

**Appendix Table 2: CODEm covariates used, level of covariate, and expected direction of covariate for bladder cancer by sex and age**

Cause	Sex	Age Start	Age End	Direction	Level	Covariate Name
Bladder cancer	Male	15-19 years	95+ years	1	2	Alcohol (liters per capita)
Bladder cancer	Female	15-19 years	95+ years	1	2	Alcohol (liters per capita)
Bladder cancer	Male	15-19 years	95+ years	1	1	Cumulative Cigarettes (10 Years)
Bladder cancer	Female	15-19 years	95+ years	1	1	Cumulative Cigarettes (10 Years)
Bladder cancer	Male	15-19 years	95+ years	1	1	Cumulative Cigarettes (15 Years)
Bladder cancer	Female	15-19 years	95+ years	1	1	Cumulative Cigarettes (15 Years)
Bladder cancer	Male	15-19 years	95+ years	1	1	Cumulative Cigarettes (5 Years)
Bladder cancer	Female	15-19 years	95+ years	1	1	Cumulative Cigarettes (5 Years)
Bladder cancer	Male	15-19 years	95+ years	-1	3	Education (years per capita)
Bladder cancer	Female	15-19 years	95+ years	-1	3	Education (years per capita)
Bladder cancer	Male	15-19 years	95+ years	-1	2	Healthcare access and quality index
Bladder cancer	Female	15-19 years	95+ years	-1	2	Healthcare access and quality index
Bladder cancer	Male	15-19 years	95+ years	0	3	LDI (I\$ per capita)
Bladder cancer	Female	15-19 years	95+ years	0	3	LDI (I\$ per capita)
Bladder cancer	Male	15-19 years	95+ years	1	1	Log-transformed SEV scalar: Bladder C
Bladder cancer	Female	15-19 years	95+ years	1	1	Log-transformed SEV scalar: Bladder C
Bladder cancer	Male	15-19 years	95+ years	1	1	Schistosomiasis Prevalence (proportion)
Bladder cancer	Female	15-19 years	95+ years	1	1	Schistosomiasis Prevalence (proportion)
Bladder cancer	Male	15-19 years	95+ years	1	1	Smoking Prevalence
Bladder cancer	Female	15-19 years	95+ years	1	1	Smoking Prevalence
Bladder cancer	Male	15-19 years	95+ years	0	3	Socio-demographic Index

Bladder cancer	Female	15-19 years	95+ years	0	3	Socio-demographic Index
Bladder cancer	Male	15-19 years	95+ years	-1	2	fruits adjusted(g)
Bladder cancer	Female	15-19 years	95+ years	-1	2	fruits adjusted(g)
Bladder cancer	Male	15-19 years	95+ years	-1	2	vegetables adjusted(g)
Bladder cancer	Female	15-19 years	95+ years	-1	2	vegetables adjusted(g)