AN AUTOMATED QUANTITATIVE CYTOLOGY-DNA PLOIDY INTEGRATED ANALYSIS PLATFORM FOR CERVICAL CANCER SCREENING

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Objectives Thinprep cytology test (TCT) is a widely used method for cervical cancer screening but it is labor-intensive and lacks objectivity. Here, we aimed to establish and promote an effective TCT-based screening approach using artificial intelligence to improve the efficiency and accuracy.

Methods TCT slides were automatically scanned under microscope and images of cervical exfoliated cells were obtained. To analyze the images, artificial intelligence methods including deep convolutional neural networks were used to assist in cytology analysis and quantitative DNA ploidy analysis based on integral optical density simultaneously. Nuclear parameters such as nuclear area and perimeter were also integrated in DNA ploidy analysis to help distinguish abnormal cells. After training and validation process, the automated quantitative cytology-DNA ploidy integrated analysis (aqCDPIA) platform was established to determine the abnormality of TCT samples. The results of aqCDPIA were compared with manual TCT.

Results After examination of 21,865 samples, aqCDPIA showed an excellent consistency of 94.6% with manual TCT results. The Kappa value was 0.733. According to the pathological results of 1,197 samples, the sensitivities of aqCDPIA and manual TCT to discover cervical intraepithelial neoplasia were 91.4% and 88.6%, respectively. And the specificities of aqCDPIA and manual TCT were 33.4% and 41.5%. Besides, aqCDPIA has the superiority to identify non-HPV associated cervical adenocarcinoma compared with manual TCT.

Conclusions The efficient aqCDPIA platform has great potential to serve as an alternative TCT and replaces traditional visual analysis by cytopathologists. It will be beneficial to cervical cancer screening especially in the underdeveloped region where cytopathologists are scarce.

CANCER SCREENING IN BISEXUAL WOMEN IN THE UNITED STATES: IS THERE A DISPARITY? – A US BRFSS STUDY

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Objectives To compare the rate of cancer screening for breast and cervical cancer in bisexual and lesbian/gay women versus heterosexual women in the United States.

Methods Data on self-reported sexual orientation and cancer screening were obtained from the Behavioral Risk Factor Surveillance System (BRFSS) from 2014–2017. Chi square tests were employed for statistical analysis.

Results Of 204,535 female participants, with respects to self-reported sexual orientation, 94.04% (N=192,349) were heterosexual, 0.98% (N=2005) were lesbian/gay, and 1.68% (N=3442) were bisexual. 93.96% of self-reported straight women endorsed ever having a pap smear for cervical cancer screening, compared to only 88.78% of lesbian/gay women (p<0.001) and only 84.4% of bisexuals (p<0.001). Of 168,773 female participants over the age of 40 who reported having a mammogram within the past two years, 94.76% (N=159,928) self-reported heterosexual, 0.86% (N=1456) self-reported lesbian/gay, and 0.93% (N=1580) self-reported bisexual. 72.79% of self-reported heterosexual women over the age of 40 endorsed having had a mammogram in the past two years, compared to 72.73% of lesbian/gay women (p=0.37) and only 66.33% of bisexuals (p<0.001).

Conclusions In the United States, bisexuals are significantly less likely to undergo cervical and breast cancer screening when compared to heterosexual women. Compared to lesbian/gay women are also less likely to undergo cervical cancer screening. Further studies are warranted to better understand the obstacles in cancer screening in non-heterosexual women.

EXTENDED GENOTYPING AS TRIAGE OF HPV POSITIVE SCREENED WOMEN IN LOW-MIDDLE INCOME COUNTRIES (LMIC)

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Objectives Cervix cancer screening with HPV testing is widely accepted. The ideal triage test of screen positive women should identify those at highest risk of CIN2+ and avoid overtreatment of those with lesions <CIN2. We evaluated
extended genotyping on the Xpert® HPV platform as triage test.

Methods A total of 1063 women, aged 25–65 years with no screening in the preceding five years were screened and genotyped with an Xpert® HPV test. The 14 targeted HPV types in the preceding five years were screened and genotyped for detection of CIN+ lesions.

Results A total of 454 participants were HIV+ (WLWH) and 609 were HIV-. Overall HPV prevalence was 34.0%. The prevalence was significantly higher in WLWH compared to HIV- women (48.9% vs 22.8%). This was consistent over all regions of the Republic of Karakalpakstan.

Conclusions Upon successful completion of the project, a national cervical cancer screening program will be developed.

E-poster viewing: Social inequities and impact on cancer outcomes

EP357/#634 COUNTRY OF BIRTH INFLUENCES SURVIVAL OUTCOMES IN CARIBBEAN BLACK WOMEN WITH ENDOMETRIAL CANCER

Objectives Prior studies have demonstrated survival differences between Black women with endometrial cancer (EC) born in the US (USB) and the Caribbean. Haitian-born (HB) and Jamaican-born (JB) women represent the largest proportion of Caribbean immigrants to the US, but these populations have not been specifically studied. Our objective was to determine if country of birth influences overall survival (OS) outcomes in Black women with EC.