

**1528. Prevalence of Human Papillomavirus Infection and Cervical Intra-Epithelial Lesions in A Subset of Arab American Women in Southeast Michigan**  
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**Session:** P-69. Sexually Transmitted Infections

**Background.** The Pap smear is a screening examination that detects abnormal cervical cells and may be paired with human papillomavirus (HPV) testing in order to detect high-risk, oncogenic HPV strains. The incidence of cervical cancer varies among groups due to racial and ethnic disparities, and 80% of cases occur in developing countries. Mortality rates for cervical cancer in the Middle East are disproportionately higher when compared to developed countries. Our study aims to assess the prevalence of HPV and cervical cancer among a subset of Arab-American women in southeast Michigan.

**Methods.** The study is a retrospective chart review of women who presented for routine cancer screening as part of the Breast and Cervical Cancer Control Program (BCCCP), at the Arab-American Center for Economic and Social Services Clinic in southeast Michigan between 2003-2019. Paper charts were reviewed for information such as age, date of birth, monthly income, tobacco use, cervix-related gynecological examination performance, cervical cytology results, and HPV testing results. Women between the ages of 21 and 65 were included. In instances where cytology was performed, results and details of high-risk HPV testing were documented. In instances where high-risk HPV testing was performed, negative results were documented as such, and positive results were documented as either positive for HPV 16, 18, or other high-risk strains, or unknown if serotype testing was not available.

**Results.** A total of 464 charts from the BCCCP program were reviewed. All women included were uninsured and had immigrated from Middle Eastern countries, including Yemen and Lebanon. The average age of the women was 48.3 years. Of 464 women, 6% (n=28) of women declined to have a Pap smear. 85 women reported they had never had a Pap smear. Of the 436 women who did undergo Pap smear, 42 women (9.6%) had an abnormal pap smear. The remaining results are summarized in Table 1.

Table 1

**Table 1. Summary of Results**

Category	Result/Number (%)
Age, years (mean)	48.3
Mean monthly income (US dollars)	1317.07
Tobacco use, no. (%)	90/438 (20.5%)
Never had Pap smear, no. (%)	85/464 (18.3%)
- Unknown	65/464 (14%)
Prior abnormal Pap smear, no. (%)	13/464 (2.8%)
- Unknown	129/464 (27.8%)
Declined Pap smear – no. (%)	28/464 (6.0%)
Cervical cytology results, no. (%)	
Unsatisfactory	2/436 (<1%)
NIL	388/436 (88.9%)
ASC-US	31/436 (7.1%)
ASC-H	2/436 (<1%)
LSIL/CIN-1	7/436 (1.6%)
HSIL/CIN-2	1/436 (<1%)
HSIL/CIN-3	1/436 (<1%)
AGC	1/436 (<1%)
High-risk HPV strains, no. (%)	
Type 16	4
Type 18	0
*Other	4
Unknown	3

[NIL: Negative for intraepithelial lesion; ASC-US: Atypical cells of undetermined significance; ASC-H: Atypical squamous cells cannot rule out high grade squamous intraepithelial lesion; LSIL: low grade squamous intraepithelial lesion; HSIL: high grade squamous intraepithelial lesion; AGC: atypical glandular cells. The Bethesda System, 2001]

[\*Other serotypes: 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68]

**Conclusion:** Our study results show a trend toward HPV serotype 16 and other serotypes compared to HPV serotype 18 in Arab-American women who recently immigrated to the United States. However, this needs to be studied on a larger cohort of patients to determine if these serotypes are more common among this ethnicity compared to the general population.

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**1529. Sexually-Transmitted Infection Testing and Positivity among Adults Receiving HIV Pre-Exposure Prophylaxis within an Integrated Health Care Delivery System in the United States**

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**Session:** P-69. Sexually Transmitted Infections

**Background.** The goal of this project was to assess the frequency of sexual-ly-transmitted infection (STI) testing and positivity among adult individuals initiating HIV Pre-Exposure Prophylaxis (PrEP) within Kaiser Permanente Northwest (KPNW).

**Methods.** We identified KPNW members, 18 years of age and older, who initiated PrEP (tenofovir+emtricitabine) between January 1, 2015 – December 31, 2018. Using data elements abstracted from the electronic health record system, we assessed demographic characteristics of those initiating PrEP and the rate of testing and positivity for HIV, chlamydia (CT) and gonorrhea (GC) and syphilis within a window around 120 days after PrEP initiation.

**Results.** Overall, 685 members initiated PrEP during our study period, 661 (96.5%) of whom were male. Mean and median ages were 38 and 36 years, respectively, with those 25-34 years of age comprising the highest proportion (241; 35.2%). The 460 PrEP initiators (67.2% of total) who continued use beyond 120 days were significantly older than those who discontinued use (39 vs. 36 years, p=0.0008). Among continuous users, 78.3% were tested for CT+GC and 83.9% were tested for syphilis roughly 120 days post-initiation, with positivity proportions of 6.9%, 6.7%, and 2.3%, respectively. Among those discontinuing, 39.6% were tested for CT+GC and 37.3% were tested for syphilis, with positivity proportions of 10.1%, 9.0%, and 2.4%, respectively. HIV testing was completed for 87.4% of continuous PrEP users and 40.9% of those who discontinued use; and we identified a total of three individuals who tested positive for HIV, all among the latter group. Manual chart review of these individuals confirmed that HIV exposure and infection occurred after PrEP discontinuation.

