural readiness. A more appropriate question is whether they can afford not to (see Figure 8).

As the demands placed upon EMS professionals continue to increase, investments in workforce competency, clinical preparedness, and continuous readiness represent investments in patient safety, organizational resilience, and the future of emergency medical services.

Many agencies may be surprised to discover that funding opportunities already exist to support these goals. Understanding how to align organizational priorities with available funding resources can transform continuous competency from an aspirational objective into an achievable reality.

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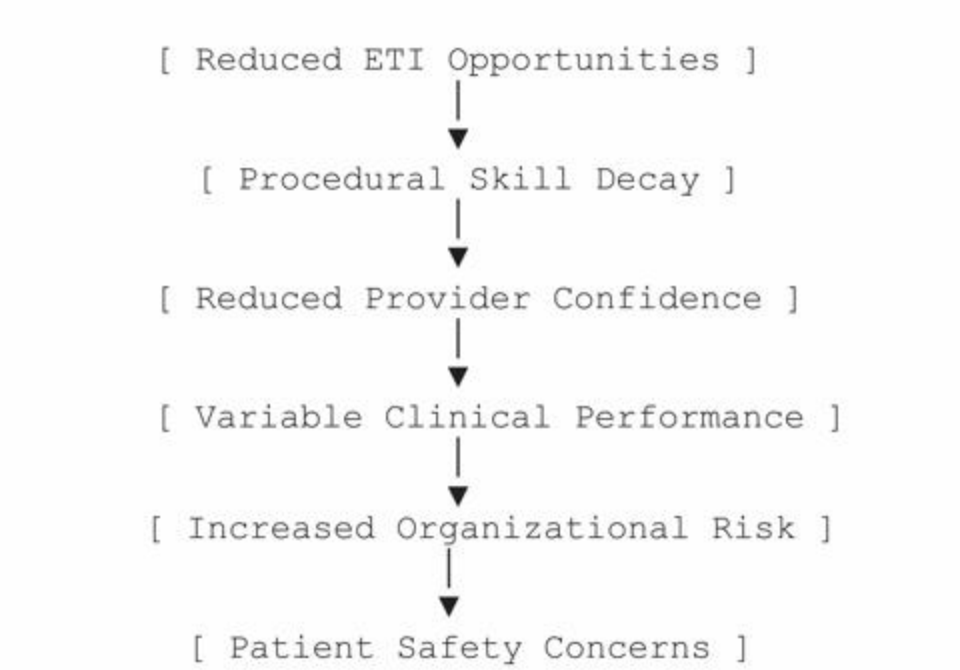

Figure 8. The Cost of Doing Nothing

Recommendations

The evidence presented throughout this white paper demonstrates that maintaining airway competency is not solely an educational challenge. It is an organizational challenge requiring coordinated leadership, continuous learning, objective performance measurement, and sustained investment in workforce development. No single intervention will eliminate procedural skill decay or ensure long-term competency. Instead, meaningful improvement requires every stakeholder within the EMS system to contribute to a culture of continuous clinical readiness.

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The following recommendations are intended to guide EMS organizations, medical directors, educators, policymakers, and researchers as they work to strengthen procedural competency and improve patient outcomes.

EMS Agencies

EMS agencies should transition from episodic training models toward continuous competency systems that support providers throughout their careers. While annual skills verification and continuing education remain important, they should be integrated into broader organizational strategies that promote frequent procedural practice, meaningful clinical exposure, structured feedback, and ongoing performance evaluation.

Agency leadership should view competency as an operational objective rather than simply an educational requirement. This includes allocating resources for simulation, encouraging regular procedural practice, establishing objective competency measures, strengthening quality improvement processes, and ensuring that airway management remains a visible organizational priority.

Whenever feasible, agencies should pursue partnerships with hospitals, academic institutions, and regional healthcare organizations to expand opportunities for clinical experience and advanced procedural training. Organizations should also actively evaluate external funding opportunities that support workforce development, simulation, and readiness initiatives, reducing financial barriers to implementation.

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Medical Directors

Medical directors should assume an active leadership role in sustaining airway competency beyond protocol development and credentialing. Their involvement is essential in establishing clinical expectations, supporting evidence-based practice, participating in quality assurance activities, and fostering a culture of continuous learning.

