CISNET Colon Model Characteristics: Key Differences and Similarities   Date: 2025/03/26

Property	MISCAN	SimCRC	CRC-SPIN
Adenoma Risk			
Mechanism:	Poisson Process	Logistic function	Poisson Process
Varies randomly across individuals	YES	YES	YES
Varies systematically with age and sex	YES	YES	YES
Varies systematically with race and birth-year cohort	YES	YES	YES*
Adenoma Growth			
Mechanism:	Time in each size category	Time in each size category	Continuous size growth curve
Size modeled as continuous	NO	NO	YES
Varies randomly across individuals	YES	YES	YES
Transition times are correlated across size categories	YES	NO	YES
Varies systematically with location	NO	YES†	YES†
Transition to Preclinical CRC			
Mechanism:	Overall transition probability	Logistic function	Adenoma size at transition
Transition probabilities vary randomly across same-size adenomas within individuals	NO‡	YES	YES
Transition times are correlated across preclinical stages	YES	NO	N/A
Transition probabilities vary systematically by			
– Sex	NO	YES	YES
– Age	YES§	YES	NO
– Race and other risk factors	NO	YES	YES*
– Adenoma size	YES	YES	YES
– Location	NO	YES‡	YES‡
Transition to Clinical CRC			
Mechanism:	Time to transition	Time to transition	Time to transition
Transition times vary randomly across cancers within individuals	YES	YES	YES
Transition times correlated with duration of preclinical CRC	YES	NO	NO
Transition times vary systematically with			
– Sex and race	YES	NO	YES*
– Location	YES¶	YES¶	YES¶

* CRC-SPIN includes a general risk factor that can capture differences by specific characteristics, such as sex and race.

† Varies by colon and rectum for CRC-SPIN and proximal colon, distal colon and rectum for SimCRC.

‡ The probability of transition is fixed for three categories of size and adenoma type: 0 for all non-progressive adenomas and for adenomas <6 mm, 0.3 for progressive adenomas 6 to <10 mm, and 1 for progressive adenomas ≥10 mm.

§ The probability that an adenoma is progressive depends on age.

¶ Varies by colon and rectum for CRC-SPIN and proximal colon, distal colon and rectum for MISCAN and SimCRC.