**Conclusion.** We found high rates of STI testing among individuals receiving PrEP, in accordance with recommendations. Our findings of a lower STI prevalence among PrEP users is encouraging, although further work is required to assess the impact of differential testing rates and age between those who continue and discontinue PrEP use as well as reasons for PrEP discontinuation. Regular testing remains an important part of comprehensive PrEP care management and should continue to be encouraged to identify and treat STI among those at high risk for disease.

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**1530. A Cluster of Disseminated Gonococcal Infections in a Non-Immunocompromised Veteran Population**

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**Session:** P-69. Sexually Transmitted Infections

**Background.** Disseminated gonococcal infection (DGI) is an uncommon manifestation of *N. gonorrhoeae* that is estimated to occur in 0.5-3% of cases, with a decreasing incidence that has been attributed to changes in circulating serotypes. At a Veterans Affairs Medical Center (VAMC), 3 cases were identified within 4 months in 2019.

**Methods.** A case series of patients with DGI between March and July 2019 was conducted at a 399-bed tertiary care VAMC that serves central Virginia. Clinical case data was abstracted from the medical record, and data regarding prior gonorrhea cases at the facility was obtained from the laboratory information system.

**Results.** In 2019, the rate of DGI was 4.9%, with 3 cases out of 61 reported. All occurred in immunocompetent, African-American males with a mean age of 59 years, and all had female sexual partners (Table 1). All presented with joint symptoms, 2 had skin manifestations, and none had genital symptoms. Two patients had positive synovial fluid cultures and the third had a positive blood culture. All isolates were beta-lactamase negative. Orogenital testing by nucleic acid amplification was only positive in 1 patient. No other sexually transmitted infections were identified. One patient underwent surgical washout of the involved shoulder joint, but the others were managed non-operatively. All received a single dose of azithromycin and a 14-day course of ceftriaxone with full symptom resolution. These were the first positive *N. gonorrhoeae* isolates from invasive specimens at this VAMC since at least 2016.

Table 1. Clinical History and Laboratory Results at Presentation for Patients with Disseminated Gonococcal Infection

Factor	Patient 1	Patient 2	Patient 3
Age (years)	62	46	69
Sex	Male	Male	Male
Ethnicity	African-American	African-American	African-American
Co-Morbidities	Hypertension, Henoch-Schoenlein purpura	Type 2 diabetes	Multiple sclerosis
Joint Involvement	Yes	Yes	Yes
Skin Manifestations	No	Yes	Yes
HIV Status	Negative	Negative	Negative
Site of Positive <i>N. gonorrhoeae</i> Culture	Synovial fluid	Synovial fluid	Blood
Orogenital NAAT Results	Negative	Positive (pharynx)	Negative
WBC Count (10 <sup>3</sup> /μL)	14.3	24.8	24.2
ESR (mm/hr)	102	130	-
CRP (mg/dL)	18.9	>19	-
Synovial Fluid WBC Count (10 <sup>3</sup> /μL)	273,440	95,400	48,700

HIV, human immunodeficiency virus  
 NAAT, nucleic acid amplification test  
 WBC, white blood cell  
 ESR, erythrocyte sedimentation rate  
 CRP, C-reactive protein

**Conclusion:** This cluster of DGI cases was unusual given the recent rarity at this VAMC, the age of the patients, and lack of overt risk factors. In Virginia, DGI is reported to the health department no differently than uncomplicated infections, so the actual rate of DGI regionally is unknown. One isolate was preserved and sent to the Centers for Disease Control and Prevention for deidentified whole genome sequencing. More refined reporting is necessary to improve understanding of local gonorrhea epidemiology, as well as coupling with additional methodologies such as serotyping or whole genome sequencing. Clinicians should be aware of the possibility of DGI, even in older patients without classic risk factors.

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**1531. Antibiotic Selection for *Neisseria gonorrhoeae* among Penicillin Allergic Patients in the Emergency Department**

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**Background.** While penicillin (PCN) allergies are commonly reported, their cross-reactivity with beta-lactam antibiotics is minimal. First line treatment of gonorrheal infections includes a cephalosporin (CPH). In an emergency department (ED) environment, physicians must consider potential allergies when selecting antibiotics for a patient with symptoms concerning for sexually transmitted infection (STI).

