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Cervical Cancer Screening Outcomes in a Refugee Population

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Cervical cancer is the second most common cause of female cancer mortality worldwide, accounting for approximately 274,000 deaths annually (Parikh, Brennan, & Boffetta, 2003; World Health Organization, 2002). Of the estimated 500,000 new cases of cervical cancer diagnosed each year, 80% of these occur in developing countries, with the highest rates occurring in Africa, Asia, and Central and South America (de Sanjose et al., 2010; Ferlay et al., 2010; Lipson et al., 1995; Parikh et al., 2003; World Health Organization, 2002, 2011). Human papillomavirus (HPV) has been detected in 99% of cervical cancer cases, and infection with HPV is a prerequisite to the development of invasive cervical cancer (de Sanjose et al., 2010; Dunne et al., 2007; Ferlay et al., 2010; Lipson et al., 1995; Parikh et al., 2003; World Health Organization, 2002, 2011). Seventy percent of cervical cancers are due to high-risk (HR) HPV types 16 and 18, and although there is some geographic variation in the prevalence of HPV, global data suggests that the eight most common high-risk oncogenic HPV genotypes (16, 18, 21, 33, 35, 45, and 52) contribute to over 90% of the cervical cancer in all world regions [de Sanjose, 2010; Dunne, 2007; World Health Organization, 2011].

KEYWORDS refugee, cervical cancer screening, dysplasia, Papanicolaou, human papillomavirus, HPV

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Compared to U.S. women, foreign-born women are three times more likely to have never undergone cervical cancer screening (Tsui et al., 2007). Within the population of foreign-born women in the United States, refugee women comprise a smaller, but growing, cohort. Since the U.S. Refugee Act of 1980, over 2.6 million refugees from 189 countries have been resettled in the United States (United Nations High Commissioner for Refugees, 2011; U.S. Department of State, 2011). Prior to resettling in the United States, only a small minority of refugee women have received cervical cancer screening, as most of these women are refugees from countries where cytologic screening and HPV testing are often limited or absent (Barnes & Harrison, 2004; Lipson et al., 1995; Parikh, Brennan, & Boffetta, 2003).

While there is some data on cancer incidence and mortality in certain female immigrant populations in the United States and Canada, little is known about cervical cancer incidence, cervical dysplasia, or HPV prevalence in refugee populations in the United States (McDermott et al., 2011; Nasseri, Mills, & Allan, 2007; Nguyen et al., 2002; Singh & Siahpush, 2001; Singh, Miller, Hankey, & Edwards, 2004; Taylor et al., 2002; Tsui et al., 2007; Yavari, 2006). The distinction between the immigrant and refugee populations is an important one, as the circumstances that motivate these two populations to come to the United States (or necessitate their coming) are very different (Barnes & Harrison, 2004; Lipson et al., 1995; United Nations High Commissioner for Refugees, 2011). The purpose of our study was to determine the prevalence of abnormal Pap tests and high-risk HPV genotypes within our refugee population cared for at the Jefferson Family Medicine Center for Refugee Health.

METHODS

We performed a retrospective analysis of existing medical records of all ($N = 204$) refugee women age 21 to 65 years seen from January 2008 to May 2012 at the Center for Refugee Health (CRH) at the Jefferson Family Medicine Associates in Philadelphia, Pennsylvania. Approval for this study was granted by the Thomas Jefferson University Hospital Institutional Review Board. Included in the analysis were refugee women from Iraq ($n = 60$), Myanmar ($n = 44$), Bhutan (n = 63), and 14 other countries (Figure 1). Papanicolaou (Pap) tests that occurred during these dates were reviewed for dysplasia (AS-CUS [atypical squamous cells of undermined significance], ASC-H [atypical squamous cells, cannot rule out high grade], LSIL [low-grade squamous intraepithelial lesion], HSIL [high-grade squamous intraepithelial lesion], or AGC [atypical glandular cells]). Results were also reviewed for the presence of high-risk HPV (total 13 serotypes, including 16 & 18) when cytology demonstrated AS-CUS and in women over the age of 30, as per screening recommendations set forth by the American Cancer Society (ACS), American

Country of Origin	No. of Women age 21- 65
Bhutan	63
Iraq	60
Myanmar	44
Eritrea	7
Liberia	6
Congo	5
Cuba	5
Ethiopia	2
Guinea	2
Moldova	2
Sudan	2
Afghanistan	1
Haiti	1
Iran	1
Kenya	1
Kuwait	1
Philippines	1
Total Countries: 17	**Total Women: 204**

FIGURE 1 Center for Refugee Health Demographics

Society for Colposcopy and Cervical Pathology (ASCCP), and United States Preventive Services Task Force (USPSTF) guidelines (Saslow et al., 2012; U.S. Preventive Service Task Force, 2012). For our purposes, abnormal Pap tests were defined by either the presence of abnormal cytology or high-risk HPV detection.