Regular participation in airway case reviews, simulation exercises, competency assessments, and educational initiatives strengthens the connection between clinical oversight and operational practice. Medical directors should also encourage non-punitive review processes that emphasize learning, professional development, and patient safety while maintaining appropriate standards of accountability.

As airway management continues to evolve, medical directors should ensure that organizational policies remain aligned with current evidence and reflect both clinical effectiveness and long-term competency maintenance.

EMS Educators

EMS educators should continue advancing educational models that emphasize experiential learning, deliberate practice, and realistic clinical decision-making. Initial education provides the essential foundation for professional practice, but educators should also recognize the importance of preparing students for lifelong competency development rather than certification alone.

Educational programs should maximize opportunities for repeated procedural practice, high-fidelity simulation, interdisciplinary learning, structured debriefing, and clinical reasoning exercises that mirror the complexity of real-world emergency care.

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Whenever possible, educators should strengthen partnerships with EMS agencies and healthcare institutions to improve continuity between classroom education, clinical rotations, and ongoing professional development after graduation. Viewing education as the beginning of continuous competency rather than the completion of training better prepares future providers for the realities of modern EMS practice.

Policymakers

State EMS offices, accrediting organizations, licensing agencies, and healthcare policymakers should consider promoting competency frameworks that emphasize continuous readiness rather than periodic compliance.

As procedural opportunities continue to decline nationwide, regulatory approaches should encourage innovation in competency maintenance while supporting flexibility for agencies operating under diverse clinical and operational conditions. Policies that strengthen workforce development, expand clinical training opportunities, encourage simulation-based education, and support quality improvement initiatives can contribute significantly to long-term procedural readiness.

Policymakers should also continue exploring funding mechanisms that enable EMS organizations to invest in sustainable competency programs without placing undue financial burdens on local agencies. Investments in workforce readiness ultimately strengthen emergency preparedness, healthcare resilience, and patient safety across entire communities.

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Researchers

Although substantial progress has been made in understanding the factors influencing airway competency, important opportunities for future research remain.

Additional longitudinal studies are needed to examine how competency changes over time and to identify organizational practices that most effectively sustain long-term procedural readiness. Comparative studies evaluating continuous competency systems, simulation strategies, clinical exposure models, and quality improvement initiatives would further strengthen the evidence base supporting organizational decision-making.

Future research should also expand beyond endotracheal intubation to examine other high-risk, low-frequency procedures commonly performed by EMS professionals, including cricothyrotomy, needle thoracostomy, intraosseous vascular access, neonatal resuscitation, and other critical interventions susceptible to procedural skill decay.

Finally, researchers should continue investigating objective methods for measuring competency, integrating educational theory with operational practice, and evaluating how leadership, organizational culture, and workforce development influence clinical performance across diverse EMS systems.

A Shared Responsibility

The airway competency crisis cannot be addressed by any single organization, profession, or educational initiative acting alone. Improving procedural readiness requires collaboration among EMS agencies, medical directors, educators, policymakers, researchers, and frontline clinicians. Each stakeholder contributes a unique perspective, yet all share the same objective: ensuring that

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paramedics remain fully prepared to perform lifesaving interventions safely, confidently, and consistently when patients need them most.

The future of airway management will not be defined solely by advances in equipment or technology. It will be defined by the commitment of EMS organizations to build systems that continuously develop their people (see Figure 9). By embracing continuous clinical readiness as a shared organizational responsibility, the EMS profession can move beyond maintaining minimum competency and toward sustaining lasting clinical excellence.

