
Grace Peterson Nursing Research Colloquium

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Emergency Response Time and Fatalities in Rural Areas

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Background & Significance

- 6** million motor vehicle accidents occur in the U.S. every year.
- 90** people die in motor vehicle accidents every day.
- 50%** people in rural areas are at a 50% greater risk die from dying in a motor vehicle accident.

Fatalities are so highly concentrated in rural areas, but why?

Purpose

This literature review aims to determine if prolonged EMS response time is the causative agent responsible for increased mortality among rural motor vehicle accidents.

RESEARCH QUESTIONS

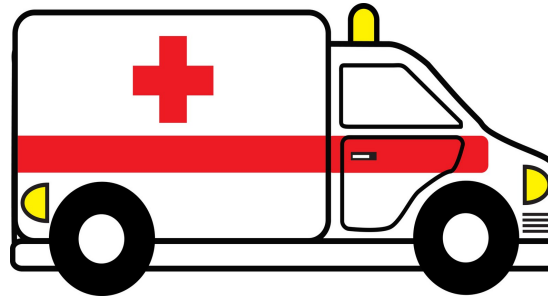
1. Do emergency response times intervals impact patient outcomes?
2. Are emergency response times different for rural and urban environments?
3. Are there urban-rural differences in mortality among patients in motor vehicle accidents?
4. What are the reasons for delayed response time in urban and rural environments and how can these be remedied?

Methodology

Type: Integrative Literature Review

Search Engines: Cinahl, PubMed, & ScienceDirect

Key Words: *motor vehicle, urban, rural, emergency medical services*



Results

- ✓ Response time was 7.1 minutes in urban areas compared to 11.2 minutes in rural areas.
- ✓ 86% of accident mortalities occurred in rural areas with only 14% occurring in urban areas.
- ✓ Response time with fatalities was 10.67 min in rural and 8.54 min in urban.
- ✓ Response time without fatalities was 6.5 min in rural and 6.01 min in urban.
- ✓ First-physician contact in ED was 6 times longer in rural areas.
- ✓ Crude death rate was 3 times more in rural areas.
- ✓ Preventable death rate was double in rural areas.

Discussion



EMS Time Intervals and Patient Outcomes

Transport time is a significant predictor of death in both rural and urban environments. When EMS time intervals are lengthened, victims experience worse outcomes. These patients experience longer discovery times, less advanced and delayed on-scene care, and longer transport times.

Urban and Rural Differences

Rural areas are found to have higher incidences of injuries and resultant deaths and hospitalizations. Rural residents are five times more likely than their urban counterparts to die in a MVC. Hospitals are scarce and less resourced in rural areas resulting in longer EMS time intervals and disadvantaged care.

MVC Fatality Reasons and Remedies

Response time is a major predictive factor for increased fatalities, but not the only factor. Road design in rural areas does not have the same protective mechanisms as urban areas. Mechanisms such as traffic lights, graded curves, improved lighting, and divided traffic streams can help reduce mortality rates. Reformed EMS systems can provide major strides towards remedying the inequalities. Quick and accurate crash notification systems and added EMS resources can result in lower time intervals.