

## **Addressing Cervical Cancer Screening Gaps in College and University Census Tracts**

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### **1. Background**

Although New Jersey had the seventh highest cervical cancer screening rate in the United States, (80.1 percent), 138 of the 1,999 (7 percent) eligible census tracts fell below the national screening rate of 77.7 percent. Of these tracts, 10 contained a college or university campus, and 9 were among the lowest 26 in cervical cancer screening rate in the state. According to the U.S. Centers for Disease Control and Prevention Behavioral Risk Factor Surveillance System (CDC BRFSS), New Jersey women aged 21-25 only had a 61.1 percent screening rate, while women aged 26-35 (78.2 percent) and 36-45 (84.4 percent) had much higher rates.

### **2. Goals**

Our main goal is to identify and better understand lower cervical cancer screening rates in census tracts containing college campuses in New Jersey. While we hypothesize that the overrepresentation of young adult women within these tracts may contribute to lower screening rates, there are other factors that may also contribute such as timing of BRFSS data collection, socioeconomic collection, demographic factors, and access barriers. Additionally, we will attempt to identify similar patterns that may exist on a national level, and if college and university census tract screening gaps are significant within a statewide context.

### **3. Solutions and Methods**

For an initial analysis, we retrieved age-sex population tables from the American Community Survey via Posit's tidy census package, which were then binned into the appropriate age groups to match the 2020 CDC BRFSS reporting for statewide cervical cancer screening. We then calculated predicted screening rates for each census tract based on female age distribution and observed BRFSS screening rates. Next, we will integrate other tract-level screening predictors (socioeconomic, demographic, risk factors, etc.) into a multivariable prediction model to better understand observed gaps in cervical cancer screening rates. To assist with national expansion, we are able to use college and university point locations to identify similar census tracts to include in our analyses.

### **4. Outcomes**

Based on our age-based prediction model (see Figure), 6 of the 9 census tracts had lower observed screening rates compared to predicted screening rates. Statistical tests indicated that the mean gap between observed and predicted screening was not significantly different from 0 (mean gap = -0.029; 95 percent Confidence Interval [CI]: -0.067 to 0.010;  $t(8)=-1.73$ ,  $p=0.12$ ) suggesting no systematic over- or under-prediction by the model, although observed rates were slightly higher on average and there was substantial variation between tracts. We also ran this data for the 2018 BRFSS values to account for any potential impact of Coronavirus Disease of 2019 (COVID-19) pandemic on college campuses; observed and predicted screening rates were similar to 2020 for these tracts.

### **5. Lessons Learned and Future Directions**

Upon completion of this project, and based on results, we plan to work with our Community Outreach and Engagement department's screening and navigation teams to develop interventions to increase cervical cancer screening on college campuses. There is potential for collaboration with other National

Cancer Institute-Designated Cancer Centers that have similar screening gaps in their catchment areas, especially in developing and deploying college-based outreach and screening interventions.

**Figure: Observed and Predicted (Age-Based Model) Cervical Cancer Screening Rates for Census Tracts Containing College Campuses**

<b>Cervical Cancer Screening Rates (2020) - Observed and Predicted</b>				
<b>Tract</b>	<b>Campus</b>	<b>Observed</b>	<b>Predicted</b>	<b>Gap</b>
34023005200	Rutgers_CollegeAve1	62.4%	73.3%	-10.9%
34023005100	Rutgers_CollegeAve2	62.5%	68.9%	-6.4%
34015501404	Rowan	64.3%	69.8%	-5.5%
34001983400	Stockton	64.8%	62.9%	1.9%
34023008800	Rutgers_LivingstonBusch	69.9%	68.3%	1.6%
34013001100	NJIT	70.5%	77.1%	-6.6%
34023006002	Rutgers_Cook	71.6%	71.8%	-0.2%
34003032104	Ramapo	72.6%	76.5%	-3.9%
34021004501	Princeton	73.3%	69.1%	4.2%