



1. Introduction:

Ambulance drivers face a greater risk of collisions than other commercial drivers due to the nature of their work

First Objective:
Prevalence

Second Objective:
Explanatory Variables

Hypothesis:

1. Higher Prevalence
2. Experience, Collision characteristics, response mode, etc. are predictors.

2. Method:

- Paper selection process based on PRISMA
- **Searching the literature**
- ambulance, emergency service vehicle, emergency medical service vehicle
- fatal, injury, crash, collision, traffic collision, incident
- PubMed search engine, January 1990 and July 2021

Characteristics of included Papers:

- 2494 records screened from PubMed (plus 2)
- 93 full-text articles assessed for the eligibility
- 26 studies included in the qualitative synthesis



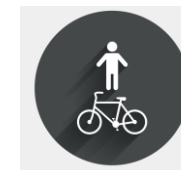
EXCLUSION CRITERIA

Out of Scope (n: 25)
Out of study population (n:15)
Studies from editorial comments or magazines (n:20)
Insufficient detail (n:5)
Language (n:2)

3. Results:

Prevalence of Collisions:

- Yearly average of 144.6 collisions in the selected studies.
- Highest records are 509.5 and 436.25 in 2005 and 2007 in the U.S., respectively.

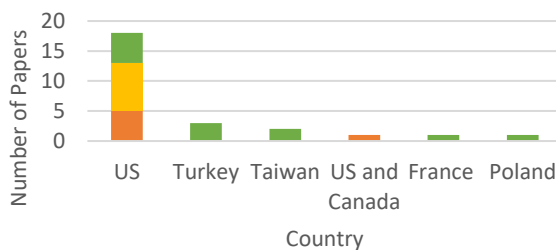


DEMOGRAPHICS

Drivers' Characteristics

Explanatory variables

Collisions' Characteristics



■ 1990-1999 ■ 2000-2009 ■ 2010-2019



4. Conclusion:

- Traffic collisions are a major concern for the health and safety of paramedics
- Traffic regulations in urban areas, especially at intersections
- Targeted training programs

Limitations

- Civil drivers and Human factors (driver distraction or failure)
- Quantifying the results



Review
Prevalence and Characteristics of Ambulance Collisions, a Systematic Literature Review

Milad Delavary^{1,2}, Zahra Ghayeninezhad^{1,2} and Martin Lavallière^{1,2,*}

¹ Department of Health Sciences, Université du Québec à Chicoutimi, Chicoutimi, QC G7H 2B1, Canada; milad.delavary@uqac.ca (M.D.); zghayeninezhad@uqac.ca (Z.G.)
² Laboratoire BioNR and Centre Intersectoriel en Santé Durable (CISD), Université du Québec à Chicoutimi, Chicoutimi, QC G7H 2B1, Canada

* Correspondence: martin.lavalliere@uqac.ca

Abstract: The risk of dying or being injured as a result of traffic collisions is higher for medical emergency responders than for other professional drivers. This systematic review synthesizes the literature regarding the collisions of ambulances, focusing on the prevalence and characteristics surrounding such events. Keywords including paramedics and traffic collisions were searched in papers available in PubMed from January 1990 to July 2021. Two independent reviewers screened the database of 2494 papers and ranked up with 93 full-text articles to assess for eligibility, of which 26 papers were finally kept for this review. There was a total of 18 studies conducted in the United States, followed by 5 in Turkey, 2 in Taiwan, 1 in both the United States and Canada, 1 in France, and 1 in Poland. There is a high record of injury and fatal collisions for ambulances compared to other commercial or similarly sized vehicles. Drivers over 50 years old with low experience and a history of crashes are more likely to be involved in such collisions. Ambulance collisions are more likely to happen in urban areas and intersections are the riskiest locations. Most collisions occur when the ambulance is responding to an emergency call (i.e., going to the patient or the hospital) and using lights and siren. Tailored preventive policies and programs for improving paramedics' safety should be sought to reduce the burden of these occupational collisions.