are not. Because of the lack of findings, the development in the previously described system now will concentrate on primary care interventions with specific advanced procedures, allowing the use of ALS (paramedic) providers only in a specific system design application. Again, the objective will be to reduce response and emergency department interactions.

Ambulance and equipment ergonomics were discussed. Conclusive data were provided on different ambulance structural components, pieces of equipment, and safety practices that should lead to the systemic redesign and reengineering of the transfer for the patient. Latest technologies, including wireless communications, are not being implemented, and adaptation from other industries is needed. The projected result is more awareness of the human risk factors and fewer personnel injuries.

The common theme emerged that much research remains to be done to provide an evidence base for emergency medical services. Challenges of research design, data gathering, and controlling the external environment, while difficult, must be recognized and addressed to provide solutions to the complex issues that will continue to increase over the next decade.

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Aeromedical Transport in EMS (Including Helicopter Emergency Medical Services)

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Rotary wing services are but one of the alternatives for EMS transportation systems. Systems design must take into account the requirements of the community to be served—the environment, journeys over sea, and the locations of and distance to travel to specialist services. Any analysis of speed and efficiency must consider the total prehospital or total transfer time that must include time for loading or unloading and (where applicable) secondary transport to and from landing sites. The higher risks of nighttime flying must be analyzed against the lesser need for nighttime journeys.

The patient's condition must be considered when analyzing the extent and components of a "HEMS" service—those that will benefit the most are those with critical injuries (especially brain injury), but these patients will need drug-assisted intubation and ventilation. Though HEMS crews may come from different backgrounds (doctors, nurses, paramedics), it is essential that they are equally competent in all of the skills required for safely providing the service. At the end of the day, economic considerations will influence the sophistication and extent of the service.

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System Developments—New Horizons and Evaluation

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The levels of medical training in the Fire Service in the United Kingdom, where emergency medical services (EMS) are provided entirely by a third emergency "ambulance service" were reviewed. The UK Fire Service is not expected to provide patient care, but because of its response performance, it often is on the scene of an emergency before EMS arrive. Firefighters do provide initial assessment and assistance, and the study showed that most brigades provided three to four days of basic training for this role. The skill level achieved in this timeframe generally exceeded the minimum set by statute; however, the scope of the training was highly variable. It was felt that there was a clear case for standardization of emergency healthcare training across the UK fire services.

A team of experienced Dutch anesthetists performed a study demonstrating that inductions of anesthesia in a standard anesthetic room and at a prehospital incident scene were similar in terms of the technical difficulty of intubation and success rate and when difficulties developed effective application of the "Dutch Difficult Airway Algorithm" was achievable in both environments.

During an incident, a tangle of monitoring wires around a patient invariably occurs, and there are practical difficulties in terms of maintaining close supervision of the patient and their vital signs during extrication and transport. A new technological solution was presented using wireless biosensors to transmit their information to a local base station; allowing the caregiver to be a little more remote, but maintain close oversight. The potential for this system to be used in a mass-casualty incident during which a single healthcare provider might oversee a number of patients at the same time was explored. While this uses readily available technology in a novel application, there were some operational issues to be worked through for a multiple-casualty situation. The system has potential for the future.

The oft-neglected subject of EMS health and safety was discussed. The issue with respect to vehicle operations was brought into focus, demonstrating that there is no consistent approach around the world. In terms of safety, Europe and Australasia have statutory standards with which employers must comply with respect to vehicle design, while in the US, there is very little regulation. Even driver training showed vast variation, from almost nothing beyond a classroom briefing to a three-month, dedicated driver-training program. Surely, there is room for the setting of a minimum safety standard for key issues across global EMS systems.

Modern technology has great potential, and there was a demonstration of a number of potential safety developments in ambulances. The examples highlighted how far EMS is lagging behind current automotive and ergonomic safety developments and standards. We must engage with vehicle