RESULTS

Of the 204 refugee women between ages 21 and 65 years seen at CRH, 203 were eligible for cervical cancer screening based on age and presence of cervix. Between January 2008 and May 2012, Pap tests were performed on 129 of the 203 eligible refugee women (64%) (Figure 2). The approximate average length of time from date of initial screening at CRH to Pap testing was 6 months. Results of Pap tests were available for 115 of the 129 women (89%), with 13 Pap tests performed outside CRH with unknown results and 1 Pap test with insufficient cytology. Of the 115 Pap tests reviewed, abnormal Pap tests were seen among women from Iraq, Myanmar, and Bhutan. Mean age at the time of abnormal Pap test was 36 years. The prevalence of abnormal Pap tests in the Iraqi, Burmese, and Bhutanese populations was 9% (3 of 32 known Pap test results), 10% (3 of 31 known Pap test results), and 3% (1 of 35 known Pap test results), respectively (Figure 3). The prevalence of high-risk HPV in the Iraqi, Burmese, and Bhutanese women was 6%, 6%, and 0%, respectively (Figure 3).

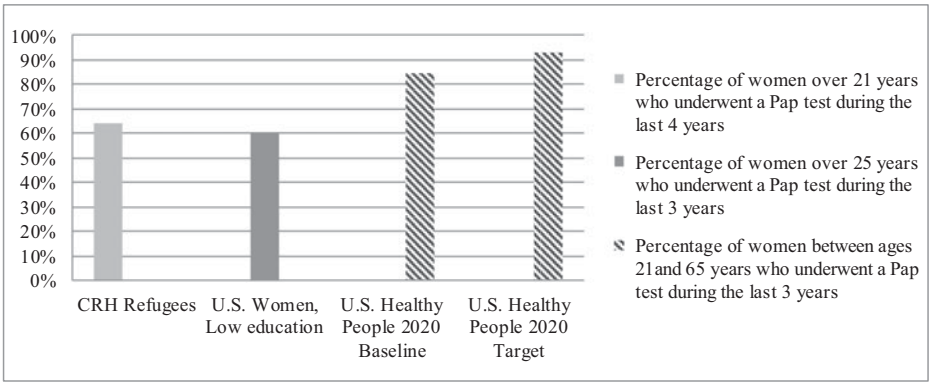

FIGURE 2 Comparison of Cervical Cancer Screening Rates

Of the 7 abnormal Pap tests, 3 were ASC-US/HPV negative and warranted no further intervention. The other 4 abnormal tests (2 ASC-US/HPV positive, 1 ASC-H, and 1 normal cytology/HPV positive) warranted further work up by colposcopy based on ASCCP guidelines [Saslow, 2012]. At the time of data analysis, 1 woman with ASC-H had undergone colposcopy, with biopsies revealing mild cervical intraepithelial neoplasia (CIN 1).

DISCUSSION

Cervical cancer screening rates in refugee women prior to resettlement is low. In one study of 283 refugee women from Cuba, Bosnia, and Vietnam

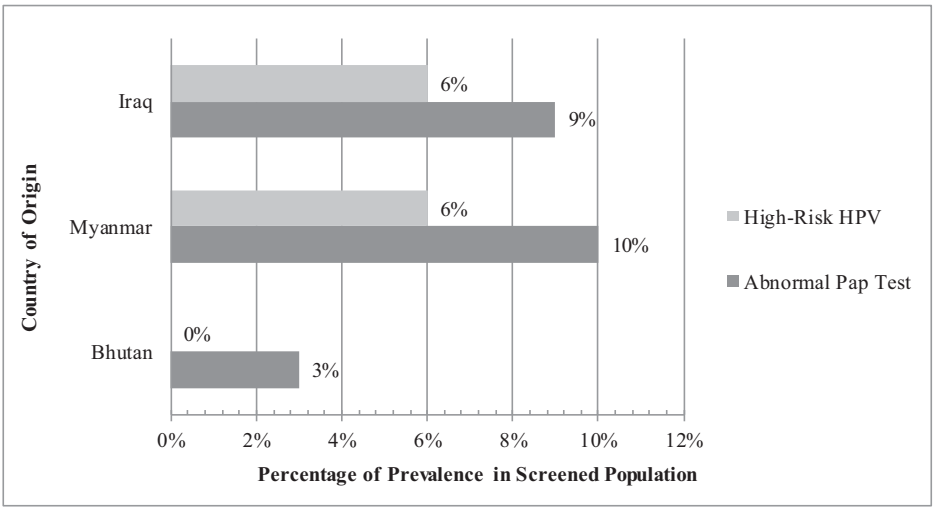

FIGURE 3 Prevalence of Abnormal Pap Test and High-Risk HPV in CRH Refugee Populations

