Supplemental material:

Supplementary Table 1: Model inputs: transition probabilities (yearly), costs and disutilities

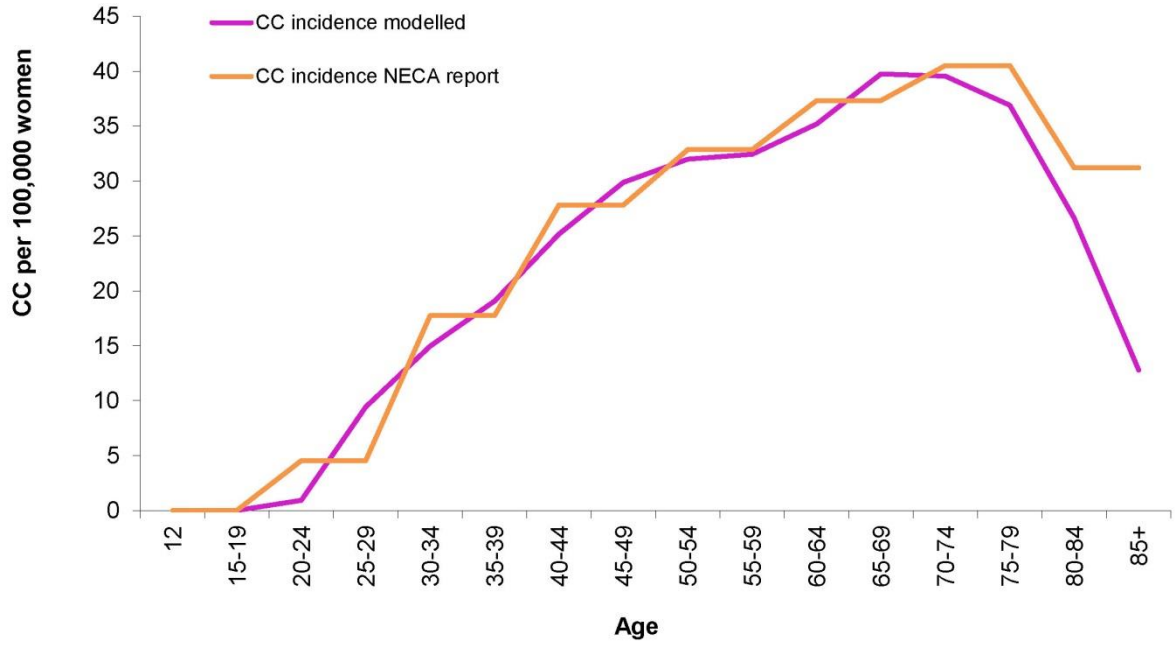
Parameter	Base-case	Source / Assumptions
Transition probabilities: Oncogenic HPV pathway		
HPVonc to No HPV	0.293 - 0.553	Age-specific (Goldie et al., 2004; Melnikow et al., 1998; Moscicki et al., 2001)
HPVonc to CIN1	0.049	(Demarteau and Standaert, 2010)
HPVonc to CIN2/3	0	Assumed ≥ 2 years required to develop CIN2/3
CIN1onc to Cured	0.449	(Demarteau and Standaert, 2010)
CIN1 to CIN2/3	0.093	(Demarteau and Standaert, 2010)
% CIN1onc detected and undergoing treatment	0.200	Expert opinion
CIN1 treated to No HPV (i.e., treatment success)	0.900	(Sanders and Taira, 2003)
CIN2/3 to Cured	0.227	(Demarteau and Standaert, 2010)
CIN2/3 to CIN1onc	0	Assumed only spontaneous regression to No HPV
CIN2/3 to persistent CIN2/3	0.114	(Demarteau and Standaert, 2010)
Persistent CIN2/3 to cancer	0.010 - 0.591	Calibrated to CC incidence in Korea (National Evidence-Based Healthcare Collaborating Agency (NECA), 2012). Assumed 0.008 at year 20 and yearly increase of 0.008
% CIN2/3 detected and undergoing treatment	0.900	Assumption
CIN2/3 treated to No HPV (i.e., treatment success)	0.900	(Van De Velde et al., 2007)
Cancer to CC death	1-0.81^(1/5) = 0.041	5-year survival with CC (81%) (Korean Statistical Information Service (KOSIS), 2015)
Cancer to Cancer cured	(1-(1-0.81^(1/5)) = 0.283	
Transition probabilities: Low risk HPV pathway		
HPVlr to No HPV	0.516	(Richardson et al., 2003)
HPVlr to GW	0.001 - 0.059	Age-specific, calibrated to GW incidence in Korea (National Evidence-Based Healthcare Collaborating Agency (NECA), 2012)
HPVlr to CIN1	0.036	(Van De Velde et al., 2007)
% GW treated and resistant	0.350	(Woodhall et al., 2011)
CIN1lr to No HPV	0.329	(Van De Velde et al., 2007)
Transition probabilities: Screening		
Screening coverage	0.495	(Korean Statistical Information Service (KOSIS), 2015)

