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Cancer Screening Rates in a Student-Run Free Clinic

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Background: In the United States and in New York State, individuals with no health insurance have consistently lower screening rates for breast and cervical cancer than those with health insurance and are also more likely to be diagnosed with advanced stages of cancer. Our objective was to compare the cancer screening rates among patients at a free student-run clinic to state and national data. To our knowledge, ours is the first study examining breast and cervical screening rates and their relation to insurance status, income level, education level, race, and marital status in a suburban free student-run clinic.

Methods: As part of their intake from fall 2012 to spring 2013, patients at the Stony Brook Health Outreach and Medical Education Clinic in Stony Brook, NY, filled out a 26-item survey that included questions about race, income, education level, marital status, and cancer screening status. We compared the screening rates reported by our patients to published state and national rates.

Results: Breast and cervical cancer screening rates reported by 165 patients treated at our free student-run clinic were lower than the overall state and national averages. No significant associations between race, income, education level, or marital status and cancer screening rates were detected.

Conclusion: Cancer screening rates at our free student-run clinic for the uninsured were lower than the overall state and national rates. These findings are consistent with previous reports of lower cancer preventive care utilization among the uninsured and suggest that insurance status has been a significant barrier to obtaining cancer screenings among our clinic population. Increasing cancer screening rates at student-run clinics may be a cost-effective secondary prevention activity that can decrease cancer mortality.

Keywords: *Ambulatory care, early detection of cancer, mammography, preventive medicine, Papanicolaou test*

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INTRODUCTION

In 2014, approximately 1,665,540 people in the United States were diagnosed with cancer, and approximately 585,720 died of cancer.[1] Data from multiple studies reported by the American Cancer Society have shown that screening for breast cancer and cervical cancer reduces incidence and mortality over time.[2] The United States Preventive Services Task Force has published guidelines on recommended cancer screenings.[3]

In the United States and New York State, individuals with no health insurance have consistently lower screening rates for breast and cervical cancer than individuals with health insurance.[4] Individuals without health insurance are also more likely to be diagnosed with advanced stages of cancer than insured individuals.[5] Hispanic ethnicity has been identified as a predictor of mammography and Papanicolaou (Pap) test underuse.[6]

Stony Brook Health Outreach and Medical Education Clinic (SB HOME), the Stony Brook, NY, free student-run clinic, was founded in 2008 to improve the health and well-being of the underserved community in Suffolk County by increasing access to free, dependable, and comprehensive health services; empowering individuals and families through education and social services; and training future clinicians in culturally competent and compassionate care. Uninsured patients >18 years of age are seen on an appointment basis every other Sunday.

Given the cancer screening barrier that lack of insurance represents, we can postulate that patients served by student-run free clinics are less likely to have had recommended screenings. Yet there is a relative paucity of literature regarding cancer screening services in student-run clinics.[7,8] Our clinic serves a predominantly Hispanic, low-income, uninsured patient population, and we wanted to determine if the clinic's patient population had low cancer screening rates. We also wanted to examine associated patient-specific factors. After identifying screening rates and risk factors among our patient population, our goal was to develop specific quality improvement interventions for the clinic.

METHODS

As part of their initial intake, patients were asked to complete a 26-item patient questionnaire that asked about race, income, education level, and marital status. The paper form also asked patients to identify the last time they had a mammogram and Pap test during the past 2 years and 3 years, respectively. The questions on the form were written in both English and Spanish. All patients were informed that they could refuse to complete the questionnaire.

A total of 165 patients who presented to the clinic from fall 2012 through spring 2013 completed the questionnaire. Patient identification was removed from the survey responses prior to creating a database for analysis. Descriptive statistics with SPSS (IBM) were used to describe the population's demographics and screening frequency, and chi-square tests were used to determine the significance of relationships between screening and the demographic variables. The study was approved by the Stony Brook University Institutional Review Board.

RESULTS

Our clinic serves a predominantly Hispanic population (79.5%) that mainly speaks Spanish as its primary language (68.9%). Women make up 55.3% of our patient population, and 66.9% of our patients listed high school graduation or less as their highest education level. Table 1 shows demographic data for our patients compared to the population of Suffolk County, NY.[9] For demographic analyses and based on the observed distributions, education was coded as 3 levels (less than high school education, high school graduate, post–high school education), and income was coded as 2 levels ($<$\$10,000 or $>$\$10,000 per year).

In our clinic, among women $\geq$18 years of age, 64.6% (51/79) reported having a Pap test within the past 3 years (Table 2). This figure is lower than the New York State total rate of 83.7% and the total national rate of 83.0% in 2010.[10,11] We observed a trend suggesting that women with lower education levels were less likely to report having had a Pap test, although this finding did not reach conventional levels of significance (chi-square = 5.62, $P>0.10$).

In our clinic, 80.4% (45/56) of women $\geq$40 years of age reported ever having had a mammogram, with no apparent differences by race, education, income, or marital status ($P>0.30$ for all variables). But just 41.1% (23/56) of women $\geq$40 years of age reported having had a mammogram during the past 2 years. Again, no demographic effects were observed ($P>0.14$ for all variables). The 41.1% screening rate during the past 2 years reported by our patients was lower than the New York State overall rate of 77.7% and the national rate of 72.4% in 2010.[11,12]

DISCUSSION

Our results are consistent with previous studies that show lower cancer screening utilization among the uninsured.[4,5] Our results did not show a significant association of cancer screening utilization with race, education, income, or marital status among our patient population.