living in Texas, only 24% of women had undergone a Pap test in the 3 years prior to resettlement in the United States [Barnes, 2004]. This is in contrast to U.S. women age 21 to 65, 85% of whom have had cervical cancer screening based on 2008 guidelines (Centers for Disease Control and Prevention and National Center for Health Statistics, 2008). In our population, 64% of refugee women had undergone Pap tests during their first 4 years of resettlement in the United States while receiving care at the Center for Refugee Health. This percentage represents a higher cervical cancer screening rate compared to a relatively educationally matched U.S. cohort, women age 25 and over with no high school diploma or GED (60%) (Figure 2) (Centers for Disease Control and Prevention and National Center for Health Statistics, 2008). However, given that the majority of refugees are from lower socioeconomic groups, who worldwide have a one-third higher incidence of cervical cancer and an 80% increased risk of cervical dysplasia compared to women of upper socioeconomic groups, they are a vulnerable population who should be targeted for cervical cancer screening (Parikh et al., 2003; Singh et al., 2004). There are multiple factors that may have contributed to the 64% screening rate in our refugee population, including insurance coverage that ends, for many refugees, 8 months after arrival to the United States. After this time frame, uninsured patients were referred for care outside the CRH, unless alternate insurance coverage could be obtained. While most patients are seen for their initial screening within the first 30 days after arrival to the United States, acute medical concerns and chronic, sometimes previously unaddressed, mental and physical health conditions receive more attention during those first months of resettlement, forcing preventive measures such as cancer screenings to be postponed. For some refugee women, the physician's failure to address and elevate preventive health care to the same level as other health concerns will result in women who are underscreened or unscreened. Another factor leading to a relatively lower screening rate in our refugee population, compared to the screening rate of all U.S. women ages 21 to 65, includes the language barrier than is often present between clinicians and refugee patients. The physician faces the challenge of utilizing culturally appropriate terms that are translatable into a patient's native language, which are necessary for effective communication with patients who may be unfamiliar or uncomfortable with the nature and purpose of the Pap and HPV tests. Additionally, screening rates may be impacted by women who view the procedure used to obtain the Pap test as invasive or embarrassing, and thus avoid screening, or who may be uncomfortable with the procedure secondary to a history of sexual victimization or cultural or religious beliefs.

In order to reprioritize cervical cancer screening to the level of other early resettlement issues, such as infectious disease screening and treatment, to increase patient comfort with reproductive health topics, and to ensure that patients understand the importance of cancer screening, we are refocusing

our efforts at the Center for Refugee Health to meet the US Healthy People 2020 cervical cancer screening target rate of 93% (Centers for Disease Control and Prevention and National Center for Health Statistics, 2008). Currently this strategy involves using culturally appropriate, patient-centered education materials and cancer screening strategies, including clinical sessions targeted at refugee well-women exams, group education classes in the community, and collaboration with other women's health care providers in the community to ensure that our refugee patients have preventive care within a patient-centered medical home model.

Limited data exist on the prevalence of cervical dysplasia and high-risk HPV in the refugee populations who are currently living in the United States, although global data on cervical cancer incidence and mortality give some insight into what dysplasia rates we might expect from women in these countries (Ferlay et al., 2010). With relatively high age-standardized rates of cervical cancer incidence in Myanmar (26.4 per 100,000) and Bhutan (20.4 per 100,000), compared to the United States (5.7 per 100,000), for example, we expected a higher prevalence of cervical dysplasia and high-risk HPV in women from Myanmar and Bhutan than were reported in our study (Figure 3). There are a few reasons for this apparent discrepancy between expected and actual prevalence of dysplasia and HPV in the Bhutanese and Burmese populations. Unique cultural characteristics and aspects of these refugee populations, such as the low number of lifetime sexual partners (average $n = 1$) or a relatively healthier refugee population compared to a non-refugee cohort from the same country, may contribute to the low prevalence of cervical dysplasia and high-risk HPV in our screened population.

Another contributing factor to the overall low dysplasia and HPV rates seen in the Iraqi, Bhutanese, and Burmese populations is the small number of patients in our study. Thus, a limitation of our study is that the populations of refugees in this study may not be a representative sample of refugee women from these countries. This limitation is further evident in that no abnormal Pap tests or HPV were detected in women from the countries with some of the highest global age-standardized rates of cervical cancer, such as Guinea (56.3 per 100,000) and Liberia (41.8 per 100,000).

Further studies are needed in order to determine if there is a clinically significant difference in the documented prevalence of cervical dysplasia and HPV within refugee populations versus predicted prevalence based on cervical cancer incidence in a woman's country of origin. Our study suggests that prevalence of cervical dysplasia and HPV in some subsets of refugee populations may be lower than what would be expected based on global data regarding cervical cancer incidence. Based on our findings, our recommendation for cervical cancer screening in refugee women (without a history of cervical cancer, HIV, or diethylstilbestrol (DES) exposure) residing in the United States is to follow the 2012 updated cervical cancer screening guidelines for the general population. These recommendations include

initiation of screening no earlier than age 21, Pap testing every 3 years, and optional HPV cotesting and extended 5-year intervals for women over age 30 (ACOG Practice Bulletin—Gynecology, 2012; American Academic of Family Physicians, 2012; Moyer, 2012; Saslow et al., 2012; U.S. Preventive Services Task Force, 2012.)

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