Age and frequency	Age 30-74y, every 2 years	(Bruni et al., 2015)
CIN1 detected	0.580	Proportion detected (sensitivity) (Fahey et al., 1995)
CIN 2/3 detected	0.610	
% positive Pap smear (estimated)	0.055	Proportion positive smear (Bergeron et al., 2005; Fender et al., 2003)
Costs (KRW)		
Vaccine per dose	105,000	Assumption
Screening, negative pap smear	6,422	(National Evidence-Based Healthcare Collaborating Agency (NECA), 2012)
Screening, positive pap smear, colposcopy/biopsy	41,000	(National Evidence-Based Healthcare Collaborating Agency (NECA), 2012)
Treatment Costs (annual)		
CIN1	263,894	(National Evidence-Based Healthcare Collaborating Agency (NECA), 2012)
CIN 2/3	853,709	(National Evidence-Based Healthcare Collaborating Agency (NECA), 2012)
Cervical cancer	6,520,341	(National Evidence-Based Healthcare Collaborating Agency (NECA), 2012)
GWs and resistant GWs	120,673	(National Evidence-Based Healthcare Collaborating Agency (NECA), 2012)
Utility and disutility scores		
CIN1 detected	0.0128	(Demarteau and Standaert, 2010)
CIN2/3 detected	0.0128	(Demarteau and Standaert, 2010)
Cervical cancer	0.2730	(Demarteau and Standaert, 2010)
Cancer cured (chronic disutility)	0.0620	(Demarteau and Standaert, 2010)
GWs[a)]	0.0180	(Demarteau and Standaert, 2010; Woodhall et al., 2011)
Death (utility score)	0.0000	(Demarteau and Standaert, 2010)

CC: cervical cancer; CIN: cervical intraepithelial neoplasia; GW: genital warts; HPV: Human Papillomavirus; KRW: Korean Won; lr: low risk; onc: oncogenic

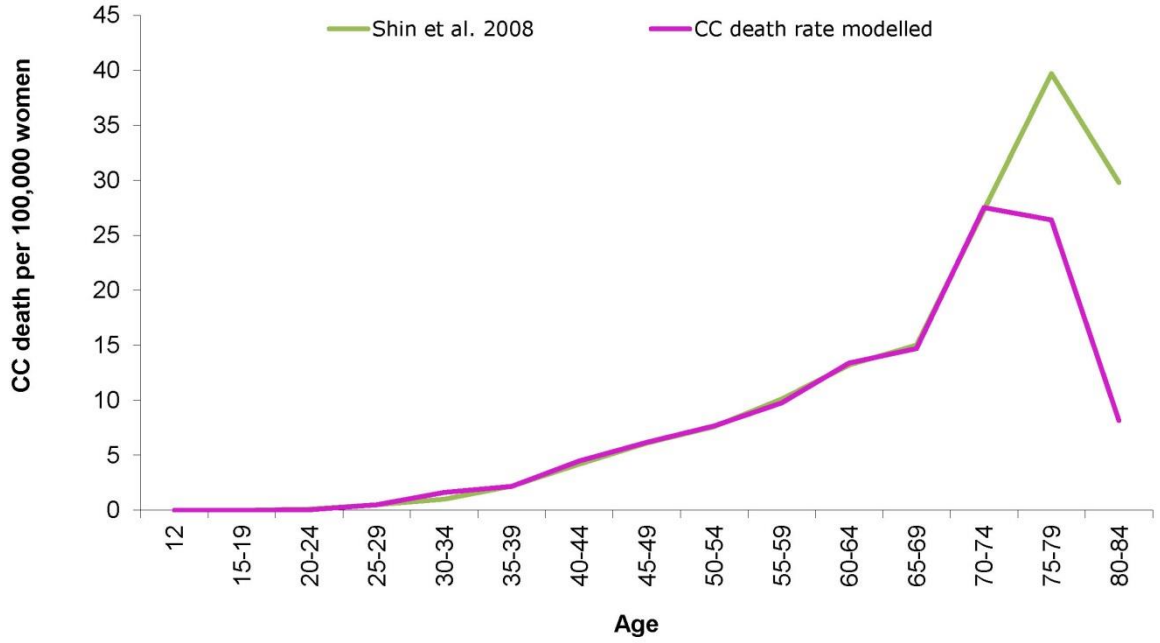
[a)]Accounts for treated warts: disutility from treatment

