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315050 Effect of road characteristics on the incidence of crashes involving farm vehicles: A matched case-control study



APHA 142nd ANNUAL MEETING & EXPO
NOVEMBER 15-19, 2014 | NEW ORLEANS, LA

Monday, November 17, 2014

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Meeting Information

When:

November 15 - 19, 2014

Where:

New Orleans, LA

Background: Motor vehicle crashes on rural roads result in more fatalities and injuries than those on urban roads. Large slow-moving farm vehicles are known hazards. However, the road characteristics may influence farm vehicle-related crashes, too.

Purpose: This research in progress aims to assess the effects of grade (gradient) and curvature (sinuosity) of a road segment on the incidence of crashes involving farm vehicles.

Methods: A matched case-control study is being conducted using the department of transportation data from nine Midwestern states – Iowa, Illinois, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin. A case is defined as a road segment where a farm vehicle-related crash occurred during 2005-2010. A control road segment did not involve a farm vehicle-related crash. ZIP code, length of the segment, road type, and number of intersections within the road segment were used to match two control road segments to each case segment. The matching variables were chosen from the minimal sufficient set of a directed acyclic graph (DAG) that addresses confounding on the effect of grade and curvature on crash incidence. Conditional relative risk models will be used to evaluate the risk of a crash on a road segment for incremental grade and curvature values.

Results (Pending): Out of 6.4 million road segments in 9 states, there were 7096 case road segments from 2005-2010 and we selected 14,192 matched control road segments.

Conclusions: The results of our study may influence road and traffic planning to reduce the incidence of farm vehicle-related crashes on roads.

Learning Areas:

Environmental health sciences
Epidemiology
Other professions or practice related to public health
Public health or related research

Learning Objectives:

Evaluate the effect of gradient and curvature of roads on the incidence of farm vehicle-related crashes in nine Midwestern states during 2005-2010.

Keyword(s): Motor Vehicles, Epidemiology

Presenting author's disclosure statement:

Qualified on the content I am responsible for because: I designed the case-control study for this research question, initiated data acquisition for these analyses, and will analyze the data and write results. I am a postdoctoral research scholar, who is author of multiple other manuscripts and have been working in injury prevention for past 5 years.

Any relevant financial relationships? No

I agree to comply with the American Public Health Association Conflict of Interest and Commercial Support Guidelines, and to disclose to the participants any off-label or experimental uses of a commercial product or service discussed in my presentation.

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