A limitation of our study is that our survey did not determine citizenship status, a factor that may play a significant role in obtaining insurance. In a 2005 study, De Alba et al reported that noncitizens were less likely to receive cervical or breast cancer screening compared to immigrants who were US citizens.[13] Anecdotal experience suggests that a substantial portion of our patient population is made up of undocumented workers. Because of the sensitive nature of legal status in the United States, we did not inquire about citizenship status. In the future, it would be useful to determine the legal status of our patients while stressing that patient identification will be removed prior to analysis. Another limitation of our study is that while our results are consistent with findings that might be expected in an uninsured population, they are from only one clinic. The small sample may have also limited our ability to explore the relationships between demographic variables and screening rates.

Improving cancer screening rates for the uninsured poses a significant challenge. A 2014 report found that cancer screening rates from 2008 and 2010 were below the Healthy People 2020 targets.[14] In particular, the report noted that uninsured patients were 20 percentage points below Healthy People 2020 targets for breast and cervical cancer screening. In the report by Butala et al of a student-led quality improvement intervention to increase preventive services at a student-run free clinic, receipt of Pap tests among eligible patients remained constant at 59% despite intervention.[15] To address our patients' low cervical and breast cancer screening rates, SB HOME instituted a quarterly women's health day that provides clinic patients with access to Pap tests, clinical breast examinations, and contraceptive counseling.

A 2011 study by Arroyave et al suggested that organizational change through the use of nonphysician staff interventions can increase completion of cancer screenings among unscreened individuals.[16] Establishing a protocol to refer all patients who meet the criteria to cancer screening services would also be beneficial. Additionally, given the nationwide distribution of student-run free clinics and heterogeneous patient populations, forming a research network within the New York metropolitan area and nationally would allow for meaningful assessment and comparison of state and national cancer screening rates and preventive care measures at other student-run clinics. A research network among student-run clinics would also help improve external validity by providing the opportunity to obtain larger, more varied samples of the uninsured and Hispanic populations and to develop a proximal similarity framework.

Future lines of inquiry include assessing the relative risk of developing cervical cancer and breast cancer in our clinic population and developing additional evidence-based and quality improvement interventions and patient navigation programs within the clinic to promote cancer risk reduction and to refer patients to affordable cancer screening resources within New York State. We also plan to explore additional questions regarding screening and preventive methods for cervical cancer and self-performed and physician-performed breast examinations. We will also address cervical cancer screening and discuss the possibility of offering human papillomavirus vaccinations at the clinic.

Table 1. Stony Brook HOME Patient and Suffolk County, NY, Demographics

Characteristics	Patients from Stony Brook HOME, % n=165	Suffolk County, NY, %[9] n=1,493,350
Sex (n=161)		
Male	44.7	49.2
Female	55.3	50.8
Age range in years (n=159)		
<18	0	26.3
19-24	3.8	6.1
25-34	21.4	11.2
35-44	31.4	14.3
45-54	30.8	16.5
55-64	10.7	12.0
65-74	1.3	7.2
≥75	0.6	6.4
Race/ethnicity (n=161)		
Hispanic	79.5	16.5
White	9.4	80.8
African American	5.6	7.4
Asian	1.2	3.4
Other	4.3	0.6
Primary language (n=164)		
English	29.9	79.2
Spanish	68.9	12.6
Other	1.2	8.1
Level of education (n=139)*		
Less than high school	34.5	10.2
High school graduate	32.4	30.0
Post–high school	33.1	59.8
Marital status (n=162)		
Married	27.2	52.7
Divorced	11.7	7.8
Single	37.0	31.4
Widowed	1.9	6.3
Domestic partnership	14.2	-
Household Income per year (n=122)		
<$10,000	41.0	3.2
>$10,000	59.9	96.8

*Level of education is reported for the patient population 25 years and older.
HOME, Health Outreach and Medical Education Clinic.

Table 2. Comparison of National, New York State, and Stony Brook HOME Cancer Screening Rates

	National, 2010[10]			New York State, 2010[11,12]			Stony Brook HOME Fall 2012-Spring 2013
	Total	Privately Insured	Uninsured	BRFSS Total	BRFSS Insured	BRFSS Uninsured	
Cervical cancer screening in the past 3 years among patients ≥18 years, % (95% CI)	83.0 (82.0-84.0)	88.7 (87.7-89.7)	63.8 (61.1-66.4)	83.7 (82.2-85.0)	85.3 (83.9-86.6)	70.6 (63.8-76.6)	64.6 (54.1-75.2)
Breast cancer screening in the past 2 years among patients ≥40 years, % (95% CI)	72.4 (70.7-74.0)	79.8 (77.9-81.5)	38.2 (33.5-43.2)	77.7 (75.9-79.4)	79.6 (77.8-81.3)	56.1 (48.5-63.4)	41.1 (28.2-54.0)

BRFSS, Behavioral Risk Factor Surveillance System; CI, confidence interval; HOME, Health Outreach and Medical Education Clinic.

CONCLUSION

Cancer screening rates among patients at a free student-run clinic for the uninsured in Stony Brook, NY, were lower than the overall state and national rates. Because health insurance status is a significant factor in cancer screening utilization, determining the main barriers to securing health

insurance among our clinic population would be helpful. Additionally, it would be appropriate, given our patients' insurance status, to continue tracking cancer screening rates longitudinally in the clinic to determine the impact of the Affordable Care Act on our patients' access to preventive health services. Increasing cancer screening rates at student-run clinics may be a cost-effective secondary prevention activity that can decrease cancer mortality.

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