THE GRADUATE COLLEGE OF THE
UNIVERSITY OF OKLAHOMA HEALTH SCIENCES CENTER

ANNOUNCES THE FINAL EXAMINATION OF

Micah Denay McCumber

FOR THE DEFENSE OF THE DOCTOR OF PHILOSOPHY DEGREE

GRADUATE COLLEGE

DEPARTMENT OF BIOSTATISTICS AND EPIDEMIOLOGY

Thursday, January 16, 2019 | 3:00 p.m.
College of Health Building, Room 144

Venous thromboembolism surveillance in Oklahoma County: Using multiple surveillance methods and data sources to improve case identification and description of VTE disease among patients with cancer history

COMMITTEE IN CHARGE: Aaron M. Wendelboe, Ph.D., Chair, Dale Bratzler, D.O., M.P.H., Janis E. Campbell, Ph.D., Kai Ding, Ph.D., Gary E. Raskob, Ph.D.

ABSTRACT: Venous thromboembolism (VTE) is a major burden of disease in the United States (U.S.). Recent, racially-diverse literature is limited among U.S. populations contributing to uncertainty regarding trends and changes in the burden and public health impact of VTE across the U.S. The purpose of this dissertation was to use recently obtained VTE surveillance data from a racially-diverse population to improve case identification and description of VTE disease among patients with cancer history. In collaboration with CDC, we established a population-based surveillance system for VTE in Oklahoma County, OK between April 1, 2012–March 31, 2014 to estimate incidence of first-episode and recurrent VTE, VTE-related mortality, and proportion with provoked VTE. Using VTE surveillance and administrative claims data, we developed an algorithm of codes to estimate incidence of VTE. Using VTE surveillance, death certificate, and Oklahoma Central Cancer Registry (OCCR) data, we estimated VTE incidence and explored factors associated with mortality among those with history of cancer. Using our selected algorithm, five-year VTE incidence differed across age, race, and ethnic groups with higher VTE incidence among older aged populations, Blacks, and Oklahoma County residents compared to the full state. By linking the VTE surveillance system data to the OCCR, we increased the identified cancer diagnoses by about 25%. We observed different patterns of VTE incidence across racial/ethnic groups with higher incidence among non-Hispanic Blacks. VTE incidence differed by primary cancer type among the active and non-active cancer populations. Approximately 35% of the VTE case-patients died on or before December 31, 2015 with 14% of those classified as VTE-related. VTE case-patients with cancer had higher case fatality rates compared to non-cancer case-patients and patterns across strata differed between the two populations. BMI, race/ethnicity, primary cancer type, metastatic status, prophylaxis use, and provoked status were associated with decreased survival among VTE case-patients with cancer. We observed different patterns in incident VTE and VTE-related mortality across age and racial/ethnic groups. Varied patterns of differences were identified among those with cancer and the general population, supporting the importance of current race and ethnic-specific estimates among both cancer and non-cancer populations.