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## KEY POINTS

- There is not good data to support the optimal Emergency Medical Service team
- Prehospital care needs to not only manage an airway, but perform other identified interventions while maintaining an emergency anesthetic which accounts for the patient's pathophysiology

Whether or not doctors should be part of pre-hospital trauma care remains [controversial](#). Some say doctors should be on every Helicopter Emergency Medical Service (HEMS) mission, others say they should never set foot on a helicopter or road ambulance. Most are somewhere in between.

The challenge is making the best decision about crew mix with a [lack of good data](#). And it's perpetually difficult to generate high quality or compelling prospective data in the retrieval environment. Which means [proponents](#) and [opponents](#) alike can find a study to support their perspective.

Pre-hospital services have evolved in the absence of data to meet the perceived needs of their population, politicians and geography. Some, such as [London HEMS](#) and many services in Australia are crewed by a senior critical care doctor and an intensive care paramedic. Although some HEMS in the UK and Australia are staffed by dual or solo paramedic crews only. In France, the Service d'Aide Medicale Urgente (SAMU) provide the bulk of all Emergency Medical Services (EMS) and are almost exclusively physician led. And in the United States it's rare for doctors to be the main clinical crew aboard retrieval helicopters or road ambulances. Instead, critical care nurses or emergency medical technicians predominate.

With this degree of variation, it's understandable that there's controversy. Fundamentally though trauma care is a team effort. So the issue is really less about doctors or paramedics and more about what the best team is to achieve the best effect in the shortest time for the complex trauma patient. It's fair to say that the complexity of pre-hospital intervention and the expectation of success in [trauma resuscitation](#) have increased dramatically over the past decade. In that context, the classic scoop-and-run paradigm is no longer acceptable and advanced interventions are considered the standard of care. But on the other hand, extended scene times while multiple interventions are performed are also not likely to be in the patient's best interests and may not alter [outcome](#). So whoever provides pre-hospital trauma care, needs to efficiently and proactively initiate advanced resuscitation to minimize wasted time. They must, in effect, take the

trauma bay to the patient and maintain that level of care throughout the pre-hospital phase of resuscitation.

The intent of [advanced pre-hospital care](#) is to minimize the amount of time where the patient is exposed to a therapeutic vacuum – where nothing useful is happening for them. The ability to perform a Rapid Sequence Intubation (RSI) has often been held up as the crucial demarcation of skillset for successful pre-hospital trauma care. The lack of a paramedic RSI capability in certain jurisdictions has been used to argue for the [presence of doctors](#). And vice-versa, the ability of some paramedics to perform RSI has been used to exclude doctors from pre-hospital care. But this crucially misses the point. Instead of thinking about trauma patients as needing an RSI, it's more useful to consider that they need a general anesthetic with a drug-assisted-intubation. Getting the tube through the cords is only a small part of caring for the seriously injured. The standards of monitoring and expertise change from having a one-size-fits-all RSI protocol, to those expected of an emergency anesthetic in an unstable patient. The expectation for anesthesia in the trauma patient is that multiple interventions are performed concurrently and quickly but with consideration for individual patient needs.

And this is the starting point from which all other critical pre-hospital interventions in the seriously injured should develop. If a patient has a [head injury](#), for example, the evidence is clear that even a single episode of systolic hypotension of less than 90 mmHg, doubles mortality. Hence, the induction technique must be nuanced enough to avoid large swings in hemodynamics. Other procedures such as finger thoracostomies to relieve tension pneumothoraces, large-bore intravenous access and administration of warmed fluids or blood products need to be implemented rapidly. Simultaneously, patients may need fractures splinted, wounds packed, further drugs administered and resuscitative thoracotomies or lateral canthotomies performed – all while carefully maintaining emergency anesthesia. All this should occur while diagnosing unrecognized injuries, avoiding hypothermia, communicating with scene commanders and conveying clinical situation reports to retrieval coordinators to expedite onward movement.

A well-drilled retrieval team should spend less than thirty minutes on scene. Some, such as Britain's Royal Air Force [MERT](#) team aim for less than twelve minutes to have all life-saving interventions successfully performed. To achieve this for trauma patients, the most capable team available should be called upon. A team like this clearly needs to do more than the average team. At least two highly trained, experienced and independent practitioners with broad and complimentary skills should be at the ready.



It's a team that needs to build redundancy into their clinical delivery and to rely on one another to deliver rapid care with few mistakes in an unforgiving environment. The complex trauma patient deserves a team that combines the knowledge and clinical judgment of both an experienced critical care physician with the adaptability and pre-hospital expertise of an intensive care paramedic. Together these two experts can deliver the world's best care to the most severely injured.