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Optimizing Resource Allocation for Breast Cancer Prevention and Care among Hong Kong Chinese Women: A Generalized Cost-effectiveness Analysis

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Background and Objectives: Recommendations about funding of interventions through the full spectrum of the disease have often been made in isolation or been derived in separate single-intervention analyses. We primarily evaluated and optimized budgetary allocations by comparing cost-effectiveness data for the selected preventive and management strategies throughout the disease course for breast cancer in HK Chinese women.

Methods: We developed a bio-mathematical model and evaluated the deployment of additional resources for breast cancer treatment related interventions, under the decision analytic rubric. Nesting a state-transition Markov model within a generalized cost-effectiveness analytic framework, we compared costs and quality-adjusted life years (QALYs) to estimate average cost-effectiveness ratios for the following interventions at the population level: biennial mass mammography (from 40 to 69 or 79 years), reduced waiting time for post-operative radiotherapy (by 15 or 25%), adjuvant endocrine therapy (either upfront aromatase inhibitor (AI) therapy or sequentially/switching with tamoxifen and AI use) in postmenopausal estrogen receptor positive disease, targeted immunotherapy in HER2 over-expressed disease, and enhanced palliative services (either at home or as an inpatient). Usual care for eligible patients in the public sector was the comparator.

Results: From strategies we considered, the optimal allocation of additional resources for breast cancer would sequentially be: a 25% reduction in waiting time for postoperative radiotherapy (average cost-effectiveness ratio = US$5,000 per QALY); an enhanced, home-based palliative care (US$7,105 per QALY); adjuvant, sequential endocrine therapy (US$17,963 per QALY); targeted immunotherapy (US$62,092 per QALY); and mass mammography screening of women ages 40 to 69 years (US$72,576 per QALY).

Discussion: Given the situation in Hong Kong, it appears that it is more cost-effective to provide women with the most intensive treatment and care after diagnosis of breast cancer than to offer young women mammography. Future research should focus how to deploy these decisions flexibly to fit various budgetary constraints, affordability of cancer medicines and ethical considerations. Our results could further inform policy debates about resource allocation on service delivery regarding breast cancer diagnosis, treatments palliative care and prevention locally.

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A Randomized Control Trial to Evaluate Self-Sampling as A Primary Cervical Screening Test in Women

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Background and Aims: The causal relation between Human papillomavirus (HPV) and cervical cancer has enabled HPV DNA self-sampling to be a possible cervical screening method. This study investigated whether it could be an alternative approach by examining: 1) The uptake rate of cervical cancer screening; 2) The acceptability and confidence of self-sampling method; 3) The rate of cervical intraepithelial neoplasia grade 2+ (CIN2+) in screening; 4) Detection between self-collected samples and Pap smear; 5) The costing between self-sampling and Pap smear.

Methods: All participants would adopt both screening methods, to minimize the sequence effect of screening methods, a crossover randomized controlled trial was conducted. Participants were allocated to 2 arms (Arm 1: self-sampling before a Pap smear, Arm 2: Pap smear before self-sampling). Women were also assessed their attitudes toward and intentions to the future use of HPV DNA self-sampling.

Results: A total of 392 participants were recruited. Participants generally accepted self-sampling as an alternative as clinician-sampling (overall score 7.8 and 7.7 respectively), in particular, participants without previous experience of Pap smears preferred self-sampling ($p<0.001$). In general, participants had significantly more positive feelings on self-sampling with less anxious, less uncomfortable, more pleasant, less embarrassed, more relaxed, less painful, and less invasion of privacy ($p < 0.001$). However, participants trusted Pap test results more and had more confidence in collection than self-sampling ($p < 0.001$). Among 12 abnormal Pap smear results diagnosed, only 1 was confirmed with CIN 1. The prevalence of HPV was 11.7 % (95% CI, 8.8 to 15.4) with self-collected samples and 7.7% (95% CI, 5.3 to 10.9) with clinician-collected samples. The overall agreement between two screening methods was 93.9% and agreement among the positives was 52.0%, with a kappa of 0.65 (95% CI of 0.52-0.78). We estimated that the introduction of HPV DNA self-sampling could increase the future rate of uptake of cervical cancer screening by 6.5%, from 61.7% to 65.7%, and would entail lower costs.The difference of costs of two methods was estimated as HKD 645.28 per case with initial screening.

Conclusions: The high rate of detection and acceptance, and the lower cost of HPV DNA testing suggest it could be an alternative cervical screening method to overcome the barriers to Pap smears, and enhance the coverage of cervical cancer screening. Prospective study is needed to evaluate the feasibility of HPV self-sampling and performance in the context of population based screening programme.

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Long-term Efficacy of a Motivational Enhancement Education Program on Continuous Positive Airway Pressure Adherence in Obstructive Sleep Apnea: A Randomized Controlled Trial

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Introduction: Long term continuous positive airway pressure (CPAP) treatment has been shown to alleviate symptoms and prevent health-related consequences in subjects with obstructive sleep apnea (OSA). Poor adherence to CPAP treatment adversely affects the effectiveness of this therapy. CPAP education is important to enhance CPAP adherence. This randomized controlled trial (RCT) aimed to examine the efficacy of a brief motivational enhancement education program in improving CPAP adherence in OSA subjects after 1 year of CPAP treatment.