

policy to understand the potential for inaccurate test results in clinical practice, and the risk-benefit implications of these diagnostic errors for patients.

## OP81 Cost Effectiveness Of Human Papillomavirus Extended Genotyping For Cervical Cancer Screening In Singapore

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**Introduction:** The World Health Organization recommends the human papillomavirus (HPV) test for cervical cancer screening. HPV partial genotyping (PGT) identifies HPV16 and HPV18 individually and the 12 other high-risk HPV genotypes (hrHPV) collectively. In contrast, HPV extended genotyping (XGT) identifies six hrHPV individually (HPV16,18,31,45,51, and 52) and the other eight in three groups (HPV33/58, HPV56/59/66, and HPV35/39/68). XGT allows better risk stratification for patient management and monitoring of persistent same-genotype infections (PSGI), which convey a higher risk for cervical cancer. This study compared the cost, quality-adjusted life-years (QALYs), and resource use of XGT with PGT when used as the primary cervical cancer screening method in Singapore.

**Methods:** A discretely integrated condition event simulation was developed for screening 500,122 women aged 30 to 69 years over five years from the health system perspective, using a three percent annual discount. For XGT, women with HPV35/39/51/56/59/66/68 and reflex cytology of atypical squamous cells of undetermined significance were recalled for a repeat screening in one year, instead of the immediate colposcopy referral that occurs with PGT. At repeat screening, colposcopy was only provided for women with PSGI on XGT. Published data from Singapore were used for inputs and supplemented with data from international literature. Deterministic and probabilistic uncertainty analyses were conducted. Scenario analysis was conducted to simulate various HPV burdens among women. XGT was cost effective when the incremental cost-effectiveness ratio (ICER) relative to PGT was below SGD100,000 (USD118,906) (gross domestic product per capita in 2021).

**Results:** XGT was cost effective relative to PGT (ICER SGD16,370 [USD19,465]), with fewer colposcopies (n=7,130; 19%), liquid-based cytology tests (n=6,027; 7%), and clinic consultations (n=9,787; 2%) but more HPV tests (n=2,446; 0.5%). The ICER was most sensitive to the relative cost of XGT and the cost of PGT. XGT remained cost effective in one-way sensitivity analysis in all 1,000 probabilistic uncertainty simulations and in scenario analysis with various HPV burdens.

**Conclusions:** XGT can provide a cost effective, risk-based approach to primary cervical cancer screening, with lower resource utilization than PGT.

## OP82 Positron Emission Tomography Combined With Computed Tomography Using 18F-Sodium Fluoride

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**Introduction:** Positron emission tomography combined with computed tomography (PET/CT) using 18F-sodium fluoride (18F-NaF) is used for functional imaging in diseases to detect abnormally altered osteogenic activity, such as benign and malignant bone diseases and inflammatory or traumatic changes in skeletal bones.

**Methods:** A systematic search of literature using keywords in the MEDLINE database was conducted to identify literature on the clinical and cost effectiveness of using PET/CT with 18F-NaF-based radiopharmaceuticals in the diagnosis of bone and cartilage cancer. The search retrieved 323 publications. The analysis included 11 publications that met the selection criteria, including one meta-analysis and ten literature reviews.

**Results:** The pooled sensitivity, specificity, diagnostic odds ratio (DOR) and area under the receiver operating characteristic curve of 18F-NaF-based PET/CT for the detection of bone metastases were 0.98 (95% confidence interval [CI]: 0.95, 0.99), 0.90 (95% CI: 0.86, 0.93), 123.2, and 0.97, respectively. 18F-NaF-based PET/CT was highly effective in detecting bone metastases during staging and restaging of patients with high-risk prostate cancer. The effectiveness of 18F-NaF-based PET/CT was superior to bone scintigraphy with technetium-99m and single-photon emission computed tomography (SPECT) and was comparable to diffusion-weighted imaging.

**Conclusions:** PET/CT with 18F-NaF is a more accurate method of localizing and characterizing malignant bone lesions than SPECT. This method has improved clinical accuracy and provides greater convenience for patients and referring physicians. PET/CT with 18F-NaF in malignant neoplasms is a more specific, sensitive study than 18F-fluorodeoxyglucose PET/CT. These results were submitted to the Ministry of Health for a decision on the inclusion of 18F-NaF-based PET/CT in the state reimbursement system.