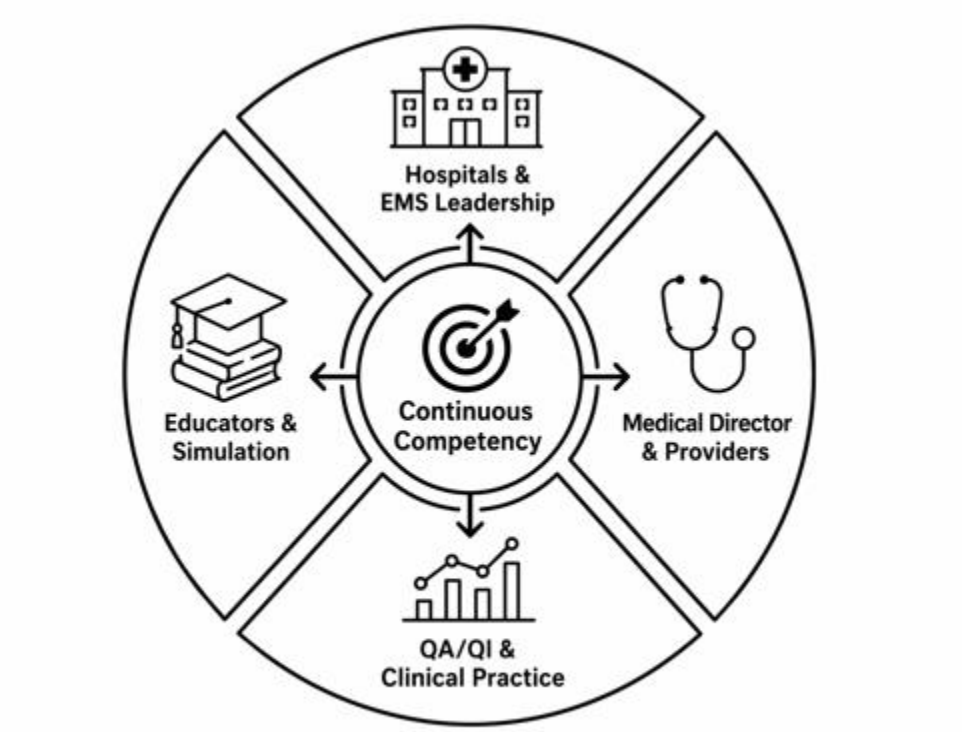

Figure 9. Airway Competency Ecosystem

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Conclusion

Emergency Medical Services has never stood still. Throughout its history, the profession has continuously adapted to advances in medicine, technology, education, and patient care. Today's airway competency crisis represents another moment of necessary evolution. The challenge is not a lack of dedicated professionals or inadequate educational standards. Rather, it reflects the changing realities of modern prehospital medicine, where providers are expected to maintain mastery of high-risk, low-frequency procedures despite declining opportunities for clinical experience.

The evidence presented throughout this white paper demonstrates that airway competency cannot be sustained through initial certification alone. Nor can it be preserved solely through annual skills verification, periodic continuing education, or occasional simulation exercises. These remain essential components of professional development, but they were never intended to function as complete competency systems. As procedural exposure continues to decline, EMS organizations must adopt approaches that reinforce learning continuously rather than episodically.

The research also makes clear that airway competency is fundamentally an organizational responsibility. Leadership commitment, engaged medical direction, continuous quality improvement, objective performance measurement, meaningful feedback, and regular opportunities for deliberate practice all contribute to sustained clinical readiness. Organizations that intentionally integrate these elements into everyday operations create environments in which

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providers continue developing throughout their careers rather than relying solely on knowledge and skills acquired during initial education.

This shift represents more than a change in training philosophy. It represents a change in how EMS defines readiness. Rather than asking whether providers remain competent after completing a scheduled evaluation, organizations should ask whether their systems continuously support competency every day. That distinction is critical. Readiness is not a certificate earned once, nor is it a skill verified once each year. It is an ongoing organizational capability that must be cultivated, measured, and strengthened over time.

Fortunately, the airway competency crisis is not beyond our ability to solve. The knowledge exists. The educational tools exist. The technology exists. The leadership principles are well established. What is needed now is the commitment to integrate these elements into comprehensive systems that support continuous clinical excellence.

EMS has always answered the call when communities needed innovation. The same commitment is now required to strengthen procedural competency. Agencies that invest in continuous readiness will not only improve airway management, they will strengthen provider confidence, enhance quality assurance, support workforce development, reduce organizational risk, and ultimately improve patient outcomes.

Although this white paper has focused on endotracheal intubation, the principles discussed extend well beyond a single procedure. Every high-risk, low-frequency intervention performed in the prehospital environment depends upon the same organizational foundations: continuous learning, deliberate practice, objective measurement, constructive feedback, and engaged

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leadership. Building these foundations creates organizations that are more resilient, more reliable, and better prepared for the complex challenges of modern emergency medical care.

This paper is the first in the *Sentinel White Paper Series on EMS Clinical Competency*. It has examined the nature of the airway competency crisis and the organizational factors that have contributed to its emergence. The next paper, *Building a Continuous Competency System for EMS*, moves from defining the problem to presenting a practical framework for implementation. Together, these publications are intended to encourage a broader conversation about how EMS can move beyond maintaining competency and begin building systems that sustain clinical excellence for generations of providers to come (see Figure 10).

