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NORTH AMERICA CHAPTER

Advancing Performance Measurement for Public Health Emergency Preparedness: An Integrated Knowledge Translation Approach

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Introduction: Public health emergency management involves the timely translation of relevant evidence and effective coordination of diverse actors. In practice, this can be challenging in the absence of a common framework for action among diverse actors.

Aim: To apply an Integrated Knowledge Translation (iKT) approach throughout the development of a conceptual framework and performance measurement indicators for public health emergency preparedness (PHEP), to ensure knowledge generated is relevant and useful to the field.

Methods: The iKT approach was initiated by identifying a research question based on priorities from the field. The two phases of the study used participatory research methods as well as active engagement with potential end users at key study milestones. The Structured Interview Matrix (SIM) facilitation technique for focus groups and an expert panel using Delphi methodology were used to define the PHEP framework and performance measurement indicators, respectively. An advisory committee was assembled consisting of potential end-users of the research, in senior positions in applied and decision-making roles.

Results: iKT was an essential component for this applied public health project, contributing to and enhancing the relevance of the knowledge generated. iKT contributed to the following: broad national engagement and interest in the study, successful recruitment in both phases, and engagement with decision-makers. This multi-dimensional participatory approach successfully generated knowledge that was important to the field demonstrated by relevance to practice and policy in jurisdictions across Canada. Furthermore, the approach fostered building resilience in local and national communities through collaboration.

Discussion: The iKT approach was essential to generating knowledge that is relevant and useful to the field, mainly to promote health system preparedness and resilience. Future research to study the implementation of knowledge will be important to continue addressing the knowledge-to-action gap in health emergency management research.

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Effect of Tornado Outbreaks on Morbidity and Mortality in Texas

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Introduction: In the United States, tornadoes are the third leading cause of fatalities from natural disasters¹. To aid prevention and mitigation of tornado-related morbidity and mortality, improvement in standardizing tornado specific threat analysis terminology was assessed. The largest number of tornado-related fatalities has occurred in the state of Texas for over a hundred years. The occurrence of tornadic clusters or “outbreaks” has not been formally standardized. The concept of “tornado outbreaks” is better defined and its role in fatality mitigation is addressed in this Institutional Review Board (IRB) approved study.

Aim: To understand the role of “tornado outbreaks” related clusters in Texas in relationship to morbidity and mortality.

Methods: This IRB approved (IRB2017- 0507) research study utilized GIS tools and statistical analysis of historical data to examine the relationship between tornado severity (based on the Fujita Scale), the number of tornadoes, and the trends in morbidity and mortality. This study was funded in part from The National Science Foundation grant (NSF Grant #1560106) in support of the CyberHealthGIS Research Experience for Undergraduates (REU).

Results: A statistically significant difference was demonstrated between the severity of a tornado and related morbidity and mortality during “tornado outbreaks” in Texas during a defined 30-year period.

Discussion: Understanding the role and discerning the impacts of “tornado outbreaks” as related to tornado severity has critical implications to disaster preparedness. Applications of this conclusion may improve shelter planning/preparation, timely warning, and educating the at-risk public. Subsequently, examining the likelihood and improved descriptions of “tornado outbreaks” may aid in reducing the number of tornado-related injuries and fatalities nationally.

References:

1. Boruff, B. J. (2003). Tornado hazards in the United States. *Climate Research* 24(2), 103-117.

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