Supplementary Figure 1: Modelled vs. Observed cervical cancer incidence in Korea (National Evidence-Based Healthcare Collaborating Agency (NECA), 2012)



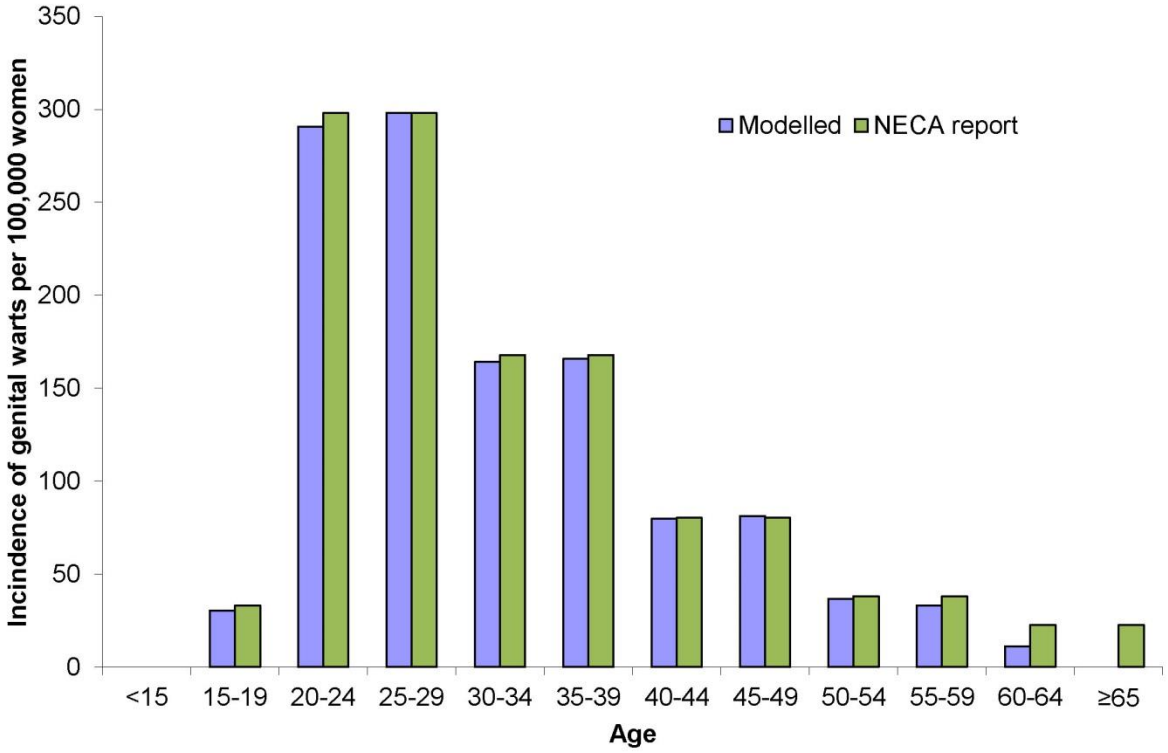
CC: cervical cancer; NECA: National Evidence-Based Healthcare Collaborating Agency

Supplementary Figure 2: Modelled vs. Observed cervical cancer mortality in Korea (Shin et al., 2008)



CC: cervical cancer

Supplementary Figure 3: Modelled vs. Observed genital warts incidence in Korea (National Evidence-Based Healthcare Collaborating Agency (NECA), 2012)



NECA: National Evidence-Based Healthcare Collaborating Agency

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