The future of Emergency Medical Services will not be defined solely by new equipment, new medications, or new clinical protocols. It will be defined by the profession's ability to ensure that every provider is prepared to perform when lives depend upon it. Achieving that goal begins with a simple but powerful commitment: making continuous clinical readiness a defining characteristic of modern EMS.

Figure 10. The Evolution of EMS Competency

The future of EMS will not be defined solely by new technology or expanded scopes of practice. It will be defined by organizations that intentionally sustain clinical excellence long after initial

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certification. Continuous competency is not simply the next evolution of airway management. It is the future of professional readiness.

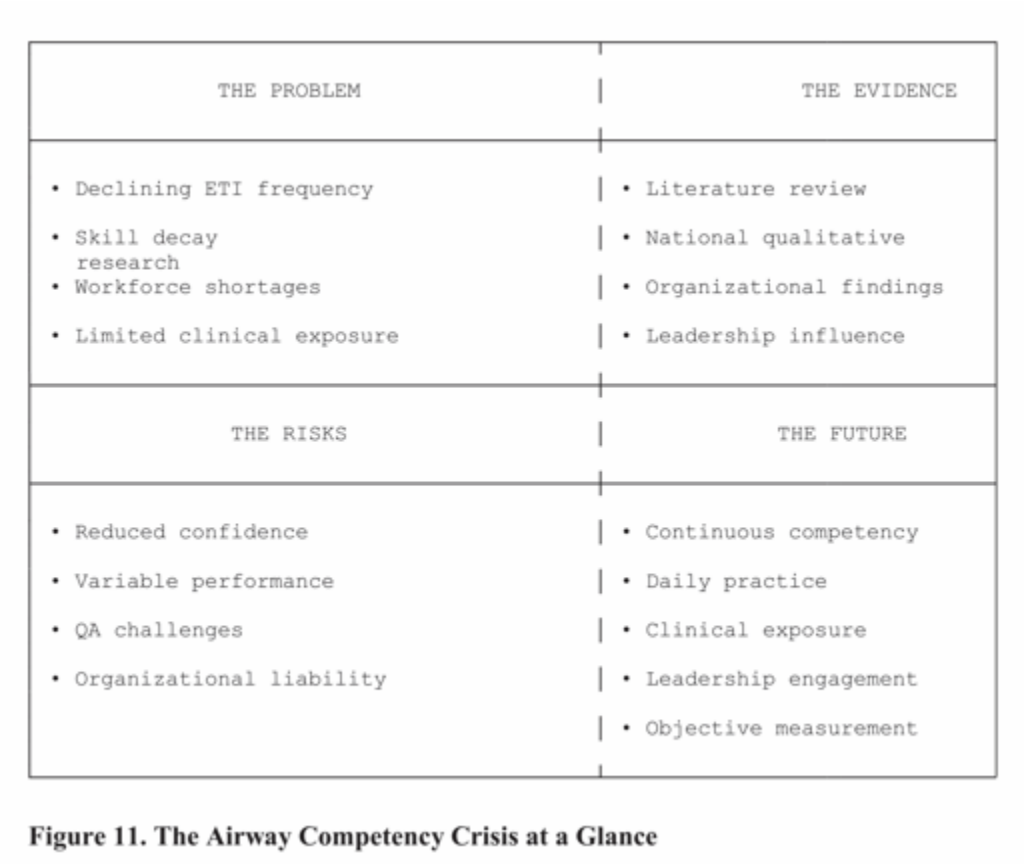

Figure 11. The Airway Competency Crisis at a Glance

About the Author

Ronald Rivers, DM, MBA, is the founder and president of Sentinel Skills Systems, Inc., a healthcare readiness company focused on improving procedural competency among emergency medical providers. He completed his Doctor of Management degree at the University of Phoenix, where his research examined the organizational, educational, and leadership factors influencing paramedic endotracheal intubation performance. His work focuses on continuous competency systems, simulation-based training, quality improvement, workforce development, and

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organizational leadership within Emergency Medical Services. Dr. Rivers has published multiple peer-reviewed articles on EMS airway competency and clinical readiness.

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