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## Optimising the patient compartment design of ambulances in Qatar

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### ABSTRACT

**Background:** The ambulance patient compartment is a working environment where paramedics provide care to patients at times of distress. It needs to meet a number of functional requirements under various conditions whilst being practical and safe for its occupants. Their design varies greatly internationally and often nationally. This study aims to review the current design of Qatar's ambulances to ensure the safe journey of its users whilst making it very appropriate for patient care delivery during transport.

**Methods:** This study was ethically approved as a quality improvement project. The literature was extensively reviewed with regards to patient compartment design. Three focus groups sessions were organised each with 8 experienced participants out of a total population of 800–900 paramedics, to examine the current ambulance patient compartment layout.

**Results:** The focus group sessions conducted with a total of 24 paramedics, each with over a year of experience as independent practitioner, identified that improvements can be made to the current ambulance design for patient care and paramedic safety, including the different positioning of consumables and equipment, altered seat design, modified storage cabinets, and the use of better passenger restraints. It was also identified that improving the quality of driving skills through training and education will also have a positive impact on safety and comfort.

**Conclusions:** It has been recognised that current practitioners' (users) involvement, as opposed to managers, is critical to the appropriate design of the ambulance patient's compartment. They have valuable feedback to provide on the current design from a practical aspect but do not always have their own safety in mind. Based on our study findings the recommendations are to introduce a structured driver-training programme and begin a process of redesigning the patient compartment to test the above recommendations using prototyping and simulation techniques to minimise costs and maximise benefits.

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