



WHEN AMBULANCES CRASH

Trevor Hines Duncliffe BA(Hons.) MA1, Alan M. Batt MSc PhD(c)1-3

1. Paramedic Programs, Fanshawe College, Ontario, Canada. | 2. Paramedic Science Discipline, CQUniversity, Queensland, Australia. \ 3. Department of Community Emergency Health and Paramedic Practice, Monash University, Victoria, Australia.

INTRODUCTION

Transporting patients to hospitals in a safe manner is a core aspect of paramedic practice within Canada. The majority of these transports are within a ground ambulance on city streets and provincial roadways. There is however an inherent danger associated with the operation of emergency vehicles. In Canada national figures for emergency vehicles collisions are elusive; however both Alberta and British Columbia report annual numbers of approximately 300 (1), and 400 collisions respectively.(2) The USA reports an annual average of motor vehicle collisions involving ambulances via the National Highway Traffic Safety Administration (NHTSA) of approximately 4,500 collisions per year.(3)

EMERGENCY DRIVING

Within the data reported by the NHTSA almost 60% of these collisions occurred while driving under emergency conditions, 34% of the collisions with ambulances resulted in injuries, and there were an average of 33 deaths

annually in collisions involving ambulances.(3-5) Only 25% of fatalities occurred inside an ambulance. From these data it is clear to see that the operation of an emergency vehicle carries with it significant risks for both occupants of the ambulance, and perhaps more so, occupants of other vehicles involved in collisions. For example in 2011, there were a total of 21 fatalities associated with ambulance collisions in the US – eight of these were passengers in the ambulance (includes patients) or pedestrians – the remaining 13 were occupants of other vehicles.(4)

The majority of ambulance collisions in the United States occurred during emergency calls while driving with the lights and sirens enabled.(6) In an 11-year retrospective study which investigated fatal ambulance collisions in the US, it was reported that fatal ambulance collisions were more likely to occur when emergency lights and sirens were activated, and the ambulance was traveling through intersections.(7) Failure to stop at intersections and red lights appears to be a major factor in ambulance collisions in the US. Data from Alberta also demonstrates that failure

to stop at stop signs and red lights led to an increase in injuries from collisions involving emergency vehicles (1).

SEATBELT USE

The NHTSA in partnership with the National Institute for Occupational Safety and Health (NIOSH) conducted in-depth investigations on serious ambulance collisions in which occupants of the ambulance were seriously injured or killed between 2001 and 2012 in the United States. In total 38 reports were analyzed by the NHTSA and NIOSH. The findings give cause for concern: in 80% of the collisions investigated, the medical personnel working within the ambulance did not use safety restraints. This figure is concerning because we know that the use of seatbelts and safety restraints reduces the likelihood of injury or death during a collision.

There are of course some procedures which require the paramedic in the patient compartment to remove their safety restraints in order to perform them. However, whenever



possible safety restraints should be used. This applies to patients too; in 71% of the collisions investigated, the patient did not have both shoulder and lap belts in use. Further to this in 44% of the collisions investigated patients were ejected from the stretcher during collision.(8) The use of safety restraints within an ambulance during a collision has been documented to significantly decrease the likelihood of serious injury or death to the occupants of the ambulance compared to those who are not restrained.(9) Correct application of a five-point harness to all patients transported via stretcher is highly recommended.

STRESS

Occupational stress may also be a contributing factor to both the number of collisions and the lack of safety restraint use. In a recent small scale study we conducted with paramedic students, our results demonstrated that following exposure to a simulated stressful scenario, paramedic students displayed an increase in “risky” driving procedures. After a stressful clinical scenario, they were more likely to not stop at red lights or intersections, were more likely to lose control of their simulated ambulance, and were more likely to not wear a seatbelt while driving the simulated ambulance under emergency conditions.(10) Previous findings indicate that stress has been linked to an increase in the number of driving errors made by members of the general public. (11-13). In addition, stress in paramedics has been documented to result in a decrease in overall performance, communication, and information recall.(14, 15) Our results are limited by the nature of our simulated study on students, but they raise some interesting issues. We suggest that this is an area that requires further research.

CONCLUSION

It is clear from the findings of the various reports and publications we have outlined that more can be done to protect both patients and those working in the ambulance during transport. We know from both Canadian and American data that travel in emergency vehicles as with any motor vehicle carries risks, and these risks seem to be increased while travelling with emergency lighting and siren systems activated. Further research is still needed in this area as well as improvements in collision data reporting in Canada. The establishment of a national database to track collisions involving emergency vehicles would aid in Next time you're in the driver's seat, take time to remember that simple actions such as wearing a seatbelt and coming to a stop at

junctions can keep both you, your partner, and the patient safe.

Disclaimer: The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any employer or organisation. 

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AUTHORS



Trevor Hines Duncliffe is faculty in the paramedic programs at Fanshawe College in Ontario, Canada. Email: thinesdu@uwvo.ca Twitter: @trevorhd



Alan Batt is faculty in the paramedic programs at Fanshawe College in Ontario, Canada. Email: abatt@fanshawec.ca Twitter: @alan_batt