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Informing Public Health Prevention in NC Using Falls Surveillance Data

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Objective

To describe how a successful partnership between state public health and a university organization has used epidemiologic data, such as mortality, hospital discharge, and emergency department (ED) visit data, to inform falls prevention activities in North Carolina (NC).

Introduction

Falls are a leading cause of fatal and nonfatal injury in NC. As the size of the older adult population is predicted to increase over the next few decades, it is likely that the incidence of falls-related morbidity and mortality will increase in tandem.[1] In order to address this public health emergency, the Injury and Violence Prevention Branch (IVPB) of the NC Division of Public Health has partnered with the Carolina Center for Health Informatics (CCHI) in the Department of Emergency Medicine at the University of North Carolina at Chapel Hill to perform falls surveillance activities. This abstract describes some of the specific research and surveillance activities currently ongoing in NC.

Methods

IVPB developed the *Special Emphasis Report (SER) on Fall Injuries among Older Adults, 2005-2014* to describe the demographic characteristics and trends of falls-related mortality and hospitalization among adults 65 and older, associated costs of falls-related injury, and current falls prevention activities in NC. The NC SER was based on the Centers for Disease Control and Prevention's Injury SER template, a tool designed to facilitate the dissemination of injury data for public health action.

While the SER focused primarily on falls among adults ≥65 years of age, CCHI was interested in using ED visit data to identify the age at which falls morbidity begins to increase as a means of informing prevention activities to be implemented before the advent of an injurious fall. Therefore, CCHI performed a descriptive epidemiologic study using ED visit data collected by NC DETECT. CCHI identified all NC ED visits from January 1, 2010 – December 31, 2014 that met the National Center for Injury Prevention and Control definition of a fall of unintentional intent.[2] During 2010-2014, NC DETECT captured ED visit data from all 125 24/7, acute care, hospital-affiliated, civilian EDs and over 99% of all ED visits in the state.[3]

Results

Analysis for the SER found that falls-related death rates increased by 43.1% from 2005 (47.0 per 100,000) to 2014 (67.3 per 100,000), with the greatest increase among males (61.3%) and adults 85 and older (74.4%). Conversely, rates of non-fatal hospitalization remained relatively stable and were 1.6 times higher among females than males in 2014 (84.0 and 56.8 per 100,000 respectively). Projected lifetime costs associated with falls among NC older adults was approximately $1.4 billion in 2014.

NC DETECT captured 986,024 ED visits during the period 2010-2014 among adults ≥20 years of age (27.4 ED visits/1,000 person-years; 95% CI: 27.4-27.5). Throughout the adult lifespan, fall incidence rates in women (33.0 ED visits/1,000 person-years; 95% CI: 32.9-33.1) exceeded those in men (21.3 ED visits/1,000 person-years; 95% CI: 21.3-21.4). Starting at age 45, fall rates in women continued to exceed fall rates in men, climbing each year, while rates in men remained stable until after age 65. These results suggest that the risk of having an injurious fall may increase before age 65, particularly among women.

Due to the public health implications of the results obtained by IVPB and CCHI, both organizations are working closely to ensure that relevant information reaches a wide net of potential partners in the effort to reduce falls morbidity and mortality. To date, IVPB and CCHI have collaborated on generating fact sheets and short reports available to the public, syndromic surveillance custom event reports available to authorized users, and presenting information to local, state, and national partners.

Conclusions

Falls morbidity and mortality are major concerns for the state of NC and the country as a whole. Falls surveillance benefits from the collaboration of governmental and university organizations with community partners. For example, when CCHI identified an increase in falls incidence in middle age, and, therefore, the potential need to begin falls risk assessment activities at ages < 65, particularly among women, NC DPH had the resources to communicate these results to relevant local and state programs and organizations.

Keywords

Public Health; Surveillance; Injury; Epidemiology; Prevention

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