CISNET Uterine Model Characteristics: Key Similarities and Differences **Date: 2025/04/02**

Model Attribute	CU-UTMO (Columbia)	DU-CAM (Duke)	MUSIC (Mt. Sinai)
Model type, mathematical formalism	Microsimulation	Clonal Expansion	Microsimulation
Timeframe/Cycles	Monthly	Annual	Monthly
Model Type	10-year cohorts (from 1910-1920 to 1990-2000) Multicohort model (all cohorts combined)	Single-year birth cohorts 1915-2000 spanning years 2000-2020	10-year cohorts (from 1910-1920 to 2010-2020) Multicohort model
Starting cohort population	18-year-old individuals	From birth onward	20-year-old individuals
Subgroups	Non-Hispanic White Non-Hispanic Black	Non-Hispanic White Non-Hispanic Black	Non-Hispanic White Non-Hispanic Black
Sex	Females	Females	Females
Histology EM Non-EM Sarcoma	 Yes Yes Yes	 Yes Yes Yes	 Yes Yes Yes
Tested Platforms	Windows	Windows, Mac OS X	Windows, Linux
Language	Python	R	C/C++, Python
Natural History			
Precancer	Yes	Yes	Yes
Recurrence[1]	No	No	Yes
Regression (pre-invasive)[2]	Yes	Yes	No
Regression (invasive)	No	No	No
Non-EM cases from EIN Pathway	Yes	No	No
Reproductive History	No	Yes	No
AJCC Stage	Yes	Yes	Yes
Risk factors	Obesity	Obesity, reproductive history	Obesity
Transitions among health states	Age, cohort, BMI, race specific probabilities	Age, cohort, BMI, race, reproductive history	Age, cohort, race, BMI
Calibration			
Incidence targets Mortality targets Search Algorithm	SEER SEER Simulated annealing	SEER SEER Maximum likelihood	SEER SEER Manual χ^2 minimization

Model Inputs			
Obesity Hysterectomy Competing Mortality Survival	Obesity Generator NHANES CDC Wonder SEER	Obesity Generator NHANES CDC Wonder SEER	Obesity Generator BRFSS CDC Wonder SEER/Medicare
Risk Factor Assumptions			
Obesity	Increases risk of precursor lesion (EIN) and EM uterine cancer	Obesity history influences premalignant promotion and malignant transformation	Modifies transition rate from Healthy to EIN state
Reproductive History	N/A	Influences premalignant promotion and malignant transformation	N/A

[1]Recurrence -MS models distant recurrence, but not local

[2]Regression - Regression of invasive malignancy prior to clinical detection and diagnosis.