CISNET Cervical Model Characteristics: Key Similarities and Differences

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	HSPH		UMN		EMC		POLICY1-Cervix		MGH
Model Type	*HPV Transmission*	*Cervical Carcinogenesis*	*HPV Transmission*	*Cervical Carcinogenesis*	*HPV Transmission*	*Cervical Carcinogenesis*	*HPV Transmission*	*Cervical Carcinogenesis*	*HPV Transmission*
Dynamic (interactive) or static (non-interactive)	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic	Static	Dynamic
Unit of analysis	Individual-based	Individual-based	Individual-based	Individual-based	Individual-based	Individual-based	Aggregate	Individual-based	Aggregate
Cycle length	Monthly	Monthly	Monthly	Monthly	Event-driven	Continuous time	Annual	Continuous time	Bimonthly
HPV Transmission and Infection									
HPV types included	HPV-16, HPV-18, HPV-31, HPV-33, HPV-45, HPV-52, HPV-58	HPV-16, HPV-18, HPV-31, HPV-33, HPV-45, HPV-52, HPV-58, HPV other high-risk, low-risk	HPV-16, HPV-18, HPV other 9v, HPV other non-9v types	HPV-16, HPV-18, HPV other 9v, HPV other high-risk	HPV-16, HPV-18, HPV other 9v, HPV other high-risk	HPV-16, HPV-18, HPV other 9v, HPV other high-risk, HPV low-risk	HPV-16, HPV-18, HPV other 9v, HPV other non-9v types	HPV-16, HPV-18, HPV-31, HPV-33, HPV-45, HPV-52, HPV-58, HPV other high-risk	HPV 9v types, HPV other high-risk non-9v types
Natural Immunity	Reduced probability of future type-specific infection (sex-specific)	Reduced probability of future type-specific infection	Reduced probability of future type-specific infection	Reduced probability of future type-specific infection	Reduced probability of future type-specific infection (two methods)	Reduced probability of future type-specific infection	Reduced probability of future type-specific infection	Reduced probability of future type-specific infection	Reduced probability of future type-specific infection
Cervical Carcinogenesis									
Health states included	Healthy, HPV	Healthy, HPV, CIN2, CIN3, Cancer (by stage, SEER, SCC)	Healthy, HPV	Healthy, HPV, CIN1, CIN2, CIN3, Cancer (by stage, FIGO, all)	Healthy, HPV (duration accounting for prevalent HPV positive CIN)	Healthy, HPV, CIN1, CIN2, CIN3, Cancer (by stage, SEER, all)	Healthy, HPV, CIN1, CIN2, CIN3, Cancer	Healthy, HPV, CIN1, CIN2, CIN3, Cancer (by stage, SEER, all)	Healthy, HPV, CIN1, CIN2, CIN3, Cancer (stage-specific)
Progression and regression rates	Type- and sex-specific HPV persistence	Type-specific HPV persistence	Age-specific	Age-specific	Not applicable	Age-specific	Age-specific	Age-specific	Age-specific and type-specific (9v vs. other high-risk)
Other health conditions	Other HPV-related cancers	Pre-term birth from CIN treatment, HIV		Anogenital Warts	HIV		Other HPV cancers, HIV	Pre-term birth from CIN treatment, HIV	HIV
Model Calibration									
Calibrated parameters	Sex-specific transmission probabilities; HPV natural immunity	HPV incidence; HPV and CIN progression probabilities by duration; HPV natural immunity; cancer progression and symptom detection	Transmission probabilities; natural immunity	HPV incidence and clearance; CIN progression and regression rates; cancer symptom detection	Transmission probabilities; variation in duration of HPV infection; duration and variance of HPV natural immunity	HPV incidence; HPV and CIN progression and regression; duration of CIN3 and cancer stages; cancer symptom detection; background risk in non-attenders	Transmission probabilities; HPV clearance; duration of HPV natural immunity	HPV and CIN progression and regression rates; HPV type distribution in CIN and cancer; undetected asymptomatic cancer by stage	Transmission probabilities; CIN progression and regression rates; risk multipliers for women living with HIV; sexual behavior
Cancer Control Interventions									
Vaccination	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Screening	--	Yes	--	Yes	--	Yes	--	Yes	Yes
Diagnosis	--	Yes	--	Yes	--	Yes	--	Yes	--
Treatment	--	Yes	--	Yes	--	Yes	--	Yes	Yes

CIN, cervical intraepithelial neoplasia; HPV, human papillomavirus.