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Practicum Site: V.U.M.C. - Emerging Infections Program

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Expansion of the Emerging Infections Program to Middle Tennessee's Rural Counties: An Analysis of the Accuracy of Interim Reported Death Data



Introduction: The structure, integrity, and quality of disease surveillance systems play a fundamental role in global public health and emerging infection containment. The ability to rapidly recognize the trajectory of pathogens allows for early interventions with the goal of preventing outbreaks. The US Centers for Disease Control and Prevention (CDC) Emerging Infections Program (EIP) serves to bolster surveillance structures by reinforcing collaborations between local academic institutions, state health departments, and other public health organizations. Tennessee, alongside twelve other states, participates in the program with a catchment area that encompasses eight urban or suburban counties surrounding and including Davidson County.

Methods: A comprehensive analysis of hospital discharge data concerning patients infected with respiratory pathogens COVID-19, RSV, or influenza in 2022 reveals the feasible strengths, benefits, and drawbacks of expanding surveillance into surrounding rural counties and their impacts on health systems by considering variable differences in patient demographics, natural environment, socio-economic opportunities, and other barriers to healthcare. Furthermore, this analysis serves to provide essential commentary on the accuracy of reporting agencies by identifying discrepancies among interim in-hospital death data month-to-month and year-to-year, focusing on the years 2021 and 2022.

Results: Preliminary findings reveal that expanding the surveillance catchment area for respiratory hospitalizations into thirteen middle-Tennessee rural counties captured over 33,600 hospitalizations and 1,228 related or unrelated deaths at fourteen medical centers. This expanded catchment represents people with lower income status, lower insurance coverage, and most significantly, individuals with higher barriers to care, specifically in their geospatial ability to access secondary, tertiary, or quaternary medical facilities. Results for discrepancies in reported in-hospital death data is ongoing and will be updated by November of 2024.

Conclusions: While surveillance systems continue to be refined, understanding how to access and educate individuals about these systems is crucial. This will ideally lead to better informed policies and decisions regarding future emerging infections before they become epidemics or pandemic-level threats.