**Methods.** A retrospective chart review on adult patients with symptoms concerning for STI presenting to an urban ED from January 2014 through June 2019 was performed. Chart discovery was performed using search terms of "STI", "STD", "urethritis", "vaginitis", and "gonorrhea". Information abstracted included patient symptoms, type of care provider, and antibiotics prescribed or administered in the ED. The primary outcome was prevalence of allergy to PCN and CPH in patients evaluated for STI symptoms and secondary outcomes included prescribed antibiotic treatments. Chi-square and Fischer-exact tests were utilized to examine for statistical significance, with p values < 0.05 as statistically significant.

**Results.** A total of 603 patients met the inclusion criteria, of which 31 reported allergies to PCN, and another 3 reported allergies to CPH. Patients reporting PCN allergy were found to be less likely to receive a CPH antibiotic (p=0.0035). Patients reporting a non-anaphylactic allergy to PCN received a CPH at a rate of 92.3%. Attending physicians in particular were less likely to prescribe a CPH antibiotic to a patient reporting allergy compared with both resident physicians and PAs (p=0.00019). Patients reporting a PCN allergy were more likely to receive alternative antibiotics beyond CPH or azithromycin (p=0.046); the most frequently given antibiotics were metronidazole, doxycycline, and levofloxacin.

Demographic Data

Characteristic	Allergy Reported	No Allergy Reported
Total #	34	569
Age (years), mean (range)	31.3 (21-59)	30.9 (21-66)
Male sex, no. (%)	30 (88.2)	489 (85.9)

- Penicillin or cephalosporin allergy reported in around 5.6% of patients overall with STI symptoms

Antibiotic Prescriptions by Type of Penicillin Allergy

	Anaphylactic Allergy	Non-Anaphylactic Allergy	Unknown Allergy	Cephalosporin Allergy	No Allergy
Total #	2	13	16	3	569
Any antibiotic given (%)	2 (100)	13 (100)	15 (93.8)	3 (100)	522 (91.7)
Cephalosporin given (%)	0	12 (92.3)	9 (56.3)*	1 (33.3)	486 (85.4)
Azithromycin given (%)	1 (50.0)	13 (100)	11 (68.8)	1 (33.3)	450 (79.1)
Other antibiotics given (%)	0	6 (46.2)	9 (56.3)	2 (66.7)	175 (30.8)
G/C Probe Testing (%)	2 (100)	11 (84.6)	12 (75.0)	3 (100)	464 (83.3)

- \* Significant difference by Fisher's Exact test between non-anaphylactic and unknown allergies (p = 0.0443)

Antibiotic Prescriptions for Penicillin Allergy vs. No Allergy

	Penicillin Allergy Reported (n=31)	No Allergy Reported (n=561)	p-value
Any Antibiotics given (%)	30 (96.8)	522 (93.0)	
Cephalosporin given (%)	21 (67.7)	486 (86.6)	p = 0.0035
Azithromycin given (%)	26 (83.9)	450 (80.2)	
Other antibiotics given (%)	15 (48.4)	175 (31.2)	p = 0.046
# Tested for G/C (%)	30 (80.6)	474 (84.5)	
Azithromycin given without a cephalosporin (%)	6 (19.4)	3 (0.527)	p < 0.00001
Azithromycin ONLY (%)	3 (9.68)	3 (0.527)	p = 0.0023
Azithromycin given WITH a non-cephalosporin antibiotic (%)	3 (9.68)	0	p = 0.0001
# Patients returning to ED within 1 month for same symptoms	3 (9.68)	50 (8.91)	

**Conclusion.** Patients with PCN allergies represent a recurring challenge for ED physicians when faced with antibiotic selection for STI symptoms concerning for gonorrheal infection. Those with PCN allergies are significantly less likely to receive a CPH antibiotic, though these remain the only universal treatment for gonorrheal infections. These findings highlight the significant need for further physician education on allergies and antibiotic selection.

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**1532. Demographics and Population Epidemiology of *Mycoplasma genitalium* infection: Correlation to Co-Infection and prior STI history**

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**Session:** P-69. Sexually Transmitted Infections

**Background.** Despite reports in the past few years that Americans are having less sex, the US Centers for Disease Control and Prevention (CDC) recently reported in 2019 that sexually transmitted infection (STI) cases are at an all-time high in the United States. The CDC report included statistics on confirmed cases of Chlamydia trachomatis and *Neisseria gonorrhoeae*, but did not include data for *Trichomonas vaginalis* and *Mycoplasma genitalium*. Although *Trichomonas vaginalis* and *Mycoplasma genitalium* are generally recognized agents responsible for STIs, there is limited prevalence data in the United States.

**Methods.** Herein we present STI prevalence and socio-demographic epidemiological data associated with patients enrolled in a multicenter STI study using the automated multiplex qualitative CE marked assay, Alinity m STI. The enrolled study population reflected a diverse number of participants with an approximately equal male to female ratio, prior STI history, single and married, education levels from primary to post-graduate, as well as different ethnicities.

**Results.** Participants in this study population who have previously been diagnosed with an STI had an overall *Mycoplasma genitalium* prevalence rate that was approximately double those who have not been previously diagnosed with an STI.