

## Project Description

1. **Project Title:** Factors associated with nursing home COVID-19 vaccination rates

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2. **Abstract:**

**Background:** Older adults with chronic health conditions are at greater risk of contracting COVID-19 and experiencing complications from the disease, including a higher risk of mortality. Yet, nursing homes have struggled to ensure high vaccination rates among their staff and residents. Ohio ranks 49<sup>th</sup> with only 74% of their nursing home staff vaccinated. The purpose of this study is to examine factors associated with low Covid-19 vaccination rates in nursing homes. **Methods:** We plan to conduct a secondary analysis of data from the Centers for Medicare and Medicaid Services (CMS) Nursing Home COVID-19 Public File matched with census data from the zip code area containing the nursing home to explore relationships between socio-demographic variables and vaccination rates. We will focus on the social determinants of health such as median income levels, education levels, rural vs. urban areas, race and ethnicity, and employment status.

3. **Significance:** Results from the study will inform healthcare administrators about the risk factors for low vaccination rates. Previous studies have shown that populations with higher vaccination rates for COVID-19 have lower rates of COVID-19 cases and deaths (McLaughlin et al., 2022; Kahn et al., 2021). This protection is especially important for nursing homes since most residents are older adults with chronic health conditions. Nursing homes with higher rates of vaccination among staff and residents, have lower rates of COVID-19 cases and deaths (McCarry, Barnett, Grabowski, et al. 2022).

Researchers have found that vaccination rates are lowest for Certified Nursing Assistants (CNAs) but other staff also lag behind resident vaccination rates (McGarry, Shen, Barnett, et al. 2021). These findings were confirmed in another study in which physicians and other advanced practice providers reported the highest vaccination rates of staff and CNAs reported the lowest rates (Lee, Althomsons, Wu et al., 2021).

In addition, studies have found that vaccination rates are lower in rural counties compared to urban counties (Murthy et al. 2021) and within zip code areas with lower median incomes, higher rates of poverty, and lower rates of high school completion (Lee, Althomsons, Wu et al. 2021). State mandates for vaccinations have been shown to boost nursing home vaccination rates without causing staffing shortages (McGarry, Gandhi, Syme, et al., 2022). This was especially true in Republican-leaning counties that had low vaccination rates before the mandates were implemented.

4. **Goals and objectives:** Our main goal is to identify which socio-demographic risk factors have the strongest impact on vaccination rates within nursing homes.
5. **Research methods:** The summer fellow will learn how to form a research question, how to obtain census data and match it to a large national data set from nursing homes, how to manage and merge the data sets, how to conduct the secondary data analysis, and report the findings.
6. **Proposed method of data analysis:** The summer fellow will learn how to perform the quantitative bivariate and multivariate analyses using statistical software. SPSS or SAS statistical software will be used to conduct chi-square tests, t-tests, and regression analysis.
7. **Summer Fellow contributions:** The summer fellow will contribute to the literature review, assist in obtaining the data sets and cleaning them so that we can merge them by zip code area, and perform the analysis. The student will also draft an abstract to present at the NEOMED Student Research Symposium and prepare either a poster or oral presentation for the symposium.

### **Training/Mentoring Plan**

1. **Plan for training/mentoring:** Kris Baughman, PhD (associate professor of Family & Community Medicine at NEOMED) will be the primary contact and mentor for this project. In addition, the student will have the opportunity to work with Ruth Ludwick, PhD RN (professor emeritus from Kent State University's College of Nursing). Dr. Baughman will meet with the student to develop a work plan which will include the following: 1) review of the literature on COVID-19 vaccination within long-term care facilities and how to develop a research question and hypothesis, 2) training on research with human subjects, 3) training in data management, 4) and how to analyze data using quantitative software. Follow-up meetings will be held at least weekly to discuss project progress, and to provide the student with any necessary guidance or information. The student will also be included in research team meetings.
2. **Description of resources available:** Workspace within the Department of Family & Community Medicine will be provided as needed. Statistical software will also be provided.
3. **Site where the research will be conducted:** Data will be downloaded from the U.S. Census Bureau and CMS websites and the analysis will be conducted either at NEOMED or remotely.

**NOTE:** This summer fellowship is funded by the NEOMED Student Training in Aging-Related Research (NEOSTAR) program and offers the same stipend as the research office. **We encourage students interested in Geriatrics to apply and offer additional shadowing experiences throughout the summer.**