

EVALUATING THE CLINICAL EFFECTS AND THE COST-EFFECTIVENESS OF PROPHYLACTIC CERVICAL CANCER VACCINATION WITHIN AN ORGANISED POPULATION-BASED SCREENING SETTING—CASE FINLAND

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OBJECTIVES: Finland has been a model country for an organised population-based cervical cancer (CC) screening programme. Since its implementation in the 1960's, both CC incidence and mortality rates have reduced by 80% to annual 150 CC cases and 50–60 CC deaths. Our objective was to predict the clinical impact of introducing prophylactic vaccination against human papillomavirus (HPV) within a well functioning organised population-based screening system and to evaluate the cost-effectiveness of vaccination using a cohort based Markov model. **METHODS:** The model is based upon lifetime Markov processes using Microsoft Excel, modelling the natural history of HPV infection and CC over the lifetime of a one age-cohort of girls. The model simulates the effect of adding vaccination to the current screening programme in terms of number of pre-cancerous lesions, CC cases and CC deaths avoided. Data is collected from literature review, expert opinion and statistics in Finland. All country specific data were reviewed with national experts. Screening coverage was assumed to remain constant over time in the model (2.1 million eligible women and ca. 500,000 annual Pap smears divided into different screening patterns). **RESULTS:** With 90% vaccination coverage, coinciding with the coverage of the Finnish mass vaccination programme, the model predicts a 66% reduction in CC cases and in CC deaths (from 166 to 56 and from 56 to 19, respectively). Cost-effectiveness was estimated assuming vaccine price of €120/dose, including administration. With the assumed coverage the undiscounted ICER would be less than €7000/QALY. **CONCLUSION:** Although CC cases and deaths are relatively rare in Finland, it would still be very cost-effective to implement prophylactic cervical cancer vaccination. Additional benefits include avoidance of pre-cancerous lesions, the resource use related to these and their adverse utility effects.

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against the age-specific annual number of total pap smears, CC incidence and CC mortality reported over the last 15 years in Finnish statistics. **RESULTS:** Observed age-specific CC incidences and deaths were closely replicated by the model (correlation coefficients 0.702 and 0.826, respectively). Overall predicted and observed CC incidence and mortality adjusted for world standardized population per 100,000 women coincide (CC 4.2 vs. 4.0; mortality 1.2 vs. 1.2, respectively). The predicted lifetime number of pre-cancerous lesions for the cohort were 14,462 (CIN1) and 1,646 (CIN2-3). The model predicts that vaccination at 90% coverage would reduce CC cases and mortality by 66% (166 to 56 cases; 56 to 19 deaths). **CONCLUSION:** A Markov model can be used to replicate cancer incidence and mortality in the unique Finnish setting. This model predicts health benefits and cost-effectiveness of a vaccine against cervical cancer in Finland.

ADAPTATION OF A HEALTH ECONOMIC MODEL OF THE NATURAL HISTORY OF HPV INFECTION AND CERVICAL CANCER IN A WELL FUNCTIONING POPULATION-BASED SCREENING SYSTEM—A MODEL CALIBRATION TO FINLAND

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OBJECTIVES: The efficiency of the Finnish cervical cancer (CC) screening system is renowned. Consequently, the burden of CC in Finland is amongst the lowest in the world. Our objective was to validate, in this unusual setting, a cohort based Markov model developed for estimating the clinical and health economic impact of adding a prophylactic vaccine against cervical cancer to an existing screening programme. **METHODS:** An existing Markov model describing the natural history of high-risk HPV infections to CC combined with screening was customized to the Finnish setting. Basic calibration was performed using published data and information on the existing screening programme. One third of total annual pap smears are taken within organized population-based screening. However, the remaining two thirds of total paps (private spontaneous screening) are crucial for the outcomes. In our model, spontaneous screening was extrapolated assuming a similar age-specific distribution to organised screening. The model outcomes of a cohort of 30,000 girls aged 11 years were validated

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INCORPORATING PROBABILISTIC ATTRIBUTES IN A STATED-CHOICE RISK-BENEFIT SURVEY

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OBJECTIVES: The objective of this study is to elicit preferences for hypothetical risks and benefits of antiretroviral (ART) treatment among treatment-naïve HIV-positive African-Americans using a stated-choice (SC) survey with probabilistic attribute levels. SC surveys often include attributes that describe disease outcomes and treatment features as discrete levels. Rarely do studies describe attributes in probabilistic terms. Understanding and conceptualizing numerical probabilities often is cognitively challenging. Researchers have experimented with various graphical representations to assist respondents in understanding quantitative risks, but there is no general consensus about the most effective approach. **METHODS:** In a recent study to estimate the willingness of treatment-naïve HIV-positive African-Americans to accept adverse event risks in exchange for improvements in treatment efficacy, four of the five attributes were described as probabilities. We relied on a format that portrays absolute risks using a risk grid in which each square of the grid represents one person. Respondents completed an online survey instrument that included a series of 10 SC tasks. Each hypothetical treatment alternative included different probabilities of virologic failure, hypersensitivity reaction, bone damage, and kidney damage. The fifth attribute described discrete outcomes of bone or kidney damage (degree to which the problem could be treated successfully). We included four questions that tested their understanding of the risk grid format prior to completing the choice questions. **RESULTS:** In total, 153 respondents completed the survey. The mean (SD) age was 42 (8.6) and there were slightly more males (58%) than females (42%). Seventy-four percent (89%) of respondents answered the first (fourth) risk quiz question correctly indicating a high level of comprehension of risk levels. **CONCLUSION:** Our risk grid approach, which included both a numerical and graphical representation of absolute risk levels, is an appropriate method for including probabilistic attribute levels in SC surveys.

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HOW TO IMPROVE THE EXTERNAL VALIDITY AND EXTEND THE EXPIRATION DATE OF ECONOMIC EVALUATIONS

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OBJECTIVES: Due to changes in population, health care system and methodological factors the external validity of economic

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